

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Output Power
3 Watts @ 4.2 GHz
- High Gain Bandwidth Product
 $f_t = 6.0 \text{ GHz @ } I_C = 600 \text{ mA}$
- High Gain
 $|S_{21}|^2 = 9.0 \text{ dB @ } 4.2 \text{ GHz}$



DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT42E03 is a high performance silicon bipolar transistor intended for linear power applications at UHF frequencies to 4.2 GHz. Typical applications include amplifiers in aeronautical, maritime and personal communication applications. The BPT42E03 is bonded common emitter for linear applications. Linear output power of 3 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.

- BeO packaging for low thermal resistance

PERFORMANCE DATA:

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

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)	900	mA
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{STG}	Storage Temperature	-65 to 150	$^\circ\text{C}$
θ_{jc}	Thermal Resistance	15	C/W

SYMBOL	PARAMETERS & CONDITIONS $V_{CE} = 15\text{V}, I_C = 600 \text{ mA}, \text{Class A}, \text{ unless stated}$	UNIT	MIN.	TYP.	MAX.
P_{1dB}	Power output at 1 dB compression: $f = 4.2 \text{ GHz}$	W		3.0	
G_{1dB}	Gain at 1dB compression: $f = 4.2 \text{ GHz}$	dB		8.0	
η	Collector Efficiency Class A	%		30	
C_{CB}	Collector Base Capacitance: $f = 1 \text{ MHz}, I_E = 0$	pF		6.0	
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 8\text{V}, I_C = 300 \text{ mA}$		20	60	100
P_T	Total Power Dissipation ($T_C = 25^\circ\text{C}$)	W		9.0	

BIPOLARICS, INC.

Part Number BPT42E03

SILICON MICROWAVE POWER TRANSISTOR

ORDERING INFORMATION:

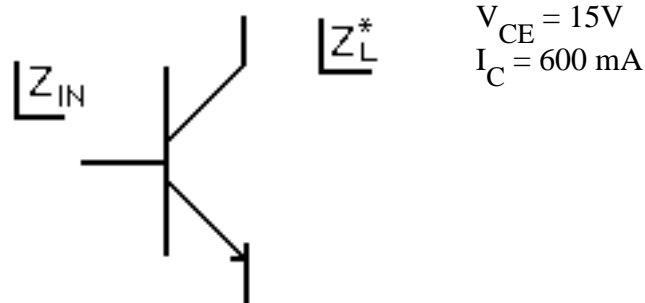
Part Number	Temp Range/App
BPT42E03	-55 to +125*

* Junction temperature must be maintained below 175°C

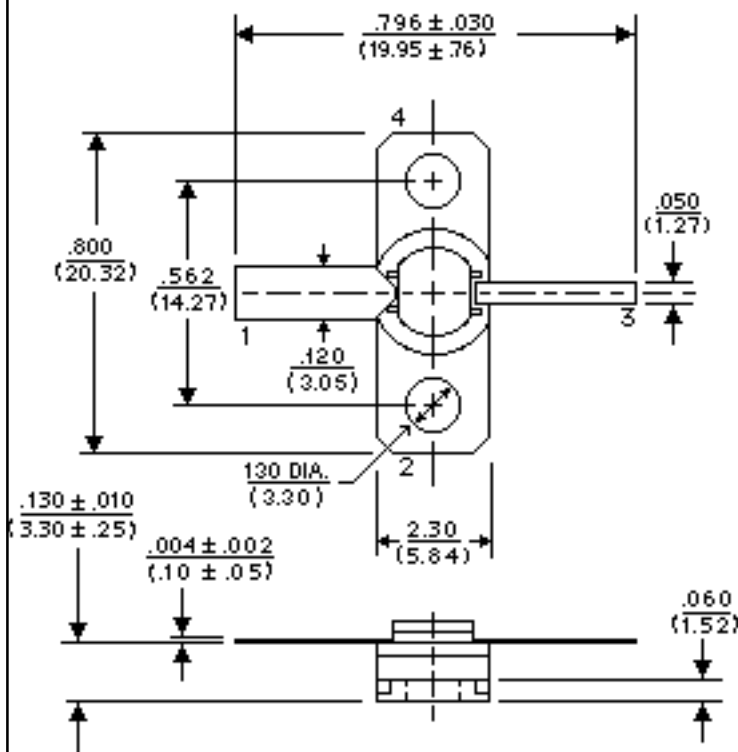
**LARGE SIGNAL IMPEDANCE
(COMMON EMITTER)**

Frequency	Z_{IN}	Z^*_L
2.0 GHz	(5.2 + j12.2)	(34.5 + j8.8)
2.5 GHz	(6.4 + j23.0)	(27.2 - j7.7)

LEAD	1	2	3	4
23 Package	Base	Emitter	Collector	Emitter



23 Package: 230 Mil BeO



NOTES: (unless otherwise specified)

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

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