

**Features**

- Halogen Free. "Green" Device (Note 1)
- 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**

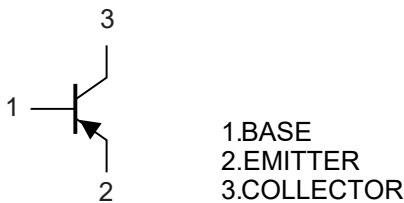
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 357°C/W Junction to Ambient

| Parameter                    | Symbol    | Rating | Unit |
|------------------------------|-----------|--------|------|
| Collector-Base Voltage       | $V_{CBO}$ | -400   | V    |
| Collector-Emitter Voltage    | $V_{CEO}$ | -400   | V    |
| Emitter-Base Voltage         | $V_{EBO}$ | -5     | V    |
| Continuous Collector Current | $I_C$     | -100   | mA   |
| Power Dissipation            | $P_D$     | 350    | mW   |

Note:  
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

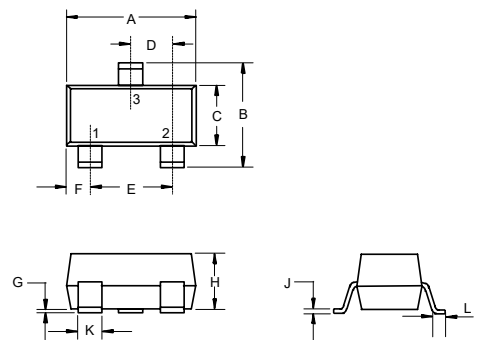
**Marking: 4D**

**Internal Structure**



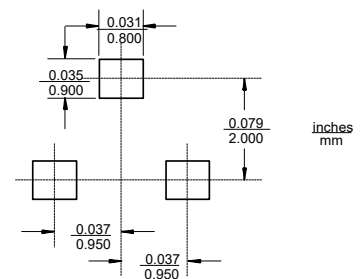
**PNP Silicon High Voltage Transistor**

**SOT-23**



| DIM | DIMENSIONS |       |      |      | NOTE |
|-----|------------|-------|------|------|------|
|     | INCHES     |       | MM   |      |      |
|     | MIN        | MAX   | MIN  | MAX  |      |
| A   | 0.110      | 0.120 | 2.80 | 3.04 |      |
| B   | 0.083      | 0.104 | 2.10 | 2.64 |      |
| C   | 0.047      | 0.055 | 1.20 | 1.40 |      |
| D   | 0.034      | 0.041 | 0.85 | 1.05 |      |
| E   | 0.067      | 0.083 | 1.70 | 2.10 |      |
| F   | 0.018      | 0.024 | 0.45 | 0.60 |      |
| G   | 0.0004     | 0.006 | 0.01 | 0.15 |      |
| H   | 0.035      | 0.043 | 0.90 | 1.10 |      |
| J   | 0.003      | 0.007 | 0.08 | 0.18 |      |
| K   | 0.012      | 0.020 | 0.30 | 0.51 |      |
| L   | 0.007      | 0.020 | 0.20 | 0.50 |      |

**Suggested Solder Pad Layout**



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

| Parameter                            | Symbol        | Min  | Typ | Max   | Units         | Conditions   |
|--------------------------------------|---------------|------|-----|-------|---------------|--|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -400 |     |       | V             | $I_C=-100\mu\text{A}$ , $I_E=0$                              |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -400 |     |       | V             | $I_C=-1\text{mA}$ , $I_B=0$                                  |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | -5   |     |       | V             | $I_E=-100\mu\text{A}$ , $I_C=0$                              |
| Collector Cutoff Current             | $I_{CBO}$     |      |     | -0.1  | $\mu\text{A}$ | $V_{CB}=-400\text{V}$ , $I_E=0$                              |
| Emitter Cutoff Current               | $I_{EBO}$     |      |     | -0.1  | $\mu\text{A}$ | $V_{EB}=-4\text{V}$ , $I_C=0$                                |
| DC Current Gain                      | $h_{FE(1)}$   | 70   |     |       |               | $V_{CE}=-10\text{V}$ , $I_C=-1\text{mA}$                     |
|                                      | $h_{FE(2)}$   | 80   |     | 300   |               | $V_{CE}=-10\text{V}$ , $I_C=-10\text{mA}$                    |
|                                      | $h_{FE(3)}$   | 40   |     |       |               | $V_{CE}=-10\text{V}$ , $I_C=-50\text{mA}$                    |
|                                      | $h_{FE(4)}$   | 40   |     |       |               | $V_{CE}=-10\text{V}$ , $I_C=-100\text{mA}$                   |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |      |     | -0.2  | V             | $I_C=-10\text{mA}$ , $I_B=-1\text{mA}$                       |
|                                      |               |      |     | -0.3  | V             | $I_C=-50\text{mA}$ , $I_B=-5\text{mA}$                       |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ |      |     | -0.75 | V             | $I_C=-10\text{mA}$ , $I_B=-1\text{mA}$                       |
| Transition Frequency                 | $f_T$         | 50   |     |       | MHz           | $V_{CE}=-20\text{V}$ , $I_C=-10\text{mA}$ , $f=30\text{MHz}$ |

**Curve Characteristics**

Fig. 1 - Static Characteristics

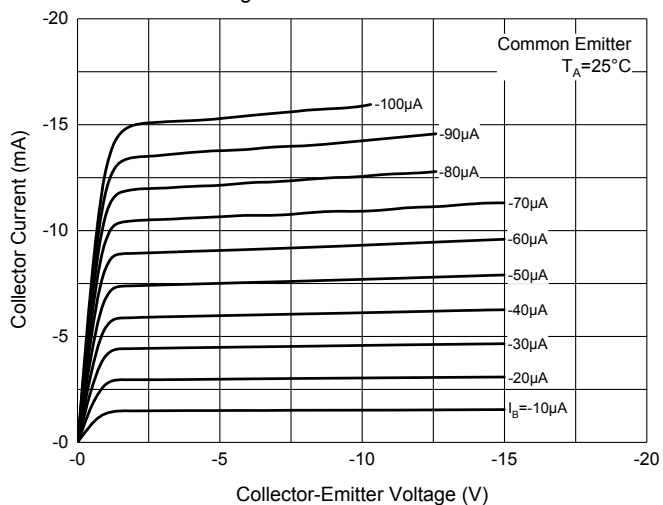


Fig. 2 - DC Current Gain Characteristics

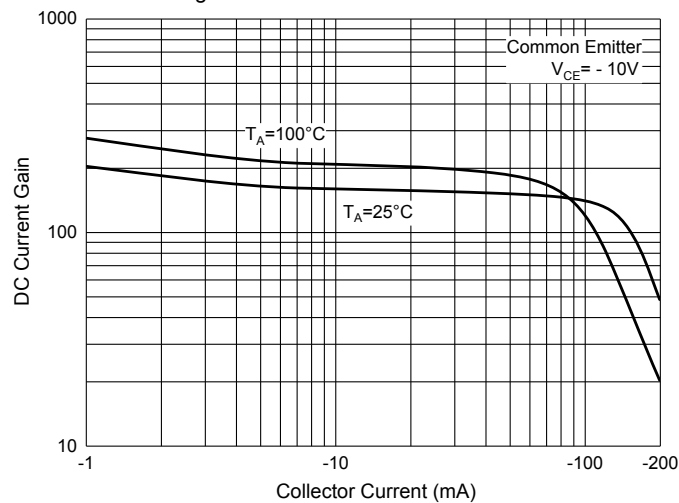


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

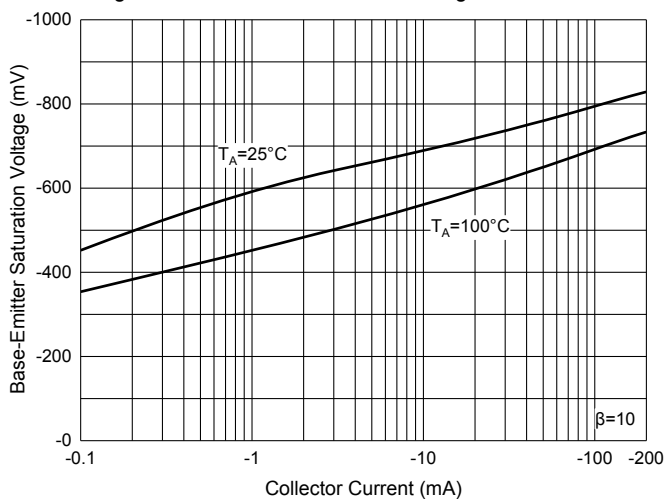


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

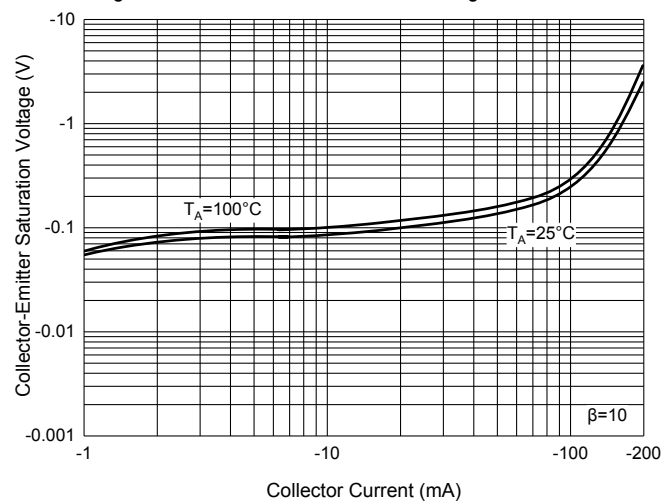


Fig. 5 - Transition frequency Characteristics

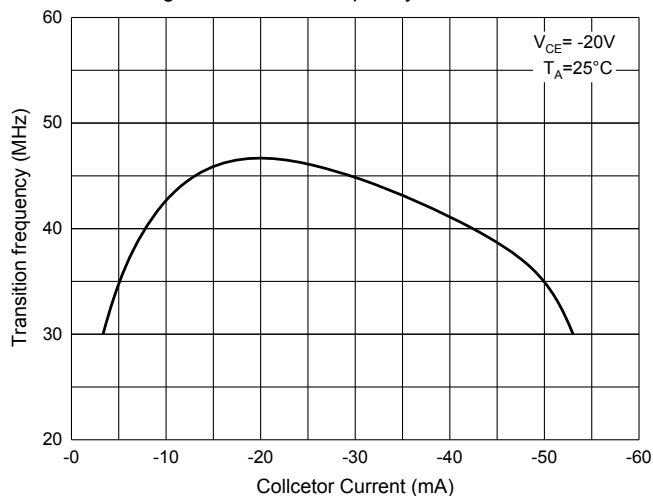
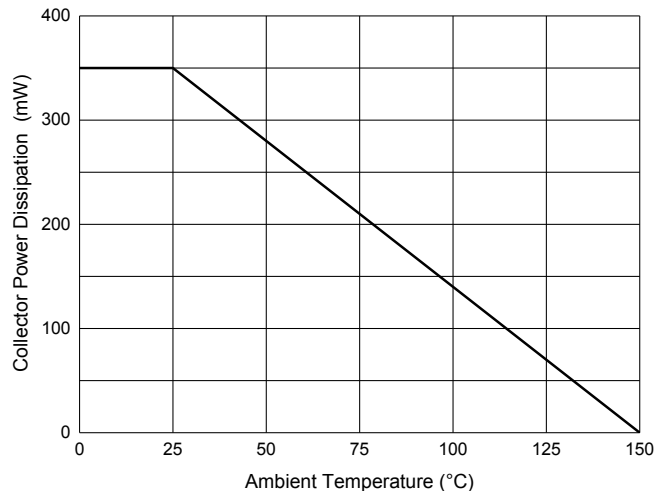


Fig. 6 - Collector Power Derating Curve



## Ordering Information

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

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