

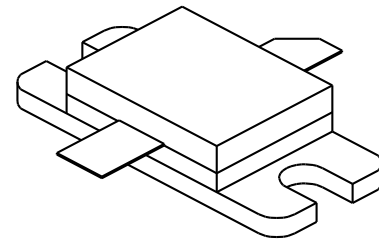
MDS170L

170 Watts, 36 Volts, Pulsed
Avionics 1030/1090 MHz

GENERAL DESCRIPTION

The MDS170L is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1030 - 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 Solder Sealed Package reduces junction temperature, extends life.

CASE OUTLINE 55KT, STYLE 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C² 350 Watts

Maximum Voltage and Current

BVces Collector to Base Voltage 50 Volts
BVebo Emitter to Base Voltage 3.5 Volts
Ic Collector Current 15 Amps

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
Pout	Power Out	F = 1030 - 1090 MHz	170			Watts
Pin	Power Input	Vcc = 36 Volts			34	Watts
Pg	Power Gain	PW = Note 1	7			dB
ηc	Collector Efficiency	DF = Note 1		40		%
VSWR	Load Mismatch Tolerance	F = 1030 MHz			10:1	

BVebo	Emitter to Base Breakdown	Ie = 20 mA				Volts
BVces	Collector to Emitter Breakdown	Ic = 20 mA				Volts
hFE	DC - Current Gain	Ic = 20 mA, Vce = 5 V	20			
θjc ²	Thermal Resistance				0.5	°C/W

Note 1: MODE- S Pulse Burst, 120 μs at 50% Duty, Long term duty = 5%.

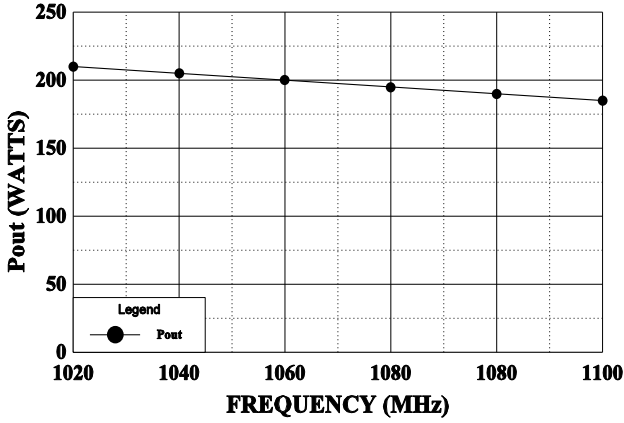
2: At rated pulse conditions

Initial Issue January, 1996

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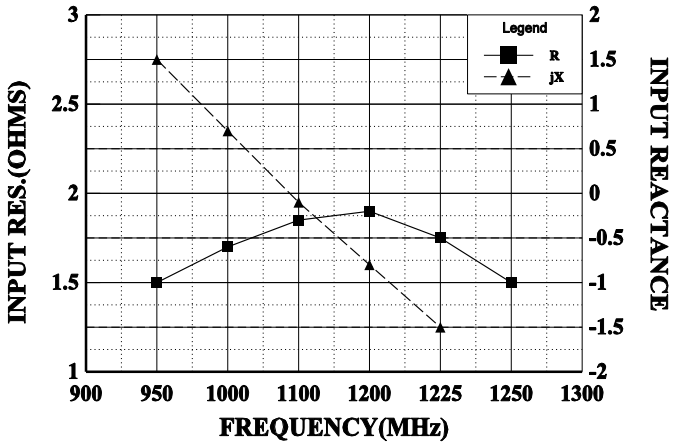
POWER OUTPUT vs FREQUENCY

Vcc = 36 V, Pin = 34 W



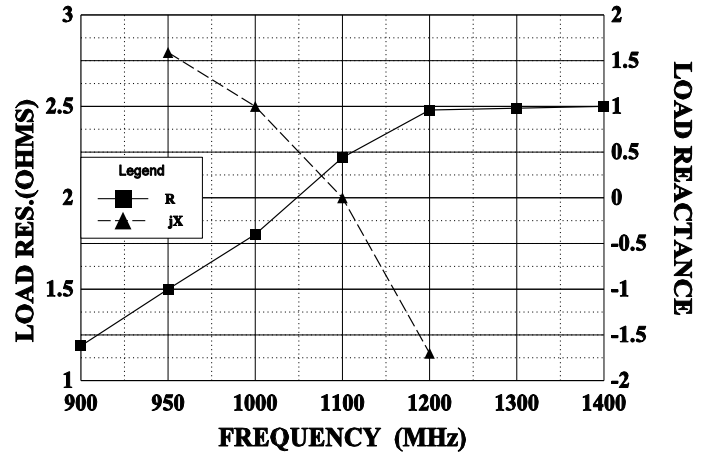
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 36 V, Po = 145 W



SERIES LOAD IMPEDANCE vs FREQUENCY

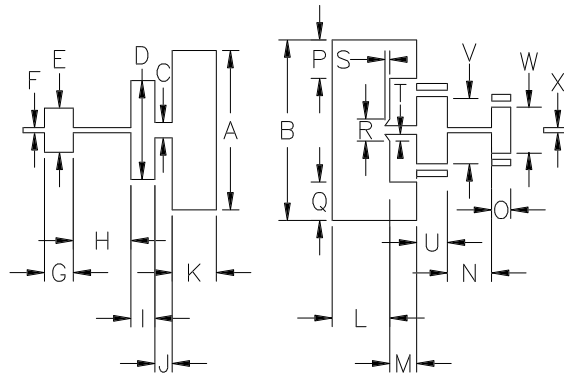
Vcc = 36 V, Po = 145 W



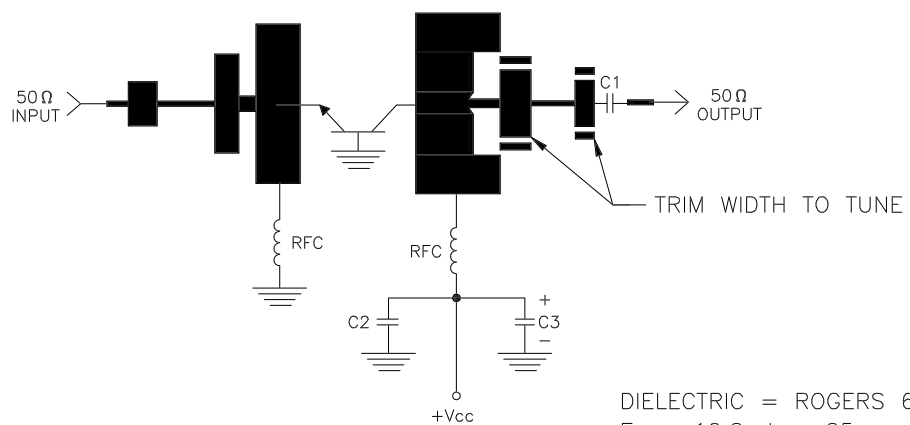
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.830
B	.940
C	.080
D	.515
E	.230
F	.026
G	.150
H	.300
I	.125
J	.090
K	.230
L	.300
M	.140
N	.230
O	.100
P	.200
Q	.200
R	.115
S	.025
T	.035
U	.160
V	.350
W	.240
X	.026



MDS170L TEST CIRCUIT



DIELECTRIC = ROGERS 6010
 $\epsilon_r = 10.2$, $t = 25$
 $C1, C2 = 82\text{pF}$ CHIP ATC "A"
 $C3 = 1000\text{ MFD @ }50\text{V}$
 $\text{RFC} = 5\text{ turns \#22 wire } 1/16''\text{ I.D.}$



CAGE OPJR2	DWG NO.	MDS 170L	REV A
	SCALE	1/1	SHEET