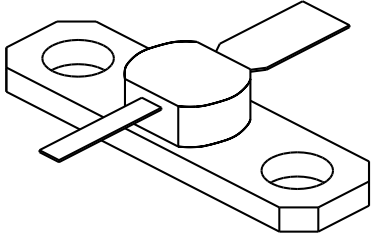


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# 3001

1 Watt - 28 Volts, Class C  
Microwave 3000 MHz

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<p><b>GENERAL DESCRIPTION</b></p> <p>The 3001 is a COMMON BASE transistor capable of providing 1 Watts Class C, RF output power at 3000 MHz. Gold metalization and diffused ballasting are used to provide high reliability and supreme ruggedness. The transistor uses a fully hermetic High Temperature Solder Sealed package.</p>	<p style="text-align: center;"><b>CASE OUTLINE</b> <b>55BT, STYLE 1</b></p> 													
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p>Maximum Power Dissipation @ 25°C <span style="float: right;">5 Watts</span></p> <p><b>Maximum Voltage and Current</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">BVces</td> <td style="width: 45%;">Collector to Emitter Voltage</td> <td style="width: 40%; text-align: right;">50 Volts</td> </tr> <tr> <td>BVebo</td> <td>Emitter to Base Voltage</td> <td style="text-align: right;">3.5 Volts</td> </tr> <tr> <td>Ic</td> <td>Collector Current</td> <td style="text-align: right;">0.20 A</td> </tr> </table> <p><b>Maximum Temperatures</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 45%;">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	50 Volts	BVebo	Emitter to Base Voltage	3.5 Volts	Ic	Collector Current	0.20 A	Storage Temperature	- 65 to + 200°C	Operating Junction Temperature	+ 200°C	
BVces	Collector to Emitter Voltage	50 Volts												
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Ic	Collector Current	0.20 A												
Storage Temperature	- 65 to + 200°C													
Operating Junction Temperature	+ 200°C													

### ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>Pout</b>	Power Out	F = 3.0 GHz	1.0			Watt
<b>Pin</b>	Power Input	Vcb = 28 Volts		.14	0.2	Watt
<b>Pg</b>	Power Gain	Po = 1 Watts	7.0	8.5		dB
$\eta_c$	Collector Efficiency	As Above		30		%
<b>VSWR<sub>1</sub></b>	Load Mismatch Tolerance	F = 3 GHz, Po = 1 W			30:1	

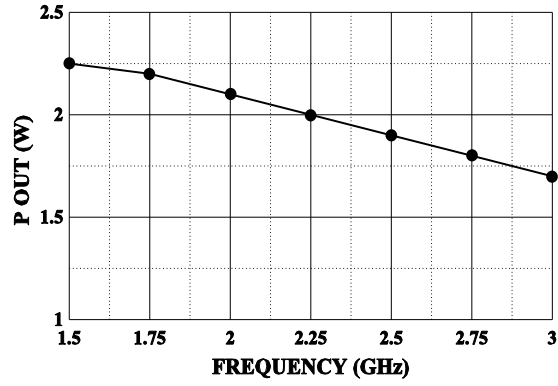
<b>BVces</b>	Collector to Emitter Breakdown	Ic = 10 mA	50			Volts
<b>BVcbo</b>	Collector to Base Breakdown	Ic = 1 mA	45			Volts
<b>BVebo</b>	Emitter to Base Breakdown	Ie = 1 mA	3.5			Volts
<b>Icbo</b>	Collector to Base Current	Vcb = 28 Volts			0.5	mA
<b>h<sub>FE</sub></b>	Current Gain	Vce = 5 V, Ic = 100 mA	10			
<b>Cob</b>	Output Capacitance	F = 1 MHz, Vcb = 28 V			35	°C/W
$\theta_{jc}$	Thermal Resistance					

Issue August 1996

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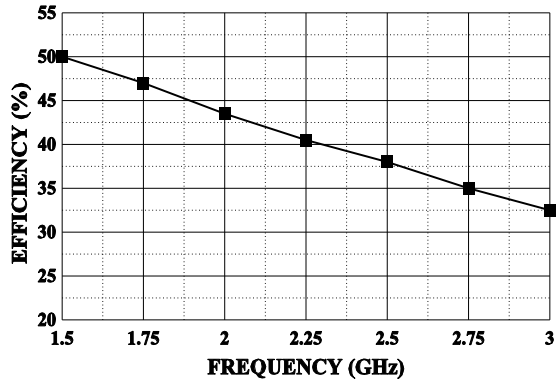
**POWER OUTPUT VS FREQUENCY**

Vcc=28V, Pin=0.2W



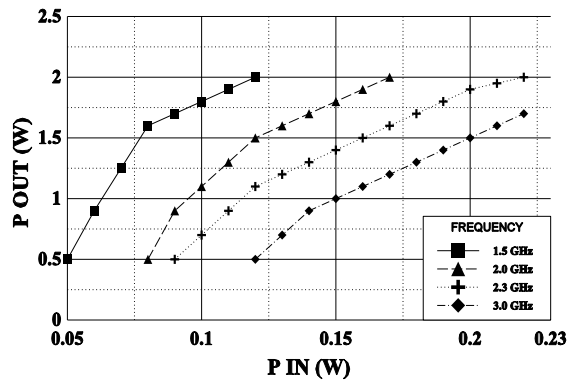
**EFFICIENCY VS FREQUENCY**

Pin=0.2W, Vcc=28V



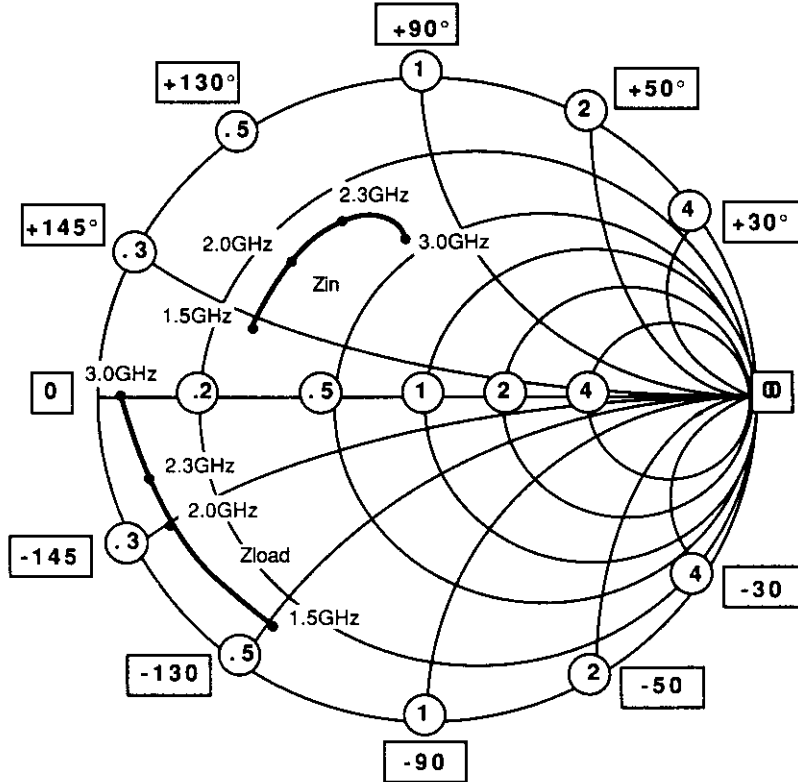
**Pout VS Pin VS FREQUENCY**

Vcc=28V, Pin=0.2W

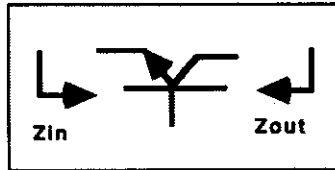


# SMITH CHART 3001

NORMALIZED IMPEDANCE AND ADMITTANCE COORDINATES



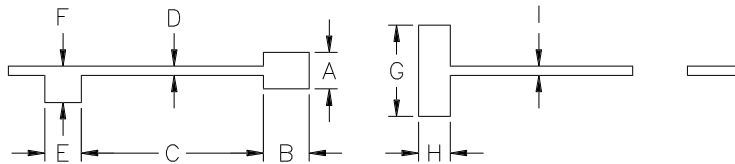
NORMALIZED TO A 50 OHM SYSTEM.



FREQUENCY MHz	R	Zin	JX	FREQUENCY MHz	R	Zload	JX
1.5	15	14	14	1.5	6	25	25
2.0	16	20	20	2.0	5	15	15
2.3	17	27	27	2.3	4.5	10	10
3.0	19	32	32	3.0	4	0	0

REVISIONS

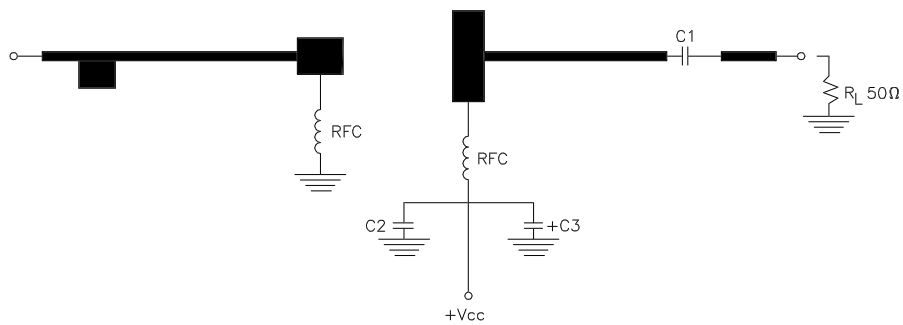
ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.200
B	.250
C	1.000
D	.500
E	.200
F	.200
G	.500
H	.175
I	.050

3001 TEST AMPLIFIER

f = 3000 MHz



— = Microstrip on 0.020" Teflon Fiberglass, Er=2.55  
 C1,C2 = ATC 'A' 47pf  
 C3 = 10μfd @ 35 Volts



CAGE OPJR2	DWG NO. 3001	REV A
	SCALE 1/1	SHEET