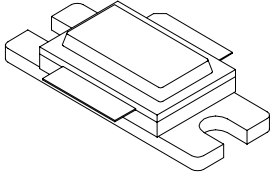


# MDS800

800 Watts, 50 Volts  
Pulsed Avionics at 1090 MHz

<p><b>GENERAL DESCRIPTION</b></p> <p>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 MTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.</p>	<p><b>CASE OUTLINE</b> <b>55ST-1</b> <b>(Common Base)</b></p> 
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p><b>Maximum Power Dissipation</b> Device Dissipation @ 25°C<sup>1</sup>            1458 W</p> <p><b>Maximum Voltage and Current</b> Collector to Base Voltage (BV<sub>ces</sub>)            60 V Emitter to Base Voltage (BV<sub>ebo</sub>)            3.5 V Collector Current (I<sub>c</sub>)                            60 A</p> <p><b>Maximum Temperatures</b> 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 <sub>out</sub>	Power Output	F = 1090 MHz	800			W
P <sub>in</sub>	Power Input	V <sub>cc</sub> = 50 Volts			110	
P <sub>g</sub>	Power Gain	Burst width = 128µs	8.6			dB
η <sub>c</sub>	Collector Efficiency	LTDF = 2%	40			%
R <sub>L</sub>	Return Loss				-12	dB
P <sub>d</sub>	Power Droop			0.5		dB
VSWR	Load Mismatch Tolerance <sup>1</sup>	F = 1090 MHz			4.0:1	

**FUNCTIONAL CHARACTERISTICS @ 25°C**

BV <sub>ebo</sub>	Emitter to Base Breakdown	I <sub>e</sub> = 30 mA	3.5			V
BV <sub>ces</sub>	Collector to Emitter Breakdown	I <sub>c</sub> = 50 mA	65			V
h <sub>FE</sub>	DC – Current Gain	V <sub>ce</sub> = 5V, I <sub>c</sub> = 1A	20			
θ <sub>jc</sub> <sup>1</sup>	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

