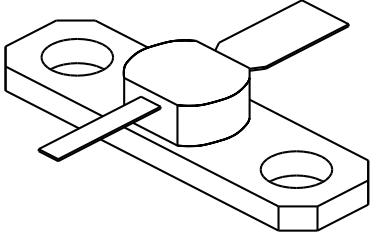

2301

1.5 Watt - 20 Volts, Class C
Microwave 2300 MHz

<p>GENERAL DESCRIPTION</p> <p>The 2301 is a COMMON BASE transistor capable of providing 1.5 Watts Class C, RF output power at 2300 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>CASE OUTLINE 55 BT- Style 1</p> 													
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C 5.6 Watts</p> <p>Maximum Voltage and Current</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;">45 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;">0.3 A</td> </tr> </table> <p>Maximum Temperatures</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 45%;">Storage Temperature</td> <td style="width: 55%; 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	45 Volts	BVebo	Emitter to Base Voltage	3.5 Volts	Ic	Collector Current	0.3 A	Storage Temperature	- 65 to + 200°C	Operating Junction Temperature	+ 200°C	
BVces	Collector to Emitter Voltage	45 Volts												
BVebo	Emitter to Base Voltage	3.5 Volts												
Ic	Collector Current	0.3 A												
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 = 2.3 GHz	1.5			Watt
Pin	Power Input	Vcb = 20 Volts			0.24	Watt
Pg	Power Gain	Po = 1.5 Watts	8.0			dB
η_c	Collector Efficiency	As Above		40		%
VSWR₁	Load Mismatch Tolerance	F = 2.3 GHz, Po = 1.5 W			30:1	

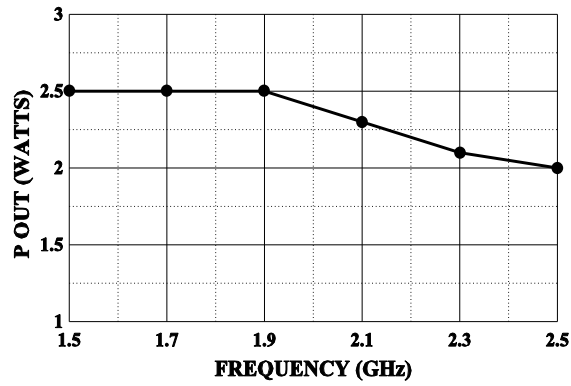
BVces	Collector to Emitter Breakdown	Ic = 10 mA	45			Volts
BVebo	Emitter to Base Breakdown	Ie = 1.0 mA	3.5			Volts
h_{FE}	Current Gain	Vce = 5 V, Ic = 100 mA	10			
Cob	Output Capacitance	F = 1.0 MHz, Vcb = 22V		4.0		pF
θ_{jc}	Thermal Resistance				31	°C/W

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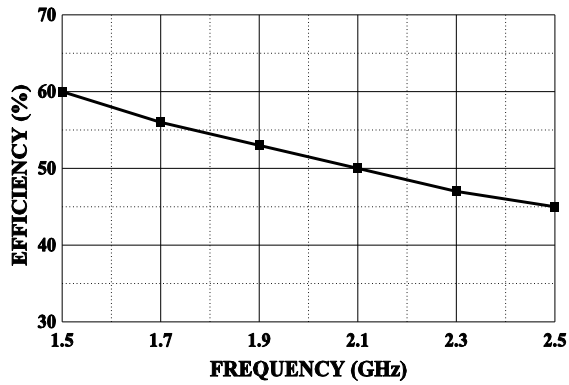
POWER OUTPUT VS FREQUENCY

V_{cc}=20V, P_{in}=.24W



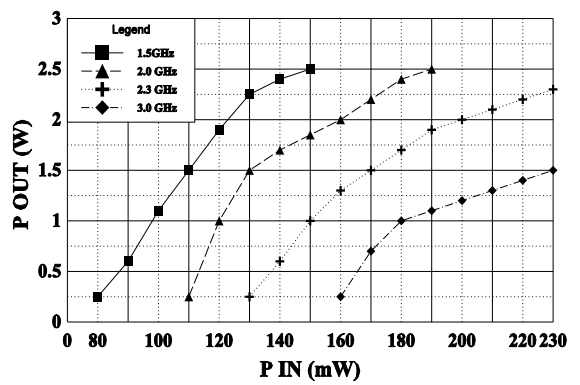
EFFICIENCY VS FREQUENCY

Pot = 1.5 W, V_{cc}=20V



TRANSFER CHARACTERISTICS VS FREQUENCY

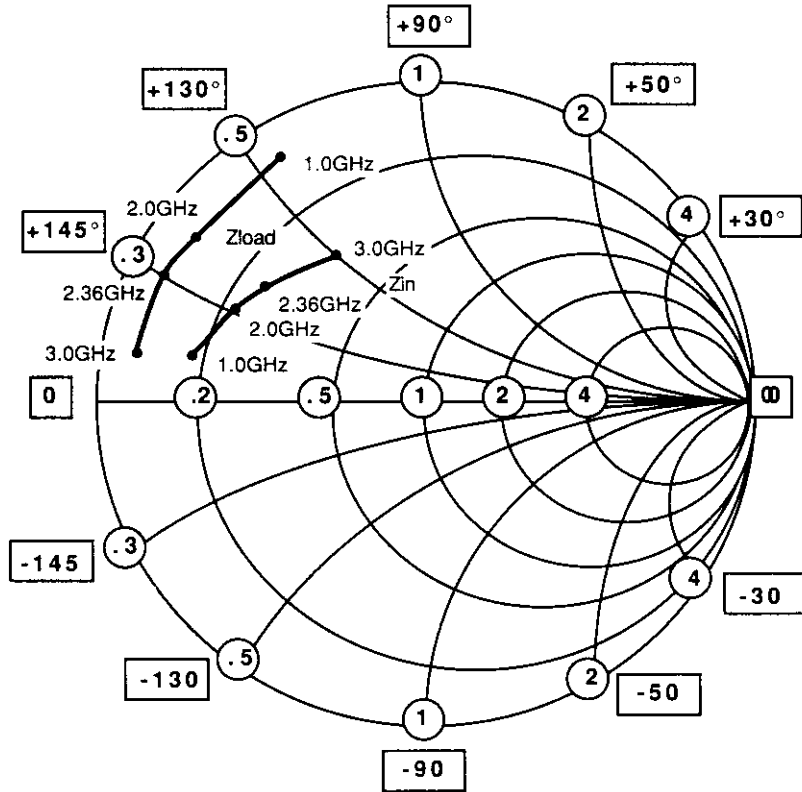
V_{cc}=20V



SMITH CHART

2301

NORMALIZED IMPEDANCE AND ADMITTANCE COORDINATES



NORMALIZED TO A 50 OHM SYSTEM.

FREQUENCY MHz	R	Z _{in} +jX	FREQUENCY MHz	R	Z _{load} +jX
1000	8.5	7.5	1000	5	22
2000	11	15	2000	4	17
2300	13	18	2300	3.7	14
3000	16	20	3000	2.8	6.5