

BIPOLARICS, INC.**Part Number BPT1819E03****NPN SILICON MICROWAVE POWER TRANSISTORS****PRODUCT DATA SHEET****FEATURES:**

- High Output Power
3 W @ 1.8 GHz
- High Gain Bandwidth Product
 $f_t = 6.0 \text{ GHz typ @ } I_C = 480 \text{ mA}$
- High Gain
 $G_{PE} = 10.0 \text{ dB @ } 1.8 \text{ GHz}$
- Gold Metallization System
- High thermal efficiency BeO 6 Lead
Flange package (package 36)

**DESCRIPTION AND APPLICATIONS:**

Bipolarics' BPT1819E03 is a high performance silicon bipolar transistor intended for linear power applications at frequencies of 1.8 to 1.9 GHz. Typical applications include amplifiers in aeronautical, maritime and personal communication applications. The BPT1819E03 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.

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	RATING	UNITS
V_{CES}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current	960	mA
T_J	Junction Temperature	200	°C
T_{STG}	Storage Temperature	-65 to 200	°C
θ_{JC}	Thermal Resistance	11	C/W

PERFORMANCE DATA:

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

SYMBOL	PARAMETERS & CONDITIONS		UNIT	MIN.	TYP.	MAX.
	$V_{CE} = 15\text{V}, I_C = 480 \text{ mA}, \text{Class A, Common Emitter unless stated}$					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 0.1 \text{ mA}$	V	20		
P_{1dB}	Output Power at 1dB compression	$f = 1.8 \text{ GHz}$	W		3.0	
G_{PE}	Class A $P_{OUT} = 4 \text{ W}$	$f = 1.8 \text{ GHz}$	dB		10.0	
η	Efficiency:	Class A Class C	%		30 65	
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 8.0\text{V}, I_C = 400 \text{ mA}$	$f = 1.0 \text{ MHz}$		20	60	100
C_{CB}	Collector Base Capacitance:	$f = 1.0 \text{ MHz}$ $I_E = 0$	pF		8.0	
P_T	Total Power Dissipation		W			12