GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

MDS550L

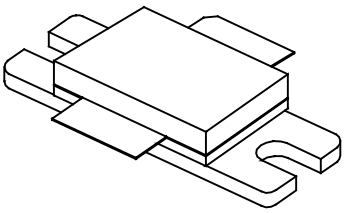
550 Watts, 45 Volts, Pulsed
Avionics 1090 MHz

PRELIMINARY

GENERAL DESCRIPTION

The MDS550L is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1090 MHz. The transistor includes input and output prematch for broadband performance. The device has gold thin-film metallization and diffused ballasting for proven highest MTTF. Low thermal resistance. Package reduces junction temperature, extends life, high strength lead braze.

CASE OUTLINE
55SW Style 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation
Device Dissipation @25°C 1166 W

Maximum Voltage and Current
Collector to Base Voltage (BV_{ces}) 55 V
Emitter to Base Voltage (BV_{ebo}) 3.5 V
Collector Current (I_c) 40 mA

Maximum Temperatures
Storage Temperature -65 to +150 °C
Operating Junction Temperature +200 °C

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 1090 MHz (Note 2)	550			W
P_{in}	Power Input	Vcc = 45 Volts			90	W
P_g	Power Gain	PW = NOTE 1	7.8			dB
η_c	Collector Efficiency	DF = NOTE 1		45		%
VSWR	Load Mismatch Tolerance	f = 1090 MHz			4:1	
Pd	Pulse Droop	f = 1090 MHz (NOTE 2)			0.5	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV_{ebo}^*	Emitter to Base Breakdown	Ie = 50 mA	3.5			V
BV_{ces}	Collector to Emitter Breakdown	Ic = 30 mA	55			V
h_{FE}^*	DC – Current Gain	Vce = 5V, Ic = 5.0 A	20			
θjc^2	Thermal Resistance				0.15	°C/W

NOTE 1: MODE-S PULSE BURST 2160 µS @ 50% DUTY CYCLE, LONG TERM DF = 1%.
NOTE 2: AT RATED PULSE CONDITIONS
*: Not measureable due to internal EB returns

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