

3003

3 Watts - 28 Volts, Class C
Microwave 3000 MHz

GENERAL DESCRIPTION

The 3003 is a COMMON BASE transistor capable of providing 3 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.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 10 Watts

Maximum Voltage and Current

BVces Collector to Emitter Voltage 50 Volts

BVebo Emitter to Base Voltage 3.5 Volts

Ic Collector Current 0.6 A

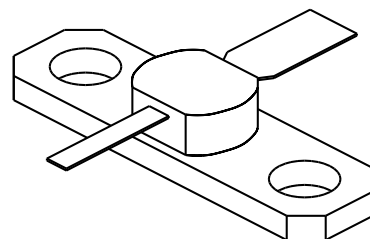
Maximum Temperatures

Storage Temperature - 65 to + 200°C

Operating Junction Temperature + 200°C

CASE OUTLINE

55BT-1, STYLE 1



ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 3.0 GHz	3.0			Watt
P_{in}	Power Input	V _{cb} = 28 Volts			0.75	Watt
P_g	Power Gain	P _o = 3 Watts	6.0			dB
η_c	Collector Efficiency	As Above		30		%
VSWR₁	Load Mismatch Tolerance	F = 3 GHz, P _o = 3 W			30:1	

BVces	Collector to Emitter Breakdown	I _c = 30 mA	50			Volts
BVebo	Emitter to Base Breakdown	I _e = 3 mA	3.5			Volts
Icbo	Collector to Base Current	V _{cb} = 28 Volts			1.5	mA
h_{FE}	Current Gain	V _{ce} = 5 V, I _c = 300 mA	10			
Cob	Output Capacitance	F = 1.0 MHz, V _{cb} = 28 V		7.0		pF
θ_{jc}	Thermal Resistance				17	°C/W

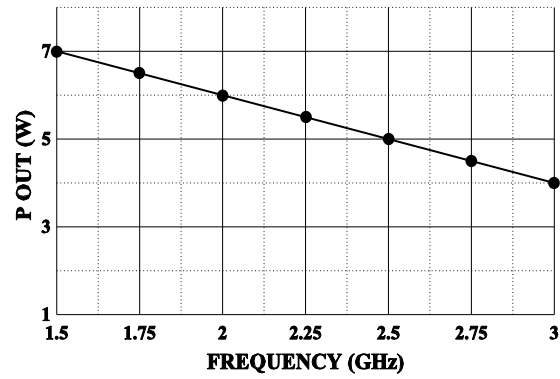
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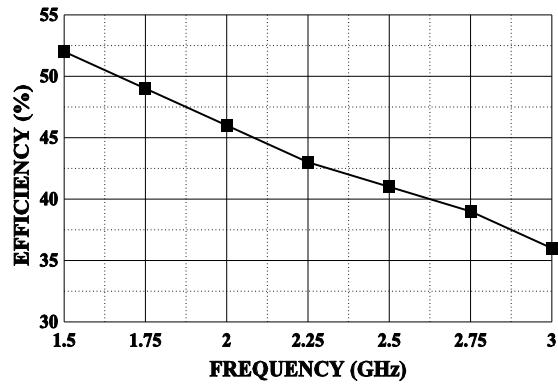
SATURATED POWER OUTPUT VS FREQUENCY

$V_{CC}=28V, P_{in}=.75W$



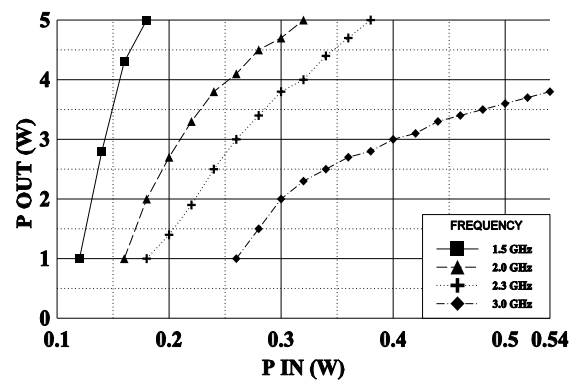
EFFICIENCY VS FREQUENCY

$P_{out}=3W, V_{CC}=28V$



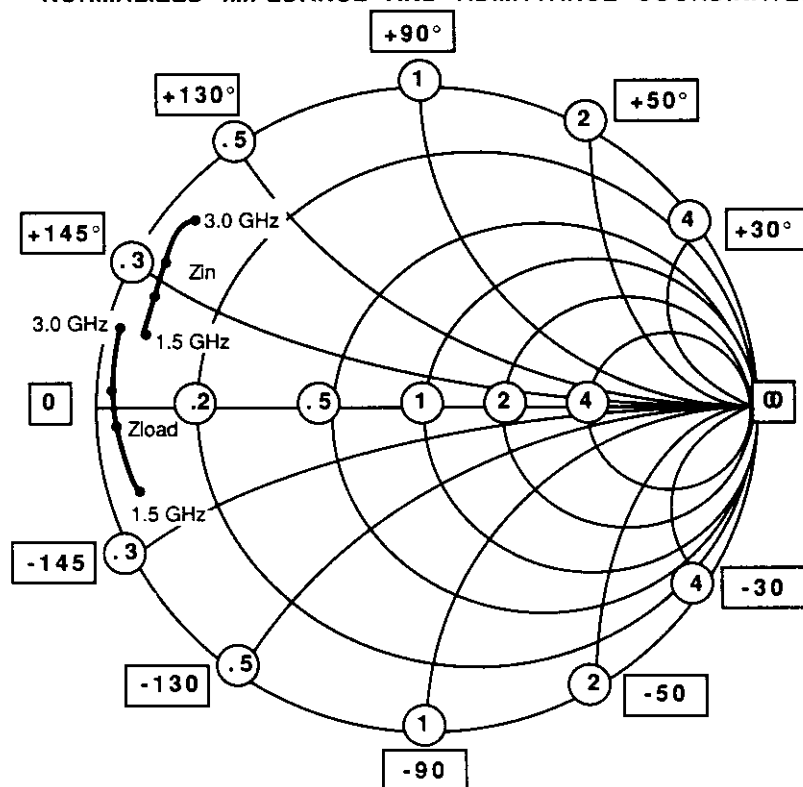
P_{out} VS P_{in} VS FREQUENCY

$V_{CC}=28V, P_{in}=.75W$



SMITH CHART 3003

NORMALIZED IMPEDANCE AND ADMITTANCE COORDINATES

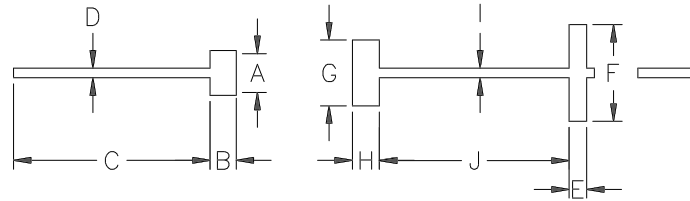


NORMALIZED TO A 50 OHM SYSTEM.

FREQUENCY MHz	R	Z _{in}	JX	FREQUENCY MHz	R	Z _{load}	JX
1500	3.8	8.0		1500	3.7	10	
2000	3.6	13		2000	3.3	3.0	
2300	3.4	17		2300	3.2	-3.0	
3000	3.4	20		3000	2.7	-9.0	

REVISIONS

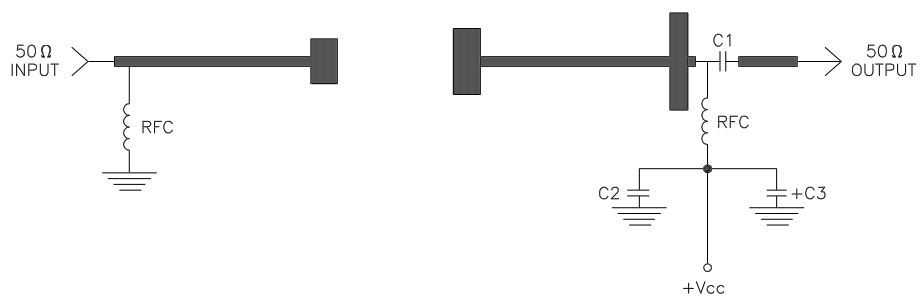
ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.230
B	.135
C	.900
D	.050
E	.090
F	.160
G	.320
H	.140
I	.050
J	.160

3003 TEST AMPLIFIER

f = 3000 MHz



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



CAGE 0PJR2	DWG NO. 3003	REV A
SCALE 1/1	SHEET	