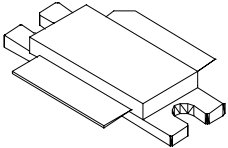




MDS1100

**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>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

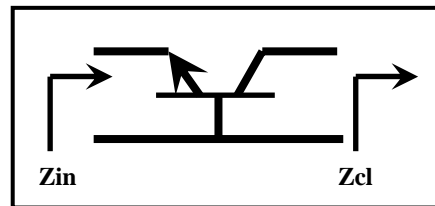
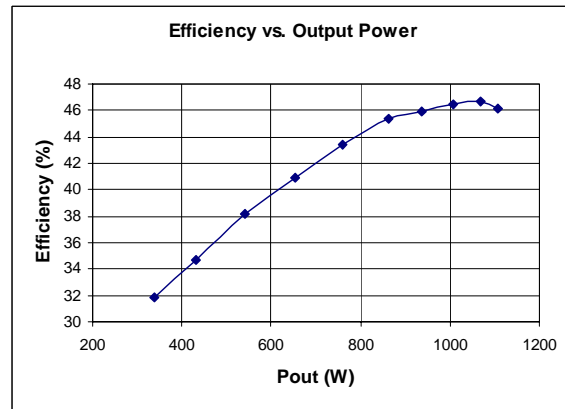
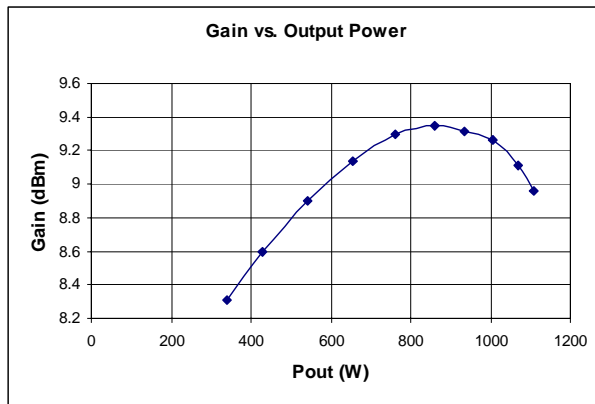
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Out	F = 1030 MHz, V _{cc} = 50 Volts	1000			W
P _g	Power Gain	Note 2	8.9			dB
η _c	Collector Efficiency	F = 1030 MHz, V _{cc} = 50 Volts Note 2	45			%
R _L	Return Loss		11			dB
Tr	Rise Time				100	nS
Pd	Pulse Droop				0.7	dB
VSWR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

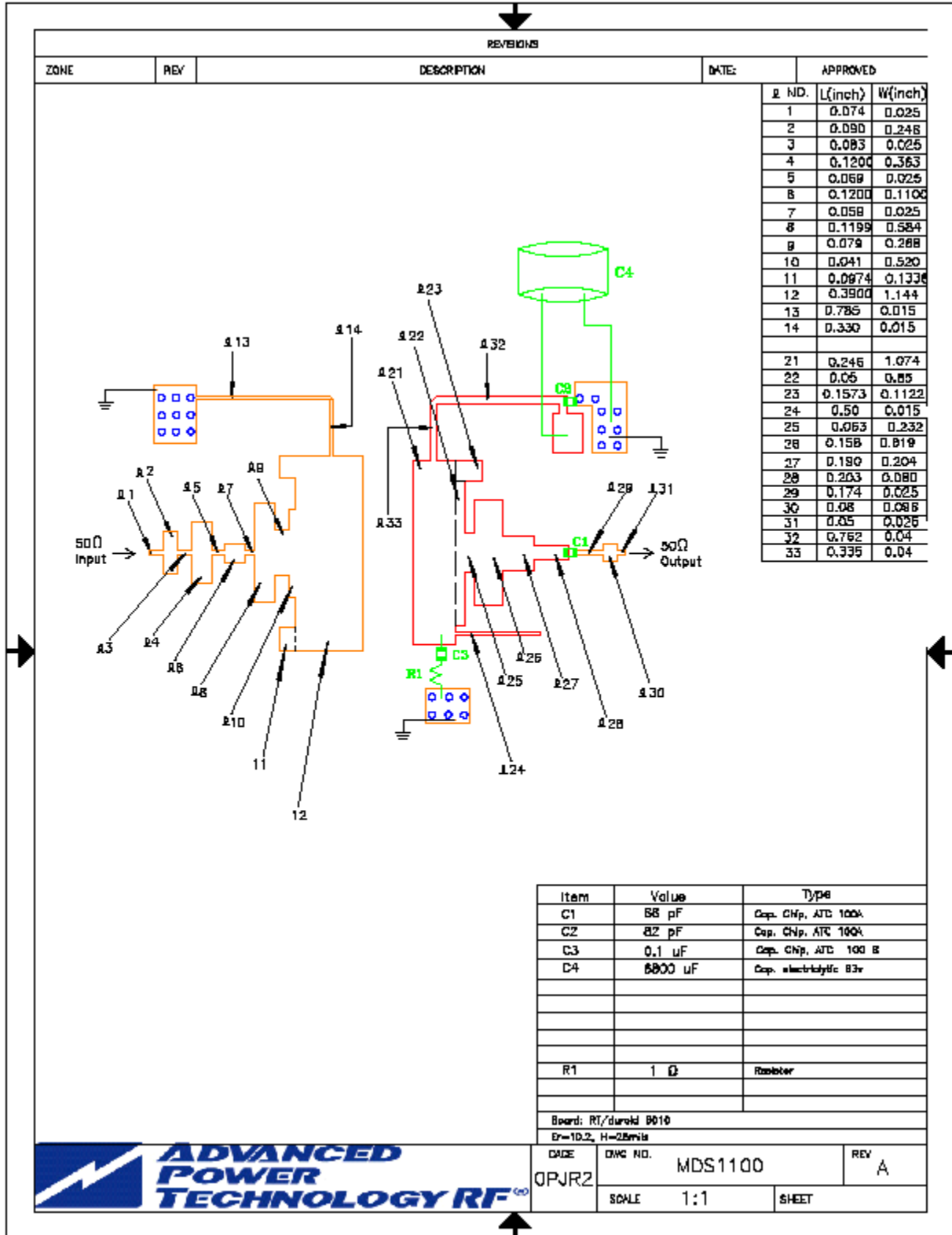
Rev B, September 2005



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

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

MDS1100



DATE	DWG NO.	REV
OPJR2	MDS1100	A
SCALE	SHEET	
1:1		

Advanced Power Technology reserves the right to change, without notice, the specifications and information contained herein. Visit our web site at www.advancedpower.com or contact our factory direct.

MDS1100

