

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Output Power
2 Watts @ 3.0 GHz
- High Gain Bandwidth Product
 $f_t = 6.0 \text{ GHz @ } I_C = 400 \text{ mA}$
- High Gain
 $G_{PE} = 9.0 \text{ dB @ } 3.0 \text{ GHz}$
- Stud Mount Package (Package 28S)



DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT30E02S is a high performance silicon bipolar transistor intended for linear power applications at UHF frequencies of 6.0 GHz. Typical applications include amplifiers in aeronautical, maritime and personal communication applications. The BPT30E02S is bonded common emitter for linear applications. Linear output power of 2Watts can be achieved. Stud Mount package 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.

PERFORMANCE DATA:

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

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	RATING	UNITS
V_{CES}	Collector-Base Voltage	45	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Collector Current (instantaneous)	600	mA
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{STG}	Storage Temperature	-65 to 200	$^\circ\text{C}$

θ_{JC}	Thermal Resistance	22	C/W
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SYMBOL	PARAMETERS & CONDITIONS $V_{CE} = 15V, I_C = 380 \text{ mA}, \text{Class A, unless stated}$	UNIT	MIN.	TYP.	MAX.
P_{1dB}	Power output at 1 dB compression: $f = 3.0 \text{ GHz}$	dBm	32.5	33.5	
G_{PE}	Common Emitter Power Gain: $f = 3.0 \text{ GHz}$ $P_{OUT} = +32.5 \text{ dBm}$	dB	8.0	9.0	
η	Collector Efficiency Class A	%		30	
Ψ	Load Mismatch $P_{OUT} = +32.5 \text{ dBm}$ LOAD VSWR = $\infty:1$		∞		
C_{OB}	Output Capacitance: $f = 1 \text{ MHz}, I_E = 0$ $V_{CB} = 20V$	pF		3.5	5.0
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 8V, I_C = 200 \text{ mA}$		20	45	120
P_T	Total Power Dissipation	W		6	