



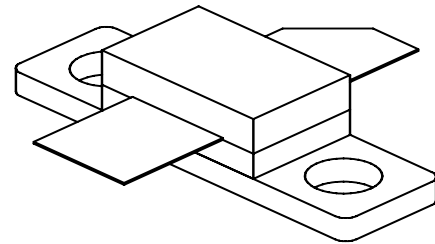
# MDS70

70 Watts, 50 Volts, Pulsed  
Avionics 1030 - 1090MHz

## GENERAL DESCRIPTION

The MDS70 is a COMMON BASE bipolar transistor. It is designed for MODE S pulsed systems in the frequency band 1030-1090 MHz. The device has gold thin-film metallization for proven highest MTTF. The transistor includes input prematch for broadband capacity. Low thermal resistance package reduces junction temperature, extends life.

## CASE OUTLINE 55CX, STYLE 1



## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C <sup>2</sup>	225 Watts
<b>Maximum Voltage and Current</b>	
BVces Collector to Base Voltage	65 Volts
BVebo Emitter to Base Voltage	3.5 Volts
Ic Collector Current	5.0 Amps
<b>Maximum Temperatures</b>	
Storage Temperature	- 65 to + 150°C
Operating Junction Temperature	+ 200°C

## ELECTRICAL CHARACTERISTICS @ 25 °C

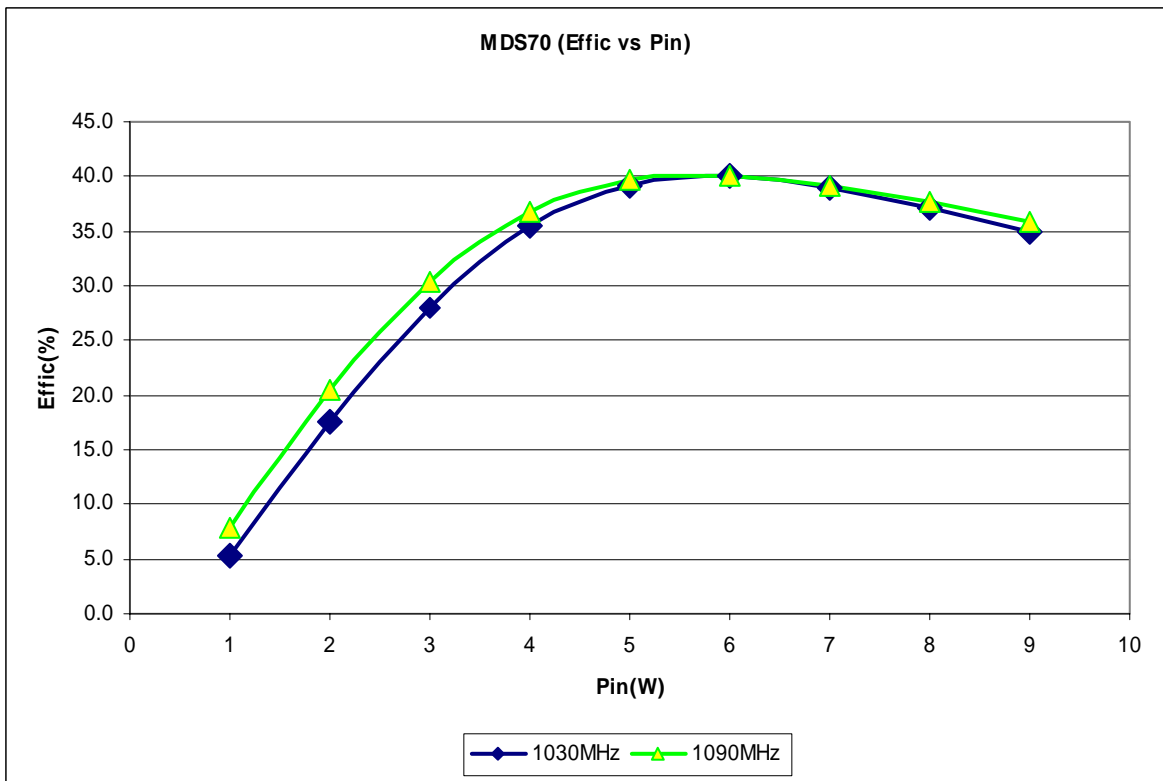
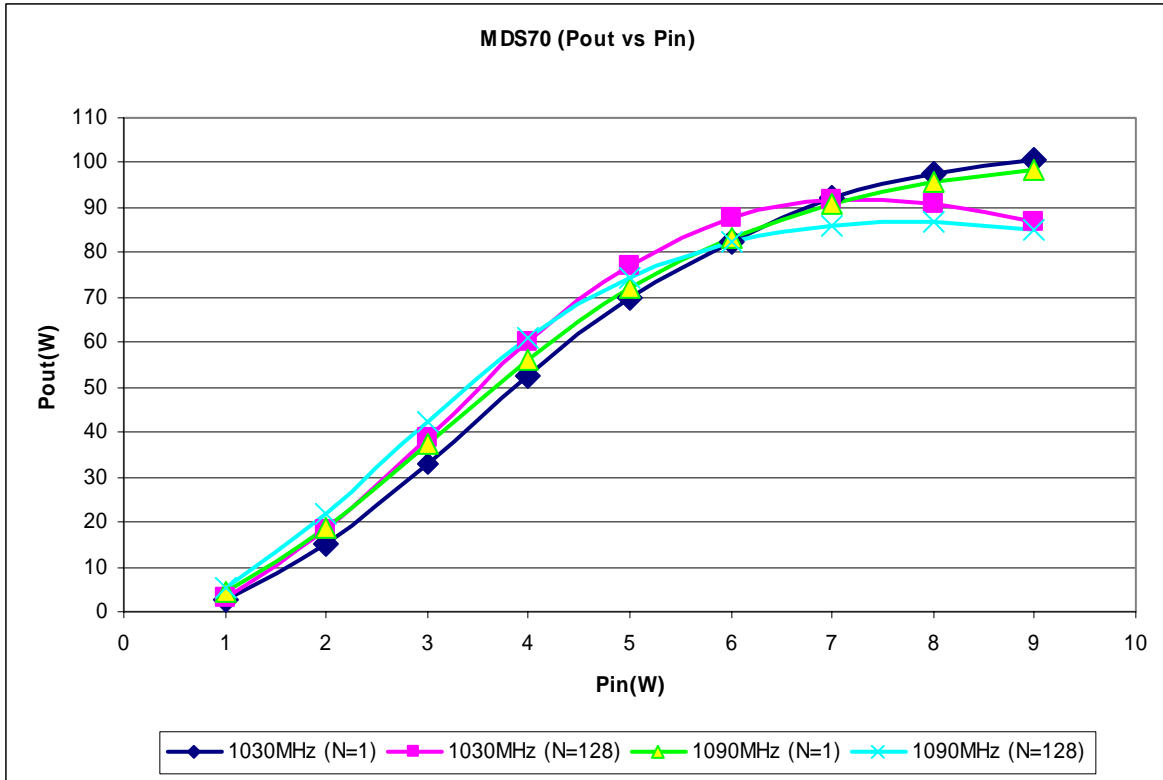
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>Pout</b>	Power Out	F = 1030-1090 MHz Vcc = 50 Volts Pin = 6.5W Pulse Mod: Mode S <sup>2</sup>	70		95	Watts
<b>Pg</b>	Power Gain		10.3		11.65	dB
<b>RT</b>	Rise Time				80	ns
<b>ηc</b>	Collector Efficiency		35			%
<b>VSWR<sup>1</sup></b>	Load Mismatch Tolerance		1090 MHz	5:1		

<b>BVebo</b>	Emitter to Base Breakdown	Ie = 5 mA	3.5			Volts
<b>BVces</b>	Collector to Emitter Breakdown	Ic = 25 mA	65			Volts
<b>hFE</b>	DC - Current Gain	Ic = 500 mA, Vce = 5 V	20			
<b>θjc<sup>1</sup></b>	Thermal Resistance				0.8	°C/W

Notes: 1) At rated pulse conditions  
Rev B: October 2009

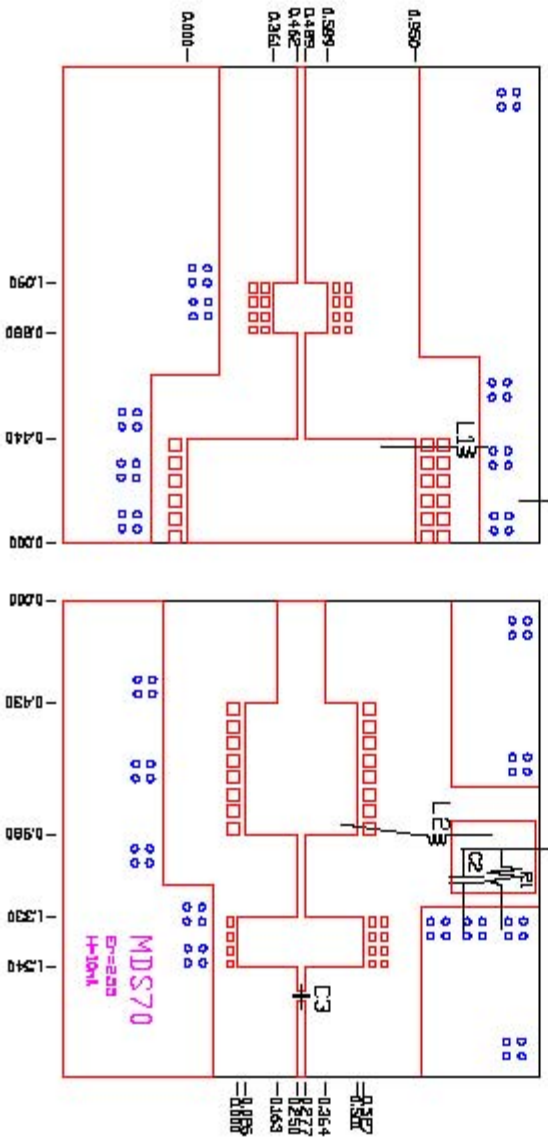
2) Mode S Burst: 0.5us (on/off), N=128, Per=6.4ms; LTDC=1%

Microsemi reserves the right to change, without notice, the specifications and information contained herein. Visit our web site at [www.microsemi.com](http://www.microsemi.com) or contact our factory direct.



Microsemi reserves the right to change, without notice, the specifications and information contained herein. Visit our web site at [www.microsemi.com](http://www.microsemi.com) or contact our factory direct.

**COMPONENTS:**  
 C1=68uF electrolytic 60V  
 C2=100uF chip cap (size B)  
 C3=100uF chip cap(size A)  
 R1=8kOhms; 1/4W  
 L1=18 gauge wire, length=0.665" (0 turns)  
 L2=18 gauge wire, length=1.73" (1 turn)

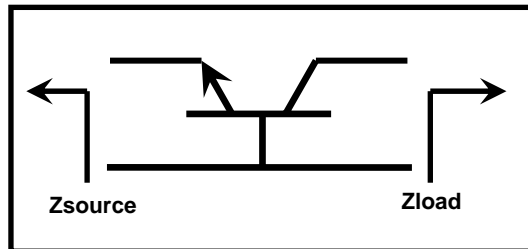


**MICROSEMI**  
 POWER PRODUCTS GROUP

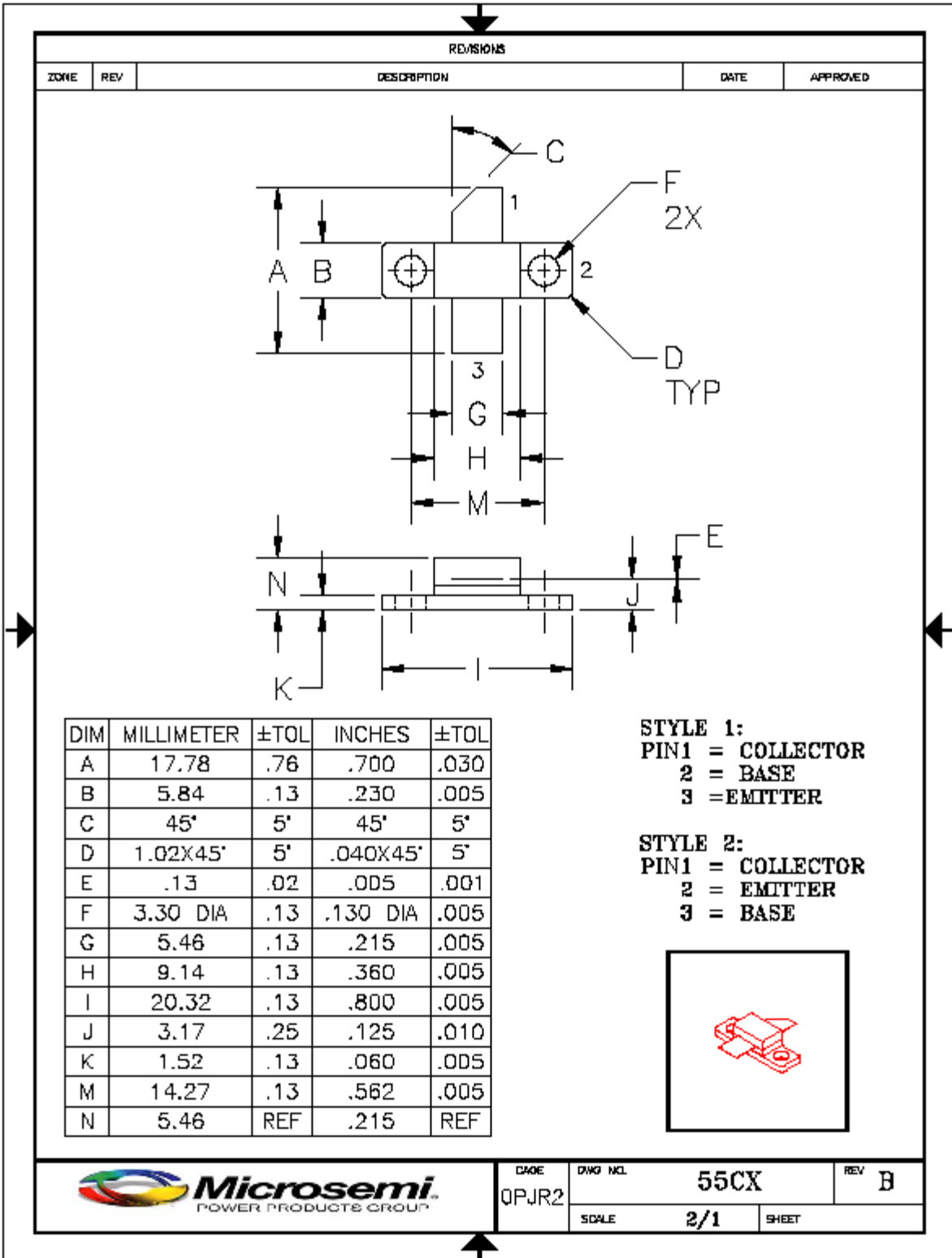
MDS70 TEST CIRCUIT	E-2201 H-10M1
DATE: Thu 2/16/98	SCALE: 1/1 DEV: 1

**MDS70 IMPEDANCE DATA:**

FREQUENCY	$Z_{\text{source}}$ (ohms)	$Z_{\text{load}}$ (ohms)
1030	$3.0 - j4.8$	$5.3 - j1.2$
1090	$2.8 - j4.5$	$6.2 - j1.2$



Microsemi reserves the right to change, without notice, the specifications and information contained herein. Visit our web site at [www.microsemi.com](http://www.microsemi.com) or contact our factory direct.



Microsemi reserves the right to change, without notice, the specifications and information contained herein. Visit our web site at [www.microsemi.com](http://www.microsemi.com) or contact our factory direct.