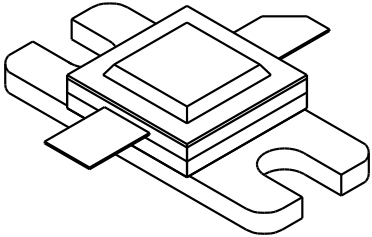


1416 - 100

100 Watts - 50 Volts, Pulsed
Radar 1400 - 1600 MHz

<p>GENERAL DESCRIPTION The 1416-100 is an internally matched, COMMON BASE transistor capable of providing 100 Watts of pulsed RF output power at one microsecond pulse width, ten percent duty factor across the band 1400-1600 MHz. This hermetically solder-sealed transistor is specifically designed for short pulse radar applications. It utilizes gold metalization and diffused emitter ballasting to provide high reliability and supreme ruggedness.</p>	<p>CASE OUTLINE 55AW, STYLE 1</p> 												
<p>ABSOLUTE MAXIMUM RATINGS Maximum Power Dissipation @ 25°C 564 Watts</p> <p>Maximum Voltage and Current</p> <table border="0" style="width: 100%;"> <tr> <td>BVces</td> <td>Collector to Emitter Voltage</td> <td style="text-align: right;">55 Volts</td> </tr> <tr> <td>BVebo</td> <td>Emitter to Base Voltage</td> <td style="text-align: right;">4.0 Volts</td> </tr> <tr> <td>Ic</td> <td>Collector Current</td> <td style="text-align: right;">10 Amps</td> </tr> </table> <p>Maximum Temperatures</p> <table border="0" style="width: 100%;"> <tr> <td>Storage Temperature</td> <td style="text-align: right;">- 65 to + 200°C</td> </tr> <tr> <td>Operating Junction Temperature</td> <td style="text-align: right;">+ 200°C</td> </tr> </table>		BVces	Collector to Emitter Voltage	55 Volts	BVebo	Emitter to Base Voltage	4.0 Volts	Ic	Collector Current	10 Amps	Storage Temperature	- 65 to + 200°C	Operating Junction Temperature
BVces	Collector to Emitter Voltage	55 Volts											
BVebo	Emitter to Base Voltage	4.0 Volts											
Ic	Collector Current	10 Amps											
Storage Temperature	- 65 to + 200°C												
Operating Junction Temperature	+ 200°C												

ELECTRICAL CHARACTERISTICS @ 25 °C

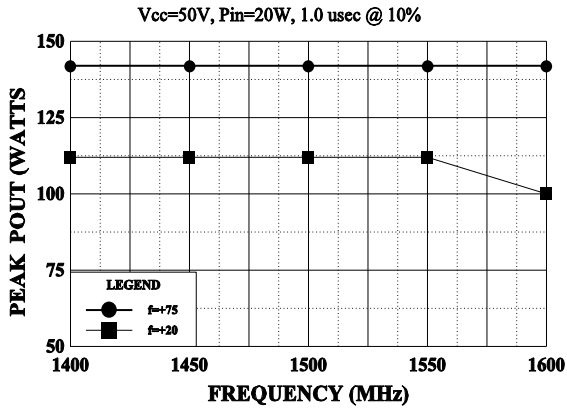
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out	F = 1400-1600 MHz	100			Watts
Pin	Power Input	Vcc = 50 Volts			20	Watts
Pg	Power Gain	Pulse Width = 1.0 μs	6.5	7.0		dB
ηc	Collector Efficiency	Duty = 10%		40		%
VSWR	Load Mismatch Tolerance	F=1600MHz, Po=100W			10:1	

BVces	Collector to Emitter Breakdown	Ic = 10 mA	55			Volts
BVebo	Emitter to Base Breakdown	Ie = 10 mA	3.0			Volts
BVcbo	Emitter to Base Breakdown	Ic = 10 mA	65			Volts
Hfe	DC Current Gain	Vce = 5 V, Ic = 100mA	5.0			
θjc	Thermal Resistance	Rated Pulse Condition			0.31	°C/W

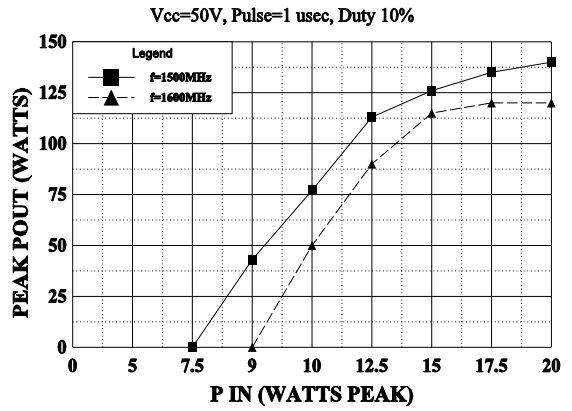
Issue August 1996

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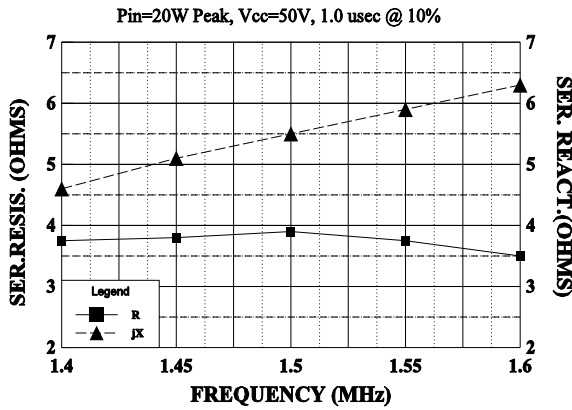
POWER OUTPUT vs FREQUENCY



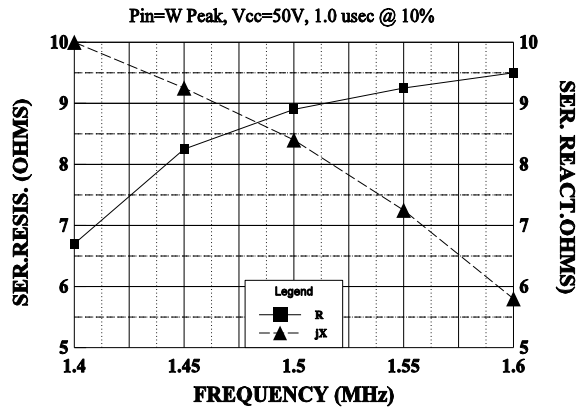
POUT vs PIN (WATTS PEAK)



SERIES LOAD IMPEDANCE vs FREQUENCY



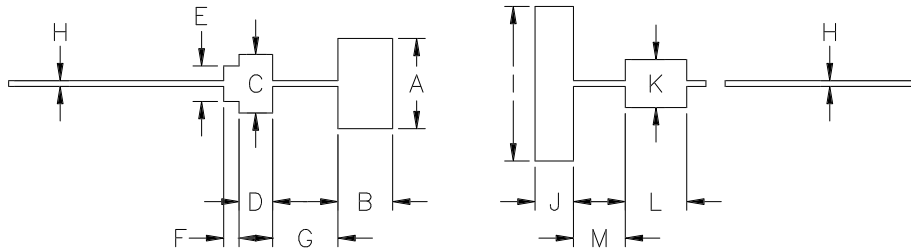
SERIES INPUT IMPEDANCE vs FREQUENCY



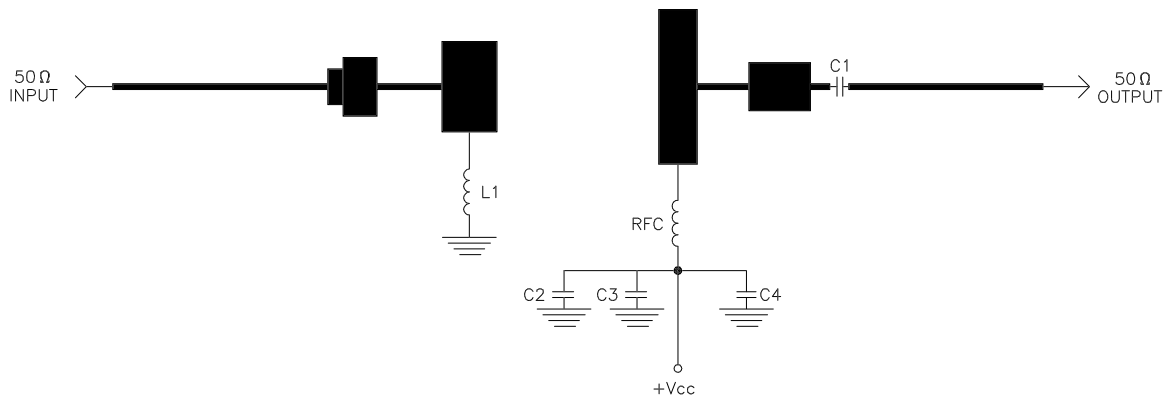
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.470
B	.285
C	.185
D	.175
E	.185
F	.080
G	.340
H	.030
I	.805
J	.200
K	.250
L	.320
M	.270



1416-100 TEST CIRCUIT



- = Microstrip on 0.010" Duroid, Er=2.25
- C1 = 82pF CHIP
- C2 = 150pF CHIP
- C3 = 1.0 MFD
- C4 = 100 MFD
- L1 = 1 pieces copper wire 0.022" dia., 0.75" long



CAGE OPJR2	DWG NO. 1416-100	REV —
	SCALE 1/1	SHEET