Vertex Standard

VX-210AV

VHF Band
Service Manual

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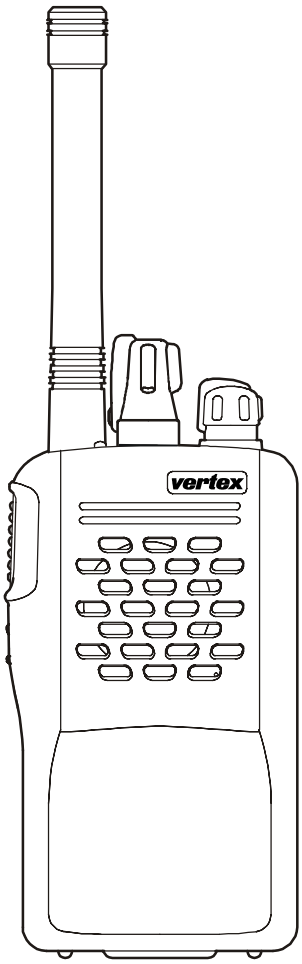


Introduction

The Vertex VX-210AV is a compact hand portable transceiver for the VHF land mobile band that offers the convenience of small size, light weight, and simple operation.

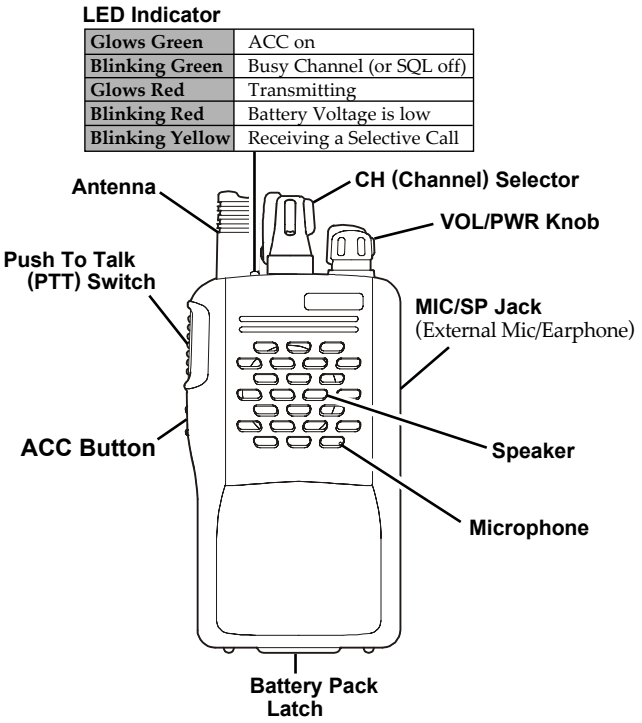
The VX-210AV can be simply programmed by your VERTEX STANDARD Dealer with up to 16 channels for single and split frequency operation. The VX-210AV provides up to 5 watts of RF output power and includes a flexible quick-connect antenna.

The transceiver and Ni-Cd battery packs are constructed of thick high-impact polycarbonate plastic, with special attention paid by the designers to tight seals and ruggedness, assuring years of reliable operation even in harsh environments.

The following pages describe the operation, features and accessories of the VX-210AV. With proper care and operation, the transceiver will provide many years of reliable communications.

Contents

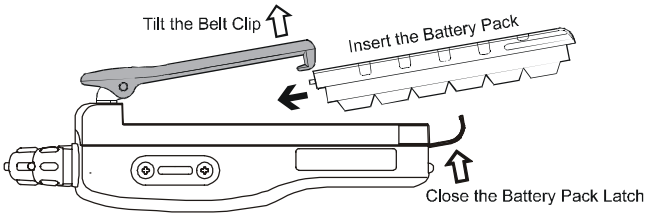
Contorols & Connectors



Before You Begin

Battery Pack Installation and Removal

❒ To install the battery, hold the transceiver with your left hand, so your palm is over the speaker and your thumb is on the top of the belt clip. Insert the battery pack into the battery compartment on the back of the radio while tilting the Belt Clip outward, then close the Battery Pack Latch until it locks in place with a "Click."



❒ To remove the battery, turn the radio off and remove any protective cases. Open the Battery Pack latch on the bottom of the radio, then slide the battery downward and out from the radio while holding the Belt Clip.

Caution!

Do not attempt to open any of the rechargeable Ni-Cd packs, as they could explode if accidentally short-circuited.

Low Battery Indication

❒ As the battery discharges during use, the voltage gradually becomes lower. When the battery voltage becomes to low, substitute a freshly charged battery and recharge the depleted pack. The **TX/BUSY** indicator on the top of the radio will blink ***red*** when the battery voltage is low.

❒ Avoid recharging Ni-Cd batteries often with little use between charges, as this can degrade the charge capacity. We recommend that you carry an extra, fully-charged pack with you so the operational battery may be used until depletion (this "deep cycling" technique promotes better long-term battery capacity).

Operation

Preliminary Steps

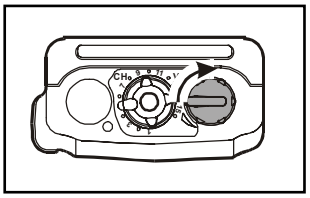
❒ Install a charged battery pack onto the transceiver, as described previously.

❒ Screw the supplied antenna onto the Antenna jack. Never attempt to operate this transceiver without an antenna connected.

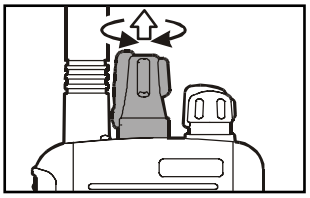
❒ If you have a Speaker/Microphone, we recommend that it not be connected until you are familiar with the basic operation of the **VX-210A**.

Operation Quick Start

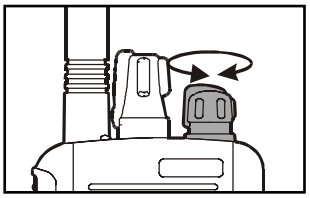
❒ Turn the top panel's **VOL/PWR** knob clockwise to turn on the radio on.



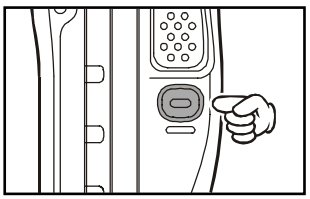
❒ *Pull and turn* the top panel's **CH** selector knob to choose the desired operating channel.



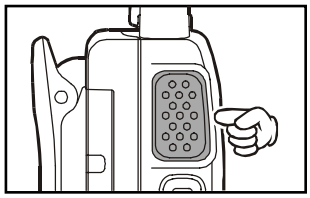
❒ Rotate the **VOL/PWR** knob to set the volume level. If no signal is present, press and hold in the **ACC** button (the lower button on the left side) for more than 1 second (when "MONITOR" is assigned to the **ACC** button); background noise will now be heard, and you may use this to set the **VOL/PWR** knob for the desired audio level.



❒ Press and hold in the **ACC** button (when "MONITOR" is assigned to the **ACC** button) for more than 1 second (or press the **ACC** button twice) to quiet the noise and resume normal (quiet) monitoring.



❒ To transmit, press and hold in the **PTT** switch. Speak into the microphone area of the front panel grille (lower left-hand corner) in a normal voice level. To return to the Receive mode, release the **PTT** switch.



❒ If a Speaker/Microphone is available, remove the plastic cap and its two mounting screws from the right side of the transceiver, then insert the plug from the Speaker/Microphone into the **MIC/SP** jack; secure the plug using the screws supplied with the Speaker/Microphone. Hold the speaker grille up next to your ear while receiving. To transmit, press the **PTT** switch on the Speaker/Microphone, just as you would on the main transceiver's body.

Note:
Save the original plastic cap and its mounting screws. They should be re-installed when not using the Speaker/Microphone.

Key Functions

The **VX-210A** provides a programmable "**ACC**" (Accessory) button. The **ACC** button's functions can be customized (set to any of a variety of functions), via programming by your **VERTEX STANDARD** dealer, to meet your communications/network requirements. The particular function to be activated or disabled may require a simple press of the **ACC** button, or it may require that the **ACC** button be pressed and held in for one second (or more). See the discussion below.

Some features may require the purchase and installation of optional internal accessories.

The possible **ACC** button programming features are illustrated below, and their functions are explained in the next chapter. For further details, contact your **VERTEX STANDARD** dealer.

For future reference, check the box next to the function that has been assigned to the **ACC** button on your particular radio, and keep it handy.

Function	**ACC** button	
	Press	Press and Hold
None		
Monitor		
Squelch OFF		
Low Power		
Scan		
Follow-me Scan		
Dual Watch		
Talk Around		
Call/Reset		
Speed Dial		
TX Save Off		
ACC 1		
ACC 2		

Description of Operating Functions

Monitor

Press the **ACC** button to override (disable) the Tone Squelch. Background noise or incoming signals will now be heard whether or not a matching tone is present on the signal. Press the **ACC** button once more to resume normal (quiet) Tone Squelch action.

Squelch OFF

Press the **ACC** button to override both the Noise and Tone squelch systems. Again press the **ACC** button to resume normal (quiet) Noise and Tone squelch action.

Low Power

Press the **ACC** button to set the radio's transmitter to the "Low Power" mode, thus extending battery life. Press the **ACC** button again to return to "High Power" operation when in difficult terrain.

Scan

The Scanning feature is used to monitor multiple channels programmed into the transceiver. While scanning, the radio will check each channel for the presence of a signal, and will stop on a channel if a signal is present.

❒ To activate scanning:
Press the **ACC** button.
The scanner will search the channels, looking for "active" ones; it will pause each time it finds a channel on which someone is speaking.

❒ To stop scanning:
Press the **ACC** button.
Operation will revert to the channel to which the **CH** knob is set.

Follow-Me Scan

"Follow-Me" Scan feature checks a User-assigned Priority Channel regularly as you scan the other channels. Thus, if only Channels 1, 3, and 5 (of the 8 available channels) are designated for "Scanning," the user may nonetheless assign Channel as the "User-assigned" Priority Channel via the "Follow-Me" feature.
Press the **ACC** button to activate "Follow-Me" scanning, then *pull and turn* the **CH** selector knob to the channel which you want to designate as the "User-Assigned Priority Channel". When the scanner stops on an "active" channel, the User-assigned Priority Channel will automatically be checked every few seconds.

Dual Watch

The Dual Watch feature is similar to the Scan feature, except that only two channels are monitored: the current operating channel, and the "Priority" channel.

❒ To activate Dual Watch:
Press the ACC button.
The scanner will search the two channels; it will pause each time it finds a channel on which someone is speaking.

❒ To stop Dual Watch:
Press the **ACC** button.
Operation will revert to the channel to which the **CH** knob is set.

Talk Around

Press the **ACC** button to activate the Talk Around feature when you are operating on duplex channel systems (separate receive and transmit frequencies, utilizing a "repeater" station). The Talk Around feature allows you to bypass the repeater station and talk directly to a station that is nearby. This feature has no effect when you are operating on "Simplex" channels, where the receive and transmit frequencies are already the same.

Note that your dealer may have made provision for "Talk Around" channels by programming "repeater" and "Talk Around" frequencies on two adjacent channels. If so, the **ACC** key may be used for one of the other Pre-Programmed Functions.

Call/Reset

When the 2-tone selective calling unit is installed, press the **ACC** button to silence the receiver and reset for another call, when a communication is finished.

Speed Dial

Your Dealer may have pre-programmed Auto-Dial telephone number memories into your radio.

To dial a number, just press the Dealer-assigned **ACC** button for Speed Dialing. The DTMF tones sent during the dialing sequence will be heard in the speaker.

TX Save Off

Press the **ACC** button to disable the Transmit Battery Saver, if you are operating in a location where high power is almost always needed.

The Transmit Battery Saver helps extend battery life by reducing transmit power when a very strong signal from an apparently nearby station is being received. Under some circumstances, though, your hand-held radio may not be heard well at the other end of the communication path, and high power may be necessary at all times.

ACC 1

Activates an optional Unit (module) while the **ACC** button is held depressed.

When you release the **ACC** button, the optional Unit will be disabled.

For further details, contact your **VERTEX STANDARD** dealer.

ACC 2

Toggles the optional Unit "on" or "off" whenever you press the **ACC** button.

For example, when the optional "FVP-25" voice encryption unit is installed, press the **ACC** button momentarily to disable the voice encryption feature temporarily.

Press the **ACC** button again to re-enable the voice encryption feature.

Accessories & Options

FNB-V57	7.2 V 1100 mAh Ni-Cd Battery Pack
FNB-V57IS	7.2 V 1100 mAh Ni-Cd Intrinsically safe Battery
FBA-25A	Alkaline Battery Case (6 x AA)
NC-76B	120 VAC Wall Charger
NC-76C	230-240 VAC Wall Charger
VAC-6400	6-Unit Multi charger
VAC-400B	120 VAC Desktop Rapid Charger
VAC-400C	230-240 VAC Desktop Rapid Charger
VCM-1	Mobile Mounting Bracket for VAC-400
MH-45$_{B4B}$	Speaker/Microphone
MH-37$_{A4B}$	Earpiece/Microphone
VC-25	VOX Headset
FVP-25	Encryption /DTMF Page Unit
VTP-50	VX-Trunk Unit
CT-42	PC-Programming Cable (CT-28 + CT-29)
CT-27	Cloning Cable (Set-to-Set Cloning)
FTT-17	16 keypad for VX-Trunk (VTP-50 required)
LCC-210	Leather Case

Specifications

General

Frequency Range:	134-160 MHz (A), 148-174 MHz (C)
Number of Channels:	16 channels
Channel Spacing:	12.5/15/25/30 kHz
PLL Steps:	2.5/6.25 kHz
Power Supply Voltage:	7.5 V DC ±20 %
Battery Life (5-5-90 duty):	8.2 hrs. (9.9 hrs. w/saver) @5 W
Operating Temperature Range:	–22° F to +140° F (–30° C to +60° C)
Frequency Stability:	±2.5 ppm
Dimensions:	4.21" (W) × 2.28" (H) × 1.0" (D) (108 × 58 × 26 mm)
Weight (Approx):	0.75 lb. (340 g) w/FNB-V57

Receiver (Measurements made per EIA standard TIA/EIA-603)

Sensitivity:	EIA 12 dB SINAD: 0.20 μV
	20 dB Quieting: 0.30 μV
Adjacent Channel Selectivity:	65 dB (25 kHz)/60 dB (12.5 kHz)
Intermodulation:	65 dB
Spurious and Image Rejection:	65 dB
Hum & Noise:	45 dB
Audio Output:	500 mW @4 Ohms, 5% THD

Transmitter (Measurements made per EIA standard TIA/EIA-603)

Power Output:	5 / 1 W (Selectable) or 3.5 / 1 W (Selectable) w/FBA-25
Modulation:	16K0F3E / 11K0F3E (Direct FM)
Conducted Spurious Emission:	60 dB Below Carrier
FM Hum & Noise:	40 dB (25 kHz) / 35 dB (12.5kHz)
Audio Distortion (@1 kHz):	< 5 %

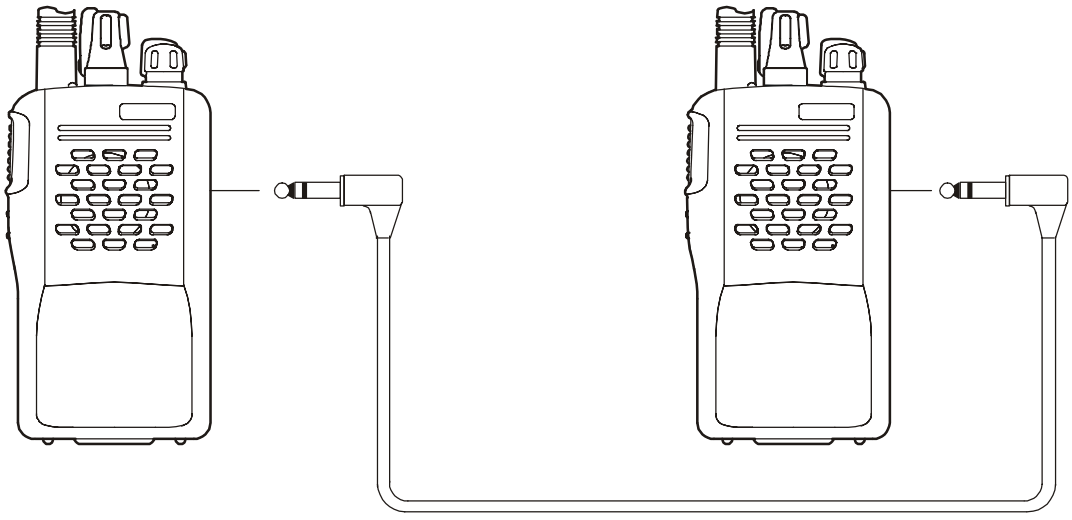
Specifications subject to change without notice or obligation.

Cloning

The **VX-210A** includes a convenient "Clone" feature, which allows the programming data from one transceiver to be transferred to another **VX-210A**. Here is the procedure for Cloning one radio's data to another.

Note: When a cloning isn't made, you correct the following part using "CE45."
When a "Set-to-Set Clone" which is in the "Miscellaneous" menu is "Disabled," change this menu to "Enabled."

1. Turn both transceivers off.
2. Remove the plastic cap and its two mounting screws from the **MIC/SP** jack on the right side of the transceiver. Do this for both transceivers.
3. Connect the optional **CT-27** cloning cable between the **MIC/SP** jacks of the two transceivers.
4. Press and hold the **PTT** switch and **ACC** button (just below the **PTT** switch) while turning the transceiver on. Do this for both transceivers (the order of the switch-on does not matter).
5. On the ***Destination*** transceiver, press the **ACC** button (LED indicator will glow green).
6. Now, on the ***source*** transceiver, Press the **PTT** switch.Data will now be transferred to the ***Destination*** transceiver from the ***source*** transceiver (LED indicator will glow red).
7. If there is a problem during the cloning process, LED indicator will blink red from source the transceiver.
   Check your cable connections and battery voltage, and try again.
8. If cloning is a successful, LED indicator will be disappeared, turn the ***Destination*** transceiver off. Now turn the ***source*** transceiver off.
9. Disconnect the **CT-27**. Replace the plastic cap and its two mounting screws.
10. You can then turn the transceivers back on, and begin normal operation.



Optional Cloning Cable **CT-27**

Dealer Programming of VTP-50

These procedures are designed to be used by the installing technician after the **VTP-50** has been installed in the transceiver. To program a **VX-210A**'s **VTP-50** board, you will need the **CT-42** programming interface cable, the **CE26** Programming diskette, and an IBM PC/AT or PS/2-compatible tyoe computer.

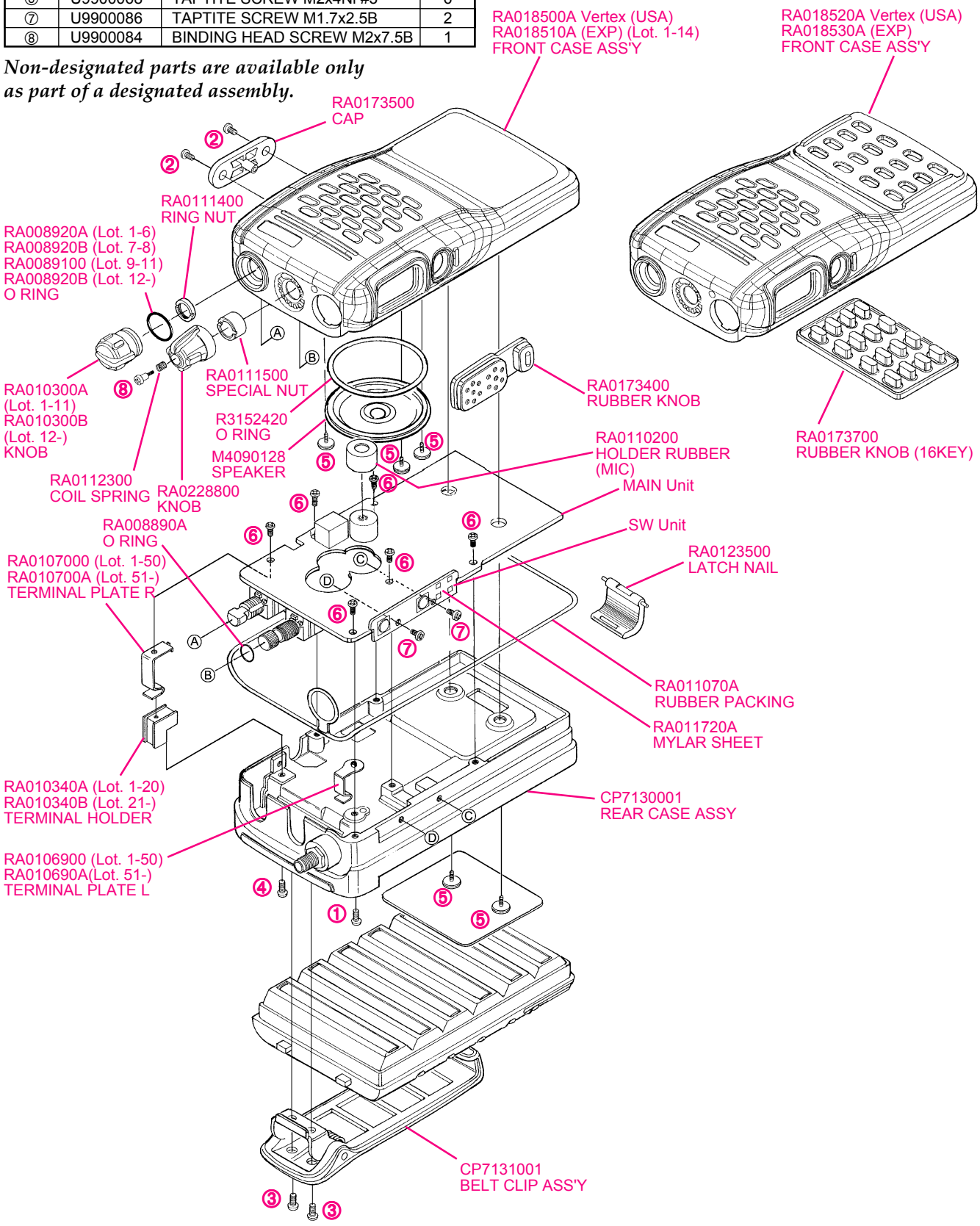
To enter the Programming mode, use the following procedure:

1. Turn the transceiver off.
2. Turn on the transceiver while holding in the **ACC** button (just below the **PTT** switch).

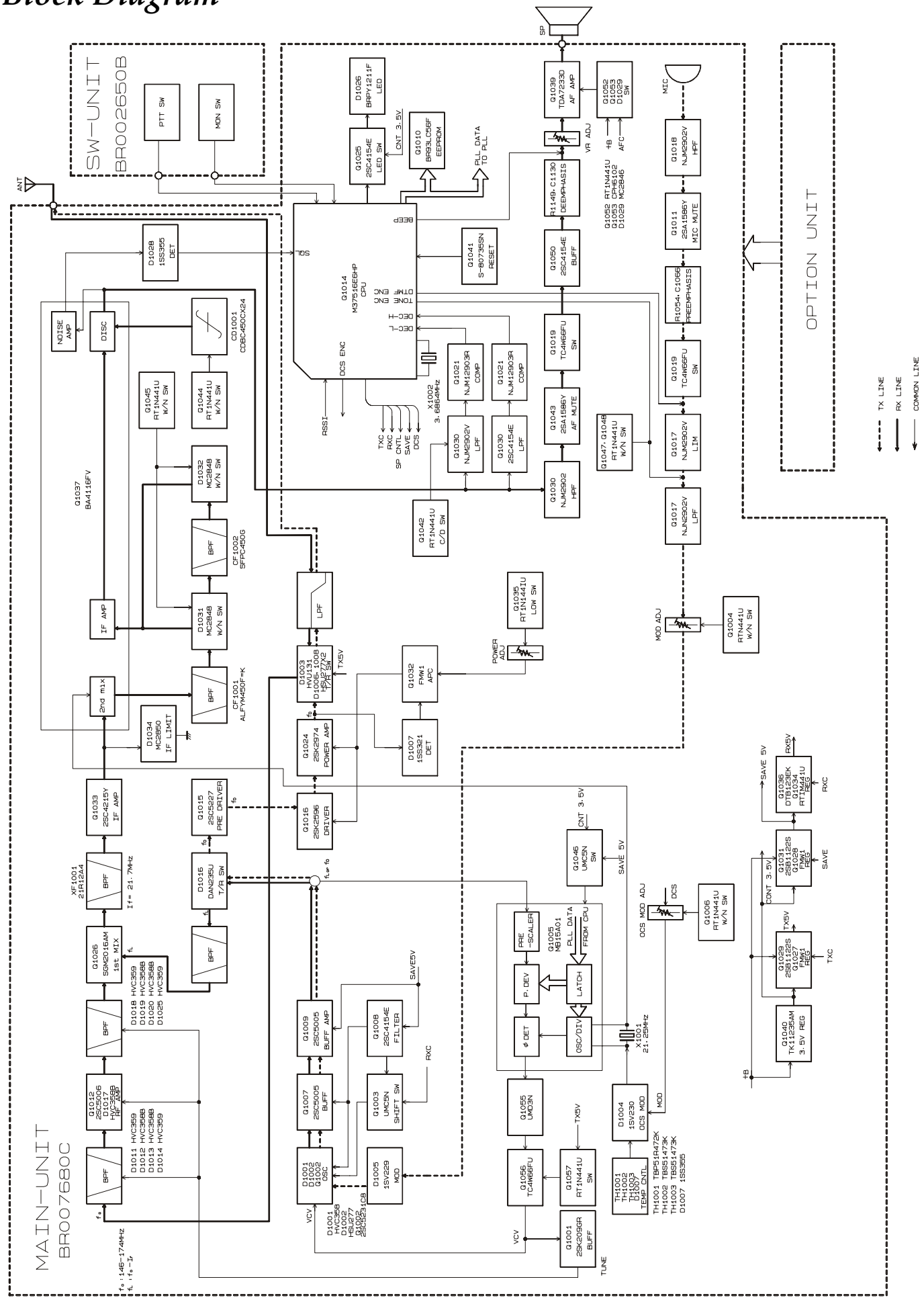
Exploded View & Miscellaneous Parts

REF.	VXSTD P/N	Description	Qty.
①	U07230107	PAN HEAD SCREW M2x3B #1	1
②	U20204007	BINDING HEAD SCREW M2.6x4B	2
③	U02206007	SEMS SCREW SM2.6x6B	2
④	U9900051	TAPTITE SCREW M2x4B #3	1
⑤	U9900063	TAPTITE SCREW M2x3.3Ni	5
⑥	U9900068	TAPTITE SCREW M2x4Ni #3	6
⑦	U9900086	TAPTITE SCREW M1.7x2.5B	2
⑧	U9900084	BINDING HEAD SCREW M2x7.5B	1

Non-designated parts are available only as part of a designated assembly.



Block Diagram



1. Receive Signal Path

Incoming RF from the antenna jack is delivered to the RF Unit and passes through a low-pass filter consisting of coils L1001 and L1002, capacitors C1004, C1005, C1008, C1010, C1014, and C1016, and antenna switching diode D1003 (**HVU131**).

Signals within the frequency range of the transceiver enter a varactor-tuned band-pass filter consisting of coils L1010 and L1011, capacitors C1044, C1046, C1060, C1065, and C1068, and diodes D1011 (**HVC359**), D1012 (**HVC358B**), D1013 (**HVC358B**), and D1014 (**HVC359**).

The signals are then amplified by Q1012 (**2SC5006**), and enter a varactor-tuned band-pass filter consisting of coils L1017 and L1021, capacitors C1084, C1086, C1089, C1095, and C1097, and diodes D1018 (**HVC359**), D1019 (**HVC358B**), D1020 (**HVC358B**), and D1025 (**HVC359**), before delivery to first mixer Q1026 (**SGM2016AM**).

Buffered output from the VCO is amplified by Q1009 (**2SC5005**) to provide a pure first local signal between 126.3 and 152.3 MHz for injection to the first mixer, Q1026. The 21.7 MHz first mixer product then passes through monolithic crystal filter XF1001 (**21R12A4**, 12.0 kHz bandwidth) to strip away all but the desired signal, which is then amplified by Q1033 (**2SC4215Y**).

The amplified first IF signal is applied to FM IF subsystem IC Q1037 (**BA4116FV**), which contains the second mixer, second local oscillator, limiter amplifier, noise amplifier, and S-meter amplifier.

A second local signal is generated by the PLL reference/second local oscillator generated by 21.25 MHz crystal X1001, producing the 450 kHz second IF when mixed with the first IF signal within Q1037.

The second IF then passes through ceramic filter CF1001 (**Alfym450F**) or CF1002 (**SFPC450G**: only on "Narrow" channels) to strip away all but the desired signal, and is then applied to the limiter amplifier in Q1037, which removes amplitude variations in the 450kHz IF, before detection of the speech by the ceramic discriminator CD1001 (**CDBC450CX24**).

Detected audio from Q1037 is applied to the audio high-pass filter, and then passed via the volume control to the audio amplifier Q1039 (**TDA7233D**), which provides up to 0.5 Watt to the optional headphone jack or a 4-ohm loudspeaker.

2. Squelch Control

The squelch circuitry consists of a noise amplifier and band-pass filter within Q1037, and noise detector D1028 (**1SS355**).

When no carrier received, noise at the output of the detector stage in Q1037 is amplified and band-pass filtered by the noise amplifier section of Q1037 and the network between pins 7 and 8, and then rectified by D1028.

The resulting DC squelch control voltage is passed to pin 37 of the microprocessor, Q1014 (**M37515E**). If no carrier is received, this control signal causes pin 7 of Q1014 to go high and pin 20 to go low. Pin 7 signals Q1038 (**IMD10A**) to disable the supply voltage to the audio amplifier Q1039, while pin 20 makes Q1023 (**IMX1**) hold the green (Busy) half of the LED off, when pin 7 is high and pin 20 is low.

Thus, the microprocessor blocks output from the audio amplifier, and silences the receiver, while no signal is being received (and during transmission, as well).

When a carrier appears at the discriminator, noise is removed from the output, causing pin 37 of Q1014 to go low and the microprocessor to activate the "Busy" LED via Q1014.

The microprocessor then checks for CTCSS or DCS code squelch information, if enabled, or for DTMF data on the optional DTMF Unit. If not transmitting and CTCSS or DCS is not activated, or if the received tone or code matches that programmed, audio is allowed to pass through audio amplifier Q1039 (**TDA7233D**) to the loudspeaker by enabling the supply voltage to it via Q1038.

3. Transmit Signal Path

Speech input from the microphone is amplified by Q1017 (**NJM2902V**); after pre-emphasis by C1066 and R1054, the audio passes through another section of Q1017.

The processed audio may then be mixed with a CTCSS tone generated by Q1014 (**M37515E**), then delivered to D1005 (**1SV229**) for frequency modulation of the PLL carrier (up to ±5kHz from the unmodulated carrier) at the transmitting frequency.

If a DCS code is enabled for transmission, the code is generated by microprocessor Q1014 and delivered to D1004 (**1SV230**) for DCS modulating.

If DTMF is enabled for transmission, the tone is generated by the microprocessor and is applied to the limiter amplifier section in place of the speech audio. Also, the tone is amplified for monitoring in the loudspeaker.

The modulated signal from the VCO Q1002 (**2SC5231C8**) is buffered by Q1007 (**2SC5005**) and amplified by Q1009 (**2SC5005**). The low-level transmit signal then passes through the T/R switching diode D1016 (**DAN235U**) to the driver amplifiers Q1015 (**2SC5227**) and Q1016 (**2SK2596**), then is applied to the final amplifier Q1024 (**2SK2974**), providing up to 5 Watts of output power.

The transmit signal then passes through the antenna switch D1003 (**HVU131**) and is low-pass filtered to suppress harmonic spurious radiation before delivery to the antenna.

3-1 Automatic Transmit Power Control

RF power output from the final amplifier is sampled by C1104 and C1111, and is rectified by D1027 (**1SS321**). The resulting DC is fed back through Q1032 (**FMW1**) to the drive amplifier Q1016 and final amplifier Q1024, for control of the power output.

The microprocessor selects "High" or "Low" power levels.

3-2 Transmit Inhibit

When the transmit PLL is unlocked, pin 7 of PLL chip Q1005 goes to a logic "low." The resulting DC unlock control voltage is passed to pin 24 of the microprocessor Q1014. While the transmit PLL is unlocked, pin 22 of Q1014 remains high, which then turns off Q1029 and the Automatic Power Controller Q1032 (**FMW1**) to disable the supply voltage to the drive amplifiers Q1015 and Q1016 and final amplifier Q1024, thereby disabling the transmitter.

3-3 Spurious Suppression

Generation of spurious products by the transmitter is minimized by the fundamental carrier frequency being equal to final transmitting frequency, modulated directly in the transmit VCO. Additional harmonic suppression is provided by a low-pass filter consisting of L1001 and L1002 plus C1004, C1005, C1008, C1010, and C1014, resulting in more than 60 dB of harmonic suppression prior to delivery of the RF signal to the antenna.

4. PLL Frequency Synthesizer

The PLL circuitry on the Main Unit consists of VCO Q1002 (**2SC5231C8**), VCO buffer Q1007 (**2SC5005**), and PLL subsystem IC Q1005 (**MB15A01PFV1**), which contains a reference divider, serial-to-parallel data latch, programmable divider, phase comparator and charge pump.

Stability is maintained by a regulated 5 V supply, via Q1031 (**2SB1122S**), R1022, and R1023, temperature compensating thermistors TH1001, TH1002, and TH1003, and varactor diode D1004 (**1SV230**) (associated with the 21.25 MHz frequency reference crystal X1001).

While receiving, VCO Q1002 oscillates between 126.3 and 152.3 MHz according to the transceiver version and the programmed receiving frequency. The VCO output is buffered by Q1007, then applied to the prescaler section of Q1005. There the VCO signal is divided by 64 or 65, according to a control signal from the data latch section of Q1005, before being sent to the programmable divider section of Q1005.

The data latch section of Q1005 also receives serial dividing data from the microprocessor Q1014, which causes the pre-divided VCO signal to be further divided in the programmable divider section, depending upon the desired receive frequency, so as to produce a 2.5 kHz or 3.125 kHz derivative of the current VCO frequency.

Meanwhile, the reference divider section of Q1005 divides the 21.25 MHz crystal reference from the reference oscillator Q1025, by 8500 (or 6800) to produce the 2.5 kHz (or 3.125 kHz) loop reference (respectively).

The 2.5 kHz (or 3.125 kHz) signal from the programmable divider (derived from the VCO) and that derived from the reference oscillator are applied to the phase detector section of Q1005, which produces a pulsed output with pulse duration depending on the phase difference between the input signals.

This pulse train is filtered to DC and returned to the varactor D1001 (**HVU358**). Changes in the level of the DC voltage applied to the varactor, affecting the reference in the tank circuit of the VCO according to the phase difference between the signals derived from the VCO and the crystal reference oscillator.

The VCO is thus phase-locked to the crystal reference oscillator. The output of the VCO Q1002, after buffering by Q1007 and amplification by Q1009, is applied to the first mixer as described previously.

For transmission, the VCO Q1002 oscillates between 148 and 174 MHz according to the model version and programmed transmit frequency. The remainder of the PLL circuitry is shared with the receiver. However, the dividing data from the microprocessor is such that the VCO frequency is at the actual transmit frequency (rather than offset for IFs, as in the receiving case). Also, the VCO is modulated by the speech audio applied to D1005 (**1SV229**), as described previously.

Receive and transmit buses select which VCO is made active by Q1003 (**UMC5N**).

5. Miscellaneous Circuits

5-1 Push-To-Talk Transmit Activation

The PTT switch on the microphone is connected to pin 35 of microprocessor Q1014, so that when the PTT switch is closed, pin 23 of Q1014 goes low. This signal disables the receiver by disabling the 5 V supply bus at Q1036 (**DTB123EK**) to the front-end, FM IF subsystem IC Q1037 and receiver VCO circuitry.

At the same time, Q1027 (**FMW1**) and Q1029 (**2SB1122S**) activate the transmit 5V supply line to enable the transmitter.

The VX-210A has been carefully aligned at the factory for the specified performance across the frequency range specified for each version. Re-alignment should therefore not be necessary except in the event of component failure, or when altering the version type. All component replacement and service should only be performed by an authorized VERTEX STANDARD representative, or the warranty policy may be void.

Required Test Equipment

- ❍ CT-42 Programming Cable with CE45 Channel Programming Diskette
- ❍ RF Signal Generator with calibrated output level at 200 MHz
- ❍ Deviation Meter (Linear Detector)
- ❍ AC Voltmeter
- ❍ SINAD Meter
- ❍ In-Line wattmeter with 5 % accuracy at 200 MHz
- ❍ Regulated DC Power Supply adjustable from 4 to 10 V, 3 A
- ❍ 50-ohm Non-reactive Dummy Load: 10 W at 200 MHz
- ❍ Frequency Counter: ±0.2 ppm accuracy at 200 MHz
- ❍ AF Signal Generator
- ❍ DC Voltmeter: high impedance

Before beginning alignment, connect the transceiver and PC using the CT-42 Programming Cable, and run the CE45 Channel Programming Diskette, then download the EEPROM data from the transceiver to the computer.

Then store this data in a disk file so that it can be uploaded when alignment is finished.

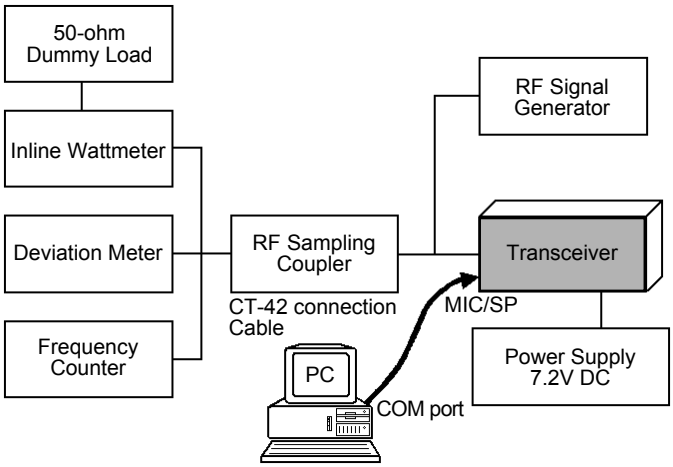
You should find a data file on the computer disk corresponding to the transceiver version you are aligning, containing channel settings for the high edge, middle and low edge of the transceiver's frequency range in channels 1, 2 and 3, respectively. Up-load this file to the transceiver.

Low Band Edge (Channel 1): 148.000 MHz
Band Center (Channel 2): 160.000 MHz
High Band Edge (Channel 3): 174.000 MHz

Note: *Signal levels in dB referred to in the alignment procedure are based on 0 dBμ EMF= 0.5μV (closed circuit).*

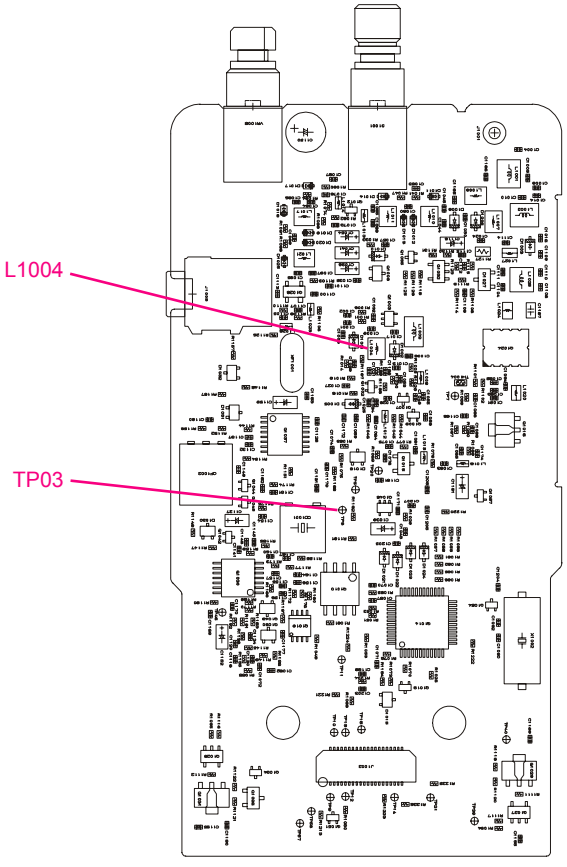
PLL & Transmitter

Set up the test equipment as shown for transmitter alignment. Adjust the supply voltage to 7.2 V for all steps where not specified otherwise.



PLL VCV (Varactor Control Voltage)

- ❒ Connect the DC voltmeter between **TP03** (on the chip side of the Main Unit) and ground.
- ❒ Set the transceiver to CH 3 (high band edge), and adjust **L1004** on the chip side of the Main Unit for 3.8 V ±0.1 V (Typ A) or 3.6 V ±0.1 V (Typ C) on the voltmeter.
- ❒ Set the transceiver to CH 1 (low band edge), and confirm the low-end VCV is more than 0.7 V while transmitting, and also while receiving.



Alignment

PLL Reference Frequency

❒ Set the transceiver to CH 2 (band center); key the transmitter, and adjust **TC1001** (on the component side of the Main Unit), if necessary, so the frequency counter displays the band center frequency ±100 Hz (for the version being aligned) when transmitting.

Transmitter Output Power

❒ Set the transceiver to CH 2 (band center), and select high power output.

❒ Ensure that the supply voltage is precisely 7.5 V, then adjust **VR1004** (on the component side of the Main Unit), while the PTT switch is pressed, for 5.3 W ±0.1W (Typ C) or 5.0 W ±0.1W (Typ A) on the wattmeter, and confirm that supply current remains below 2.0 A.

Modulation Level

❒ Set the transceiver to CH 2 (band center), and adjust the AF generator for -10 dBm output at 1 kHz to the EXT MIC jack.

❒ Press the PTT switch, and adjust **VR1002** (on the component side of the Main Unit) for a deviation of ±4.2 kHz (for 25 kHz step channels), or ±1.8 kHz ~ ±2.1 kHz (for 12.5 kHz steps).

DCS Deviation

❒ Set the transceiver to CH 2 (band center), and adjust the DCS with a code number of 627.

❒ Press the PTT switch, and adjust **VR1003** on the component side of the Main Unit for a deviation of ±0.9 kHz (for 25 kHz steps), or ±0.45 kHz ~ ±0.7 kHz (for 12.5 kHz steps).

Receiver

Sensitivity

❒ Set the transceiver to CH 3 (high band edge), and with the RF signal generator tuned to the same frequency, set the generator for ±3.0 kHz deviation with 1 kHz tone modulation, and set the output level for 40 dBµ at the antenna jack.

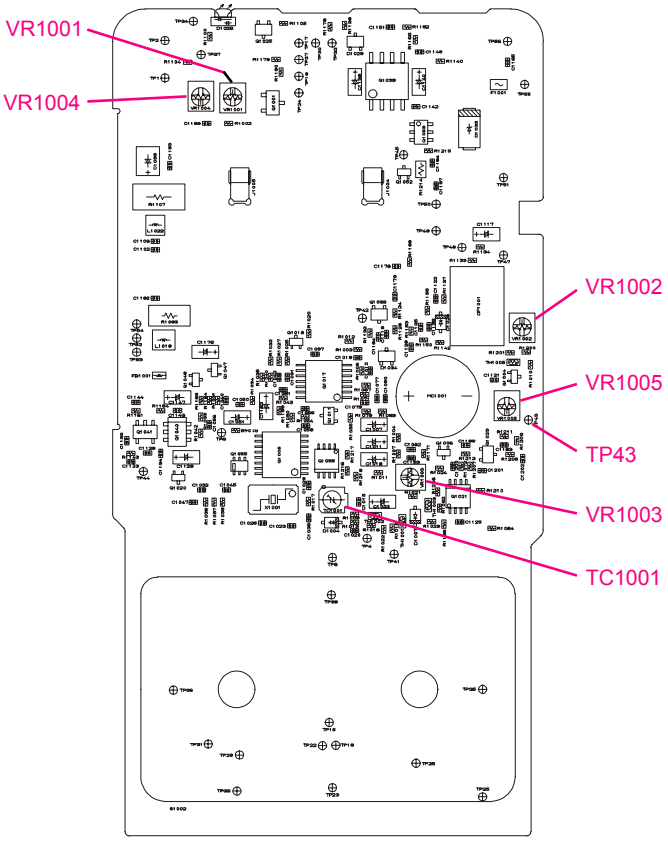
❒ Adjust **VR1001** (on the component side of the Main Unit) for optimum SINAD, and confirm that the signal generator level is lower than than –6 dBµ for 12 dB SINAD.

RSSI

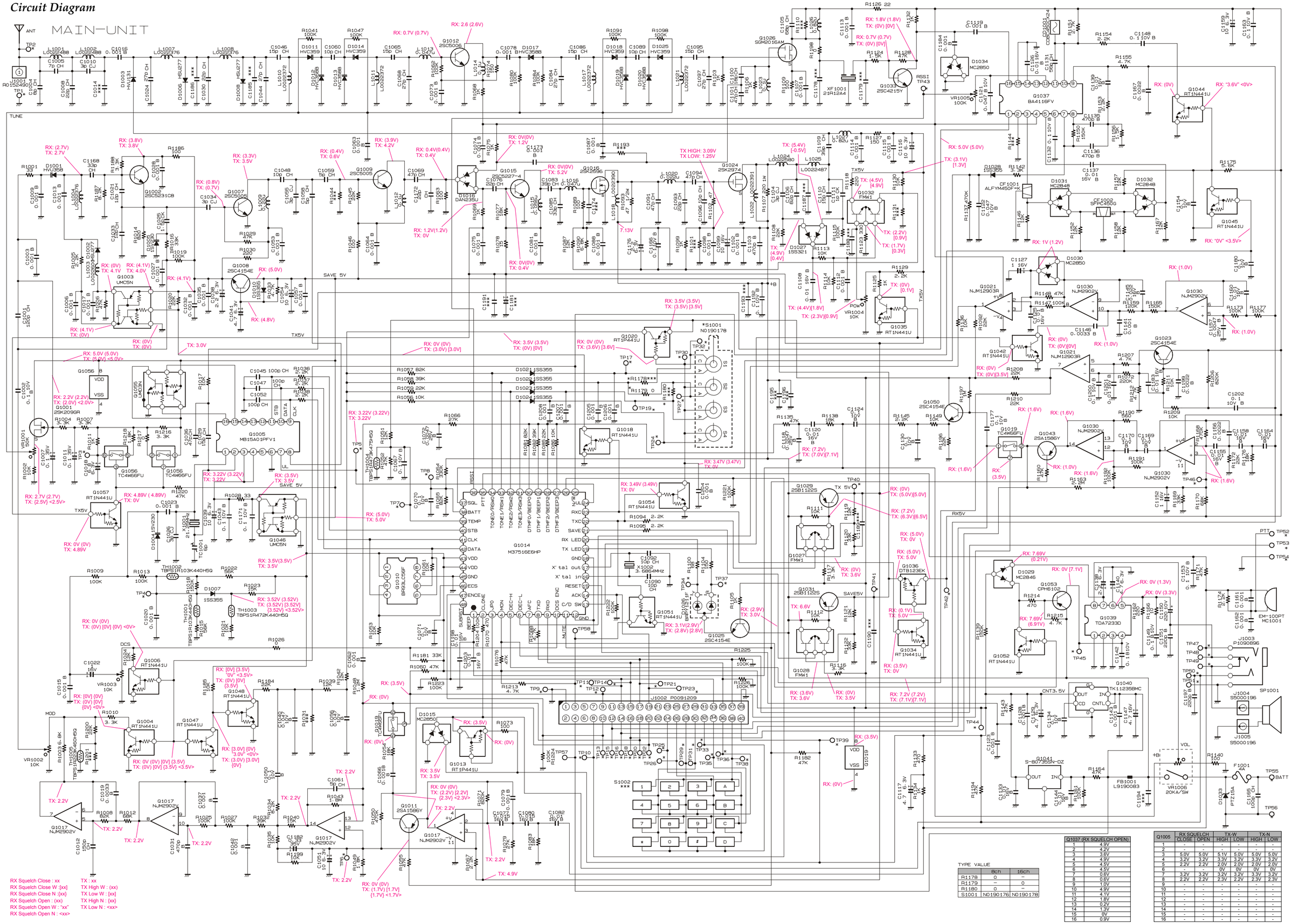
❒ Connect the DC voltmeter between **TP43** (on the component side of the Main Unit) and ground.

❒ Set the transceiver to CH 2 (band center), and with the RF signal generator tuned to the same frequency, set the generator for ±3.0 kHz deviation with 1 kHz tone moderation, and set the output level for 15 dBµ at the antenna jack.

❒ Adjust **VR1005** (on the component side of the Main Unit) for 0.7 V ±0.02 V on the voltmeter.



Circuit Diagram



Q1037 (RX SQUELCH OPEN)	
1	4.9V
2	4.2V
3	3.6V
4	3.2V
5	4.5V
6	4.5V
7	0.6V
8	0.6V
9	1.0V
10	4.9V
11	4.1V
12	1.8V
13	0.2V
14	1.3V
15	0V
16	0.9V

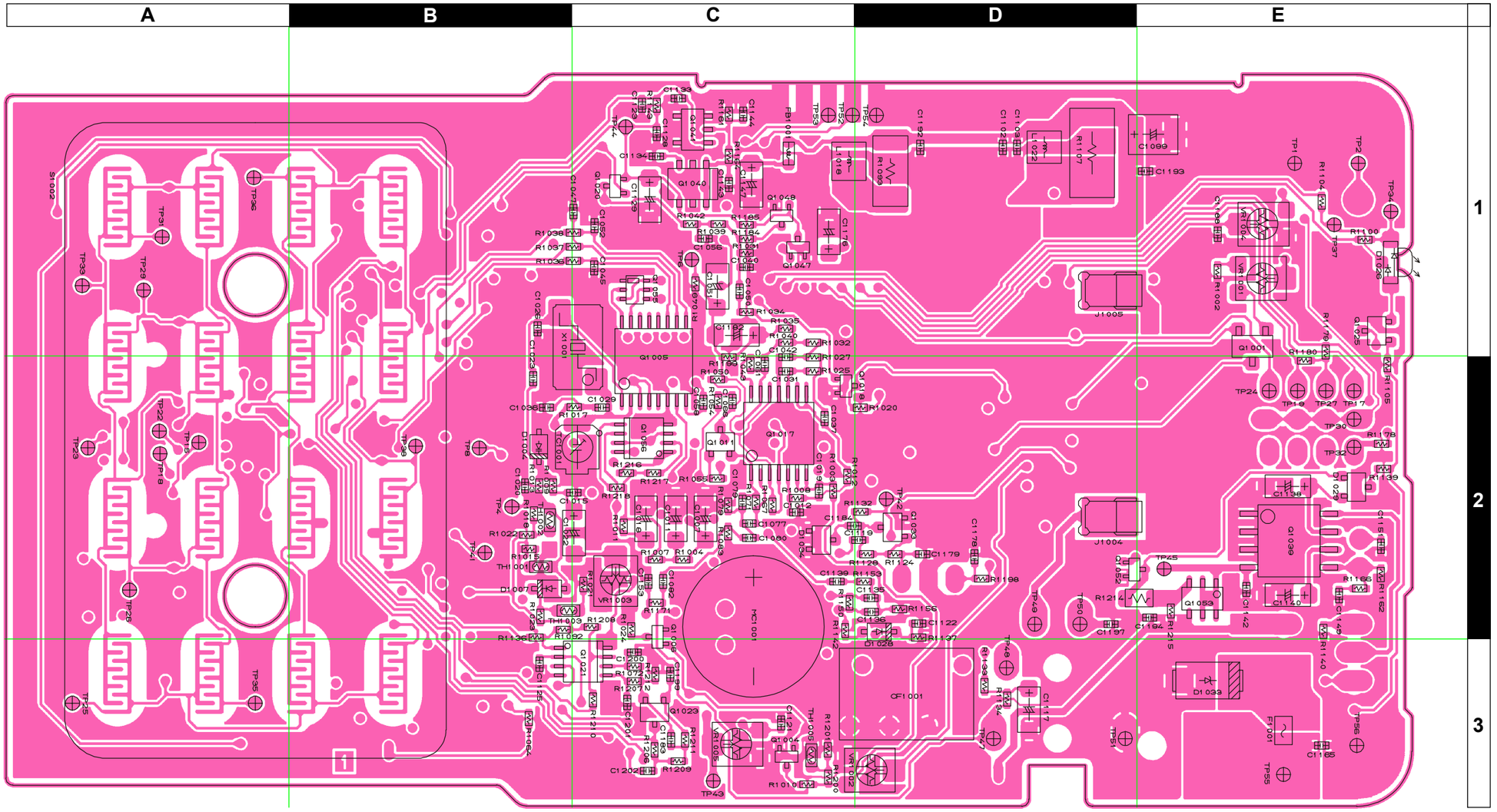
TYPE	VALUE	
	8ch	16ch
R1178	0	–
R1179	–	0
R1180	0	–
S1001	N0190176	N0190178

Q1005	RX SQUELCH		TX-W		TX-N	
	CLOSE	OPEN	HIGH	LOW	HIGH	LOW
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	5.0V	5.0V	5.1V	5.0V	5.0V	5.0V
4	3.2V	3.2V	3.3V	3.2V	3.3V	3.2V
5	2.2V	2.2V	2.0V	2.0V	2.0V	2.0V
6	-	-	0V	0V	0V	0V
7	3.2V	3.2V	3.2V	3.2V	3.3V	3.2V
8	2.2V	2.2V	2.3V	2.2V	2.3V	2.3V
9	-	-	-	-	-	-
10	-	-	-	-	-	-
11	-	-	-	-	-	-
12	-	-	-	-	-	-
13	-	-	-	-	-	-
14	-	-	-	-	-	-
15	-	-	-	-	-	-
16	-	-	-	-	-	-

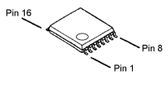
MAIN Unit (Lot. 1~13)

Note:

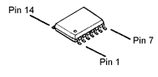
Parts Layout



Side A



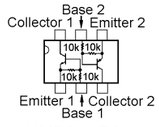
MB15A01PFV
(Q1005)



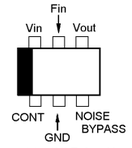
NJM2902V
(Q1017)

2SK209GR (XG)
(Q1001)

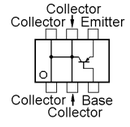
RT1N441U (N3)
(Q1004, 1006,
1018, 1047,
1048, 1052)



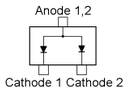
UMD3N (D3)
(Q1055)



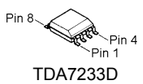
TK11235BMCL
(Q1040)



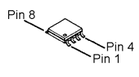
CPH6102-TL (AB)
(Q1053)



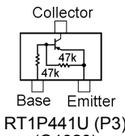
MC2846
(D1029)



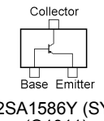
TDA7233D
(Q1039)
NJM12903R
(Q1021)



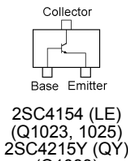
TC4W66FU
(Q1056)



RT1P441U (P3)
(Q1020)

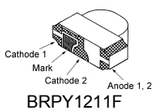


2SA1586Y (SY)
(Q1011)

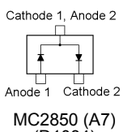


2SC4154 (LE)
(Q1023, 1025)
2SC4215Y (QY)
(Q1033)

S-80735SN (DZ)
(Q1041)

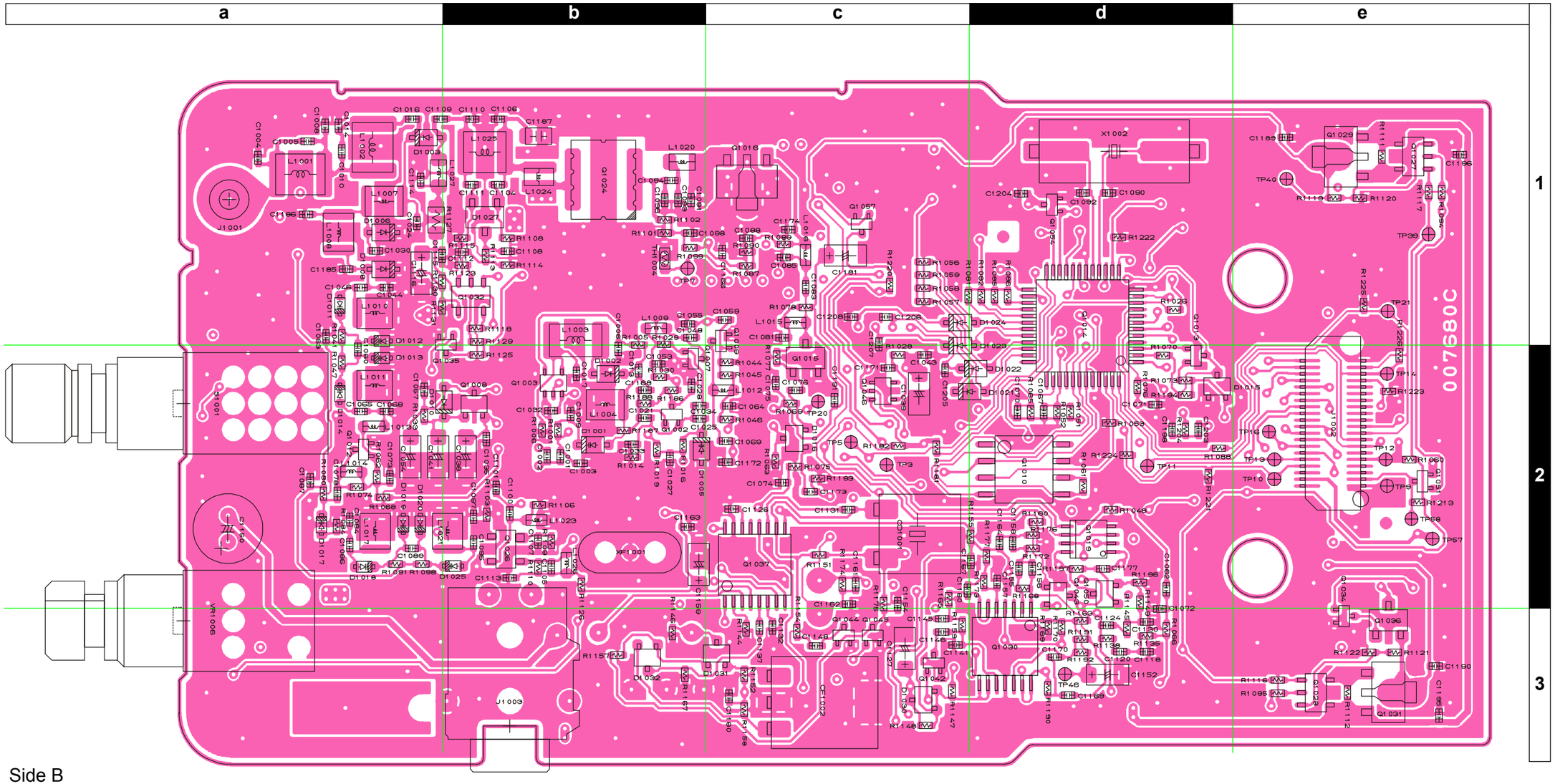


BRPY1211F
(D1026)

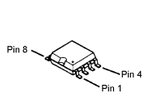


MC2850 (A7)
(D1034)

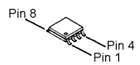
MAIN Unit (Lot. 1~13)



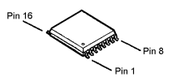
Side B



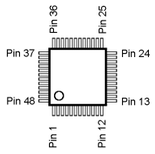
BR93LC56F
(Q1010)



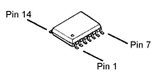
TC4W66FU
(Q1019)



BA4116FV
(Q1037)



M37516E6HP
(Q1014)



NJM2902V
(Q1030)

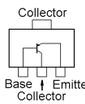
UMC5N (C5)
(Q1003, 1046)

2SC4154 (LE)
(Q1008, 1050)
2SC5005 (73)
(Q1007, 1009)
2SC5006 (24)
(Q1012)
2SC5231 (C8)
(Q1002)

RT1P441U (P3)
(Q1013)

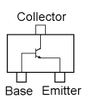
2SK2596BX (BX)
(Q1016)

SGM2016AM (MA)
(Q1026)

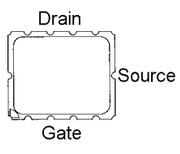


2SB1122S (BE)
(Q1029, 1031)

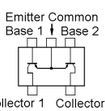
RT1N441U (N3)
(Q1034, 1035,
1042, 1044,
1045, 1051,
1054, 1057)



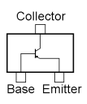
2SC5227
(Q1015)



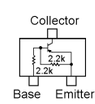
2SK2974
(Q1024)



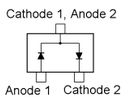
FMW1 (W1)
(Q1027, 1028, 1032)



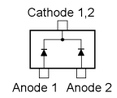
2SA1586Y (SY)
(Q1043)



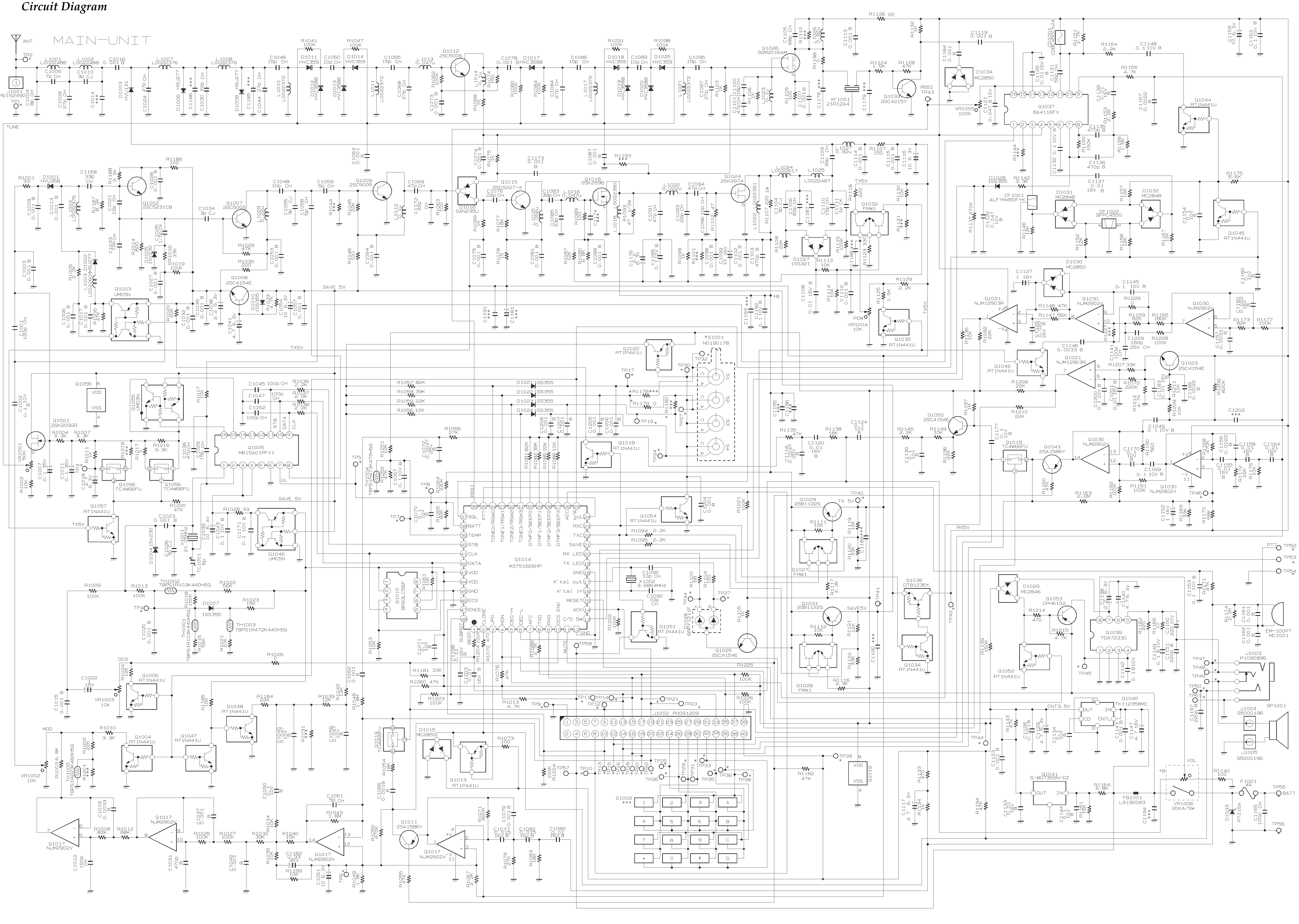
DTB123EK (F12)
(Q1036)



MC2850 (A7)
(D1015, 1030)



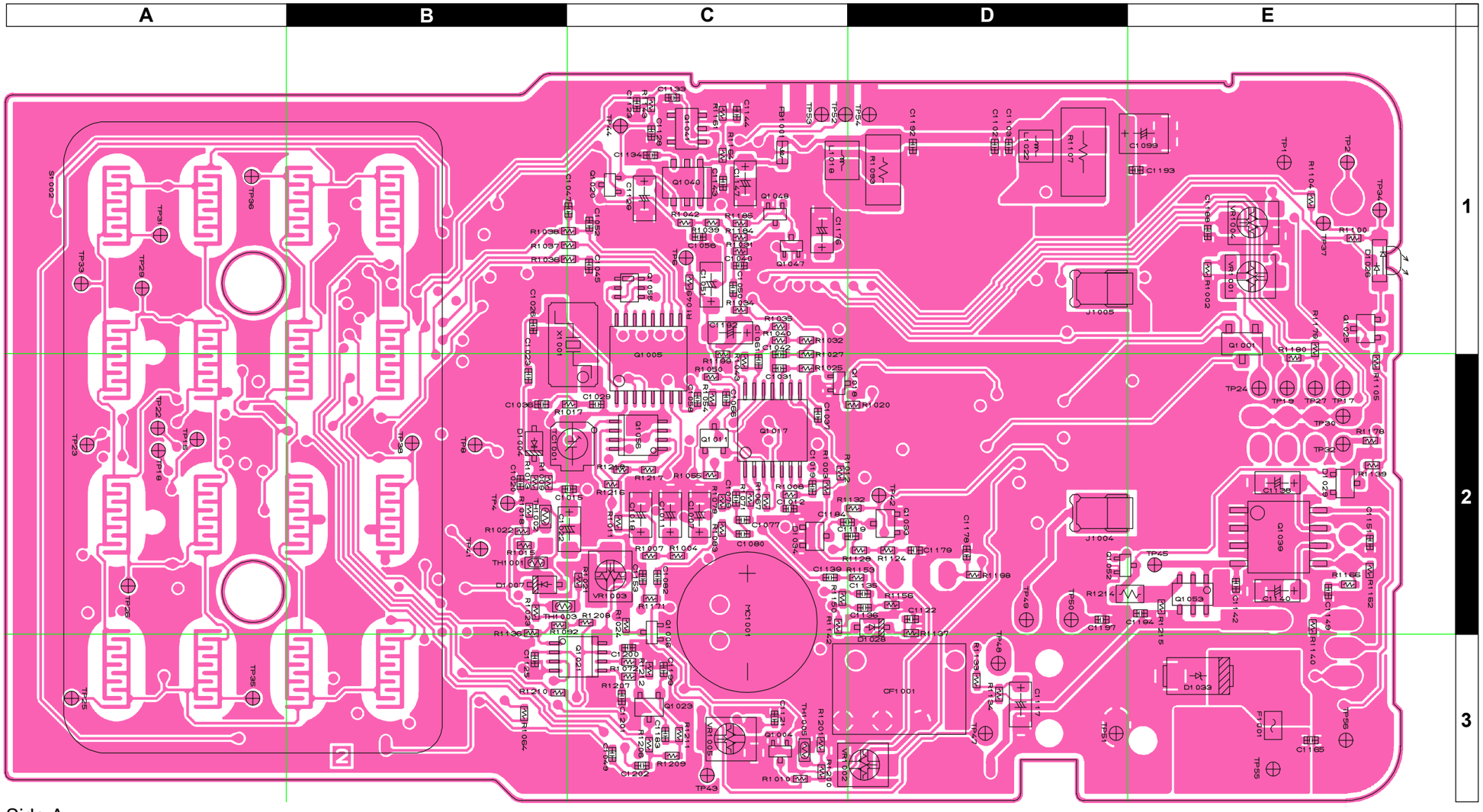
DAN235U (M)
(D1016)
1SS321 (F9)
(D1027)
MC2848 (A6)
(D1031, 1032)


MAIN-UNIT
ANT
TUNE
SAVE 5V
TX5V
RX5V
MOD
DCS
Q1001 2SK209GR
Q1002 2SC5231C8
Q1003 UMC5N
Q1004 RT1N441U
Q1005 MB15A01PFV1
Q1006 RT1N441U
Q1007 2SC5005
Q1008 2SC4154E
Q1009 2SC5005
Q1010 BR93LC56F
Q1011 2SA1586Y
Q1012 2SC5006
Q1013 RT1P441U
Q1014 M37516E6HP
Q1015 2SC5227-4
Q1016 2SK2596
Q1017 NJM2902V
Q1018 RT1N441U
Q1019 TC4W66FU
Q1020 RT1P441U
Q1021 NJM12903R
Q1023 2SC4154E
Q1024 2SK2974
Q1025 2SC4154E
Q1026 SGM2016AM
Q1027 FMW1
Q1028 FMW1
Q1029 2SB1122S
Q1030 NJM2902V
Q1031 2SB1122S
Q1032 FMW1
Q1033 2SC4215Y
Q1034 RT1N441U
Q1035 RT1N441U
Q1036 DTB123EK
Q1037 BA4116FV
Q1039 TDA7233D
Q1040 TK11235BMC
Q1041 S-80735SN-DZ
Q1042 RT1N441U
Q1043 2SA1586Y
Q1044 RT1N441U
Q1045 RT1N441U
Q1046 UMC5N
Q1047 RT1N441U
Q1048 RT1N441U
Q1050 2SC4154E
Q1051 RT1N441U
Q1052 RT1N441U
Q1053 CPH6102
Q1054 RT1N441U
Q1055 UMD3N
Q1056 TC4W66FU
Q1057 RT1N441U
X1001 21.25MHz
X1002 3.6864MHz
XF1001 21R12A4
CF1001 ALFYM450F=K
CF1002 SFPC450G
CD1001 CDBC450CX24
J1001 R0152490
J1002 P0091209
J1003 P1090896
J1004 S5000196
J1005 S5000196
S1001 N0190178
S1002 ***
SP1001
EM-100PT MC1001
VR1001 50K
VR1002 10K
VR1003 10K
VR1004 10K
VR1005 100K
VR1006 20KA/SW
VOL
F1001 4A
FB1001 L9190083
D1033 PTZ15A
BATT
PTT
RSSI
POW
CNT3.5V

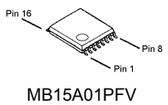
MAIN Unit (Lot. 14~)

Note:

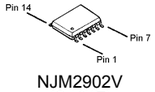
Parts Layout



Side A



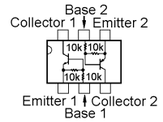
MB15A01PFV
(Q1005)



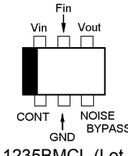
NJM2902V
(Q1017)

2SK209GR (XG)
(Q1001)

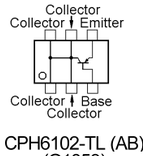
RT1N441U (N3)
(Q1004, 1006, 1018, 1047, 1048)
(Q1052:Lot. 1-37)



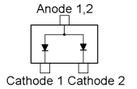
UMD3N (D3)
(Q1055)



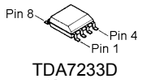
TK11235BMCL (Lot. 1-15)
TK11235CMCL (Lot. 16-)
(Q1040)



CPH6102-TL (AB)
(Q1053)

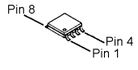


MC2846
(D1029)



TDA7233D
(Q1039)

NJM12903R
(Q1021)

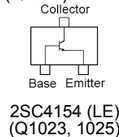


TC4W66FU
(Q1056)

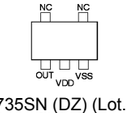
RT1P441U (P3)
(Q1020)

DTC114TE (04)
(Q1052:Lot. 38-)

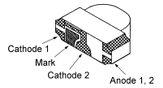
2SA1586Y (SY)
(Q1011)



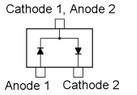
2SC4154 (LE)
(Q1023, 1025)
2SC4215Y (QY)
(Q1033)



S-80735SN (DZ) (Lot. 1-15)
S-80835CNMC (Lot. 16-)
(Q1041)

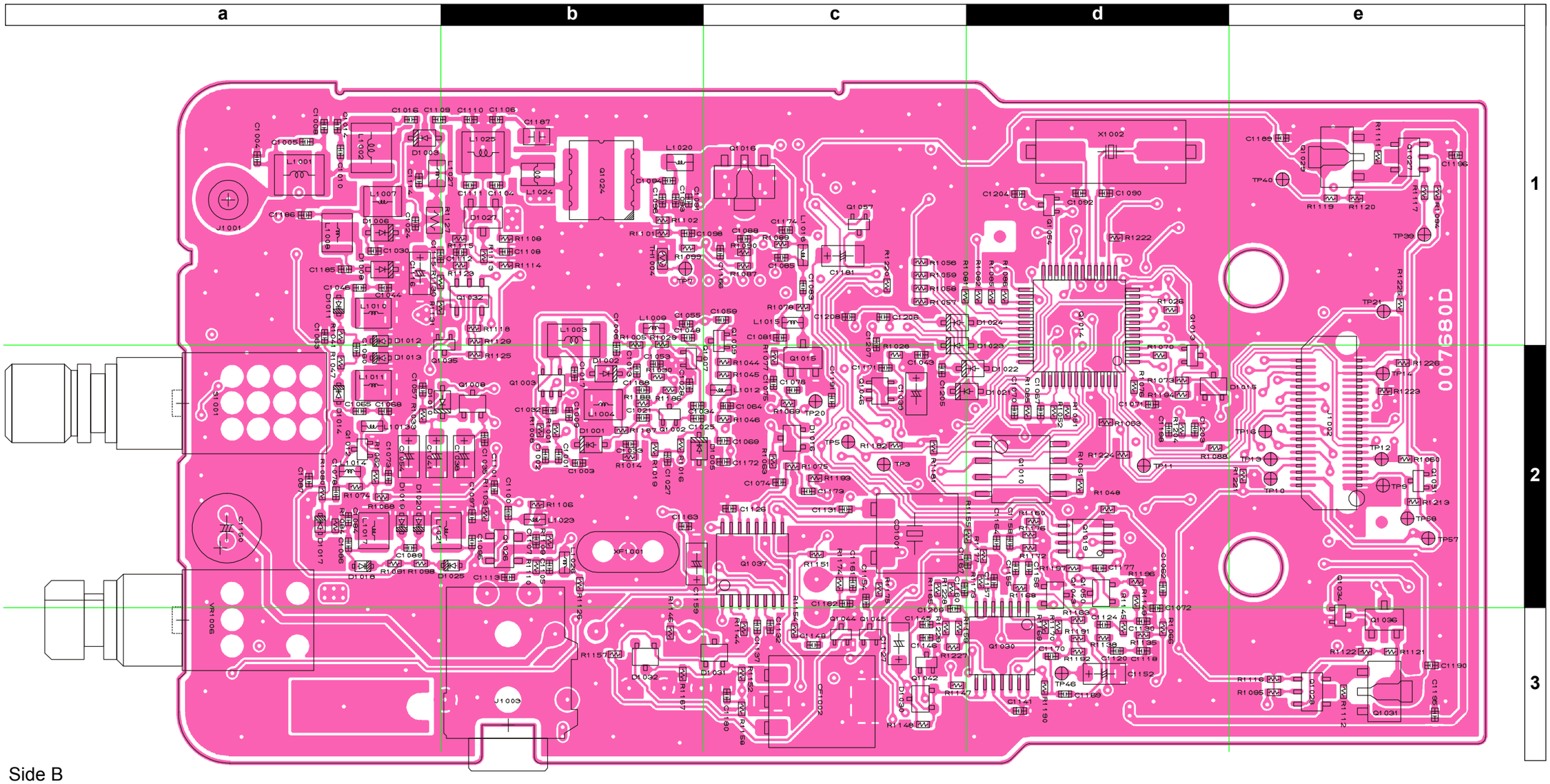


BRPY1211F
(D1026)

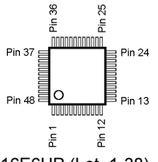


MC2850 (A7)
(D1034)

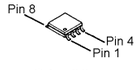
MAIN Unit (Lot. 14~)



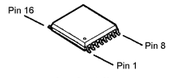
Side B



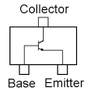
M37516E6HP (Lot. 1-38)
M37516M6-147HP (Lot. 39-57)
M37516M6-183HP (Lot. 58-)
(Q1014)



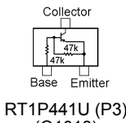
TC4W66FU
(Q1019)



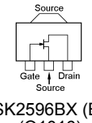
BA4116FV
(Q1037)



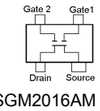
2SC4154 (LE)
(Q1008, 1050)
2SC5005 (73)
(Q1007, 1009)
2SC5006 (24)
(Q1012)
2SC5231 (C8)
(Q1002)



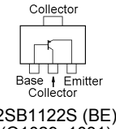
RT1P441U (P3)
(Q1013)



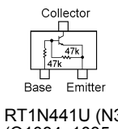
2SK2596BX (BX)
(Q1016)



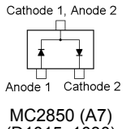
SGM2016AM (MA)
(Q1026)



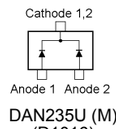
2SB1122S (BE)
(Q1029, 1031)



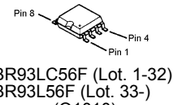
RT1N441U (N3)
(Q1034, 1035,
1042, 1044,
1045, 1051,
1054, 1057)



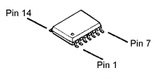
MC2850 (A7)
(D1015, 1030)



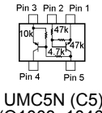
DAN235U (M)
(D1016)
1SS321 (F9)
(D1027)
MC2848 (A6)
(D1031, 1032)



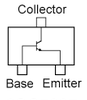
BR93LC56F (Lot. 1-32)
BR93L56F (Lot. 33-)
(Q1010)



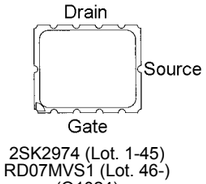
NJM2902V
(Q1030)



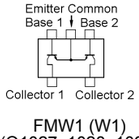
UMC5N (C5)
(Q1003, 1046)



2SC5227
(Q1015)

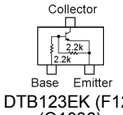


2SK2974 (Lot. 1-45)
RD07MVS1 (Lot. 46-)
(Q1024)



FMW1 (W1)
(Q1027, 1028, 1032)

2SA1586Y (SY)
(Q1043)



DTB123EK (F12)
(Q1036)

Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
					*** MAIN UNIT ***					
	PCB with Components					CB1817001	TYP C			
						CB1817002	TYP A	37-		
	Printed Circuit Board					FR007680C		1-		
	Printed Circuit Board					FR007680D		14-		
C 1001	CHIP CAP.	120pF	50V	CH	GRM36CH121J50PT	K22178238		1-64	B	b2
C 1001	CHIP CAP.	120pF	50V	CH	GRM36CH121J50PT	K22178238	VERSION A	65-	B	b2
C 1001	CHIP CAP.	180pF	25V	CH	GRM36CH181J25PT	K22148201	VERSION C	65-	B	b2
C 1002	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b2
C 1003	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1004	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210		1-36	B	a1
C 1004	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214	VERSION A	37-	B	a1
C 1004	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210	VERSION C	37-	B	a1
C 1005	CHIP CAP.	7pF	50V	CH	GRM36CH070D50PT	K22178209		1-	B	a1
C 1006	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b1
C 1007	CHIP TA.CAP.	0.1uF	35V		TESVA1V104M1-8R	K78160025		1-	A	C2
C 1008	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	a1
C 1009	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1010	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-36	B	a1
C 1010	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207	VERSION A	37	B	a1
C 1010	CHIP CAP.	7pF	50V	CH	GRM36CH070D50PT	K22178209	VERSION A	38-	B	a1
C 1010	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205	VERSION C	37-	B	a1
C 1011	CHIP TA.CAP.	0.1uF	35V		TESVA1V104M1-8R	K78160025		1-	A	C2
C 1012	CHIP CAP.	150pF	50V	CH	GRM36CH151J50PT	K22178240		1-	A	C2
C 1013	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1015	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2
C 1016	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1017	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1018	CHIP TA.CAP.	6.8uF	6.3V		TEMSVA0J685M-8R	K78080025		1-	A	C2
C 1018	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		3-	A	C2
C 1019	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		1-	A	C2
C 1020	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1021	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-36	B	b2
C 1021	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220	VERSION A	37	B	b2
C 1021	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214	VERSION C	37	B	b2
C 1021	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		38-	B	b2
C 1022	CHIP TA.CAP.	1uF	16V		TESVA1C105M1-8R	K78120009		1-	A	C2
C 1023	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1024	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	a1
C 1025	CHIP CAP.	1.5pF	50V	CK	GRM36CK1R5C50PT	K22178203		1-36	B	b2
C 1025	CHIP CAP.	2pF	50V	CK	GRM36CK020C50PT	K22178204	VERSION A	37-	B	b2
C 1025	CHIP CAP.	1.5pF	50V	CK	GRM36CK1R5C50PT	K22178203	VERSION C	37-	B	b2
C 1025	CHIP CAP.	1.5pF	50V	CK	GRM36CK1R5B50PT	K22178288	VERSION C	61-	B	b2
C 1025	CHIP CAP.	1pF	50V	CK	GRM39CK010B50PT	K22174267	VERSION C	65-	B	b2
C 1026	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	A	B1
C 1027	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1028	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1029	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	A	C2
C 1030	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	B	a1
C 1031	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	C2
C 1032	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1033	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	B	b2
C 1034	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	B	b2
C 1035	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1036	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	B2
C 1037	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2
C 1038	CHIP TA.CAP.	2.2uF	6.3V		TESVA0J225M1-8R	K78080009		1-	B	b2
C 1039	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	c2
C 1039	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		15-	B	c2
C 1040	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	C1
C 1041	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		1-	B	a2
C 1042	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C1
C 1043	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c1
C 1044	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	a1
C 1045	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	C1
C 1046	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	a1
C 1047	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	C1

MAIN Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
C 1048	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	b1
C 1049	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		14-	A	C3
C 1050	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-37	A	C1
C 1050	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801	VERSION A	38-	A	C1
C 1050	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802	VERSION C	38-	A	C1
C 1051	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	A	C1
C 1052	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	C1
C 1053	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1054	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	a2
C 1055	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	B	b1
C 1056	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	C1
C 1057	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2
C 1058	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207		1-	A	C2
C 1059	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207		1-	B	c1
C 1060	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-36	B	a1
C 1060	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207	VERSION A	37-	B	a1
C 1060	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212	VERSION C	37-	B	a1
C 1061	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207		1-	A	C1
C 1062	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d2
C 1063	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1064	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1065	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	a2
C 1066	CHIP CAP.	0.0018uF	50V	B	GRM36B182K50PT	K22178812		1-	A	C2
C 1067	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d2
C 1068	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	a2
C 1068	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		41-	B	a2
C 1069	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	B	c2
C 1070	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d2
C 1071	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d2
C 1072	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	B	d2
C 1073	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2
C 1074	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1075	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1076	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	B	c2
C 1077	CHIP CAP.	0.015uF	16V	B	GRM36B153K16PT	K22128807		1-	A	C2
C 1078	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2
C 1079	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2
C 1080	CHIP CAP.	0.015uF	16V	B	GRM36B153K16PT	K22128807		1-	A	C2
C 1081	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c1
C 1082	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C2
C 1083	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	B	c1
C 1084	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	a2
C 1085	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	B	c1
C 1086	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	a2
C 1087	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2
C 1088	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c1
C 1089	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-36	B	a2
C 1089	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207	VERSION A	37-	B	a2
C 1089	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212	VERSION C	37-	B	a2
C 1090	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	d1
C 1091	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	B	b1
C 1092	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	d1
C 1093	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	B	b1
C 1094	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	B	b1
C 1094	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		44-45	B	b1
C 1094	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228	VERSION A	46-	B	b1
C 1094	CHIP CAP.	56pF	50V	CH	GRM36CH560J50PT	K22178230	VERSION C	46-	B	b1
C 1095	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	b2
C 1096	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	b1
C 1097	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	b2
C 1098	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b1
C 1099	CHIP TA.CAP.	10uF	16V		TEMSVB21C106M-8R	K78120025		1-	A	E1
C 1100	CHIP CAP.	18pF	50V	CH	GRM36CH180J50PT	K22178218		1-	B	b2
C 1101	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	B	b2
C 1102	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D1
C 1103	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	D1
C 1104	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	B	b1

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
C 1105	CHIP CAP.	68pF	50V	CH	GRM36CH680J50PT	K22178232		1-	B	b2
C 1106	CHIP CAP.	82pF	50V	CH	GRM36CH820J50PT	K22178234		1-36	B	b1
C 1106	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236	VERSION A	37-	B	b1
C 1106	CHIP CAP.	82pF	50V	CH	GRM36CH820J50PT	K22178234	VERSION C	37-	B	b1
C 1107	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1108	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b1
C 1109	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	B	a1
C 1109	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		44-45	B	a1
C 1109	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226	VERSION A	46-	B	a1
C 1109	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228	VERSION C	46-	B	a1
C 1110	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	b1
C 1111	CHIP CAP.	1pF	50V	CK	GRM36CK010C50PT	K22178202		1-	B	b1
C 1112	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b1
C 1113	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1114	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1115	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1116	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	a1
C 1117	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		1-	A	D3
C 1118	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	B	d3
C 1119	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D2
C 1120	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d3
C 1121	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	C3
C 1122	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	D2
C 1123	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C1
C 1124	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d3
C 1125	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	B3
C 1125	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		14-	A	B3
C 1126	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c2
C 1127	CHIP TA.CAP.	1uF	16V		TESVA1C105M1-8R	K78120009		1-	B	c3
C 1128	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C1
C 1129	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		1-	A	C1
C 1130	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d3
C 1131	CHIP CAP.	56pF	50V	CH	GRM36CH560J50PT	K22178230		1-	B	c2
C 1132	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c3
C 1133	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C1
C 1134	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	C1
C 1135	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	D2
C 1136	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	D2
C 1137	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c3
C 1138	CHIP TA.CAP.	2.2uF	6.3V		TESVA0J225M1-8R	K78080009		1-	A	E2
C 1139	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C2
C 1140	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		1-	A	E2
C 1141	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d3
C 1141	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		14-	B	d3
C 1142	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	E2
C 1143	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C1
C 1144	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C1
C 1144	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		11-	A	C1
C 1145	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	c3
C 1145	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		14-	B	c3
C 1146	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		1-	B	c3
C 1147	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	A	C1
C 1148	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c3
C 1149	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	E2
C 1150	AL.ELECTRO.CAP.	220uF	10V		SMG1AVB221M 220UF	K40109027		1-	B	a2
C 1151	CHIP CAP.	220pF	50V	B	GRM36B221K50PT	K22178801		1-	A	E2
C 1152	CHIP TA.CAP.	1uF	16V		TESVA1C105M1-8R	K78120009		1-	B	d3
C 1153	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	C2
C 1154	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c2
C 1155	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d2
C 1156	CHIP CAP.	0.0022uF	50V	B	GRM36B222K50PT	K22178813		1-	B	d2
C 1157	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	B	d2
C 1157	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		14-	B	d2
C 1158	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d2
C 1159	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	b2
C 1160	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c2
C 1160	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		14-	B	c2

MAIN Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
C 1161	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1162	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1163	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b2
C 1164	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d2
C 1165	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	E3
C 1166	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c1
C 1167	CHIP CAP.	0.0022uF	50V	B	GRM36B222K50PT	K22178813		1-	B	d2
C 1168	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-36	B	b2
C 1168	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220	VERSION A	37-	B	b2
C 1168	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224	VERSION C	37-	B	b2
C 1169	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d3
C 1170	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d3
C 1171	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c2
C 1172	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	B	c2
C 1173	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1176	CHIP TA.CAP.	2.2uF	6.3V		TESVA0J225M1-8R	K78080009		1-	A	C1
C 1177	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d2
C 1180	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c3
C 1182	CHIP TA.CAP.	0.33uF	35V		TESVA1V334M1-8R	K78160028		1-	A	C1
C 1183	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C3
C 1184	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D2
C 1192	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	D1
C 1197	CHIP CAP.	220pF	50V	B	GRM36B221K50PT	K22178801		1-	A	D2
C 1198	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d2
C 1199	CHIP CAP.	0.0022uF	50V	B	GRM36B222K50PT	K22178813		1-	A	C3
C 1200	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	C3
C 1201	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C3
C 1202	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-13	A	C3
C 1203	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d2
C 1204	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d1
C 1205	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2
C 1206	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c1
C 1207	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c1
C 1208	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c1
C 1209	CHIP CAP.	180pF	25V	CH	GRM36CH181J25PT	K22148201		14-	B	c2
CD1001	CERAMIC DISC				CDBCB450KCAY24-R0	H7901340		1-	B	c2
CF1001	CERAMIC FILTER				ALFYM450F=K	H3900531		1-	A	D3
CF1002	CERAMIC FILTER				SFPCA450KG1A-R1	H3900518		1-	B	c3
D 1001	DIODE				HVU358TRF	G2070418		1-	B	b2
D 1002	DIODE				HSU277TRF	G2070118		1-	B	b2
D 1003	DIODE				HVU131TRF	G2070462		1-	B	a1
D 1004	DIODE				1SV230 TPH3	G2070126		1-	A	B2
D 1005	DIODE				1SV230 TPH3	G2070126		1-36	B	b2
D 1005	DIODE				HVU358TRF	G2070418	VERSION A	37-	B	b2
D 1005	DIODE				1SV230 TPH3	G2070126	VERSION C	37-	B	b2
D 1006	DIODE				HSU277TRF	G2070118		1-	B	a1
D 1007	DIODE				1SS355 TE-17	G2070470		1-	A	B2
D 1008	DIODE				HSU277TRF	G2070118		1-	B	a1
D 1010	DIODE				1SS355 TE-17	G2070470		1-	B	b2
D 1011	DIODE				HVC359 TRF	G2070708		1-	B	a1
D 1012	DIODE				HVC358B(TAPE)	G2070590		1-36	B	a1
D 1012	DIODE				1SV305(TPH3)	G2070942	VERSION A	37-	B	a1
D 1012	DIODE				HVC358B(TAPE)	G2070590	VERSION C	37-	B	a1
D 1013	DIODE				HVC358B(TAPE)	G2070590		1-36	B	a2
D 1013	DIODE				1SV305(TPH3)	G2070942	VERSION A	37-	B	a2
D 1013	DIODE				HVC358B(TAPE)	G2070590	VERSION C	37-	B	a2
D 1014	DIODE				HVC359 TRF	G2070708		1-	B	a2
D 1015	DIODE				MC2850-T11-1	G2070704		1-	B	d2
D 1016	DIODE				DAN235U TL	G2070176		1-	B	c2
D 1017	DIODE				HVC358B(TAPE)	G2070590		1-	B	a2
D 1018	DIODE				HVC359 TRF	G2070708		1-	B	a2
D 1019	DIODE				HVC358B(TAPE)	G2070590		1-36	B	a2
D 1019	DIODE				1SV305(TPH3)	G2070942	VERSION A	37-	B	a2
D 1019	DIODE				HVC358B(TAPE)	G2070590	VERSION C	37-	B	a2
D 1020	DIODE				HVC358B(TAPE)	G2070590		1-36	B	a2
D 1020	DIODE				1SV305(TPH3)	G2070942	VERSION A	37-	B	a2
D 1020	DIODE				HVC358B(TAPE)	G2070590	VERSION C	37-	B	a2

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
D 1021	DIODE				1SS355 TE-17	G2070470		1-	B	d2
D 1022	DIODE				1SS355 TE-17	G2070470		1-	B	d2
D 1023	DIODE				1SS355 TE-17	G2070470		1-	B	c1
D 1024	DIODE				1SS355 TE-17	G2070470		1-	B	c1
D 1025	DIODE				HVC359 TRF	G2070708		1-	B	b2
D 1026	LED				BRPY1211F-TR	G2070706		1-	A	E1
D 1027	DIODE				1SS321 TE85R	G2070076		1-	B	b1
D 1028	DIODE				1SS355 TE-17	G2070470		1-	A	D2
D 1029	DIODE				MC2846-T11-1	G2070702		1-	A	E2
D 1030	DIODE				MC2850-T11-1	G2070704		1-	B	c3
D 1031	DIODE				MC2848-T11-1	G2070694		1-	B	c3
D 1032	DIODE				MC2848-T11-1	G2070694		1-	B	b3
D 1033	DIODE				PTZ TE25 15A	G2070692		1-	A	E3
D 1034	DIODE				MC2850-T11-1	G2070704		1-	A	C2
F 1001	CHIP FUSE	4A			KAB-2402-402NA31	Q0000086		1-	A	E3
FB1001	FERRITE BEADS				BK1608HS601-T	L9190083		1-	A	C1
J 1001	SPRING CONNECTOR					R0152490		1-	B	a1
J 1002	CONNECTOR				AXK6S40535P	P0091209		1-	B	e2
J 1003	CONNECTOR				HSJ1594-010055	P1090896		1-	B	b3
J 1004	SHIELD FINGER				2026 3100012	S5000196		1-	A	D2
J 1004	SHIELD FINGER				1674954-1	S5000255		71-	A	D2
J 1005	SHIELD FINGER				2026 3100012	S5000196		1-	A	D1
J 1005	SHIELD FINGER				1674954-1	S5000255		71-	A	D1
L 1001	COIL				E2 0.5-2.0-6T-R	L0022488		1-	B	a1
L 1002	COIL				E2 0.5-2.0-6T-R	L0022488		1-	B	a1
L 1003	COIL				E2 0.25-1.9-12.5T-L	L0022600		1-	B	b1
L 1004	COIL				E2 0.3-1.7-8T-L	L0022376		1-36	B	b2
L 1004	COIL				E2 0.25-1.9-8T-L	L0022550	VERSION A	37-	B	b2
L 1004	COIL				E2 0.3-1.7-8T-L	L0022376	VERSION C	37-	B	b2
L 1007	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	a1
L 1008	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	a1
L 1009	M.RFC	0.22uH			HK1608 R22J-T	L1690940		1-	B	b1
L 1010	COIL				E2 0.3-1.7-7T-R	L0022372		1-36	B	a1
L 1010	COIL				E2 0.3-1.7-8T-L	L0022376	VERSION A	37-	B	a1
L 1010	COIL				E2 0.3-1.7-7T-R	L0022372	VERSION C	37-	B	a1
L 1011	COIL				E2 0.3-1.7-7T-R	L0022372		1-36	B	a2
L 1011	COIL				E2 0.3-1.7-8T-L	L0022376	VERSION A	37-	B	a2
L 1011	COIL				E2 0.3-1.7-7T-R	L0022372	VERSION C	37-	B	a2
L 1012	M.RFC	0.1uH			HK1608 R10J-T	L1690528		1-	B	c2
L 1013	M.RFC	0.047uH			HK1608 47NJ-T	L1690524		1-	B	a2
L 1014	M.RFC	0.1uH			HK1608 R10J-T	L1690528		1-	B	a2
L 1015	M.RFC	0.056uH			HK1608 56NJ-T	L1690525		1-	B	c1
L 1016	M.RFC	0.047uH			HK1608 47NJ-T	L1690524		1-	B	c1
L 1017	COIL				E2 0.3-1.7-7T-R	L0022372		1-36	B	a2
L 1017	COIL				E2 0.3-1.7-8T-L	L0022376	VERSION A	37-	B	a2
L 1017	COIL				E2 0.3-1.7-7T-R	L0022372	VERSION C	37-	B	a2
L 1018	COIL				E2 0.35-1.6-7T-L	L0022390		1-	A	C1
L 1020	M.RFC	0.022uH			HK2125 22NK-T	L1690381		1-	B	b1
L 1021	COIL				E2 0.3-1.7-7T-R	L0022372		1-36	B	b2
L 1021	COIL				E2 0.3-1.7-8T-L	L0022376	VERSION A	37-	B	b2
L 1021	COIL				E2 0.3-1.7-7T-R	L0022372	VERSION C	37-	B	b2
L 1022	COIL				E2 0.45-1.4-4T-L	L0022391		1-	A	D1
L 1023	M.RFC	0.1uH			HK1608 R10J-T	L1690528		1-	B	b2
L 1024	COIL				E2 0.4-1.2-2.5T-L	L0022617		1-36	B	b1
L 1024	COIL	0.009uH			AS050325-9R0NK	L0022612	VERSION A	37-	B	b1
L 1024	COIL				E2 0.4-1.2-2.5T-L	L0022617	VERSION C	37-	B	b1
L 1025	COIL				E2 0.5-2.0-5T-R	L0022487		1-	B	b1
L 1026	M.RFC	0.82uH			LK1608 R82K-T	L1690417		1-	B	b2
L 1027	M.RFC	0.82uH			LK2125 R82K-T	L1690318		1-	B	a1
MC1001	MIC. ELEMENT				EM-100PT	M3290029		1-	A	C2
Q 1001	FET				2SK209GR TE85R	G3802097G		1-	A	E1
Q 1002	TRANSISTOR				2SC5231C8-TL	G3352318H		1-	B	b2
Q 1003	TRANSISTOR				UMC5N TR	G3070137		1-	B	b2
Q 1004	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C3
Q 1005	IC				MB15A01PFV1-G-BND-EF	G1092545		1-	A	C1
Q 1006	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C2
Q 1007	TRANSISTOR				2SC5005-T1	G3350058		1-	B	b2

MAIN Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
Q 1008	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	B	b2
Q 1009	TRANSISTOR				2SC5005-T1	G3350058		1-	B	c1
Q 1010	IC				BR93LC56F-E2	G1092533		1-	B	d2
Q 1010	IC				BR93L56F-WE2	G1093911		33-	B	d2
Q 1011	TRANSISTOR				2SA1586Y TE85R	G3115867Y		1-	A	C2
Q 1012	TRANSISTOR				2SC5006-T1	G3350068		1-	B	a2
Q 1013	TRANSISTOR				RT1P441U-T11-1	G3070248		1-	B	d1
Q 1014	IC				M37516E6HP	※		1-	B	d1
Q 1014	IC				M37516M6-147HP	※		39-	B	d1
Q 1014	IC				M37516M6-183HP	※		58-	B	d1
Q 1015	TRANSISTOR				2SC5227-4-TB	G3352278D		1-	B	c2
Q 1016	FET				2SK2596BXTL	G3825967		1-	B	c1
Q 1017	IC				NJM2902V-TE1	G1091679		1-	A	C2
Q 1018	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C2
Q 1019	IC				TC4W66FU TE12L	G1091676		1-	B	d2
Q 1020	TRANSISTOR				RT1P441U-T11-1	G3070248		1-	A	C1
Q 1021	IC				NJM12903R-TE1	G1093336		1-	A	C3
Q 1023	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	A	C3
Q 1024	FET				2SK2974-T11	G3829747		1-	B	b1
Q 1024	FET				2SK2974-T11	G3829747		44-	B	b1
Q 1024	FET				RD07MVS1-T12	G3070320		46-	B	b1
Q 1025	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	A	E1
Q 1026	FET				SGM2016AM-T7	G4070012		1-	B	b2
Q 1027	TRANSISTOR				FMW1 T98	G3070009		1-	B	e1
Q 1028	TRANSISTOR				FMW1 T98	G3070009		1-	B	e3
Q 1029	TRANSISTOR				2SB1122S-TD	G3211228S		1-	B	e1
Q 1030	IC				NJM2902V-TE1	G1091679		1-	B	d3
Q 1031	TRANSISTOR				2SB1122S-TD	G3211228S		1-	B	e3
Q 1032	TRANSISTOR				FMW1 T98	G3070009		1-	B	b1
Q 1033	TRANSISTOR				2SC4215Y TE85R	G3342157Y		1-	A	D2
Q 1034	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	e2
Q 1035	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	b1
Q 1036	TRANSISTOR				DTB123EK T146	G3070022		1-	B	e3
Q 1037	IC				BA4116FV-E2	G1092616		1-	B	c2
Q 1039	IC				TDA7233D-TR	G1091112		1-	A	E2
Q 1040	IC				TK11235BMCL	G1093137		1-	A	C1
Q 1040	IC				TK11235CMCL	G1093732		16-	A	C1
Q 1041	IC				S-80735SN-DZ-T1	G1091876		1-	A	C1
Q 1041	IC				S-80835CNMC-B8U-T2	G1093606		16-	A	C1
Q 1042	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	c3
Q 1043	TRANSISTOR				2SA1586Y TE85R	G3115867Y		1-	B	d2
Q 1044	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	c3
Q 1045	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	c3
Q 1046	TRANSISTOR				UMC5N TR	G3070137		1-	B	c2
Q 1047	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C1
Q 1048	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C1
Q 1050	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	B	d2
Q 1051	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	e2
Q 1052	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	D2
Q 1052	TRANSISTOR				DTC114TE TL	G3070225		38-	A	D2
Q 1053	TRANSISTOR				CPH6102-TL	G3070223		1-	A	E2
Q 1054	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	d1
Q 1055	TRANSISTOR				UMD3N TR	G3070211		1-	A	C1
Q 1056	IC				TC4W66FU TE12L	G1091676		1-	A	C2
Q 1057	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	c1
R 1001	CHIP RES.	33	1/16W	5%	RMC1/16S 330JTH	J24189007		1-	B	b2
R 1002	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	E1
R 1003	CHIP RES.	6.8k	1/16W	5%	RMC1/16S 682JTH	J24189035		1-	A	C2
R 1004	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	C2
R 1005	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	b1
R 1006	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b2
R 1007	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	C2
R 1008	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		1-	A	C2
R 1009	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	B2
R 1010	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	C3
R 1011	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	C2
R 1012	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	A	C2

※ Please contact VERTEX STANDARD.

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
R 1013	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	B2
R 1014	CHIP RES.	820	1/16W	5%	RMC1/16S 821JTH	J24189024		1-36	B	b2
R 1014	CHIP RES.	680	1/16W	5%	RMC1/16S 681JTH	J24189023	VERSION A	37	B	b2
R 1014	CHIP RES.	820	1/16W	5%	RMC1/16S 821JTH	J24189024	VERSION C	37	B	b2
R 1014	CHIP RES.	680	1/16W	5%	RMC1/16S 681JTH	J24189023		38-	B	b2
R 1015	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	A	B2
R 1016	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	b2
R 1017	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C2
R 1018	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	B2
R 1019	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b2
R 1020	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	D2
R 1021	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C2
R 1022	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	A	B2
R 1023	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	A	B2
R 1024	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	A	C2
R 1025	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C2
R 1026	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	d1
R 1027	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C1
R 1028	CHIP RES.	33	1/16W	5%	RMC1/16S 330JTH	J24189007		1-	B	c1
R 1029	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b1
R 1030	CHIP RES.	220	1/16W	5%	RMC1/16S 221JTH	J24189017		1-	B	b2
R 1032	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-37	A	C1
R 1032	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042	VERSION A	38-	A	C1
R 1032	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044	VERSION C	38-	A	C1
R 1033	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a2
R 1034	CHIP RES.	8.2k	1/16W	5%	RMC1/16S 822JTH	J24189036		1-	A	C1
R 1034	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		3-37	A	C1
R 1034	CHIP RES.	6.8k	1/16W	5%	RMC1/16S 682JTH	J24189035	VERSION A	38-	A	C1
R 1034	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037	VERSION C	38-	A	C1
R 1035	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C1
R 1036	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C1
R 1037	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C1
R 1038	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C1
R 1039	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	A	C1
R 1040	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	A	C1
R 1041	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a1
R 1042	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	A	C1
R 1043	CHIP RES.	1.8M	1/16W	5%	RMC1/16S 185JTH	J24189064		1-	A	C1
R 1045	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	c2
R 1046	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	c2
R 1047	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1048	CHIP RES.	1.2M	1/16W	5%	RMC1/16S 125JTH	J24189062		1-	B	d2
R 1048	CHIP RES.	1.8M	1/16W	5%	RMC1/16S 185JTH	J24189064		4-	B	d2
R 1049	CHIP RES.	1.8k	1/16W	5%	RMC1/16S 182JTH	J24189028		1-	A	C1
R 1050	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	C2
R 1051	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	d2
R 1052	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d2
R 1053	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	d2
R 1054	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	A	C2
R 1055	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C2
R 1056	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	c1
R 1057	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		1-	B	c1
R 1058	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	c1
R 1059	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	c1
R 1060	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	e2
R 1061	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	d2
R 1062	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1063	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	c2
R 1064	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	A	B3
R 1065	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		1-	B	d2
R 1066	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	B	d3
R 1067	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C2
R 1068	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	a2
R 1069	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	c2
R 1070	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	d1
R 1071	CHIP RES.	820k	1/16W	5%	RMC1/16S 824JTH	J24189060		1-	A	C2
R 1072	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	C3

MAIN Unit

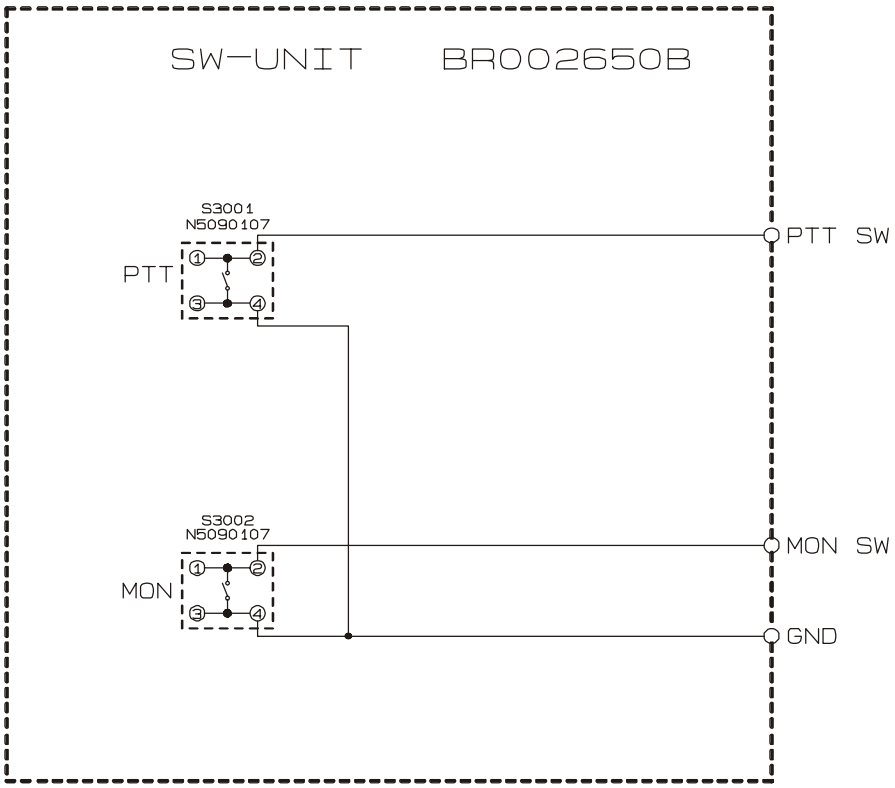
REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
R 1073	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	d2
R 1074	CHIP RES.	150	1/16W	5%	RMC1/16S 151JTH	J24189015		1-	B	a2
R 1075	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	c2
R 1076	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d2
R 1077	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	B	c2
R 1078	CHIP RES.	15	1/16W	5%	RMC1/16S 150JTH	J24189003		1-	B	c1
R 1079	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	A	C2
R 1080	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1081	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		1-	B	c1
R 1082	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	d1
R 1083	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	A	C2
R 1084	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1085	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	d1
R 1086	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	d1
R 1087	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	c1
R 1088	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	d2
R 1089	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	c1
R 1090	CHIP RES.	6.8k	1/16W	5%	RMC1/16S 682JTH	J24189035		1-	B	c1
R 1091	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1092	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	B2
R 1093	CHIP RES.	47	1/2W	5%	RMC1/2 470JCTP	J24275470		1-	A	D1
R 1094	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	e1
R 1095	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	e3
R 1098	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1099	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b1
R 1100	CHIP RES.	68	1/16W	5%	RMC1/16S 680JTH	J24189011		1-	A	E1
R 1102	CHIP RES.	47	1/16W	5%	RMC1/16S 470JTH	J24189009		1-	B	b1
R 1103	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b2
R 1104	CHIP RES.	150	1/16W	5%	RMC1/16S 151JTH	J24189015		1-	A	E1
R 1105	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	E1
R 1106	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b2
R 1107	CHIP RES.	220	1W	5%	RMC1 221JTE	J24305221		1-	A	D1
R 1108	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b1
R 1109	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b2
R 1111	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	e1
R 1112	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	e3
R 1113	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b1
R 1114	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b1
R 1115	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b1
R 1116	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	B	e3
R 1117	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	B	e1
R 1118	CHIP RES.	220	1/16W	5%	RMC1/16S 221JTH	J24189017		1-	B	b1
R 1119	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	e1
R 1120	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	e1
R 1121	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	e3
R 1122	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	e3
R 1123	CHIP RES.	330	1/16W	5%	RMC1/16S 331JTH	J24189019		1-	B	b1
R 1124	CHIP RES.	1.5k	1/16W	5%	RMC1/16S 152JTH	J24189027		1-	A	D2
R 1125	CHIP RES.	1.5k	1/16W	5%	RMC1/16S 152JTH	J24189027		1-36	B	b1
R 1125	CHIP RES.	1.2k	1/16W	5%	RMC1/16S 122JTH	J24189026	VERSION A	37-	B	b1
R 1125	CHIP RES.	1.5k	1/16W	5%	RMC1/16S 152JTH	J24189027	VERSION C	37-	B	b1
R 1126	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	b2
R 1127	CHIP RES.	150	1/10W	5%	RMC1/10T 151J	J24205151		1-	B	a1
R 1128	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	D2
R 1129	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	b1
R 1130	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 1132	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D2
R 1133	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	D3
R 1134	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D3
R 1135	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d3
R 1136	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B2
R 1137	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	D2
R 1138	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	B	d3
R 1139	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	E2
R 1140	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	E2
R 1142	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	C2
R 1143	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C1

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
R 1145	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	d3
R 1146	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	b3
R 1147	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	c3
R 1147	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		14-	B	c3
R 1148	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c3
R 1149	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	d2
R 1150	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	C2
R 1151	CHIP RES.	2.7k	1/16W	5%	RMC1/16S 272JTH	J24189030		1-	B	c2
R 1152	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	c3
R 1153	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	D2
R 1154	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	c3
R 1155	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	d2
R 1156	CHIP RES.	1.5k	1/16W	5%	RMC1/16S 152JTH	J24189027		1-	A	D2
R 1157	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	b3
R 1158	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	c3
R 1159	CHIP RES.	120k	1/16W	5%	RMC1/16S 124JTH	J24189050		1-	B	c3
R 1159	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		14-	B	c3
R 1160	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d2
R 1161	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C1
R 1161	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		11-	A	C1
R 1162	CHIP RES.	220	1/16W	5%	RMC1/16S 221JTH	J24189017		1-	A	E2
R 1163	CHIP RES.	2.2M	1/16W	5%	RMC1/16S 225JTH	J24189065		1-	B	d3
R 1164	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C1
R 1164	CHIP RES.	6.8k	1/16W	5%	RMC1/16S 682JTH	J24189035		11-	A	C1
R 1165	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	B	c2
R 1165	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		14-	B	c2
R 1166	CHIP RES.	10	1/16W	5%	RMC1/16S 100JTH	J24189001		1-	A	E2
R 1167	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	b3
R 1168	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	B	d2
R 1169	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	d3
R 1170	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	d3
R 1171	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C2
R 1172	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	d2
R 1173	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d2
R 1173	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		14-	B	d2
R 1174	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	c2
R 1175	CHIP RES.	5.6k	1/16W	5%	RMC1/16S 562JTH	J24189034		1-	B	c2
R 1176	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	B	d2
R 1176	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		14-	B	d2
R 1177	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d2
R 1179	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	A	E1
R 1181	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	c2
R 1182	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c2
R 1184	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	C1
R 1185	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C1
R 1186	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b2
R 1187	CHIP RES.	8.2k	1/16W	5%	RMC1/16S 822JTH	J24189036		1-	B	b2
R 1188	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	B	b2
R 1190	CHIP RES.	560	1/16W	5%	RMC1/16S 561JTH	J24189022		1-	B	d3
R 1191	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d3
R 1192	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d3
R 1194	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d2
R 1196	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	d2
R 1197	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	B	d2
R 1198	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	A	D2
R 1199	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C1
R 1200	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	C3
R 1204	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d2
R 1206	CHIP RES.	820k	1/16W	5%	RMC1/16S 824JTH	J24189060		1-	A	C3
R 1207	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	C3
R 1207	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		14-	A	C3
R 1208	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	C2
R 1209	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C3
R 1210	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	B3
R 1211	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C3
R 1212	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	C3
R 1213	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	e2

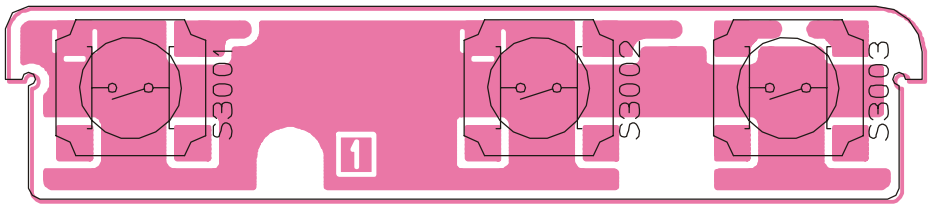
MAIN Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
R 1214	CHIP RES.	470	1/10W	5%	RMC1/10T 471J	J24205471		1-	A	E2
R 1215	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	E2
R 1216	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	C2
R 1217	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	A	C2
R 1218	CHIP RES.	1.8k	1/16W	5%	RMC1/16S 182JTH	J24189028		1-2	A	C2
R 1220	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c1
R 1221	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	e2
R 1222	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d1
R 1223	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	e2
R 1224	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d2
R 1225	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	e1
R 1226	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	e2
R 1228	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		14-	B	c2
R 1229	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		14-	B	c3
S 1001	ROTARY SWITCH				TP70QF4162	N0190178		1-	B	a2
TC1001	TRIMMER CAP.	6pF			TC13C060C-TP03	K91000220		1-	A	C2
TH1001	THERMISTOR				TBPS1R103K440H5Q	G9090067		1-	A	B2
TH1002	THERMISTOR				TBPS1R103K440H5Q	G9090067		1-	A	B2
TH1003	THERMISTOR				TBPS1R472K440H5Q	G9090066		1-	A	B2
TH1004	THERMISTOR				TBPS1R473K475H5Q	G9090068		1-	B	b1
TH1005	THERMISTOR				TBPS1R223K460H5Q	G9090085		1-	A	C3
VR1001	POT.	50k			EVN-5ESX50B54	J51811503		1-	A	E1
VR1002	POT.	10k			EVN-5ESX50B14	J51811103		1-	A	D3
VR1003	POT.	10k			EVN-5ESX50B14	J51811103		1-	A	C2
VR1004	POT.	10k			EVN-5ESX50B14	J51811103		1-	A	E1
VR1005	POT.	100k			EVN-5ESX50B15	J51811104		1-	A	C3
VR1006	POT.				TP76N00N 20KA/SW	J60800239		1-	B	a3
X 1001	XTAL SX-2112	21.25MHz			21.25MHZ	H0103217		1-	A	C1
X 1002	XTAL SX-1319	3.6864MHz			3.6864MHZ	H0103214		1-	B	d1
X 1002	XTAL U3B	3.6864MHz			3.686400MHz (11p)	H0103307		64-	B	d1
XF1001	XTAL FILTER				21R12A4	H1102332		1-	B	b2
	TERMINAL HOLDER					RA010340A		1-		
	TERMINAL HOLDER					RA010340B		21-		
	TERMINAL PLATE R					RA0107000		1-		
	TERMINAL PLATE R					RA010700A		51-		
	SHIELD CASE VCO					RA0204500		1-		
	HOLDER RUBBER				(MIC)	RA0110200		1-		
	O RING					RA008890A		1-		
	RUBBER SHEET					RA0347000		1-		

Circuit Diagram



Parts Layout



Side A

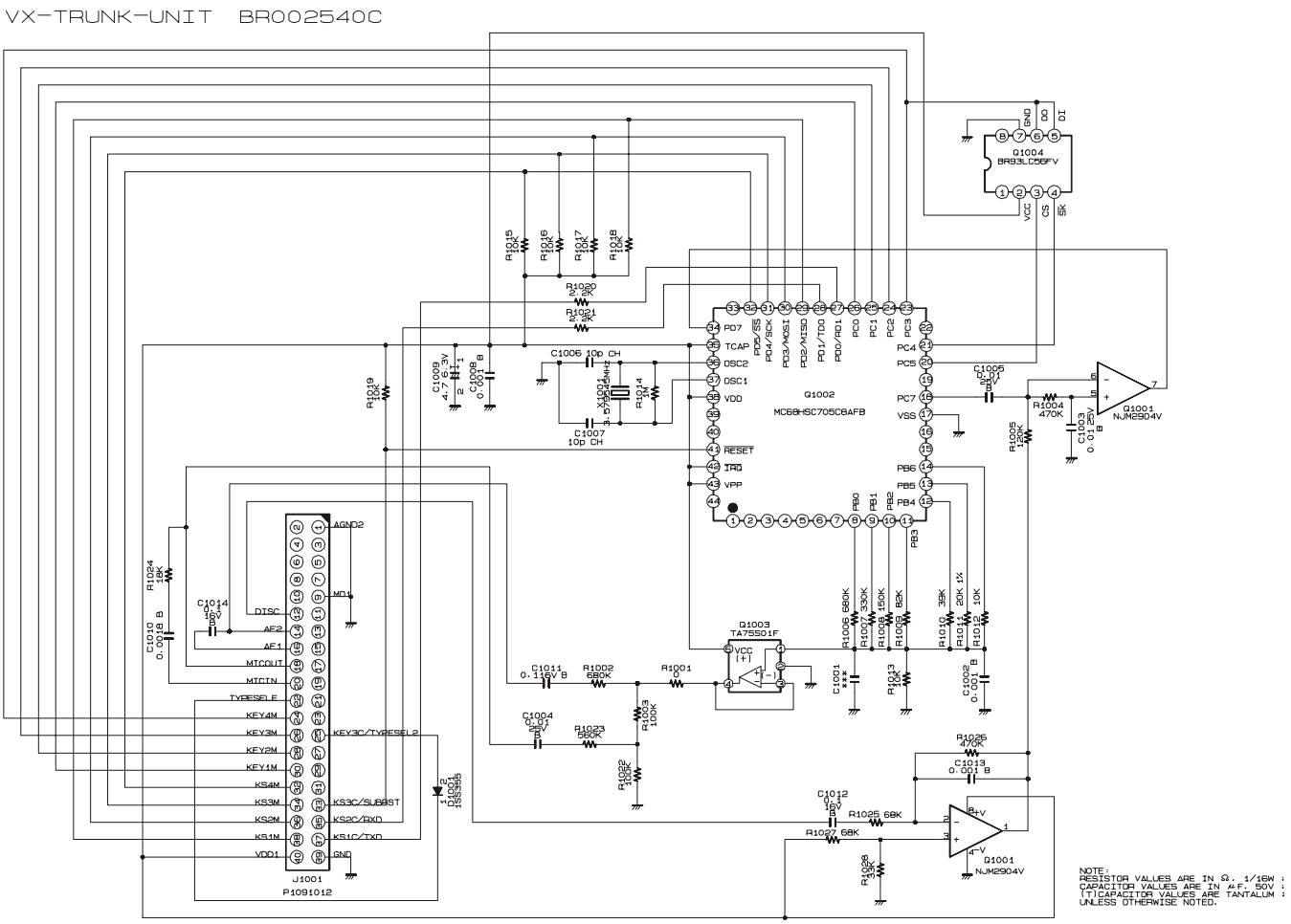
Side B

Parts List

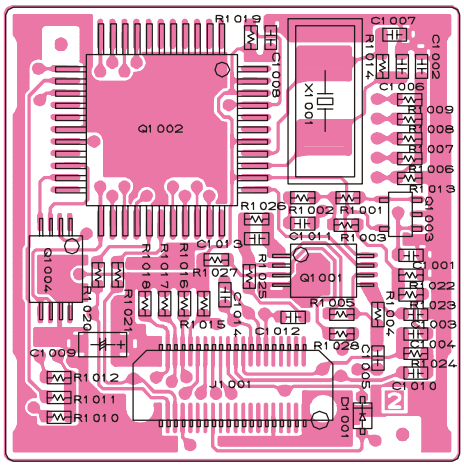
REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
	PCB with Components					CB1818001				
	Printed Circuit Board					FR002650B				
S 3001	TACT SWITCH				SOP-114HST R66-5374	N5090107		1-	A	
S 3002	TACT SWITCH				SOP-114HST R66-5374	N5090107		1-	A	
	MYLAR SHEET					RA011720A		1-		

VTP-50 VX-Trunk Unit

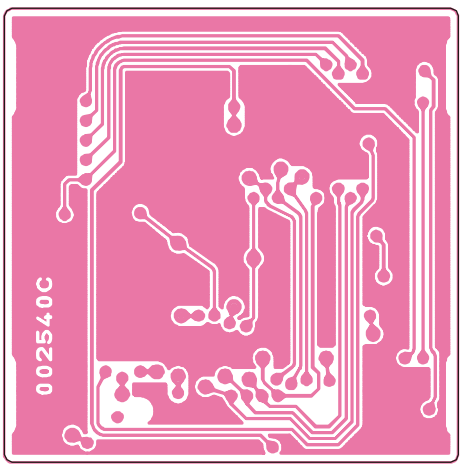
Circuit Diagram



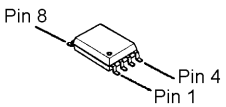
Parts Layout



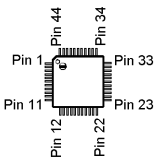
Side A



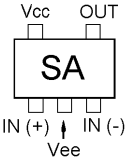
Side B



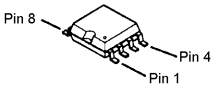
NJM2904V
(Q1001)



MC68HSC705C8A502
(Q1002)



TA75S01F (SA)
(Q1003)



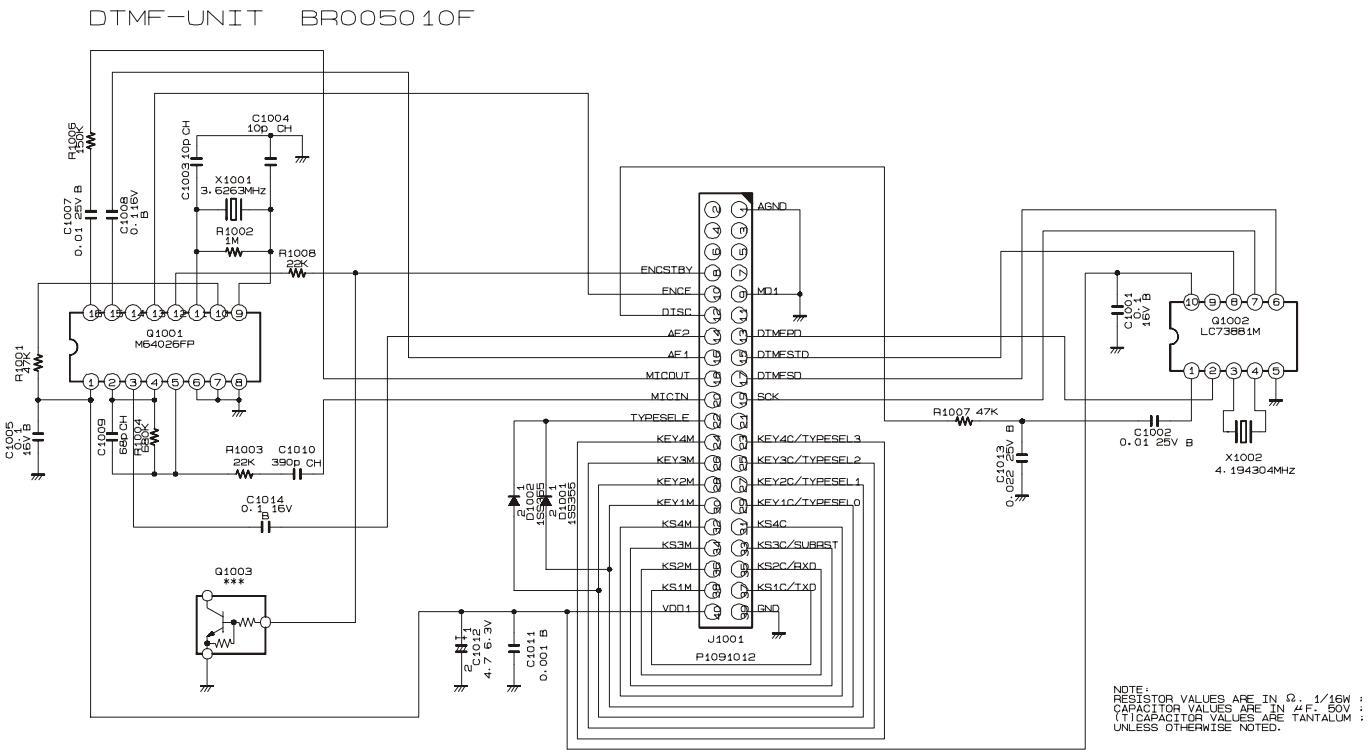
BR93LC56FV
(Q1004)

Parts List

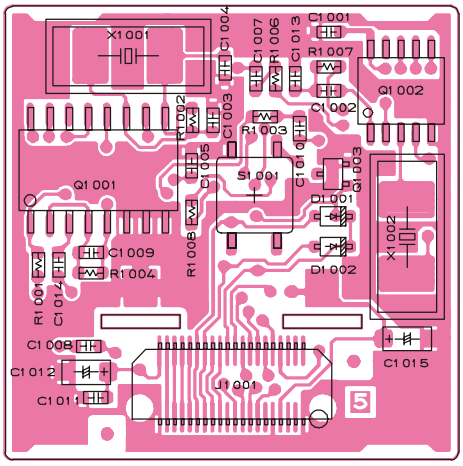
REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
	Printed Circuit Board					FR002540C		1-		
C 1002	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	
C 1003	CHIP CAP.	0.01uF	25V	B	GRM39B103M25PT	K22144802		1-	A	
C 1003	CHIP CAP.	0.01uF	25V	B	GRM39B103K25PT	K22144803		9-	A	
C 1004	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	
C 1004	CHIP CAP.	0.01uF	25V	B	GRM39B103K25PT	K22144803		9-	A	
C 1005	CHIP CAP.	0.01uF	25V	B	GRM39B103M25PT	K22144802		1-	A	
C 1005	CHIP CAP.	0.01uF	25V	B	GRM39B103K25PT	K22144803		9-	A	
C 1006	CHIP CAP.	10pF	50V	CH	GRM39CH100C50PT	K22174248		1-	A	
C 1007	CHIP CAP.	10pF	50V	CH	GRM39CH100C50PT	K22174248		1-	A	
C 1008	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	
C 1009	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		1-	A	
C 1010	CHIP CAP.	0.0018uF	50V	B	GRM39B182M50PT	K22174812		1-	A	
C 1011	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	
C 1012	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	
C 1013	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	
C 1014	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	
D 1001	DIODE				1SS355 TE-17	G2070470		1-	A	
J 1001	CONNECTOR				AXK5S40035P	P1091012		1-	A	
Q 1001	IC				NJM2904V-TE1	G1091677		1-	A	
Q 1002	IC				MC68HSC705C8A502-6030 130	G1092917		1-	A	
Q 1002	IC				MC68HSC705C8A502-6030 131	G1093326		6-	A	
Q 1003	IC				TA75S01F TE85R	G1091593		1-	A	
Q 1004	IC				BR93LC56FV-E2	G1092787		1-	A	
R 1001	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	
R 1002	CHIP RES.	680k	1/16W	5%	RMC1/16 684JATP	J24185684		1-	A	
R 1003	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	
R 1004	CHIP RES.	470k	1/16W	5%	RMC1/16 474JATP	J24185474		1-	A	
R 1005	CHIP RES.	120k	1/16W	5%	RMC1/16 124JATP	J24185124		1-	A	
R 1006	CHIP RES.	680k	1/16W	5%	RMC1/16 684JATP	J24185684		1-	A	
R 1007	CHIP RES.	330k	1/16W	5%	RMC1/16 334JATP	J24185334		1-	A	
R 1008	CHIP RES.	150k	1/16W	5%	RMC1/16 154JATP	J24185154		1-	A	
R 1009	CHIP RES.	82k	1/16W	5%	RMC1/16 823JATP	J24185823		1-	A	
R 1010	CHIP RES.	39k	1/16W	5%	RMC1/16 393JATP	J24185393		1-	A	
R 1011	CHIP RES.	20k	1/16W	1%	RMC1/16 203FTP	J24183203		1-	A	
R 1012	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1013	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1014	CHIP RES.	1M	1/16W	5%	RMC1/16 105JATP	J24185105		1-	A	
R 1015	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1016	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1017	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1018	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1019	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	
R 1020	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	
R 1021	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	
R 1022	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	
R 1023	CHIP RES.	560k	1/16W	5%	RMC1/16 564JATP	J24185564		1-	A	
R 1024	CHIP RES.	18k	1/16W	5%	RMC1/16 183JATP	J24185183		1-	A	
R 1025	CHIP RES.	68k	1/16W	5%	RMC1/16 683JATP	J24185683		1-	A	
R 1026	CHIP RES.	470k	1/16W	5%	RMC1/16 474JATP	J24185474		1-	A	
R 1027	CHIP RES.	68k	1/16W	5%	RMC1/16 683JATP	J24185683		1-	A	
R 1028	CHIP RES.	33k	1/16W	5%	RMC1/16 333JATP	J24185333		1-	A	
X 1001	XTAL SX-1315	3.579545MHz			3.579545MHZ	H0103185		1-	A	
	BLIND SHEET					RA0109300		1-		

FVP-25 Encryption / DTMF Pager Unit

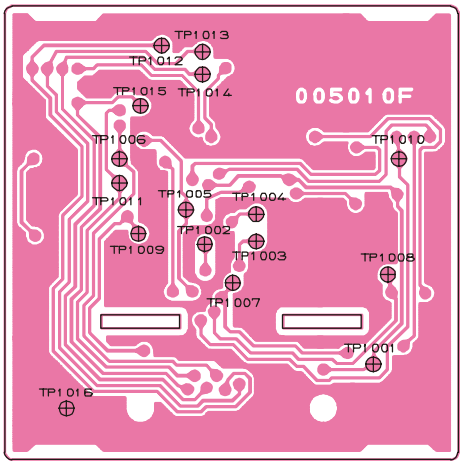
Circuit Diagram



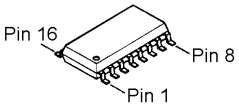
Parts Layout



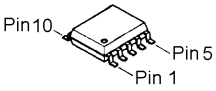
Side A



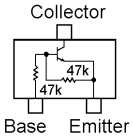
Side B



M64026FP
(Q1001)



LC73881
(Q1002)



DTC144EU (26)
(Q1003)

Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
	Printed Circuit Board					FR005010F				
C 1001	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B1
C 1002	CHIP CAP.	0.01uF	25V	B	GRM39B103M25PT	K22144802		1-	A	B1
C 1003	CHIP CAP.	10pF	50V	CH	GRM39CH100D50PT	K22174211		1-	A	A1
C 1004	CHIP CAP.	10pF	50V	CH	GRM39CH100D50PT	K22174211		1-	A	A1
C 1005	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A1
C 1007	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A1
C 1007	CHIP CAP.	0.01uF	25V	B	GRM39B103M25PT	K22144802		32-	A	A1
C 1008	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A2
C 1009	CHIP CAP.	68pF	50V	CH	GRM39CH680J50PT	K22174231		1-	A	A1
C 1010	CHIP CAP.	390pF	50V	CH	GRM39CH391J50PT	K22174255		1-	A	A1
C 1011	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A2
C 1012	CHIP TA.CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017		1-	A	A2
C 1013	CHIP CAP.	0.022uF	25V	B	GRM39B223K25PT	K22144807		1-	A	A1
C 1014	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A1
D 1001	DIODE				1SS355 TE-17	G2070470		1-	A	B1
D 1002	DIODE				1SS355 TE-17	G2070470		1-	A	B1
J 1001	CONNECTOR				AXK5S40035P	P1091012		1-	A	A2
Q 1001	IC				M64026FP-650C	G1092754		1-	A	A1
Q 1002	IC				LC73881M-TLM	G1092755		1-	A	B1
Q 1003	TRANSISTOR				DTC144EU T106	G3070041		1-	A	B1
R 1001	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	A1
R 1002	CHIP RES.	1M	1/16W	5%	RMC1/16 105JATP	J24185105		1-	A	A1
R 1003	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	A	A1
R 1004	CHIP RES.	680k	1/16W	5%	RMC1/16 684JATP	J24185684		1-	A	A1
R 1006	CHIP RES.	150k	1/16W	5%	RMC1/16 154JATP	J24185154		1-	A	A1
R 1007	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	B1
R 1008	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	A1
R 1008	CARBON FILM RES.	22k	1/8W	5%	RD18TJ223 22K	J01215223		14-	A	A1
R 1008	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		17-	A	A1
X 1001	XTAL SX-1315	3.6263MHz			3.6263MHZ	H0103183		1-	A	A1
X 1002	XTAL SX-1315	4.194304MHz			4.194304MHZ	H0103184		1-	A	B1
	BLIND SHEET					RA0109300		1-