

**SOT-323 BIPOLAR TRANSISTORS  
TRANSISTOR (PNP)**


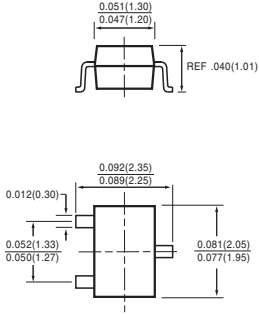
**FEATURES**

- \* Power dissipation  
Pcm: 0.2 W (Tamb=25°C)
- \* Collector current  
Icm: -0.6 A
- \* Collector-base voltage  
V(BR)CBO: -60 V
- \* Operating and storage junction temperature range  
Tj,Tstg: -55°C to +150°C

**MECHANICAL DATA**

- \* Case: Molded plastic
- \* Epoxy: UL 94V-O rate flame retardant
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.006 gram

**SOT-323**

Dimensions in inches and (millimeters)

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**  
Ratings at 25 °C ambient temperature unless otherwise specified.

**MAXIMUM RATINGS** ( @ TA = 25°C unless otherwise noted )

| RATINGS                                       | SYMBOL           | VALUE       | UNITS |
|---|------------------|-------------|-------|
| Zener Current ( see Table "Characteristics" ) | -                | -           | -     |
| Max. Steady State Power Dissipation           | P <sub>D</sub>   | 200         | mW    |
| Max. Operating Temperature Range              | T <sub>J</sub>   | 150         | °C    |
| Storage Temperature Range                     | T <sub>STG</sub> | -55 to +150 | °C    |

**ELECTRICAL CHARACTERISTICS** ( At TA = 25°C unless otherwise noted )

| CHARACTERISTICS   | SYMBOL            | MIN. | TYP. | MAX. | UNITS |
|---|-------------------|------|------|------|-------|
| Thermal Resistance Junction to Ambient                      | R θ <sub>JA</sub> | -    | -    | 625  | °C/W  |
| Max. Instantaneous Forward Voltage at I <sub>F</sub> = 10mA | V <sub>F</sub>    | -    | -    | -    | Volts |

**ELECTRICAL CHARACTERISTICS** (@TA=25°C unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

**OFF CHARACTERISTICS**

|  |               |     |       |               |
|--|---------------|-----|-------|---------------|
| Collector-Emitter Breakdown Voltage ( $I_C = -10\text{mA}$ , $I_B = 0$ ) | $V_{(BR)CEO}$ | -60 | -     | Vdc           |
| Collector-Base Breakdown Voltage ( $I_C = -10\text{mA}$ , $I_E = 0$ )    | $V_{(BR)CBO}$ | -60 | -     | Vdc           |
| Emitter-Base Breakdown Voltage ( $I_E = -10\text{mA}$ , $I_C = 0$ )      | $V_{(BR)EBO}$ | -5  | -     | Vdc           |
| Collector Cutoff Current ( $V_{CB} = -35\text{Vdc}$ , $I_B = 0$ )        | $I_{CEO}$     | -   | -0.05 | $\mu\text{A}$ |
| Collector Cutoff Current ( $V_{CB} = -50\text{Vdc}$ , $I_E = 0$ )        | $I_{CBO}$     | -   | -0.01 | $\mu\text{A}$ |
| Emitter Cutoff Current ( $V_{EB} = -3.0\text{Vdc}$ , $I_C = 0$ )         | $I_{EBO}$     | -   | -0.01 | $\mu\text{A}$ |

**ON CHARACTERISTICS**

|   |               |     |      |     |
|---|---------------|-----|------|-----|
| DC Current Gain ( $I_C = -0.1\text{mA}$ , $V_{CE} = -10\text{Vdc}$ )<br>( $I_C = -1\text{mA}$ , $V_{CE} = -10\text{Vdc}$ )<br>( $I_C = -10\text{mA}$ , $V_{CE} = -10\text{Vdc}$ )<br>( $I_C = -150\text{mA}$ , $V_{CE} = -10\text{Vdc}$ )<br>( $I_C = -500\text{mA}$ , $V_{CE} = -10\text{Vdc}$ ) | hFE           | 75  | -    |     |
|   |               | 100 | -    |     |
|   |               | 100 | -    | -   |
|   |               | 100 | 300  |     |
|   |               | 50  | -    |     |
| Collector-Emitter Saturation Voltage ( $I_C = -500\text{mA}$ , $I_B = -50\text{mA}$ )   | $V_{CE(sat)}$ | -   | -0.6 | Vdc |
| Base-Emitter Saturation Voltage ( $I_C = -500\text{mA}$ , $I_B = -50\text{mA}$ )  | $V_{BE(sat)}$ | -   | -1.2 | Vdc |

**SMALL-SIGNAL CHARACTERISTICS**

|  |           |     |    |     |
|--|-----------|-----|----|-----|
| Current-Gain-Bandwidth Product ( $I_C = -50\text{mA}$ , $V_{CE} = -20\text{Vdc}$ , $f = 100\text{MHz}$ ) | $f_T$     | 200 | -  | MHz |
| Input Capacitance ( $V_{EB} = -2\text{Vdc}$ , $f = 100\text{MHz}$ )                                      | $C_{ibo}$ | -   | 30 | pF  |
| Output Capacitance ( $I_E = 0$ , $V_{CB} = -10\text{Vdc}$ , $f = 1\text{MHz}$ )                          | $C_{obo}$ | -   | 8  | pF  |

**SWITCHING CHARACTERISTICS**

|               |  |           |   |     |    |
|---------------|--|-----------|---|-----|----|
| Turn-On Time  | $(V_{CC} = -30\text{Vdc}, V_{BE(OFF)} = -1.5\text{Vdc}, I_C = -150\text{mA}, I_{B1} = -15\text{mA})$ | $t_{on}$  | - | 50  |    |
| Delay Time    |  | $t_d$     | - | 10  | ns |
| Rise Time     |  | $t_r$     | - | 40  |    |
| Turn-Off Time | $(V_{CC} = -30\text{Vdc}, I_C = -150\text{mA}, I_{B1} = I_{B2} = -15\text{mA})$                      | $t_{off}$ | - | 100 |    |
| Storage Time  |  | $t_s$     | - | 80  | ns |
| Fall Time     |  | $t_f$     | - | 30  |    |