

Features

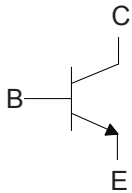
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

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: 139°C/W Junction to Ambient

| Parameter | Symbol | Rating | Unit |
|------------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 30 | V |
| Collector-Emitter Voltage | V_{CEO} | 30 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Continuous Collector Current | I_C | 1.5 | A |
| Power Dissipation | P_D | 0.9 | W |

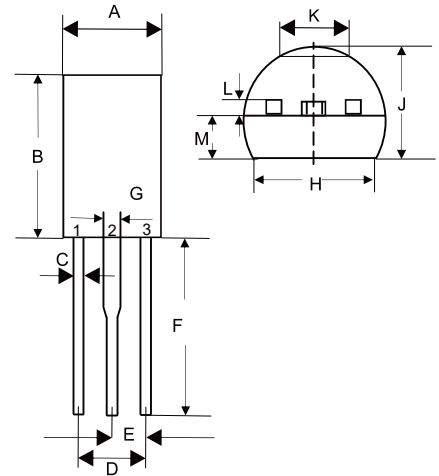
Internal Structure



- 1.EMITTER
- 2.COLLECTOR
- 3.BASE

**NPN
Plastic-Encapsulate
Transistor**

TO-92MOD



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|-------|-------|---------------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.228 | 0.244 | 5.80 | 6.20 | |
| B | 0.331 | 0.346 | 8.40 | 8.80 | |
| C | 0.016 | 0.024 | 0.40 | 0.60 | |
| D | 0.114 | 0.122 | 2.90 | 3.10 | Straight Lead |
| | 0.173 | 0.220 | 4.40 | 5.60 | Bent Lead |
| E | 0.059 | | 1.50 | | Straight Lead |
| | 0.086 | 0.110 | 2.20 | 2.80 | Bent Lead |
| F | 0.543 | 0.559 | 13.80 | 14.20 | |
| G | 0.035 | 0.043 | 0.90 | 1.10 | |
| H | 0.157 | ----- | 4.00 | ----- | |
| J | 0.185 | 0.201 | 4.70 | 5.10 | |
| K | ----- | 0.063 | ----- | 1.60 | |
| L | 0.016 | 0.020 | 0.40 | 0.50 | |
| M | 0.068 | 0.080 | 1.73 | 2.03 | |

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

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|--------------------------------------|---------------|-----|-----|-----|---------------|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 30 | | | V | $I_C=1\text{mA}, I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 30 | | | V | $I_C=10\text{mA}, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | | | V | $I_E=1\text{mA}, I_C=0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | 0.1 | μA | $V_{CB}=30\text{V}, I_E=0$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | 0.1 | μA | $V_{EB}=5\text{V}, I_C=0$ |
| DC Current Gain | h_{FE} | 160 | | 320 | | $V_{CE}=2\text{V}, I_C=500\text{mA}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 2.0 | V | $I_C=1500\text{mA}, I_B=30\text{mA}$ |
| Base-Emitter Voltage | V_{BE} | | | 1.0 | V | $V_{CE}=2\text{V}, I_C=500\text{mA}$ |
| Transition Frequency | f_T | | 120 | | MHz | $V_{CE}=2\text{V}, I_C=500\text{mA}$ |
| Collector-Base Capacitance | C_{cb} | | | 30 | pF | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ |

Curve Characteristics

Fig. 1 - Static Characteristics

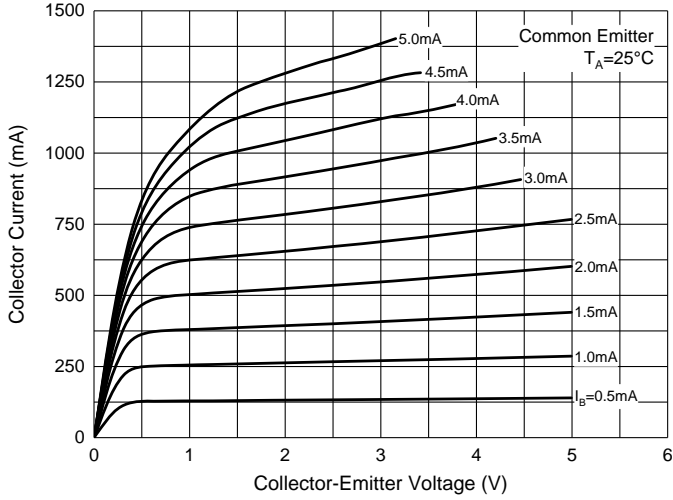


Fig. 2 - DC Current Gain Characteristics

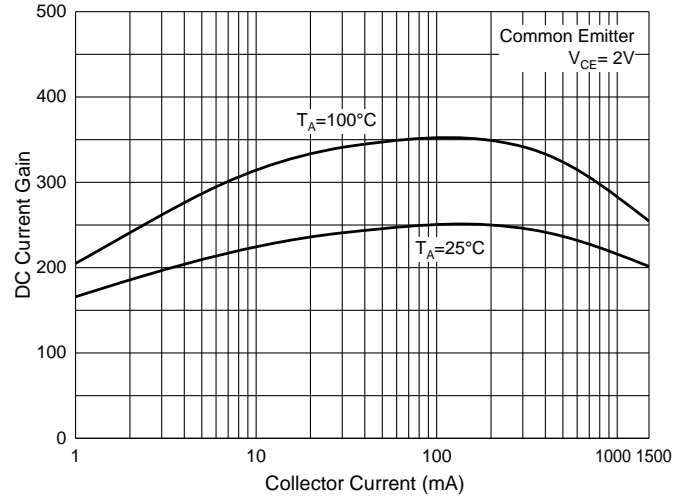


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

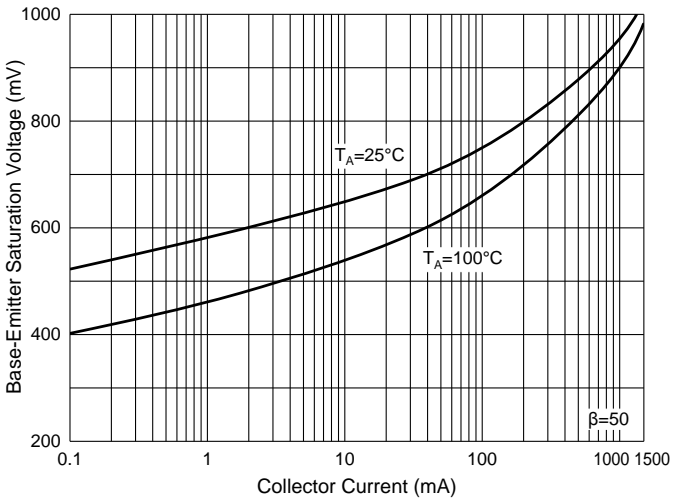


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

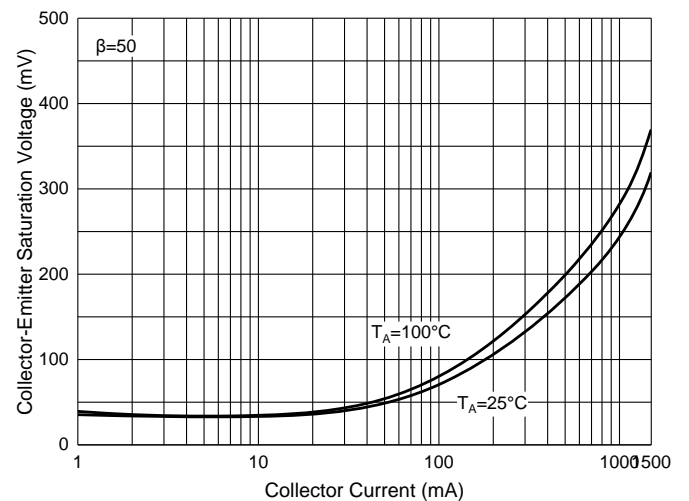


Fig. 5 - Base-Emitter Voltage Characteristics

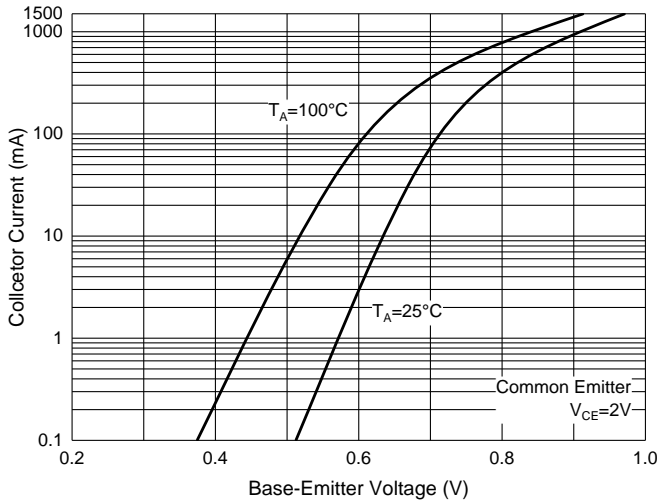
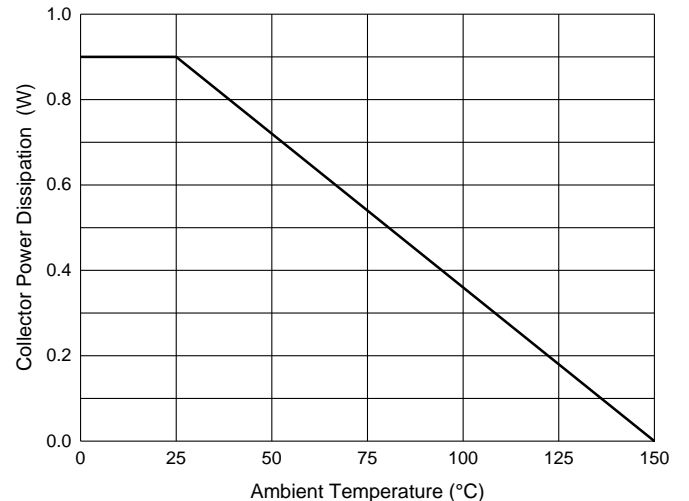


Fig. 6 - Collector Power Derating Curve



Ordering Information

| Device | Packing |
|----------------|-----------------------------|
| Part Number-AP | Ammo Packing: 20Kpcs/Carton |
| Part Number-BP | Bulk: 50Kpcs/Carton |

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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