

Features

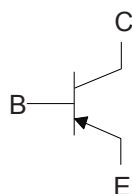
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 208°C/W Junction to Ambient

| Parameter | Symbol | Rating | Unit |
|------------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | -40 | V |
| Collector-Emitter Voltage | V_{CEO} | -40 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Continuous Collector Current | I_C | -200 | mA |
| Power Dissipation | P_D | 600 | mW |

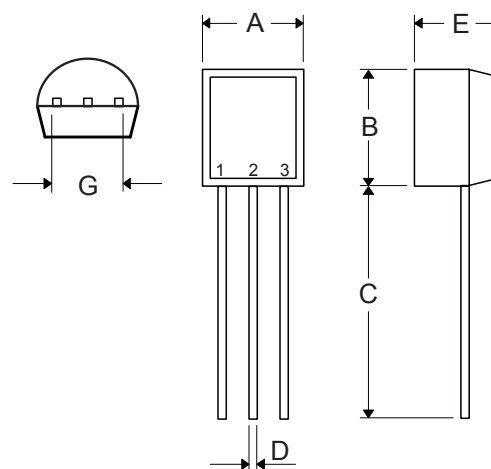
Internal Structure



1.EMITTER
2.BASE
3.COLLECTOR

PNP General Purpose Amplifier

TO-92



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|-------|-------|---------------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.169 | 0.185 | 4.30 | 4.70 | |
| B | 0.169 | 0.185 | 4.30 | 4.70 | |
| C | 0.500 | ----- | 12.70 | ----- | |
| D | 0.015 | 0.022 | 0.38 | 0.55 | |
| E | 0.130 | 0.146 | 3.30 | 3.70 | |
| G | 0.095 | 0.105 | 2.42 | 2.67 | Straight Lead |
| | 0.173 | 0.220 | 4.40 | 5.60 | Bent |

Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|--------------------------------------|---------------|-----|-------|-------|---------------|--|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -40 | | | V | $I_C=-10\mu\text{A}, I_E=0$ |
| Collector-Emitter Breakdown Voltage* | $V_{(BR)CEO}$ | -40 | | | V | $I_C=-1\text{mA}, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | | | V | $I_E=-10\mu\text{A}, I_C=0$ |
| Base Cutoff Current | I_{BL} | | | -0.05 | μA | $V_{CE}=-30\text{V}, V_{BE}=-3\text{V}$ |
| Collector Cut-off Current | I_{CEX} | | | -0.05 | μA | $V_{CE}=-30\text{V}, V_{BE}=-3\text{V}$ |
| DC Current Gain* | $h_{FE(1)}$ | 60 | | | | $V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$ |
| | $h_{FE(2)}$ | 80 | | | | $V_{CE}=-1\text{V}, I_C=-1\text{mA}$ |
| | $h_{FE(3)}$ | 100 | | 300 | | $V_{CE}=-1\text{V}, I_C=-10\text{mA}$ |
| | $h_{FE(4)}$ | 60 | | | | $V_{CE}=-1\text{V}, I_C=-50\text{mA}$ |
| | $h_{FE(5)}$ | 30 | | | | $V_{CE}=-1\text{V}, I_C=-100\text{mA}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | -0.25 | V | $I_C=-10\text{mA}, I_B=-1\text{mA}$ |
| | | | | -0.4 | V | $I_C=-50\text{mA}, I_B=-5\text{mA}$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -0.65 | -0.85 | V | $I_C=-10\text{mA}, I_B=-1\text{mA}$ |
| | | | | -0.95 | V | $I_C=-50\text{mA}, I_B=-5\text{mA}$ |
| Transition Frequency | f_T | 250 | | | MHz | $V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$ |
| Delay Time | t_d | | | 35 | ns | $V_{CC}=-3\text{V}, V_{BE}=-0.5\text{V}, I_C=-10\text{mA}, I_{B1}=-1\text{mA}$ |
| Rise Time | t_r | | | 35 | ns | |
| Storage Time | t_s | | | 225 | ns | $V_{CC}=-3\text{V}, I_C=-10\text{mA}, I_{B1}=I_{B2}=-1\text{mA}$ |
| Fall Time | t_f | | | 75 | ns | |

*.Pulse test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

Curve Characteristics

Fig. 1 - Static Characteristics

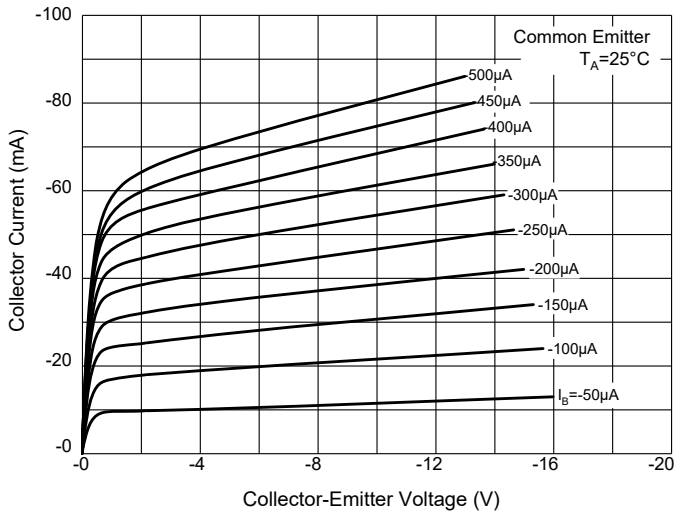


Fig. 2 - DC Current Gain Characteristics

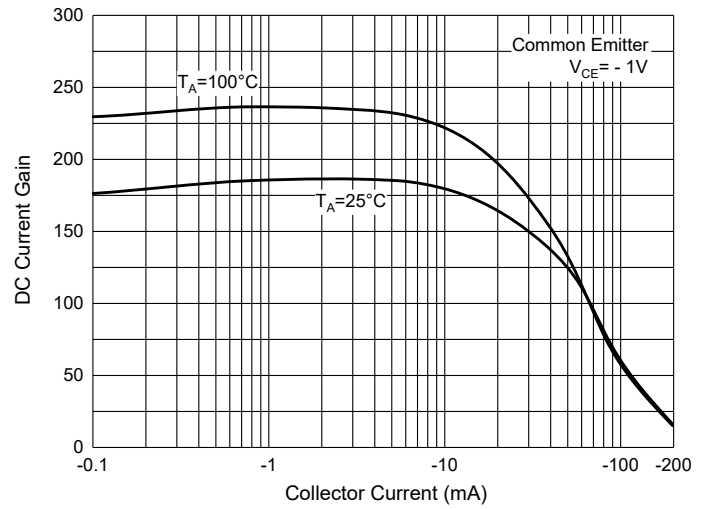


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

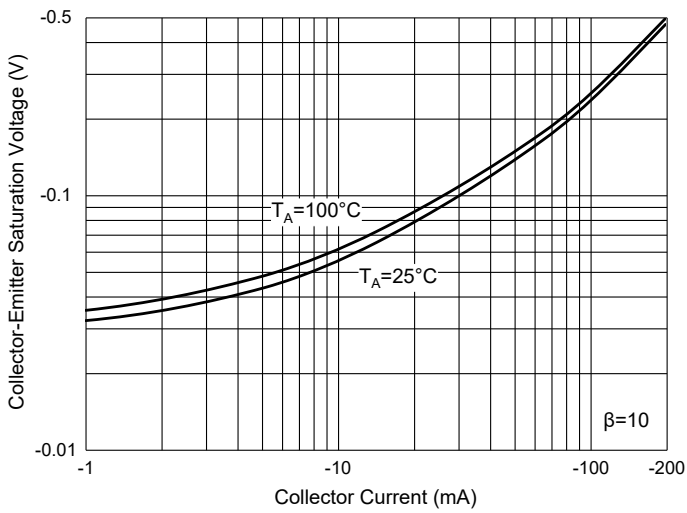


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

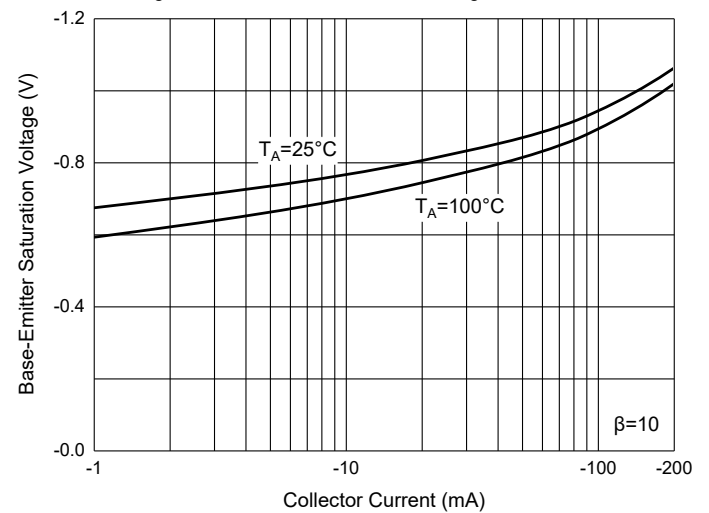


Fig. 5 - Base-Emitter Voltage Characteristics

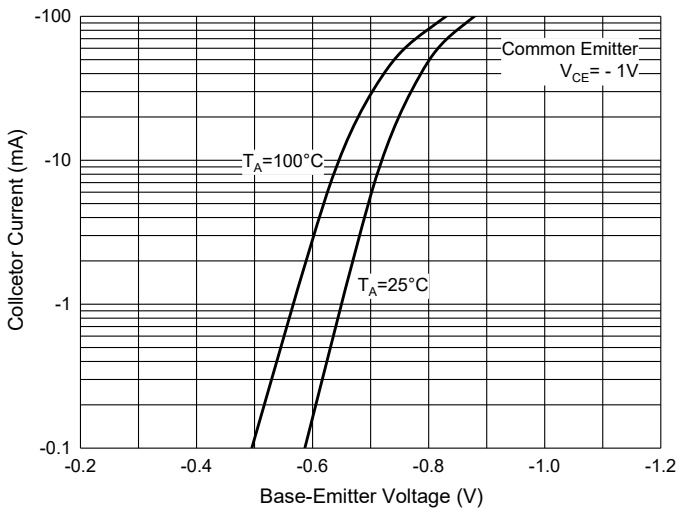


Fig. 6 - Collector Power Derating Curve

