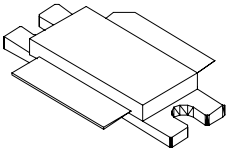

MDS1100

1100 Watts, 50 Volts

Pulsed Avionics at 1030 MHz

<p>GENERAL DESCRIPTION</p> <p>The MDS1100 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems at 1030 MHz, with the pulse width and duty required for MODE-S applications. The device has gold thin-film metalization and emitter ballasting for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.</p>	<p style="text-align: center;">CASE OUTLINE 55TU-1</p> 
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation Device Dissipation @ 25°C¹ 8750 W</p> <p>Maximum Voltage and Current Collector to Base Voltage (BV_{ces}) 65 V Emitter to Base Voltage (BV_{ebo}) 4.5 V Collector Current (I_c) 100 A</p> <p>Maximum Temperatures Storage Temperature -65 to +200 °C Operating Junction Temperature +200 °C</p>	

ELECTRICAL CHARACTERISTICS @ 25°C

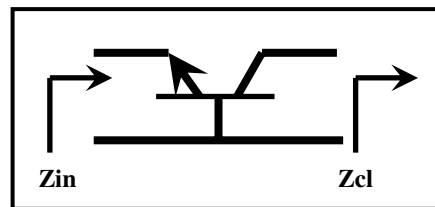
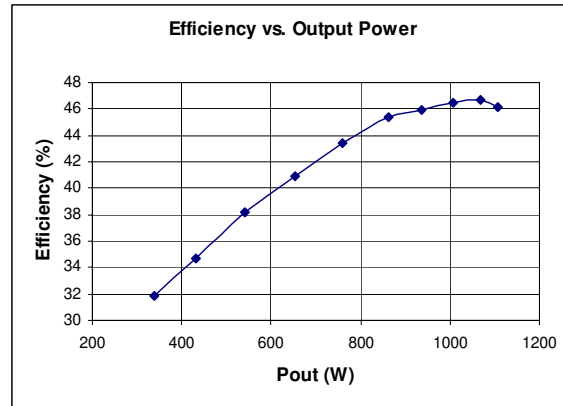
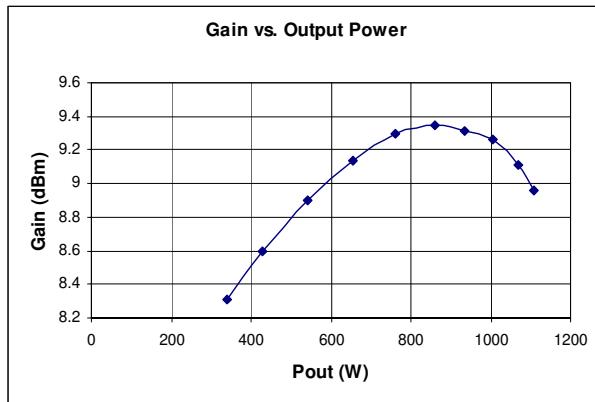
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Out	F = 1030 MHz, V _{cc} = 50 Volts	1000			W
P _g	Power Gain	Note 2	8.9			dB
η _c	Collector Efficiency	F = 1030 MHz, V _{cc} = 50 Volts Note 2	45			%
R _L	Return Loss		11			dB
Tr	Rise Time		100			nS
Pd	Pulse Droop		0.7			dB
VSWR	Load Mismatch Tolerance ¹		4.0:1			

FUNCTIONAL CHARACTERISTICS @ 25°C

BV _{ebo}	Emitter to Base Breakdown	I _e = 50 mA	3.5			V
BV _{ces}	Collector to Emitter Breakdown	I _c = 100 mA	65			V
h _{FE}	DC – Current Gain	V _{ce} = 5V, I _c = 5A	20			
θ _{jc} ¹	Thermal Resistance				0.02	°C/W

- NOTES: 1. At rated output power and pulse conditions
 2. 128 μs burst, 0.5 μs on/0.5 μs off, 6.4 ms period, Pin = 130 Watts

Rev B, September 2005

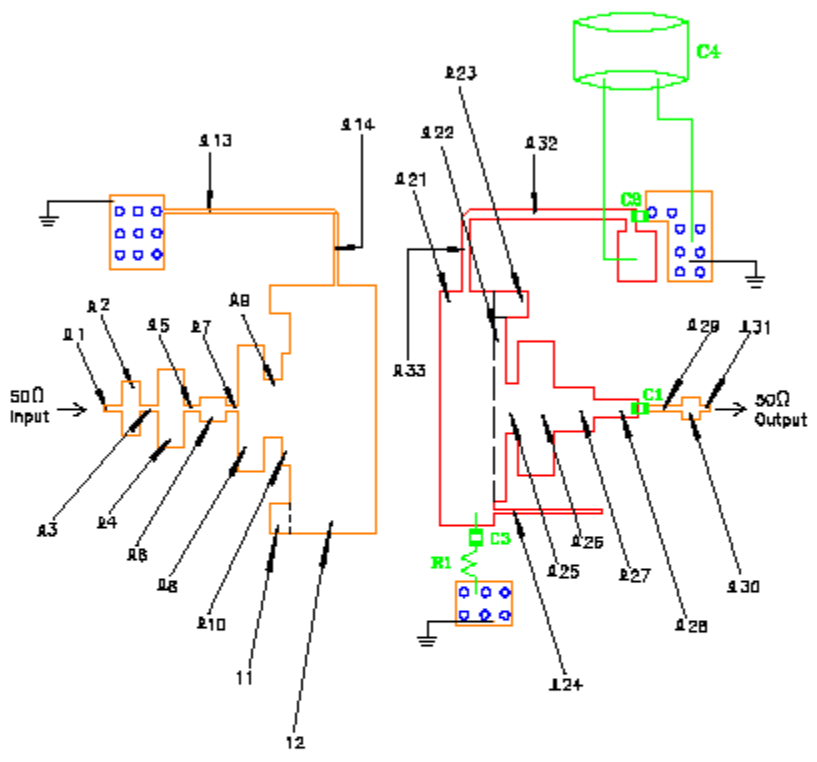


	R (ohms)	jX (ohms)
Zin	1.75	+j2.37
Zcl	0.60	-j1.62

Frequency = 1030 MHz, Vcc = 50V, Pin = 130W

MDS1100

ZONE		REV	DESCRIPTION	DATE	APPROVED



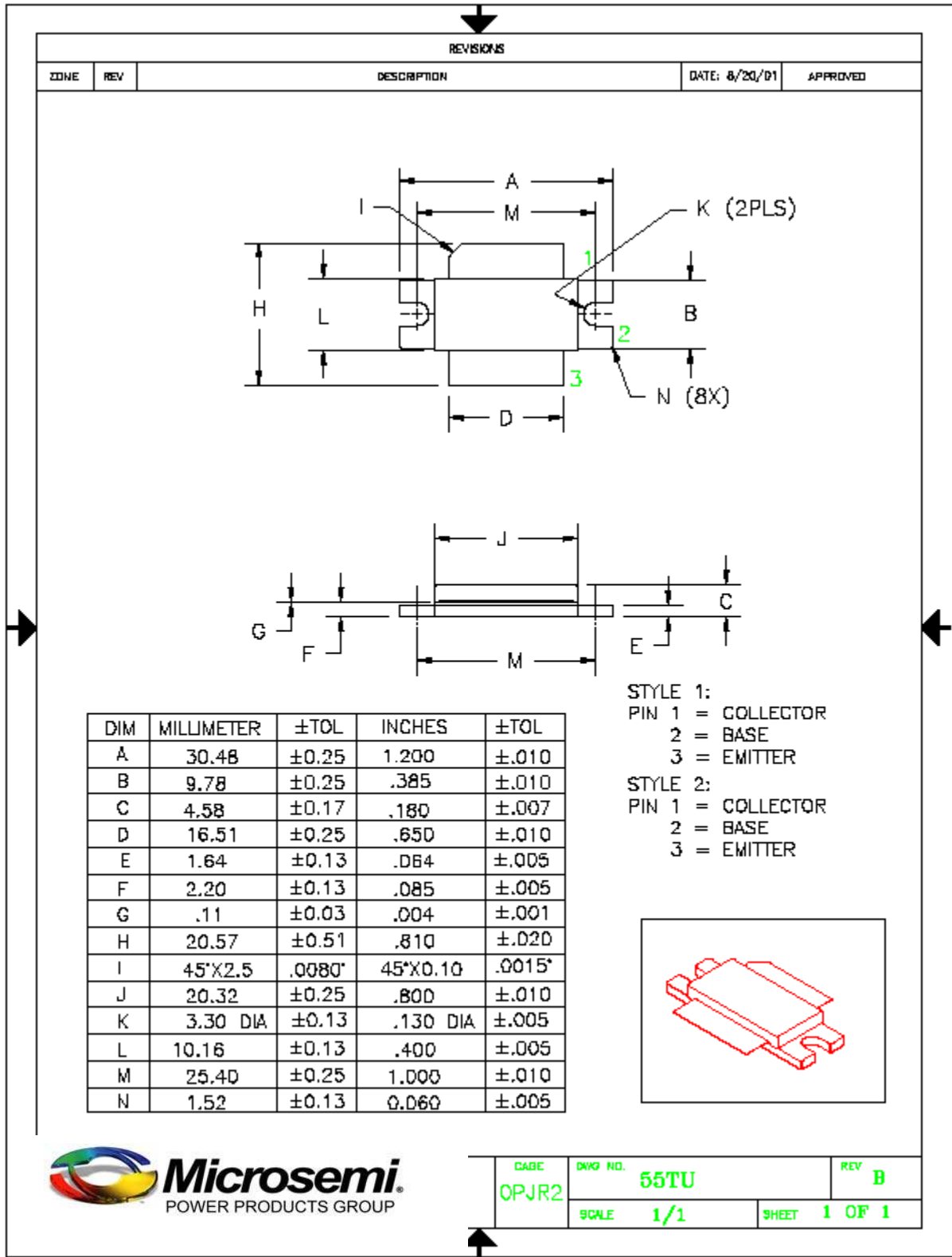
L#	ND.	L(inch)	W(inch)
1		0.074	0.025
2		0.090	0.248
3		0.083	0.025
4		0.1200	0.363
5		0.069	0.029
6		0.1200	0.1100
7		0.058	0.025
8		0.1199	0.584
9		0.079	0.288
10		0.041	0.520
11		0.0974	0.1336
12		0.3900	1.144
13		0.785	0.015
14		0.330	0.015
21		0.246	1.074
22		0.05	0.85
23		0.1573	0.1122
24		0.50	0.015
25		0.053	0.232
26		0.158	0.819
27		0.180	0.204
28		0.263	0.080
29		0.174	0.025
30		0.08	0.086
31		0.05	0.026
32		0.762	0.04
33		0.335	0.04

Item	Value	Type
C1	88 pF	Cap. Chip, ATC 100A
C2	82 pF	Cap. Chip, ATC 100A
C3	0.1 uF	Cap. Chip, ATC 100 B
C4	5000 uF	Cap. electrolytic 83v
R1	1 Ω	Resistor
Board: RT/durohd B010		
Er=10.2, H=25mm/s		
DATE	ENG. NO.	REV
0PJ2	MDS1100	A
SCALE	1:1	SHEET



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MDS1100



DATE OPJR2	DWG NO. 55TU	REV B
SCALE 1/1	SHEET 1 OF 1	

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