



MDS60L

60 Watts, 50 Volts, Pulsed
Avionics 1030 - 1090 MHz

GENERAL DESCRIPTION

The MDS60L is a high power COMMON BASE bipolar transistor. It is designed for MODE-S ELM systems in the 1030 - 1090 MHz frequency band. The transistor includes a double input prematch for broadband performance. The device has gold thin-film metallization and diffused ballasting in a hermetically sealed package for proven highest MTTF.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @25°C¹ 120 W

Maximum Voltage and Current

Collector to Emitter Voltage (BV_{ces}) 65 V

Emitter to Base Voltage (BV_{ebo}) 3.5 V

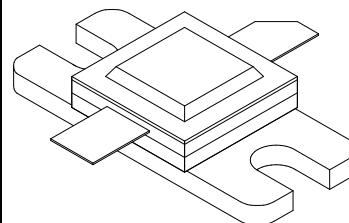
Peak Collector Current (I_c) 4 A

Maximum Temperatures

Storage Temperature -65 to +150 °C

Operating Junction Temperature +200 °C

CASE OUTLINE 55AW Style 1



ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Out	F = 1030, 1090 MHz	60			W
P _{in}	Power Input	V _{cc} = 50 Volts			6	W
P _g	Power Gain	PW = Note 2	10			dB
η _c	Collector Efficiency	DF = Note 2		34		%
VSWR	Load Mismatch Tolerance				2:1	
Pd ¹	Pulse Droop				0.8	dB
Trise ¹	Rise Time				100	nSec

FUNCTIONAL CHARACTERISTICS @ 25°C

BV _{ebo}	Emitter to Base Breakdown	I _e = 5 mA	3.5			V
BV _{ces}	Collector to Emitter Breakdown	I _c = 25 mA	65			V
BV _{cbo}	Collector to Base Breakdown	I _c = 25 mA	65			V
h _{FE}	DC – Current Gain	V _{ce} = 5V, I _c = 500 mA	20			
θ _{jc} ¹	Thermal Resistance				0.5	°C/W

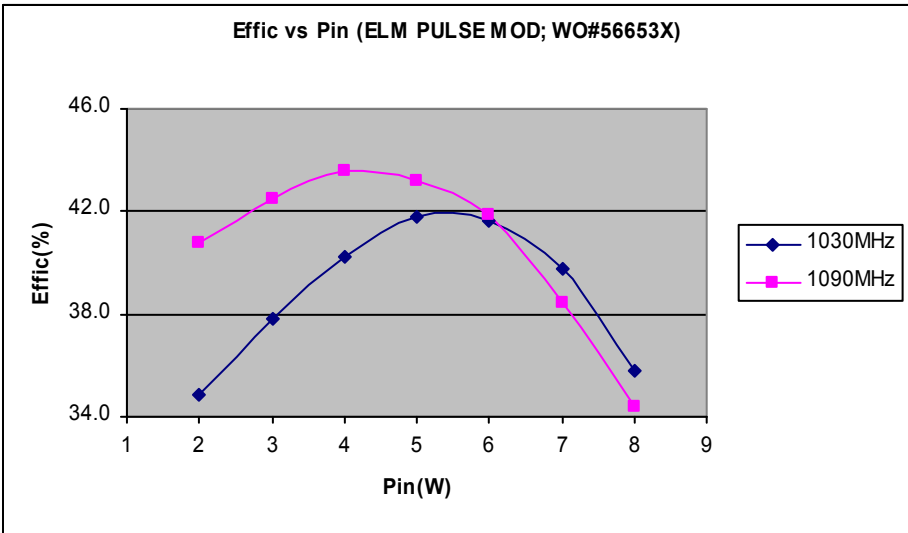
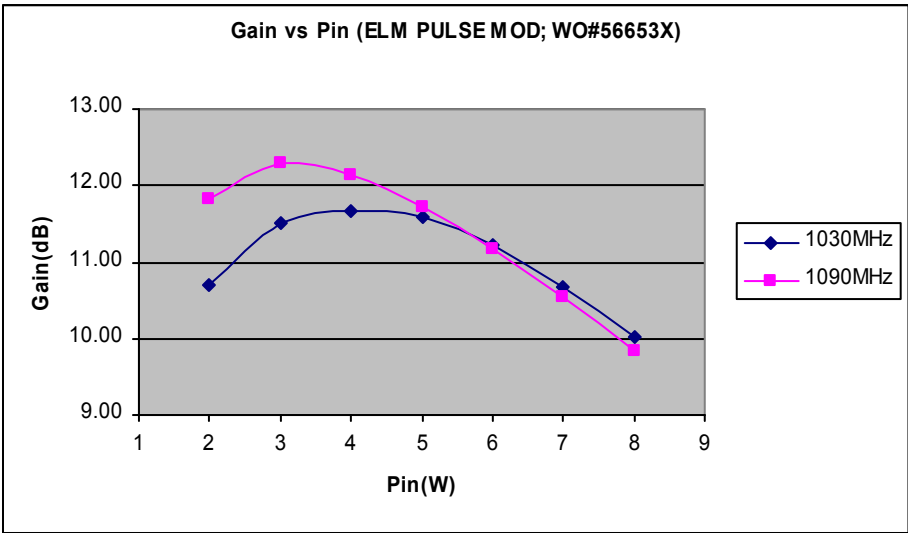
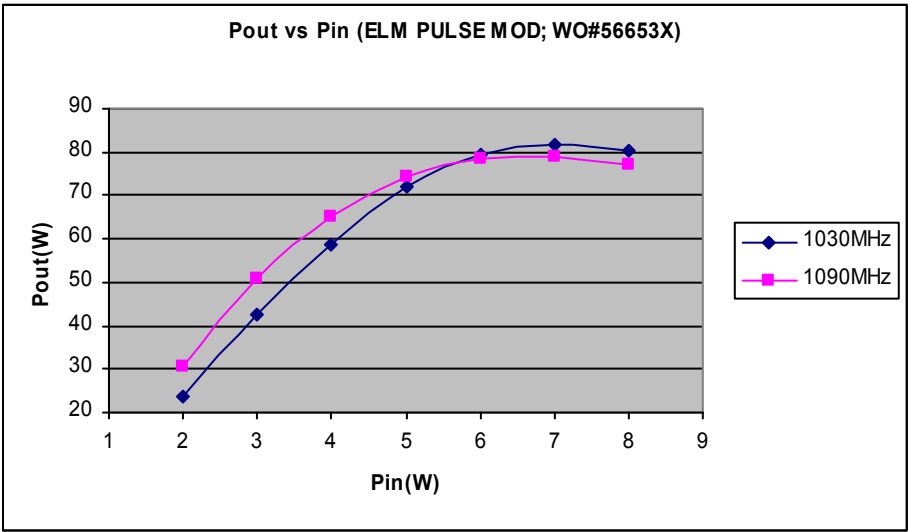
NOTE 1: AT RATED OUTPUT POWER AND PULSE CONDITIONS

NOTE 2: ELM Burst: 32μSec ON/ 18μSec OFF x 48, repeated at 23mSec

Rev C: Updated June 2011

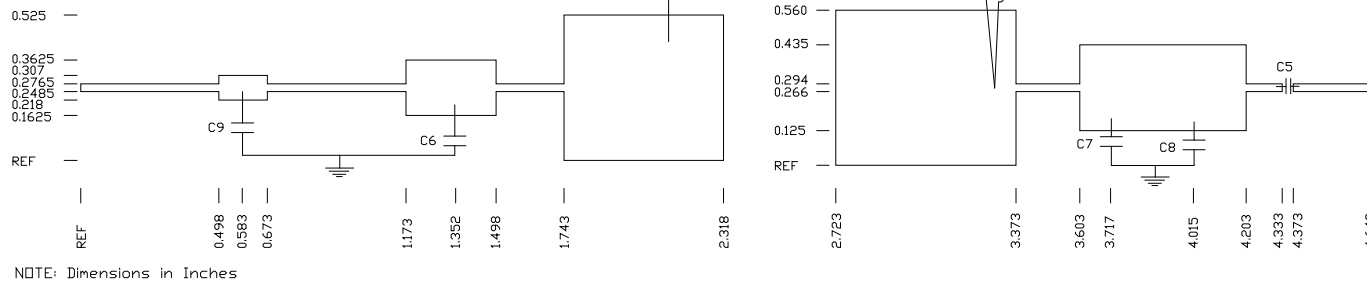
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MDS60L SAMPLE RF DATA (SN#2-8; WO#56653X)



MDS60L TEST FIXTURE

C1=1000uF electrolytic cap
 C2=100uF electrolytic cap
 C3=0.1uF chip cap
 C4=C5=82pF chip cap
 C6=1.5pF chip cap
 C7=C8=0.5pF chip cap
 C9=0.5pF chip cap
 R1=4.2 ohm resistor
 L1=3 turn, #22 wire
 L2=585mil, #18 wire
 Dielectric: Er=2.3; H=10mils



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