3) Technical Manual

3.1) Specification

Table 1 shows the specification. The PA delivers a single-tone output power of 30 watts with 9dB gain over the 895-905MHz frequency band. It has a built-in on-off control, which is TTL compatible, and a temperature sensor for over temperature alarm. The PA will work with all possible modulation schemes.

Table 1: Module Specifications

Parameters	Specifications	Comments
Frequency	895 – 905MHz	
Gain at 30W	> 9dB	
Gain Variation from 895 to 936 MHz	+/- 1dB	
Power at saturation	> 30W	
Input & Output Impedance	50 Ohms	
Voltage Supply	13.6V +/- 15%	Regulator could be used
Supply Current	<12A PA ON <0.2A PA OFF	
T/R Signal	TTL Low for TX TTL High for RX	Input Impedance > 50k Ohms. For open signal gives TTL High.
Module switching time	<10ms	
Temperature Alarm	TTL Low for ON TTL High for OFF	
VSWR Protection	Comply	Isolator protection
RF Connectors	TNC-Female	
DC & Control Interface	Feed thru Pins	
Mechanical Package Size	5.94 x 2.5 x 2.25”	

3.2) PA Technical Design

AM090945SF-1H is a single-stage power amplifier, which provides amplification from 895MHz to 905MHz with 9dB minimum gain. Figure 2 shows the overall block diagram of the module and Figure 3 shows a photo of the module internal SMT assembly.

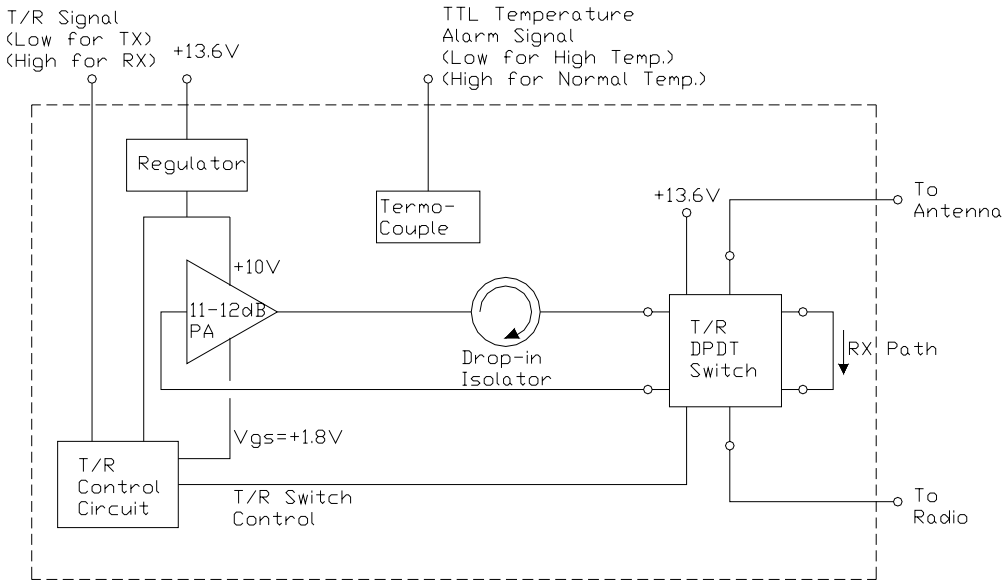

Figure 2: AM090945SF-1H Module Top Level Schematic

Figure 3: Photo of Module SMT Assembly

Figures 4, 5, 6, 7 show the detailed schematics of the RF circuit, the +10V Regulator circuit, the T/R Switching circuit and the Temperature Sensing circuit respectively.

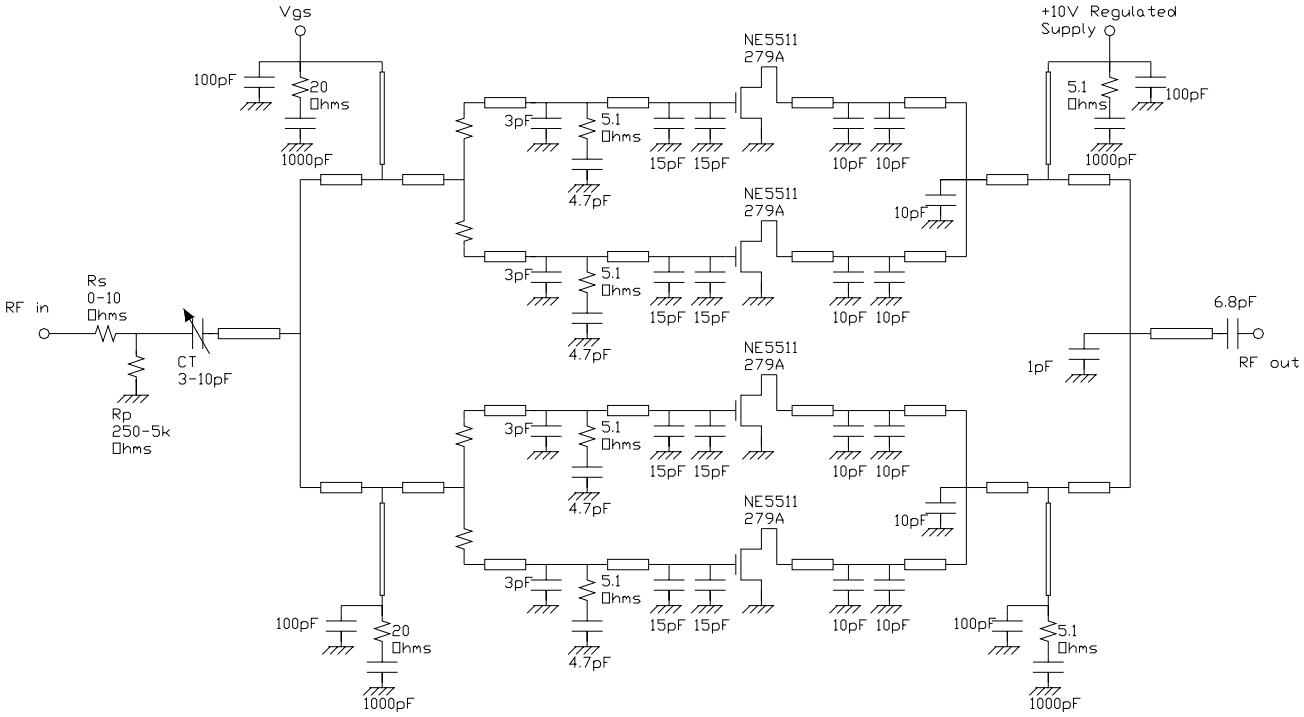

Figure 4: Detailed Circuit Schematic of RF Circuit (PA)

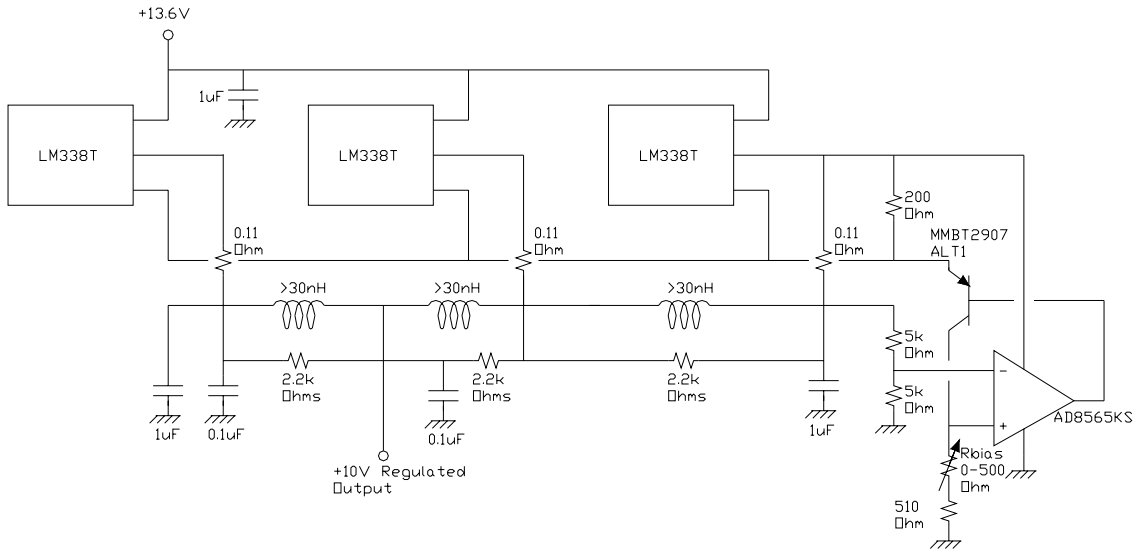

Figure 5: Detailed Circuit Schematic of +10V Regulator

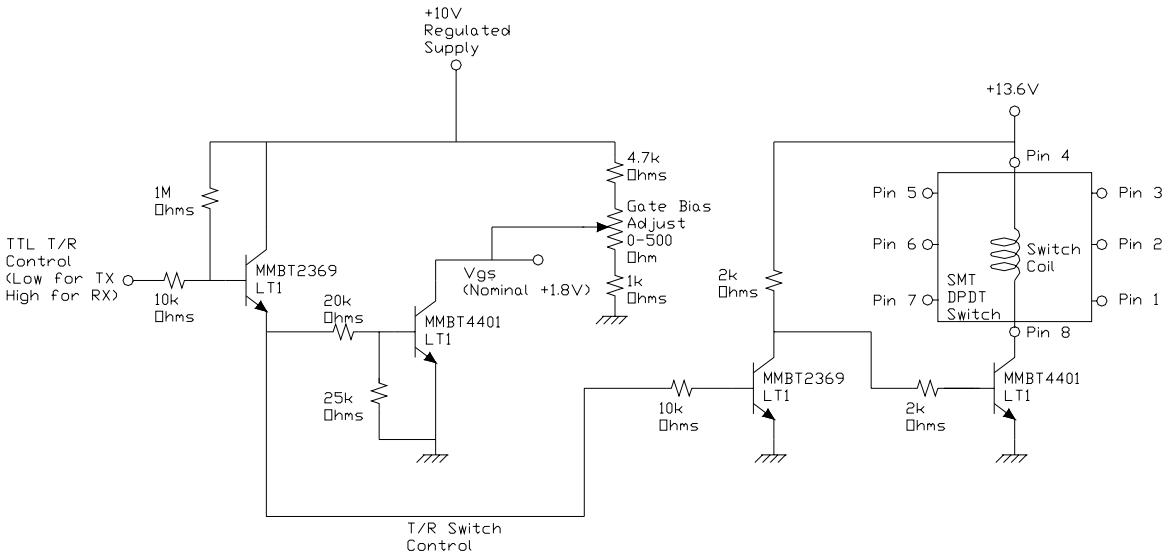

Figure 6: Detailed Circuit Schematic of T/R Circuit

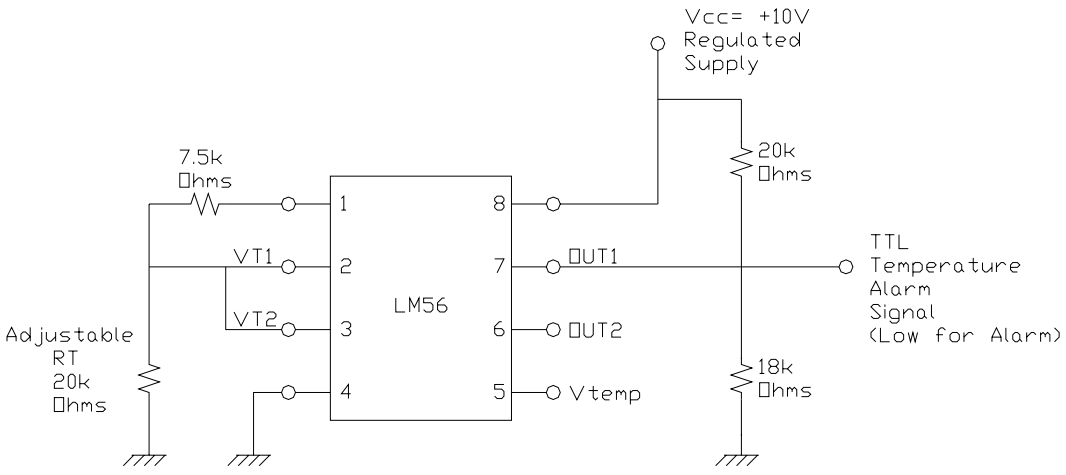

Figure 7: Detailed Circuit Schematic of Temperature Sensing Circuit