

## SILICON MICROWAVE POWER TRANSISTOR

### PRODUCT DATA SHEET

#### FEATURES:

- High Output Power  
5 Watts @ 1.8 GHz
- High Gain Bandwidth Product  
 $f_t = 6.0 \text{ GHz @ } I_C = 1.0 \text{ A}$
- High Gain  
 $|S_{21}|^2 = 10.0 \text{ dB @ } 1.8 \text{ GHz}$
- BeO packaging for low thermal resistance



#### DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT18E05 is a high performance silicon bipolar transistor intended for linear power applications at frequencies of 1.6 to 1.8 GHz.. Typical applications include wide band oscillators and amplifiers in aeronautical, maritime and personal communication applications. The BPT18E05 is bonded common emitter for linear applications. Linear output power of 4Watts 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.

#### PERFORMANCE DATA:

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

#### Absolute Maximum Ratings:

| SYMBOL    | PARAMETERS                             | RATING     | UNITS            |
|-----------|--|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage @ 100 $\mu$ A   | 40         | V                |
| $V_{CEO}$ | Collector-Emitter Voltage @100 $\mu$ A | 20         | V                |
| $V_{EBO}$ | Emitter-Base Voltage @ 10 $\mu$ 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<br>$V_{CE} = 15\text{V}, I_C = 1.0 \text{ A}, \text{Class A}, \text{unless stated}$ | UNIT | MIN. | TYP. | MAX. |
|-----------|---|------|------|------|------|
| $P_{1dB}$ | Power output at 1 dB compression: $f = 1.8 \text{ GHz}$   | W    |      | 5.0  |      |
| $G_{1dB}$ | Gain at 1dB compression: $f = 1.8 \text{ GHz}$  | dB   |      | 9.0  |      |
| $\eta$    | Collector Efficiency<br>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 |      |

**SILICON MICROWAVE POWER TRANSISTOR**

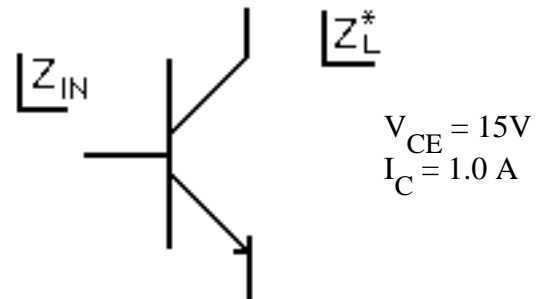
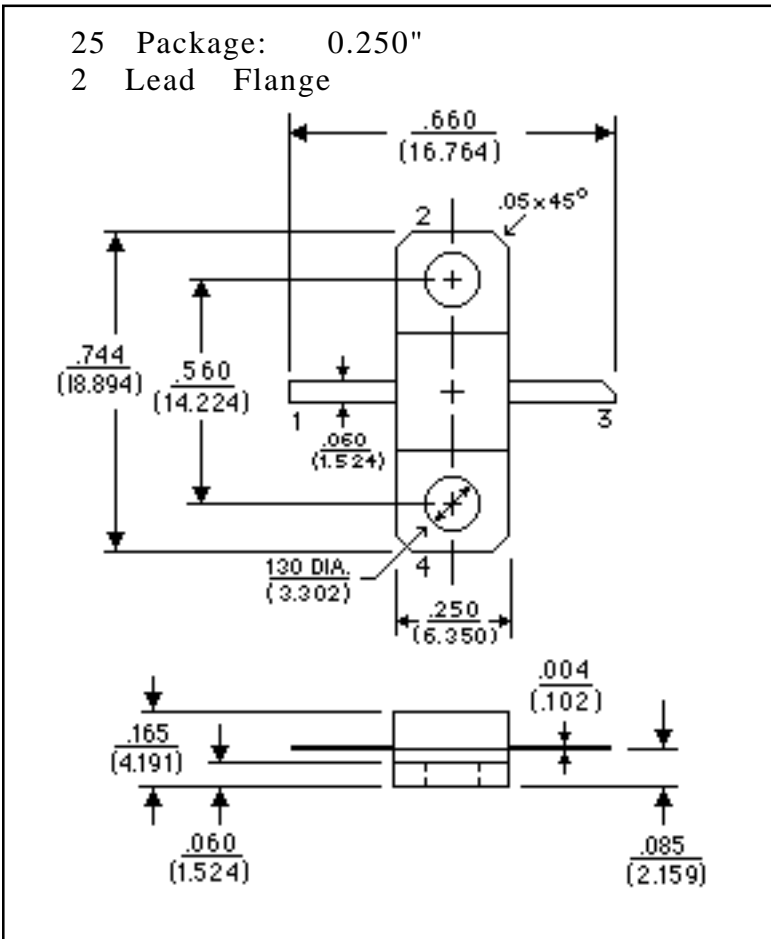
**ORDERING INFORMATION:**

|             |                |
|-------------|----------------|
| Part Number | Temp Range/App |
| BPT18E05    | -55 to +125°C* |

\* Junction temperature must be kept below 175°C

**LARGE SIGNAL IMPEDANCE  
(COMMON EMITTER)**

| Frequency | Z <sub>IN</sub> | Z <sub>L</sub> |
|-----------|-----------------|----------------|
| 1600 MHz  | TBD             | TBD            |
| 1800 MHz  | TBD             | TBD            |



**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

| LEAD       | 1    | 2       | 3         | 4       |
|------------|------|---------|-----------|---------|
| 25 Package | Base | Emitter | Collector | Emitter |

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