

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Output Power
5 Watts @ 1.0 GHz
- High Gain Bandwidth Product
 $f_t = 6.0 \text{ GHz @ } I_C = 1.0 \text{ A}$
- High Gain
 $|S_{21}|^2 = 11.0 \text{ dB @ } 1.0 \text{ GHz}$



DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT10E05 is a high performance silicon bipolar transistor intended for linear power applications at UHF frequencies of 800 to 1000 MHz. Typical applications include amplifiers in aeronautical, maritime and personal communication applications. The BPT10E05 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.

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