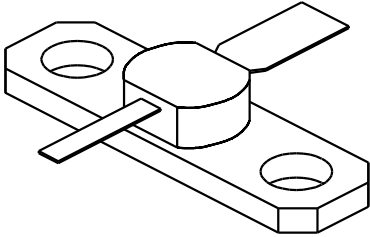


---

# 2301

1.5 Watt - 20 Volts, Class C  
Microwave 2300 MHz

---

<p><b>GENERAL DESCRIPTION</b> 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><b>CASE OUTLINE</b> <b>55 BT- Style 1</b></p> 															
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Maximum Power Dissipation @ 25°C</td> <td style="text-align: right;">5.6 Watts</td> </tr> <tr> <td colspan="2"><b>Maximum Voltage and Current</b></td> </tr> <tr> <td>BVces Collector to Emitter Voltage</td> <td style="text-align: right;">45 Volts</td> </tr> <tr> <td>BVebo Emitter to Base Voltage</td> <td style="text-align: right;">3.5 Volts</td> </tr> <tr> <td>Ic Collector Current</td> <td style="text-align: right;">0.3 A</td> </tr> <tr> <td colspan="2"><b>Maximum Temperatures</b></td> </tr> <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>		Maximum Power Dissipation @ 25°C	5.6 Watts	<b>Maximum Voltage and Current</b>		BVces Collector to Emitter Voltage	45 Volts	BVebo Emitter to Base Voltage	3.5 Volts	Ic Collector Current	0.3 A	<b>Maximum Temperatures</b>		Storage Temperature	- 65 to + 200°C	Operating Junction Temperature
Maximum Power Dissipation @ 25°C	5.6 Watts															
<b>Maximum Voltage and Current</b>																
BVces Collector to Emitter Voltage	45 Volts															
BVebo Emitter to Base Voltage	3.5 Volts															
Ic Collector Current	0.3 A															
<b>Maximum Temperatures</b>																
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 = 2.3 GHz	1.5			Watt
<b>Pin</b>	Power Input	Vcb = 20 Volts			0.24	Watt
<b>Pg</b>	Power Gain	Po = 1.5 Watts	8.0	40		dB
$\eta_c$	Collector Efficiency	As Above				%
<b>VSWR<sub>l</sub></b>	Load Mismatch Tolerance	F = 2.3 GHz, Po = 1.5 W			30:1	

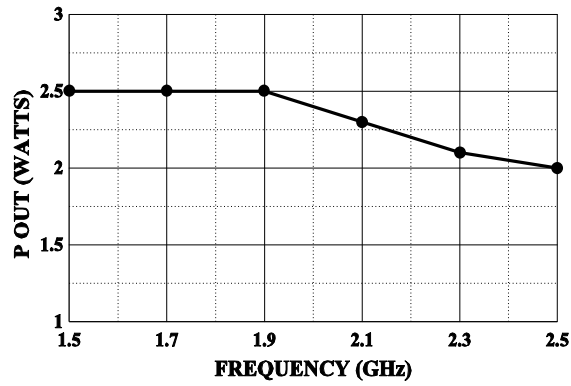
<b>BVces</b>	Collector to Emitter Breakdown	Ic = 10 mA	45			Volts
<b>BVebo</b>	Emitter to Base Breakdown	Ie = 1.0 mA	3.5			Volts
<b>h<sub>FE</sub></b>	Current Gain	Vce = 5 V, Ic = 100 mA	10			
<b>Cob</b>	Output Capacitance	F = 1.0 MHz, Vcb = 22V		4.0		pF
$\theta_{jc}$	Thermal Resistance				31	°C/W

Issue August 1996

GHz TECHNOLOGY INC. RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE. GHz RECOMMENDS THAT BEFORE THE PRODUCT(S) DESCRIBED HEREIN ARE WRITTEN INTO SPECIFICATIONS, OR USED IN CRITICAL APPLICATIONS, THAT THE PERFORMANCE CHARACTERISTICS BE VERIFIED BY CONTACTING THE FACTORY.

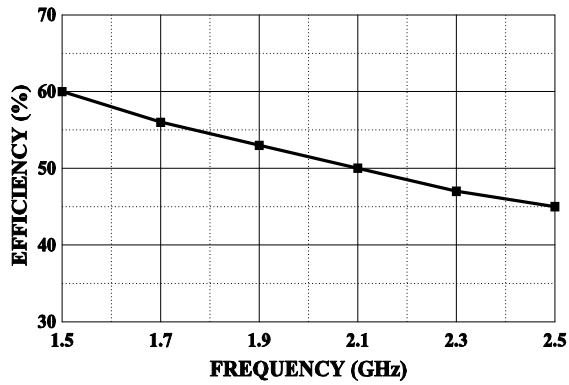
**POWER OUTPUT VS FREQUENCY**

V<sub>cc</sub>=20V, P<sub>in</sub>=.24W



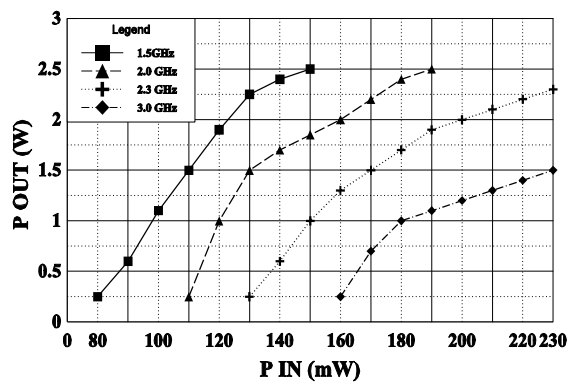
**EFFICIENCY VS FREQUENCY**

Pot = 1.5 W, V<sub>cc</sub>=20V



**TRANSFER CHARACTERISTICS VS FREQUENCY**

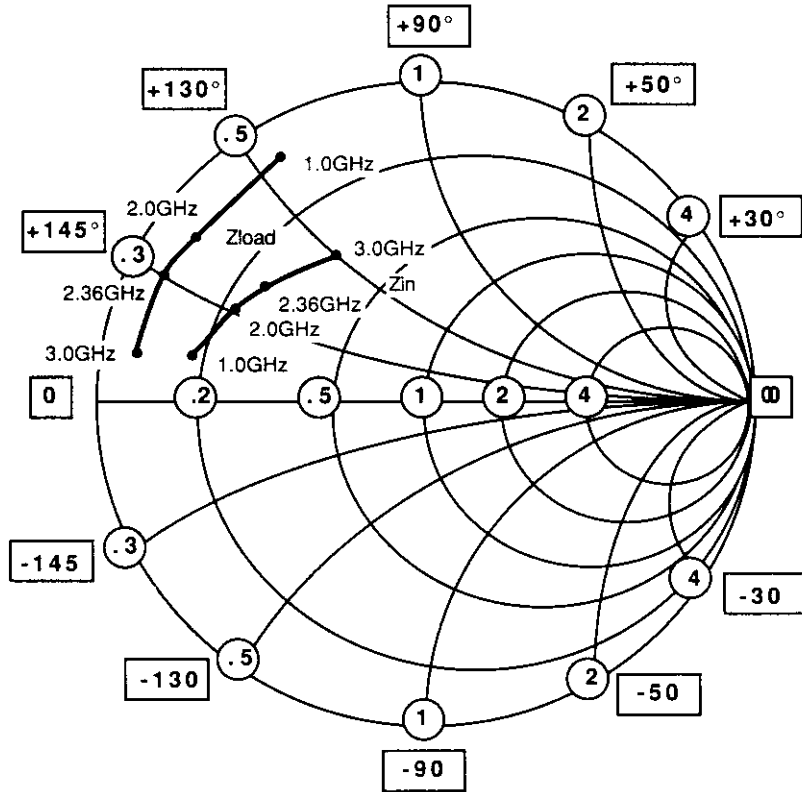
V<sub>cc</sub>=20V



# SMITH CHART

2301

NORMALIZED IMPEDANCE AND ADMITTANCE COORDINATES



NORMALIZED TO A 50 OHM SYSTEM.

FREQUENCY MHz	R	Z <sub>in</sub> +jX	FREQUENCY MHz	R	Z <sub>load</sub> +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