GHz TECHNOLOGY
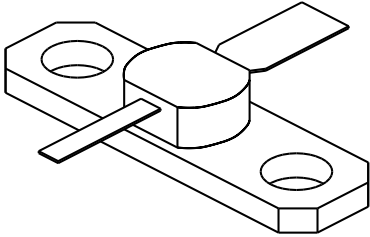RF·MICROWAVE SILICON POWER TRANSISTORS

2301
1.5 Watt - 20 Volts, Class C
Microwave 2300 MHz

GENERAL DESCRIPTION
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.

ABSOLUTE MAXIMUM RATINGS
Maximum Power Dissipation @ 25°C   5.6 Watts

Maximum Voltage and Current
BVces   Collector to Emitter Voltage   45 Volts
BVebo   Emitter to Base Voltage   3.5 Volts
Ic   Collector Current   0.3 A

Maximum Temperatures
Storage Temperature   - 65 to + 200°C
Operating Junction Temperature   + 200°C

CASE OUTLINE
55 BT- Style 1

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		%
VSWR$_1$	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
θjc	Thermal Resistance				31	°C/W

Issue August 1996
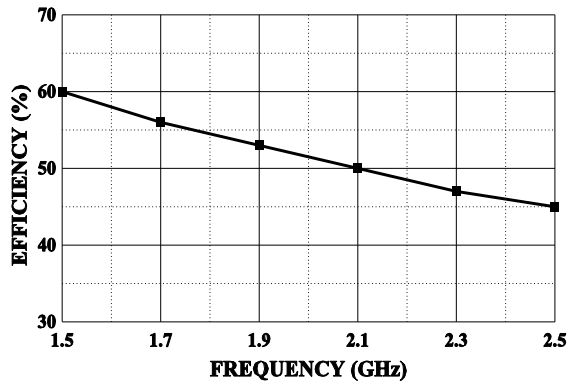
GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

POWER OUTPUT VS FREQUENCY

Vcc=20V, Pin=.24W
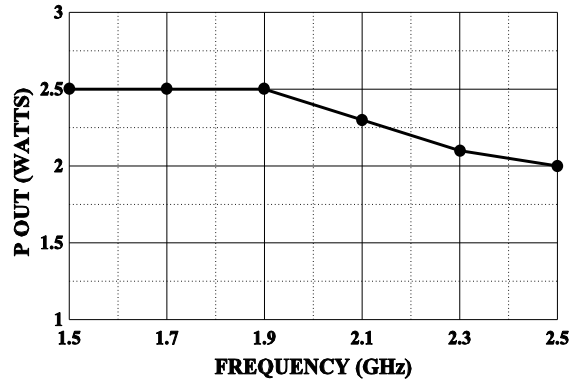
EFFICIENCY VS FREQUENCY

Pot = 1.5 W, Vcc=20V

TRANSFER CHARACTERISTICS VS FREQUENCY

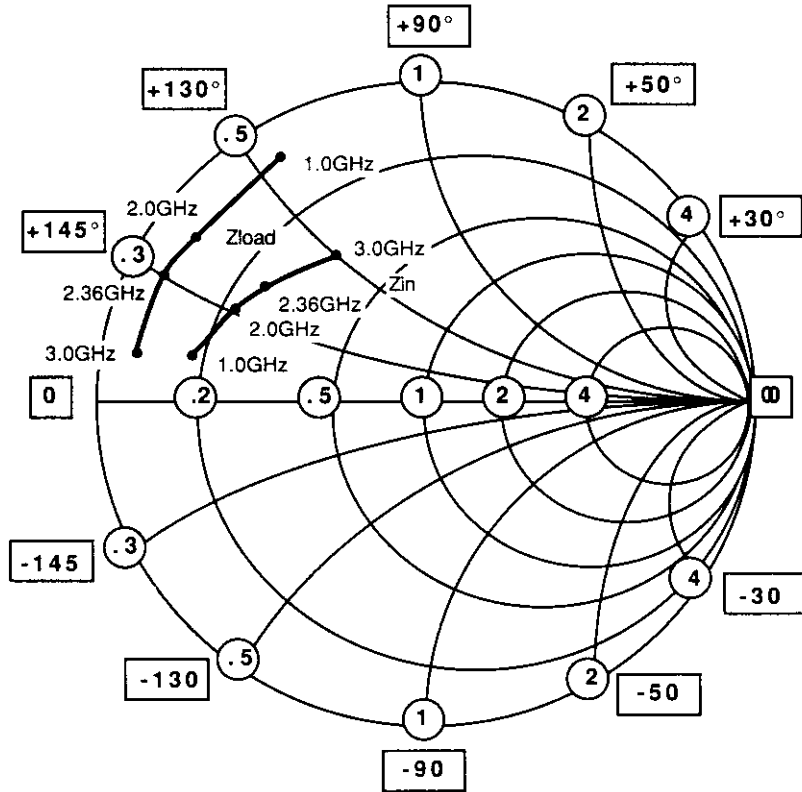Vcc=20V

Legend
■ 1.5GHz
▲ 2.0 GHz
+ 2.3 GHz
♦ 3.0 GHz

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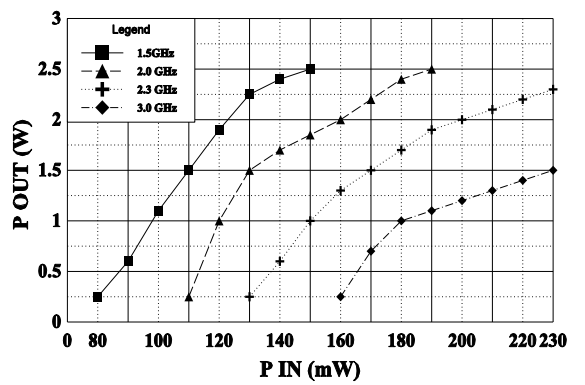
NORMALIZED IMPEDANCE AND ADMITTANCE COORDINATES

+90°
+130°
+50°
+145°
+30°
0
-145
-130
-50
-30
-90

1.0GHz
2.0GHz
Zload
3.0GHz
Zin
2.36GHz
2.36GHz
2.0GHz
3.0GHz
1.0GHz

NORMALIZED TO A 50 OHM SYSTEM.

FREQUENCY MHz	Zin		FREQUENCY MHz	Zload	
	R	+JX		R	+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