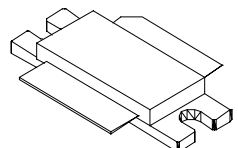




MDS1100

**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>	<p>DataSheet4U.com</p>

ELECTRICAL CHARACTERISTICS @ 25°C

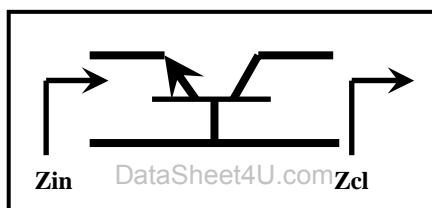
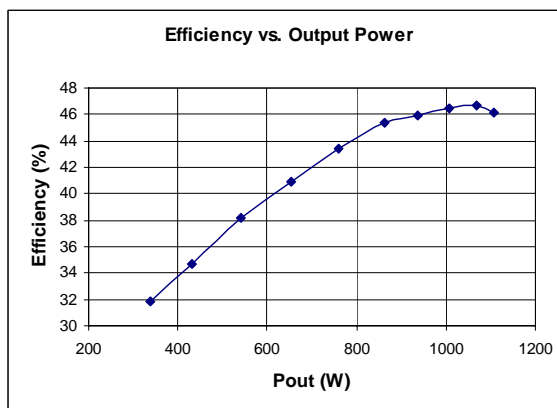
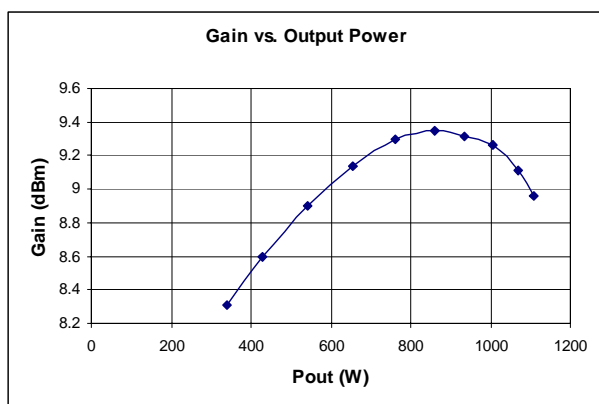
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Out	F = 1030 MHz, V _{cc} = 50 Volts	1000			W
P _g	Power Gain	Note 2	8.9			dB
η _c	Collector Efficiency		45			%
R _L	Return Loss		11			dB
Tr	Rise Time	F = 1030 MHz, V _{cc} = 50 Volts			100	nS
Pd	Pulse Droop	Note 2			0.7	dB
VSWR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

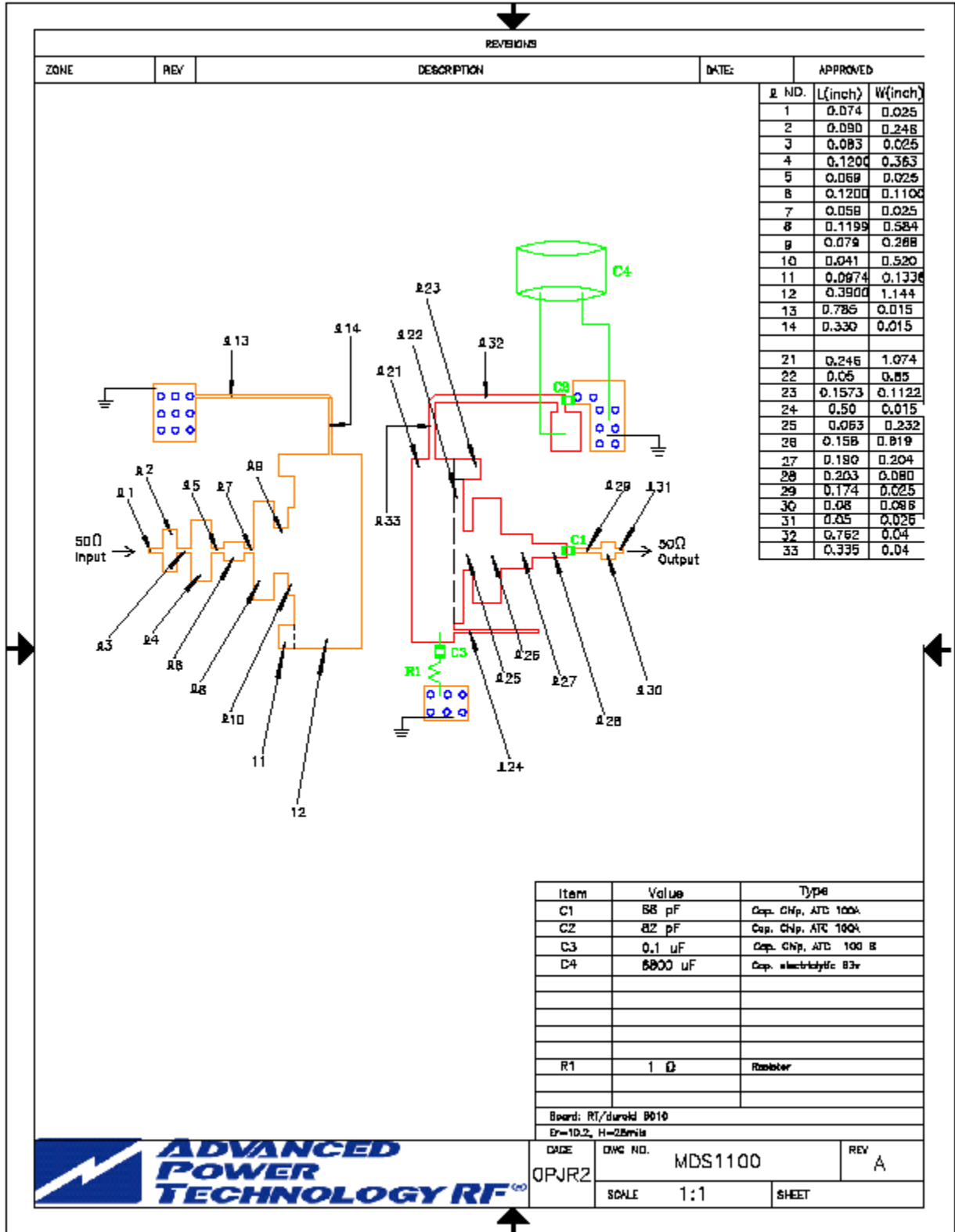
Rev B, September 2005



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

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

MDS1100



Item	Value	Type
C1	58 pF	Cap. Chip, ATC 100A
C2	82 pF	Cap. Chip, ATC 100A
C3	0.1 uF	Cap. Chip, ATC 100 B
C4	6800 uF	Cap. electrolytic 83v
R1	1 Ω	Resistor

Board: RT/durohd B010
 Dr=10.2, H=25mm

DATE	QWC NO.	REV
OPJ/RZ	MDS1100	A
SCALE	1:1	SHEET



MDS1100

REVISIONS				
ZONE	REV	DESCRIPTION	DATE: 8/20/01	APPROVED

DIM	MILLIMETER	±TOL	INCHES	±TOL
A	30.48	±0.25	1.200	±.010
B	9.78	±0.25	.385	±.010
C	4.58	±0.17	.180	±.007
D	16.51	±0.25	.650	±.010
E	1.64	±0.13	.064	±.005
F	2.20	±0.13	.085	±.005
G	.11	±0.03	.004	±.001
H	20.57	±0.51	.810	±.020
I	45°X2.5	.0080°	45°X0.10	.0015°
J	20.32	±0.25	.800	±.010
K	3.30 DIA	±0.13	.130 DIA	±.005
L	10.16	±0.13	.400	±.005
M	25.40	±0.25	1.000	±.010
N	1.52	±0.13	0.060	±.005

STYLE 1:
 PIN 1 = COLLECTOR
 2 = BASE
 3 = EMITTER

STYLE 2:
 PIN 1 = COLLECTOR
 2 = BASE
 3 = EMITTER

**ADVANCED
POWER
TECHNOLOGY RF**

CAGE: OPJR2

DWG NO: **55TU**

SCALE: **1/1**

REV: **B**

SHEET: **1 OF 1**