ANI-F

Multi-Format ANI Encoder

Manual Revision: 2009-01-21

Covers Software Revisions:
ANI-F: 1.2 and higher

SPECIFICATIONS

Operating Voltage	+5.5-15 VDC
Operating Current	2.6 mA
Operating Temperature	-30 - +60 C
Frequency Range	280-3600 Hz
PTT Output Current	200 mA
Audio Output Level	1V RMS
Audio Output Impedance	10KΩ/22 KΩ
Tone Distortion	<1%

GENERAL INFORMATION

The ANI-F offers ANI & Emergency ANI in formats such as Motorola's MDC-1200, Kenwood's FleetSync, M/A-Com's G-Star, DTMF and 5-tone. The ANI-F also supports paging in 2-Tone or POCSAG and the encoding of burst tones. The ANI-F can be used with Midian's ADD, CAD or DDU Series products for monitoring ANI and ENI transmissions.

PRODUCT PROGRAMMING

Midian's ANI-F is programmed using the KL-3. Please reference the KL-3 manual for setup instructions of the KL-3 software and hardware. From the product selection screen in the KL-3 software, select the ANI-F (Regular), and then select the format of the product you require.

Set the parameters of the ANI-F software to fit the application. If any clarifications of a feature are required, move the mouse cursor over the feature name until the question mark appears and right click, a definition of the feature will be shown. If 2-tone or custom tones will be used in the ANI-F, you will need to select "Enable Advanced ANI Tone Definitions" in the "ANI Tone Definitions" tab.

After entering the parameters, save the file by going to File - Save As. Enter the file name in the File Name block and click Save. Saving the file will allow for quick and easy reprogramming of units.

Connect the Orange/White wire to the Green KL-3 lead, the Violet wire to the Yellow KL-3 lead, and the Black wire to a common ground with the KL-3's Black lead.

Ground the PTT Input (Gray Wire), turn on power, and click "Program Unit" in the menu bar to send the file to the ANI-F. Follow the same procedure to read the unit, but select "Read Unit" in the menu bar.

HARDWARE INSTALLATION

Be certain to follow standard anti-static procedures when handling any of Midian's products.

The following connections are used when the ANI-F is being used for Motorola's MDC-1200, Kenwood's FleetSync, M/A-Com's G-Star, DTMF, 5-Tone, 2-tone and custom tones. For POCSAG and Burst Tone see the end of this section.

P1-4 – Black – Ground – Connect to the nearest ground point.

P1-2 – Red - +5.5 – 15 VDC – Connect to switched B+ in the radio.

P1-1 – Green – TX Tone Out – Connect to the modulator circuit. Use a high impedance point in the radio. In Low-Z mic circuits, it may be necessary to short R11 with the pads next to R-11 and increase C-6.

P1-8 – Green/White – Mic Mute – If desired, connect to mic element bias point or to some other point in the audio amp to crowbar mic audio to ground during ANI to prevent voice interference.

P1-5 – Blue – Alert Tone/Speaker Audio – Connect to high side of the speaker. This provides Time-Out Timer, Penalty, and Go Ahead tones. When using 20-40 Ohm speakers, the onboard resistor in series with Q2 should be sufficient. When attaching this lead to a 4-8 Ohm speaker, add a 100-Ohm resistor in series with the lead to limit current. If the output is needed as a Hi-Z signal to an op-amp, then open JU2 (1-2) and close JU2 (2-3).

P1-11 – Gray – PTT In – Requires a logic low from the radio's PTT switch. If TOT is not needed, the PTT In & Out wires can be tied together and connected to the radio's PTT switch. For non-common PTT, open the PTT path and connect the gray wire to the switch. This lead must be grounded upon power up to enter programming mode.

P1-9 – White – PTT Out – Connect this lead to the same point as the PTT In wire for common PTT. For non-common PTT connect to the other side of the open PTT path as referred to in the above step. The ANI-F now has control of the PTT for Time Out Timer (TOT) and penalty timer. The PTT transistor, Q3, is rated at 200 mA continuous.

P1-12 – Orange/White – Program In/Trunking Strobe – For Program In, this lead is connected to the Green lead form the KL-3 programmer. For the Trunking Strobe, connect to the radio's channel acquired strobe. If not used program for Positive Strobe and leave unconnected. When using the Status version of the ANI-F, this lead becomes the status input.

P1-13 – Violet – Program Out/Emergency Input – For Program Out, this lead is connected to the Yellow lead from the KL-3 programmer. For the Emergency Input, connect to a switch to provide a momentary ground.

P1-6 – Orange – Audio Enable – Positive Logic - Currently this logic is only active during Go-Ahead Beeps.

P1-7 – Yellow – Audio Enable - Negative Logic – Currently this logic is only active during Go-Ahead Beeps.

P1-10 – Gray/White – COR Input – This is only available for the analog format version supporting DTMF, 5-Tone and 2-Tone. Connect to point in the squelch or CTCSS circuit that changes logic level when carrier is received.

Burst Tone:

The following connections are unique from the above connections when using Burst Tone:

P1-12 – Orange/White – Code Select 1 – In addition to being Program In, this lead is also the most significant bit of a two-bit binary address that allows you to select four different burst tone codes that are programmed in memory.

P1-13 – Violet – Code Select 0 – In addition to being Program Out, this lead is also the least significant bit of a two-bit binary address that allows you to select four different burst tone codes that are programmed in memory.

Selecting Burst Tone Codes: Program each of the four frequencies and times into the binary switch selection locations indicated by **Sel1** and **Sel0** on the programming worksheet. If only one burst tone is required, program the first position. This eliminates the need to use either of the binary select lines.

POCSAG:

The following connections are unique from the above connections for the ANI-FP version only:

P1-3 – Brown – COR In – Connect to point in the squelch or CTCSS circuit that changes logic level when carrier is received.

P1-11 – Gray – Program Enable – This input must be grounded before powering the unit to place the unit in programming mode.

P1-13 – Violet – Input 1 – This input is capable of transmitting two messages; one when the input is grounded, and another when the input is released from ground. Do not apply voltage to this input.

P1-10 – Gray/White – Input 2 – This input is capable of transmitting two messages; one when the input is grounded, and another when the input is released from ground. Do not apply voltage to this input.

P1-12 – Orange/White – Input 3 – This input is capable of transmitting two messages; one when the input is grounded, and another when the input is released from ground. Do not apply voltage to this input.

RADIO PROGRAMMING

The ANI-F is a generic module that wires into most radios. Any radio specific programming, if available, would be found on any Application Notes available for those radios. You may visit our website or call us for application notes.

HARDWARE ALIGNMENT

For the TX Audio Output in a wide band system, set the ANI modulation pot RP1 to 3.3 KHz (66% of 5 KHz) of deviation per EIA specifications. For the TX Audio Output in a narrow band system, set the ANI modulation pot RP1 to 1.65 KHz (66% of 2.5 KHz) of deviation per EIA specifications.

OPERATION

ANI Encode: When the PTT Input is grounded, the unit will assert the PTT Output and send the programmed ANI tones out the TX Tone Output.

ENI Encode: When the Emergency Input is grounded for the programmed amount of time, the unit will assert the PTT Output and send the programmed Emergency ANI tones out the TX Tone Output. Cycling the power to the unit or grounding the PTT Input will cancel the ENI.

Burst Tone Encode: When the PTT Input is grounded the ANI-F will encode the burst tone associated with the 2-line binary configuration.

POCSAG: When the an input changes state the ANI-F will assert the PTT Output and generate the POCSAG page associated with the state of that input.

TECHNICAL NOTES

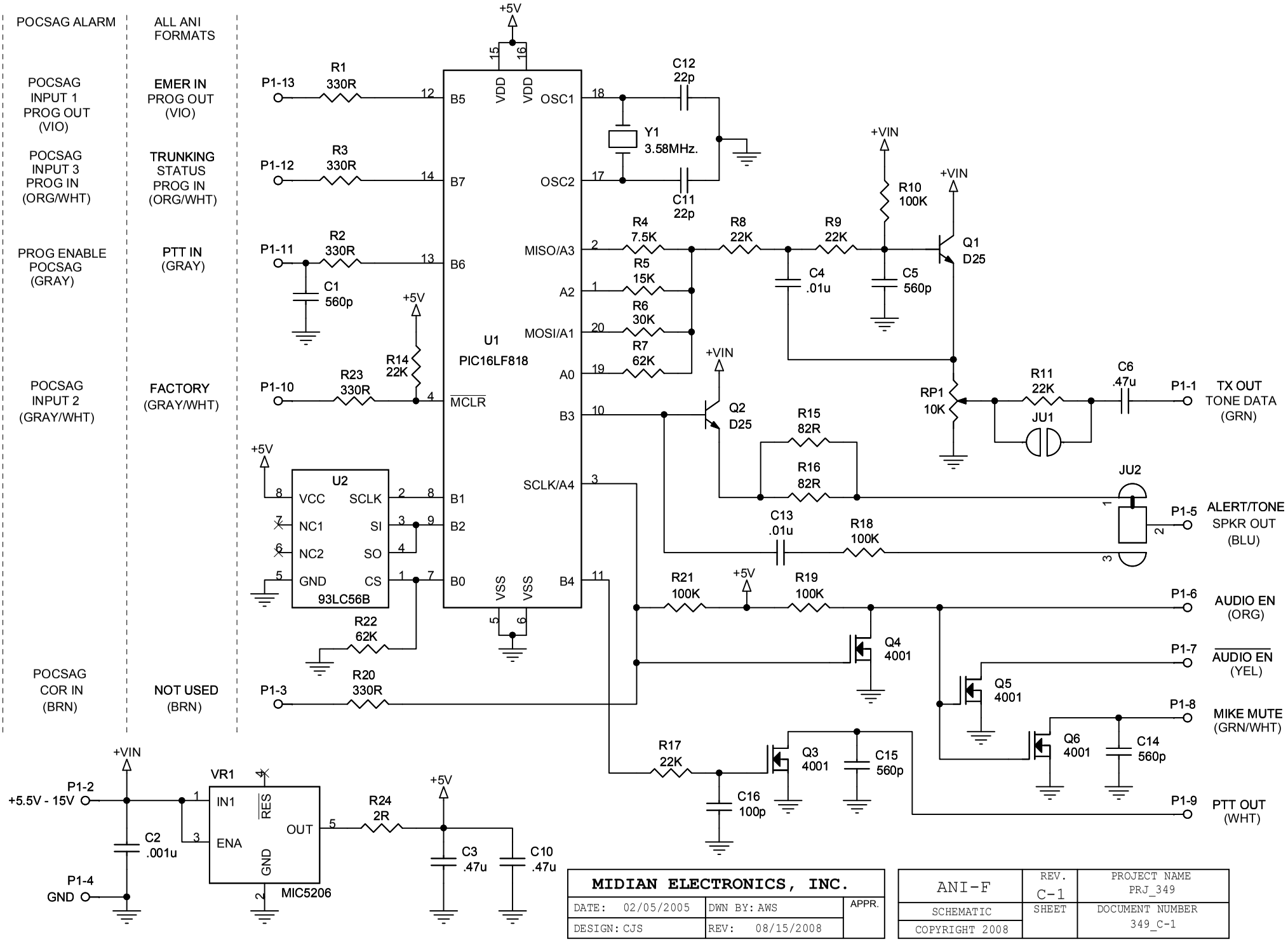
Programming 2-tone: 2-tone ANI is programmed with the Advanced Tone Definitions. In Frame 1, Frequency 1 type in the frequency of the first tone and type the length of the first tone in Frame 1 msec. In Frame 2, Frequency 1 type in the frequency of the second tone and type the length of the second tone in Frame 2 msec. If a gap is needed set Frame 2 Frequency 1 to 0 and the desired length of the gap in Frame 2 msec. Frame 3 would then be the second tone.

MIDIAN CONTACT INFORMATION

Midian Electronics Inc.
2302 East 22nd Street
Tucson, Arizona 85713 USA

Orders: 1-800-MIDIANS
Phone: 520-884-7981
Fax: 520-884-0422
E-mail: sales@midians.com
Web: http://www.midians.com/

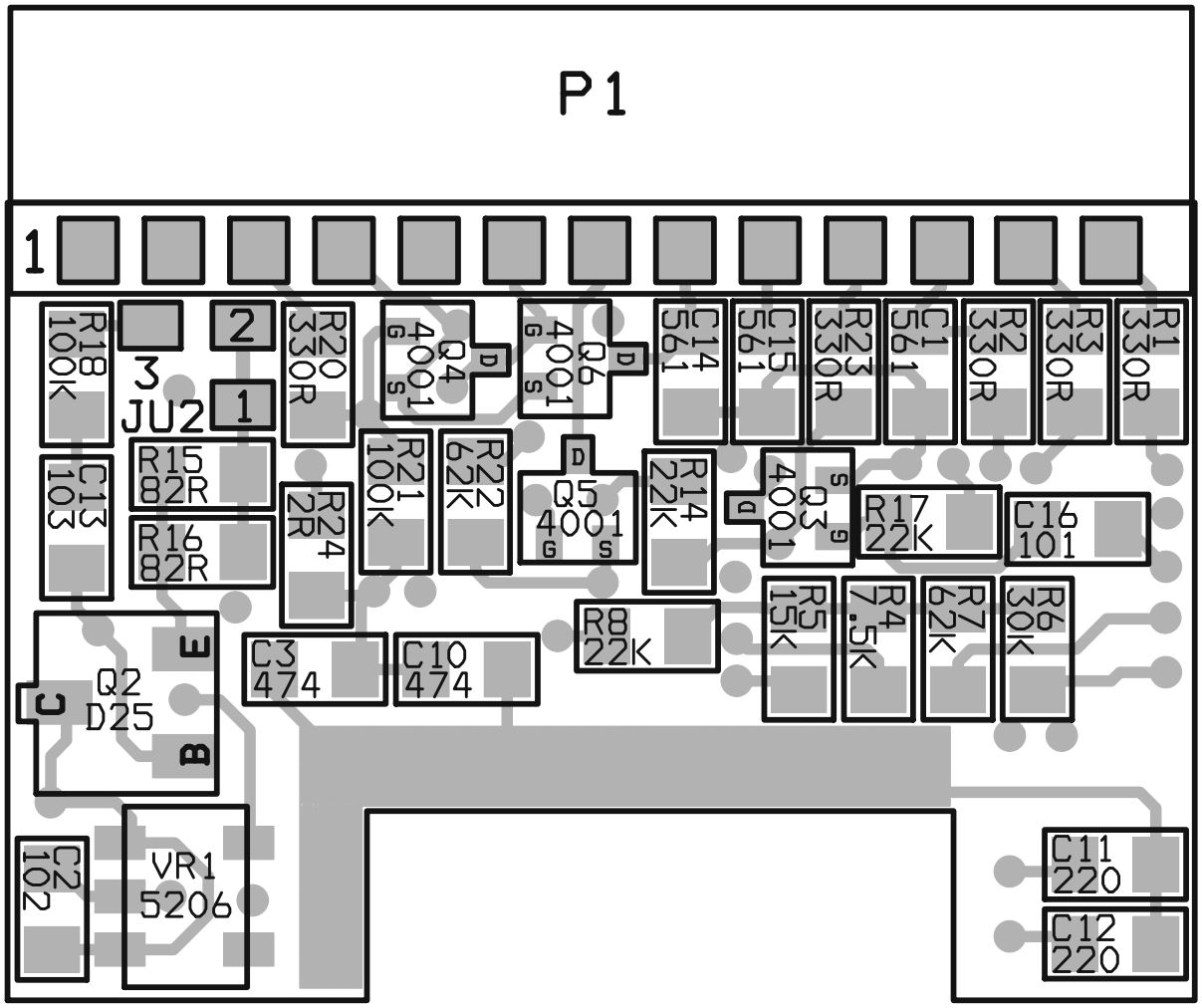
- This page intentionally left blank -



MIDIAN ELECTRONICS, INC.		
DATE: 02/05/2005	DWN BY: AWS	APPR.
DESIGN: CJS	REV: 08/15/2008	

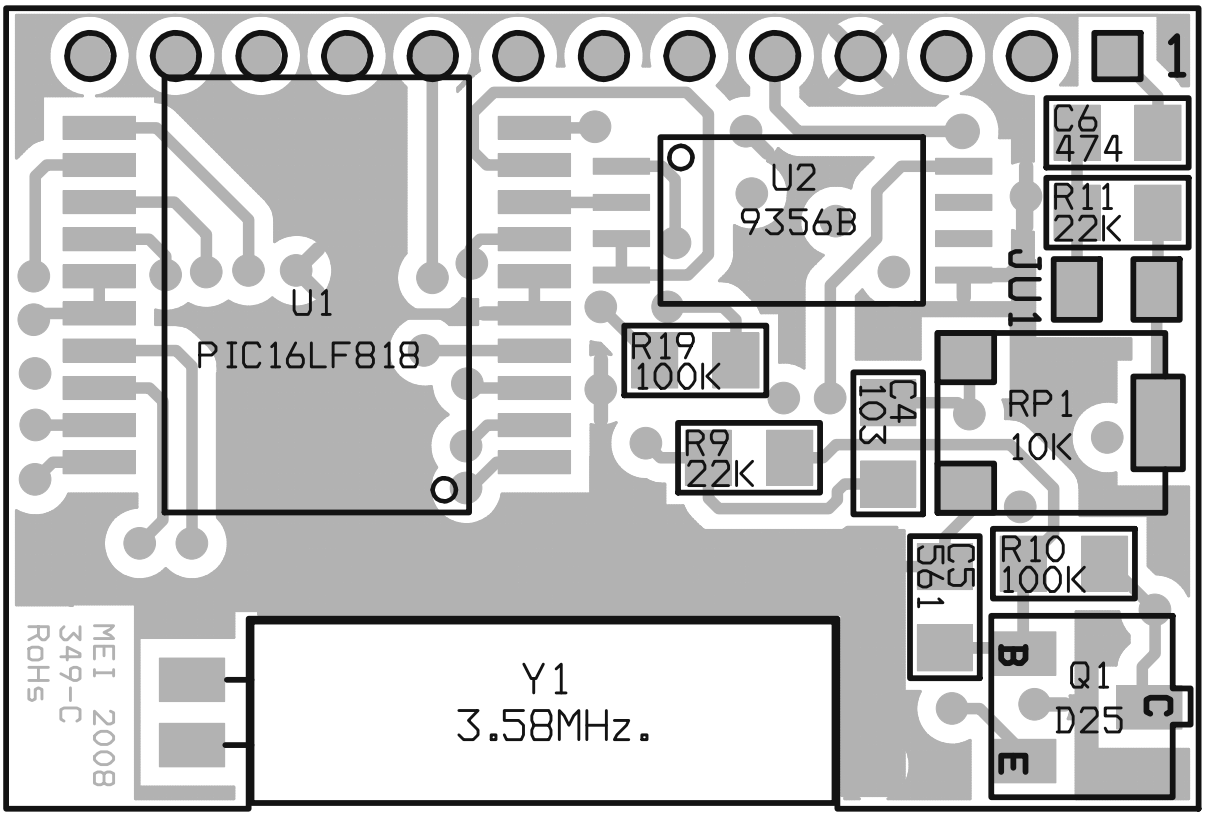
ANI-F	REV. C-1	PROJECT NAME PRJ_349
SCHEMATIC	SHEET	DOCUMENT NUMBER 349_C-1
COPYRIGHT 2008		

- This page intentionally left blank -



MIDIAN ELECTRONICS, INC.		
DATE:08/15/2008	DWN BY:AWS	APPR.
DESIGN:CJS	REV:08/15/2008	

ANI-F	REV. C-1	PROJECT NAME PRJ_349_ANI_F
COMPONENT	SHEET 1 of 1	DOCUMENT NUMBER 349-C-1
COPYRIGHT 2008		



MIDIAN ELECTRONICS, INC.		
DATE: 08/15/2008	DWN BY: AWS	APPR.
DESIGN: CJS	REV: 08/15/2008	

ANI-F	REV. C-1	PROJECT NAME PRJ_349_ANI_F
SOLDER	SHEET 1 of 1	DOCUMENT NUMBER 349-C-1
COPYRIGHT 2008		