



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.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C² 225 Watts

Maximum Voltage and Current

BVces Collector to Base Voltage 65 Volts

BVebo Emitter to Base Voltage 3.5 Volts

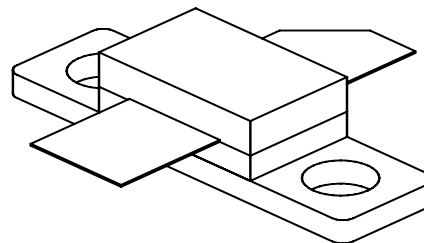
Ic Collector Current 5.0 Amps

Maximum Temperatures

Storage Temperature - 65 to + 150°C

Operating Junction Temperature + 200°C

CASE OUTLINE 55CX, STYLE 1



ELECTRICAL CHARACTERISTICS @ 25 °C

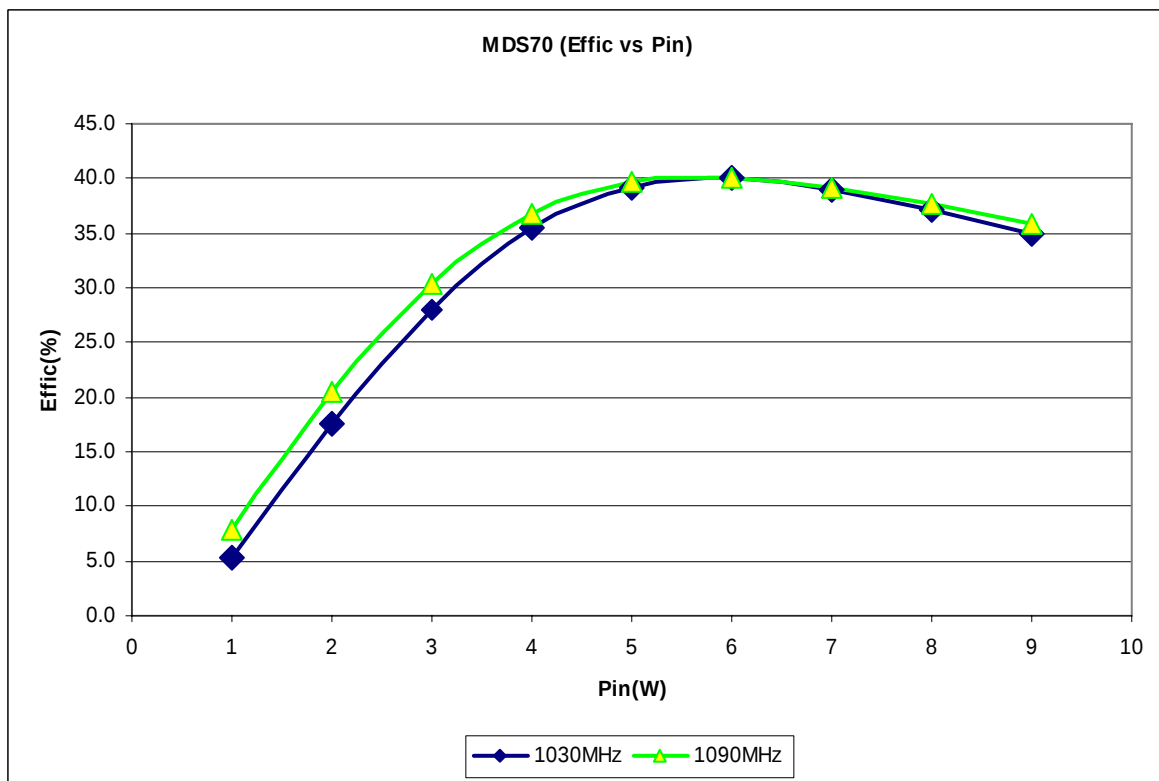
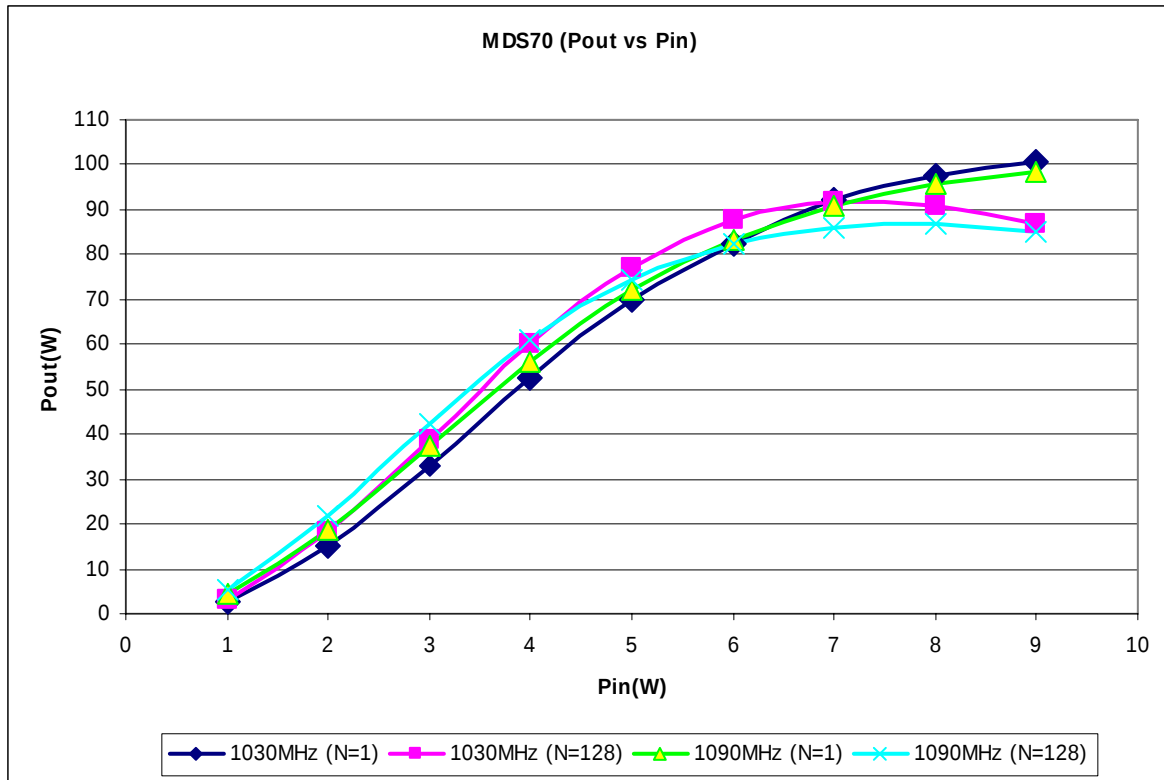
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 1030-1090 MHz V _{cc} = 50 Volts P _{in} = 6.5W Pulse Mod: Mode S ²	70		95	Watts
P_g	Power Gain		10.3		11.65	dB
RT	Rise Time				80	ns
η_c	Collector Efficiency		35			%
VSWR¹	Load Mismatch Tolerance	1090 MHz	5:1			

BVebo	Emitter to Base Breakdown	I _e = 5 mA	3.5			Volts
BVces	Collector to Emitter Breakdown	I _c = 25 mA	65			Volts
h_{FE}	DC - Current Gain	I _c = 500 mA, V _{ce} = 5 V	20			
θ_{jc}¹	Thermal Resistance				0.8	°C/W

Notes: 1) At rated pulse conditions
Rev C: August 2010

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

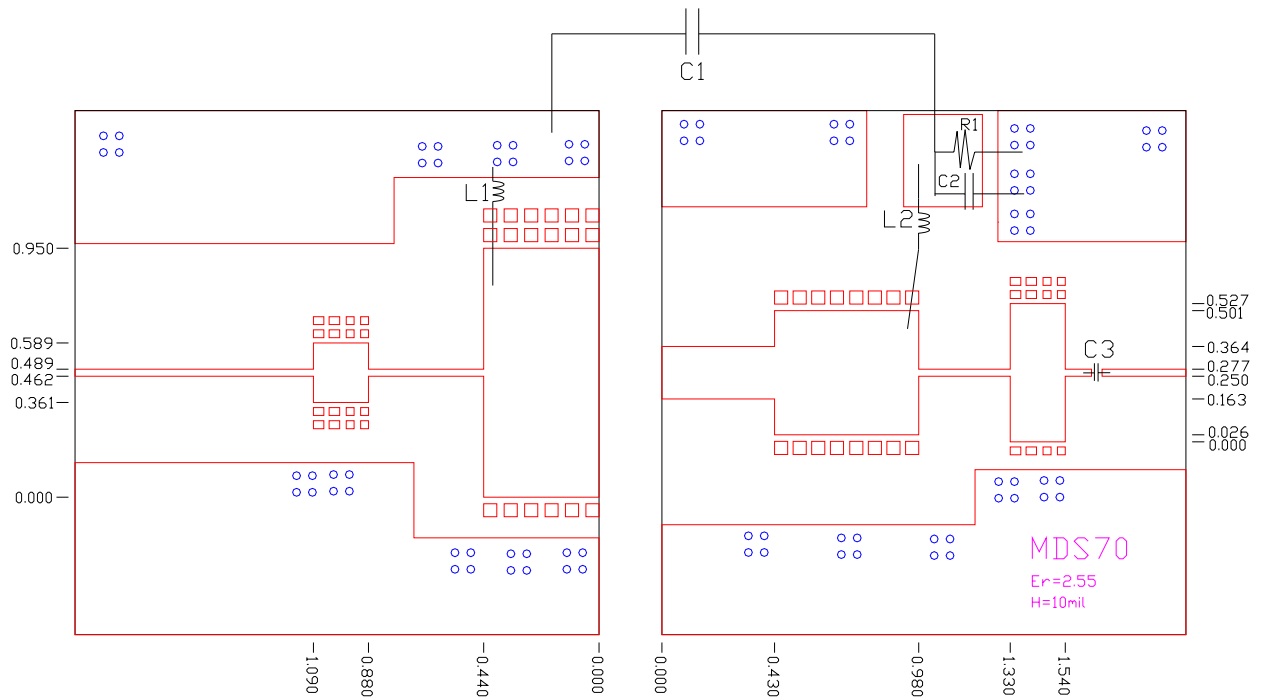
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COMPONENTS:

C1=68uF electrolytic; 60V
 C2=100uF chip cap (sizeB)
 C3=100uF chip cap(size A)
 R1=8kΩhms; 1/4W
 L1=18 gauge wire, length=0.665" (0 turns)
 L2=18 gauge wire, length=1.73" (1 turn)
 Substrate: Er=2.55; H=10mils



DIMENSIONS IN INCHES

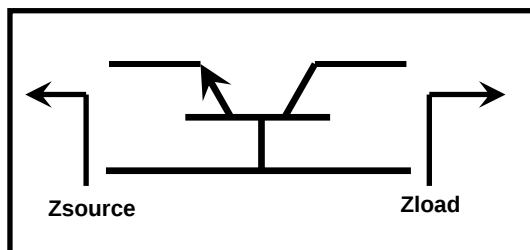


MDS70 TEST CIRCUIT		Er=2.55; H=10mils	
Casey Tau	7/14/09	Scale: 1/1	REV 1

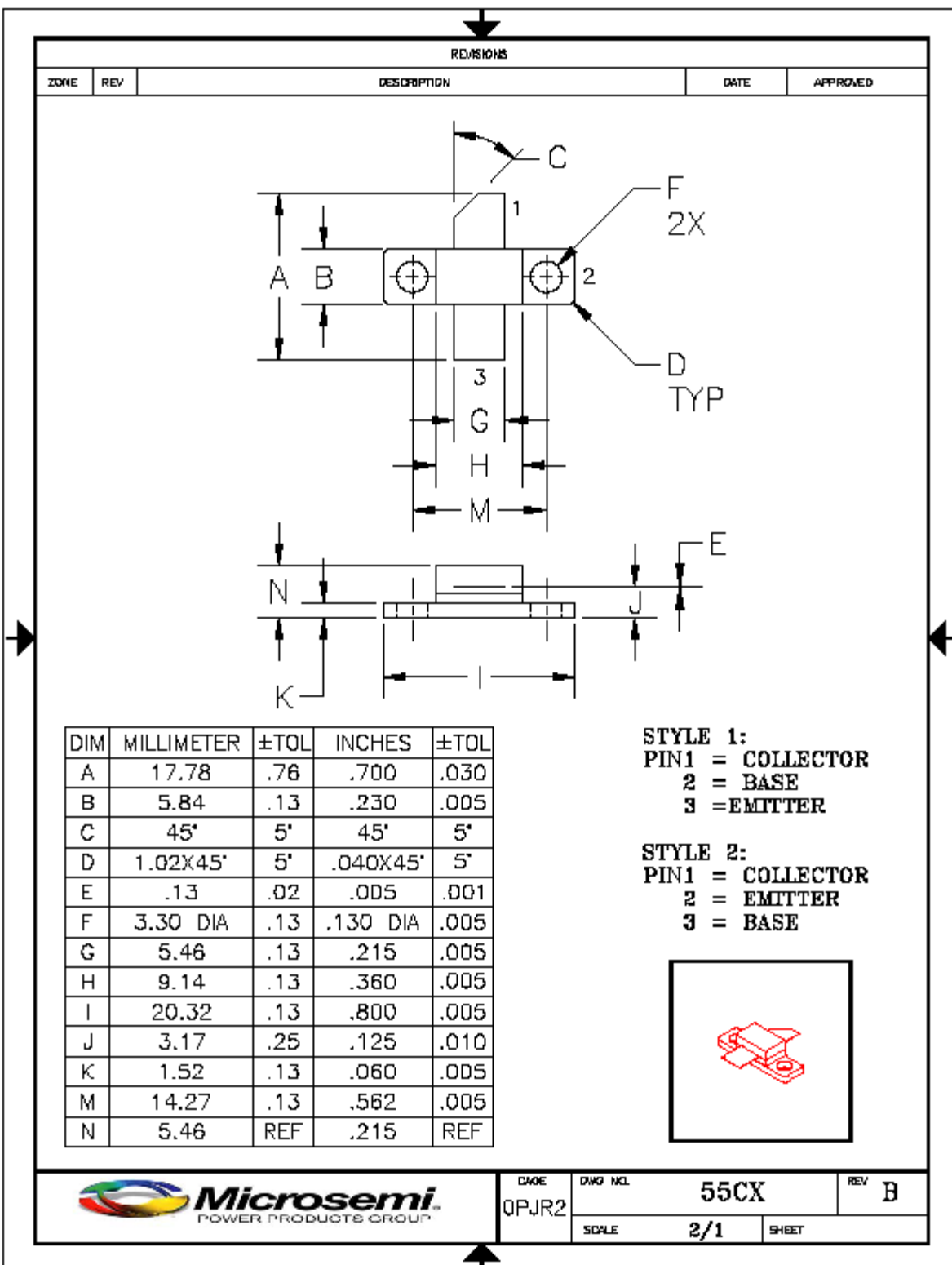
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MDS70 IMPEDANCE DATA:

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



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