

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Output Power
30.0 dBm, P_{1dB} @ 2.3 GHz
- High Gain Bandwidth Product
 $f_t = 6.0$ GHz @ $I_C = 200$ mA
- High Gain
 $G_{PE} = 9.0$ dB @ 2.3 GHz
- BeO package for low thermal resistance

PERFORMANCE DATA:

- Electrical Characteristics ($T_A = 25^\circ\text{C}$)



DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT23E01 is a high performance silicon bipolar transistor intended for medium power applications at VHF,UHF and microwave frequencies to 2.4 GHz. Typical applications include wide band oscillators and amplifiers in CATV, aeronautical, maritime and personal communication applications. The BPT23E01 is bonded common emitter for linear applications. Linear output power of 1 Watt can be achieved. By driving part types BPT23E02 or BPT23E04, higher output power can be achieved. Hermetic BeO flange packaging makes this device excellent for industrial and military products. Uniformity and reliability are assured by the use of ion implanted junctions, ion implanted ballast resistors and gold metallization.

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	RATING	UNITS
V_{CBO}	Collector-Base Voltage @ 100 μ A	40	V
V_{CEO}	Collector-Emitter Voltage @ 100 μ A	20	V
V_{EBO}	Emitter-Base Voltage @10 μ A	3.0	V
I_C	Collector Current (instantaneous)	320	mA
T_J (1)	Junction Temperature	200	$^\circ\text{C}$
T_{STG}	Storage Temperature	-65 to 150	$^\circ\text{C}$

(1) Depends on package

SYMBOL	PARAMETERS & CONDITIONS $V_{CE} = 15\text{V}$, $I_C = 200$ mA, Class A, unless stated	UNIT	MIN.	TYP.	MAX.
P_{1dB}	Power output at 1 dB compression: $f = 2.3$ GHz	dBm		30.0	
G_{1dB}	Gain at 1dB compression: $f = 2.3$ GHz	dB		8.0	
η	Collector Efficiency Class A	%		30	
C_{CB}	Collector Base Capacitance: $f = 1$ MHz, $I_E = 0$	pF		2.0	
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 8\text{V}$, $I_C = 100$ mA		20	60	100
P_T	Total Power Dissipation ($T_C = 25^\circ\text{C}$)	W		3	

BIPOLARICS, INC.

Part Number BPT23E01

SILICON MICROWAVE POWER TRANSISTOR

ORDERING INFORMATION:

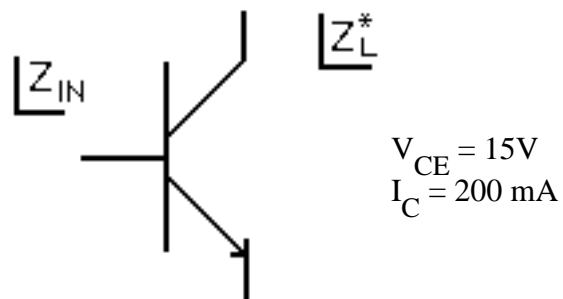
Part Number	Temp Range/App
BPT23E01	-55 to +125°C*

* Junction temperature must be maintained below 175°C

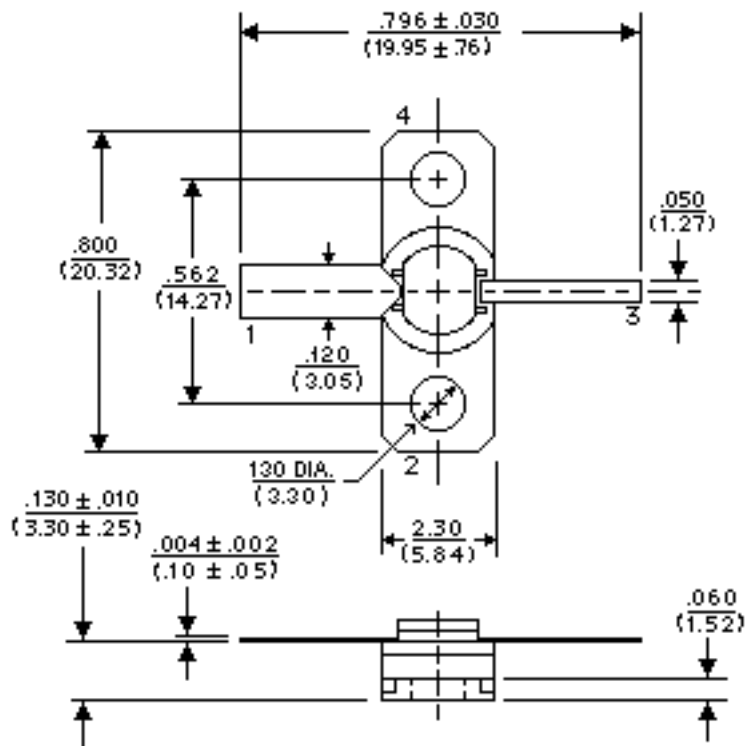
LARGE SIGNAL IMPEDANCE (COMMON EMITTER)

Frequency	Z_{IN}	Z_L^*
2.0 GHz	$3.0 + j 3.7$	$6.4 - j 6.2$
2.3 GHz	$3.0 + j 7.1$	$6.4 - j 3.7$

LEAD	1	2	3	4
23 Package	Base	Emitter	Collector	Emitter



23 Package: 0.230" BeO



NOTES: (unless otherwise specified)

1. Dimensions are $\frac{\text{in}}{\text{(mm)}}$
2. Tolerances:
in .xxx = $\pm .005$
mm .xx = $\pm .13$
3. All dimensions nominal; subject to change without notice

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