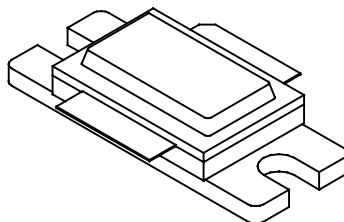




MDS800

800 Watts, 50 Volts, Pulsed Avionics 1090 MHz

PRELIMINARY

<p>GENERAL DESCRIPTION</p> <p>The MDS800 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1090 MHz, with the pulse width and duty required for MODE-S applications. The device has gold thin-film metallization and diffused 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 55ST Style 1</p>
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C 1750 Watts</p> <p>Maximum Voltage and Current</p> <p>Collector to Base Voltage (BV_{CES}) 60 V Emitter to Base Voltage (BV_{EBO}) 3.5 V Collector Current (I_c) 60.0 Amps</p> <p>Maximum Temperatures</p> <p>Storage Temperature -65 to +200 °C Operating Junction Temperature +230 °C</p>	

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 1090 MHz	800			W
P_{in}	Power Input	$V_{CC} = 50$ Volts			110	W
P_g	Power Gain	PW = 128 μ sec	8.5			dB
η_c	Collector Efficiency	LTDF = 2%	40			%
P_d	Power Droop	F = 1090 MHz		0.5		dB
RL	Return Loss				-12	dB
VSWR	Load Mismatch Tolerance				4:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV_{CES}	Collector to Emitter Breakdown	$I_e = 30$ mA	65			V
BV_{EBO}^*	Emitter to Base Breakdown	$I_e = 50$ mA	3.5			V
h_{FE}	DC – Current Gain	$V_{ce} = 5V, I_c = 5A$	20		100	
θ_{jc}^2	Thermal Resistance				0.12	°C/W

Note 1: At rated output power and pulse conditions

Note 2: Burst is 0.5 μ s and 0.5 μ s off for 128 μ s

* : Not measurable due to internal EB returns