ADVANCED POWER TECHNOLOGY RF®

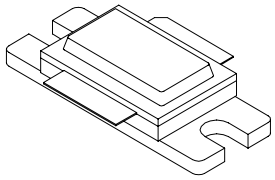
MDS800

800 Watts, 50 Volts
Pulsed Avionics at 1090 MHz

GENERAL DESCRIPTION

The MDS800 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems at 1090 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.

CASE OUTLINE
55ST-1
(Common Base)



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C[1]	1458	W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces})	60	V
Emitter to Base Voltage (BV_{ebo})	3.5	V
Collector Current (I_c)	60	A

Maximum Temperatures

Storage Temperature	-65 to +200	°C
Operating Junction Temperature	+200	°C

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Output	F = 1090 MHz	800			W
P_{in}	Power Input	V_{cc} = 50 Volts			110	
P_g	Power Gain	Burst width = 128µs	8.6			dB
η_c	Collector Efficiency	LTDF = 2%	40			%
R_L	Return Loss				-12	dB
P_d	Power Droop			0.5		dB
VSWR	Load Mismatch Tolerance[1]	F = 1090 MHz			4.0:1	

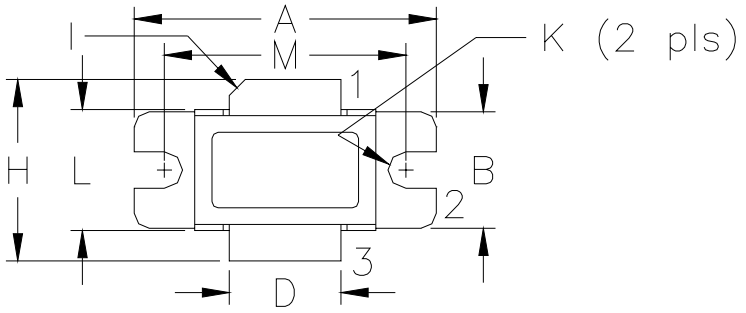
FUNCTIONAL CHARACTERISTICS @ 25°C

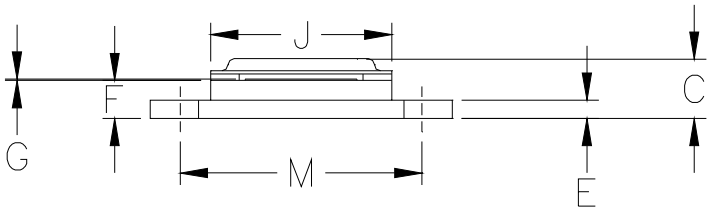
BV_{ebo}	Emitter to Base Breakdown	Ie = 30 mA	3.5			V
BV_{ces}	Collector to Emitter Breakdown	Ic = 50 mA	65			V
h_{FE}	DC – Current Gain	Vce = 5V, Ic = 1A	20			
θjc[1]	Thermal Resistance				0.12	°C/W

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

Rev. B– Dec 2005

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

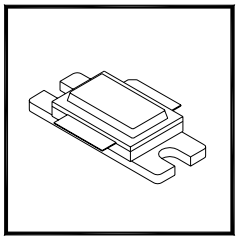




DIM	MILLIMETER	±TOL	INCHES	±TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.00	.19	.142	.007
D	9.40	.13	.370	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	+05/−.00	.003	+.002/ −.000
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°
J	15.24	.25	.600	.010
K	3.05 DIA	.13	.120 DIA	.005
L	10.15	.13	.400	.005
M	20.32	.25	.800	.010

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

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



GHz TECHNOLOGY
RF – MICROWAVE SILICON POWER TRANSISTORS

DWG NO. 55ST