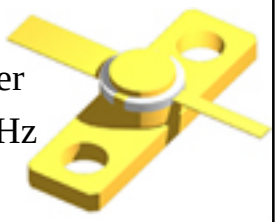
BIPOLARICS, INC. Part Number BPT30E05

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:



- High Output Power
  5 Watts @ 3.0 GHz
- High Gain Bandwidth Product
  f_t = 6.0 GHz @ I_C = 1.0 A
- High Gain
  $|S_{21}|^2$ = 9.0 dB @ 3.0 GHz
- BeO packaging for low thermal resistance

PERFORMANCE DATA:

- Electrical Characteristics (T_A = 25°C)

DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT30E05 is a high performance silicon bipolar transistor intended for linear power applications at UHF frequencies to 6 GHz. Typical applications include amplifiers in aeronautical, maritime and personal communication applications. The BPT30E05 is bonded common emitter for linear applications. Linear output power of 5 Watts can be achieved. 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	40	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current (instantaneous)	1.5	A
$T_{J\ (1)}$	Junction Temperature	200	°C
T_{STG}	Storage Temperature	-65 to 150	°C

(1) Depends on package

SYMBOL	PARAMETERS & CONDITIONS V_{CE} =15V, I_C 1.0A, Class A, unless stated		UNIT	MIN.	TYP.	MAX.
P_{1dB}	Power output at 1 dB compression:	f = 3.0 GHz	W		5.0	
G_{1dB}	Gain at 1dB compression:	f = 3.0 GHz	dB		8.0	
η	Collector Efficiency	Class A	%		30	
C_{CB}	Collector Base Capacitance:	f = 1 MHz, I_E = 0	pF		10.0	
h_{FE}	Forward Current Transfer Ratio: V_{CE} = 8V, I_C = 500 mA			20	60	100
P_T	Total Power Dissipation (T_C = 25°C)		W		15.0	

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ORDERING INFORMATION:

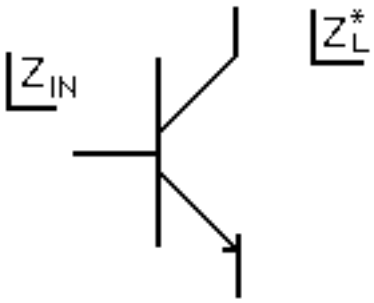
Part Number	Temp Range/App
BPT30E05	-55 to +125*

* Junction temperature must be maintained below 175˚C

LARGE SIGNAL IMPEDANCE (COMMON EMITTER)

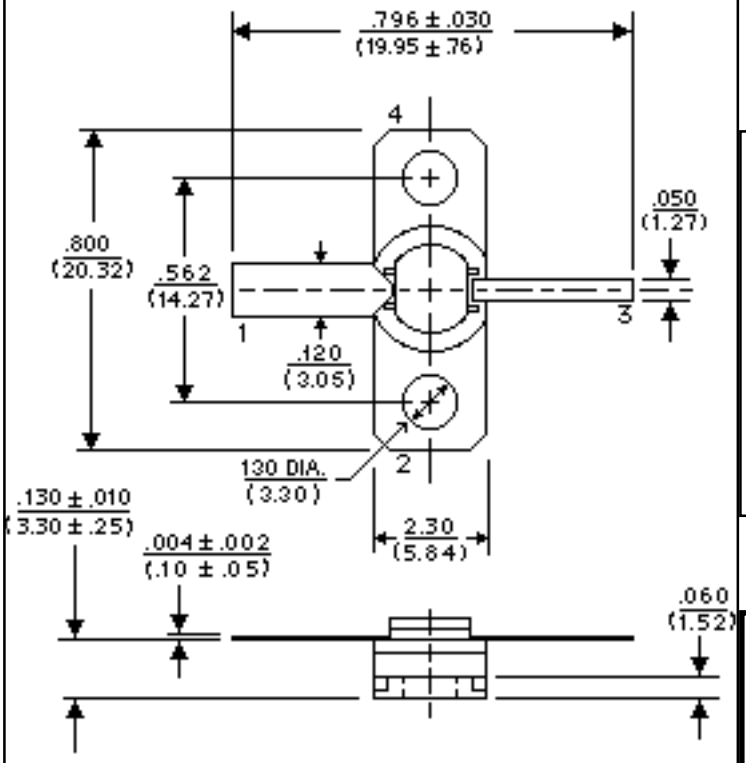
Frequency	Z_{IN}	Z^*_L
2.0 GHz	TBD	TBD
3.0 GHz	TBD	TBD

LEAD	1	2	3	4
23 Package	Base	Emitter	Collector	Emitter



V_{CE} = 15V
I_C = 1.0 A

23 Package: 230 Mil BeO



NOTES: (unless otherwise specified)

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

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