

Features

- Low Saturation Voltage
- High Speed Switching Time
- Complementary to 2SA1213
- 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: 250°C/W Junction to Ambient

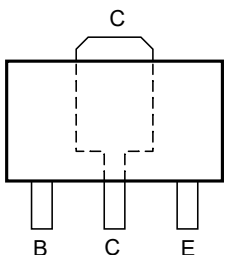
| Parameter | Symbol | Rating | Unit |
|-----------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 50 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 2 | A |
| Collector Power Dissipation | P_C | 500 | mW |

Classification Of h_{FE1}

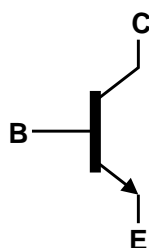
| Rank | O | Y |
|---------|--------|---------|
| Range | 70-140 | 120-240 |
| Marking | MO | MY |

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

Pin Configuration - Top View

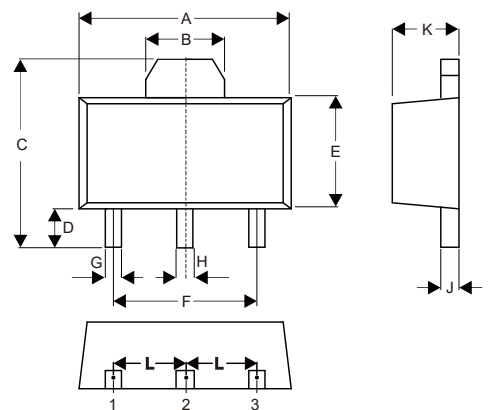


Internal Structure



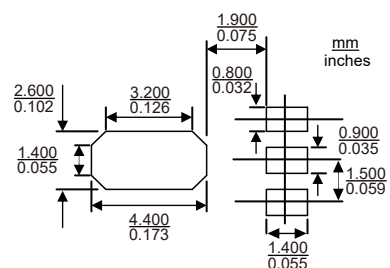
**NPN
Silicon Epitaxial
Transistors**

SOT-89



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.169 | 0.185 | 4.30 | 4.70 | |
| B | 0.061 | | 1.55 | | TYP. |
| C | 0.154 | 0.171 | 3.91 | 4.35 | |
| D | 0.031 | 0.047 | 0.80 | 1.20 | |
| E | 0.089 | 0.104 | 2.25 | 2.65 | |
| F | 0.118 | | 3.00 | | TYP. |
| G | 0.013 | 0.020 | 0.33 | 0.52 | |
| H | 0.015 | 0.021 | 0.38 | 0.53 | |
| J | 0.014 | 0.017 | 0.35 | 0.44 | |
| K | 0.055 | 0.063 | 1.40 | 1.60 | |
| L | 0.059 | | 1.50 | | TYP. |

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|--------------------------------------|---------------|-----|-----|-----|---------|-----------------------------|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 50 | | | V | $I_C=100\mu A, I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 50 | | | V | $I_C=1mA, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | | | V | $I_E=100\mu A, I_C=0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | 0.1 | μA | $V_{CB}=50V, I_E=0$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | 0.1 | μA | $V_{EB}=5V, I_C=0$ |
| DC Current Gain | h_{FE1} | 70 | | 240 | | $V_{CE}=2V, I_C=0.5A$ |
| DC Current Gain | h_{FE2} | 20 | | | | $V_{CE}=2V, I_C=2A$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 0.5 | V | $I_C=1A, I_B=50mA$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | | 1.2 | V | $I_C=1A, I_B=50mA$ |
| Transition Frequency | f_T | | 120 | | MHz | $V_{CE}=2V, I_C=0.5A$ |
| Collector Output Capacitance | C_{ob} | | 30 | | pF | $V_{CB}=10V, I_E=0, f=1MHz$ |

Curve Characteristics

Fig. 1 - Static Characteristics

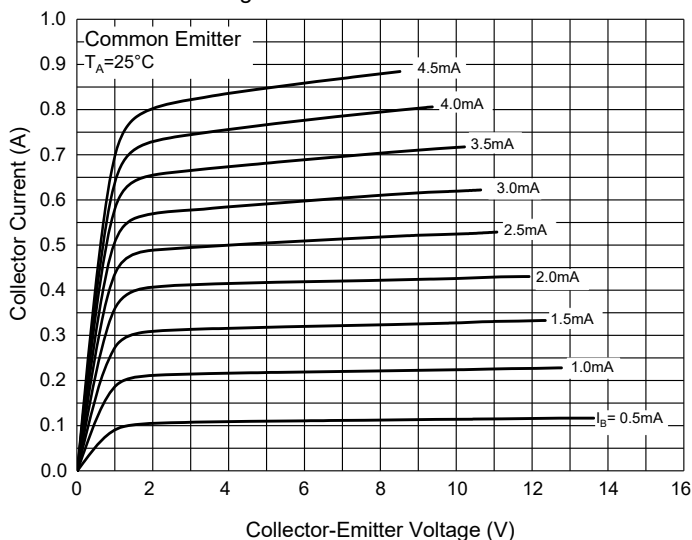


Fig. 2 - DC Current Gain Characteristics

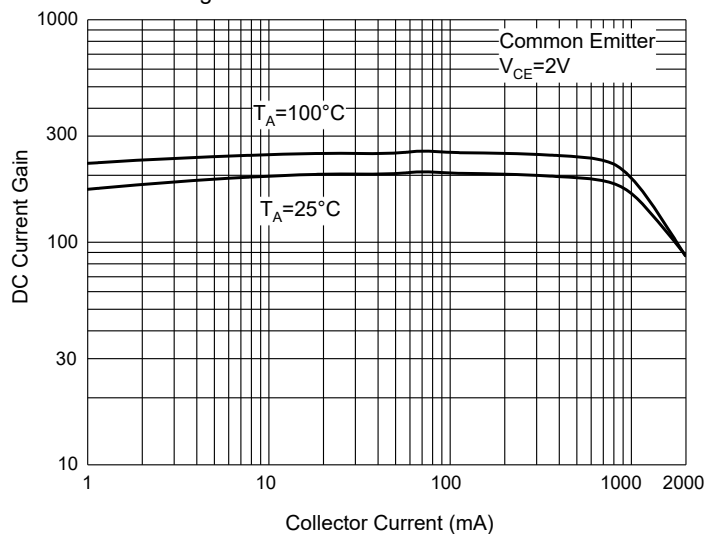


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

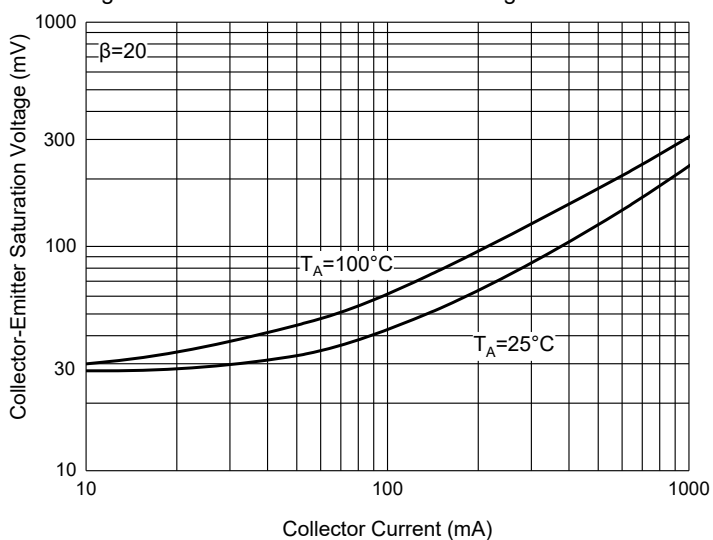


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

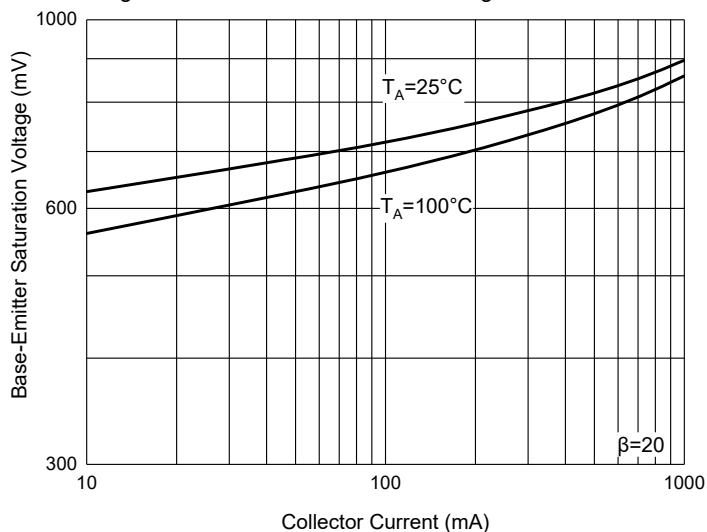


Fig. 5 - Base-Emitter Voltage Characteristics

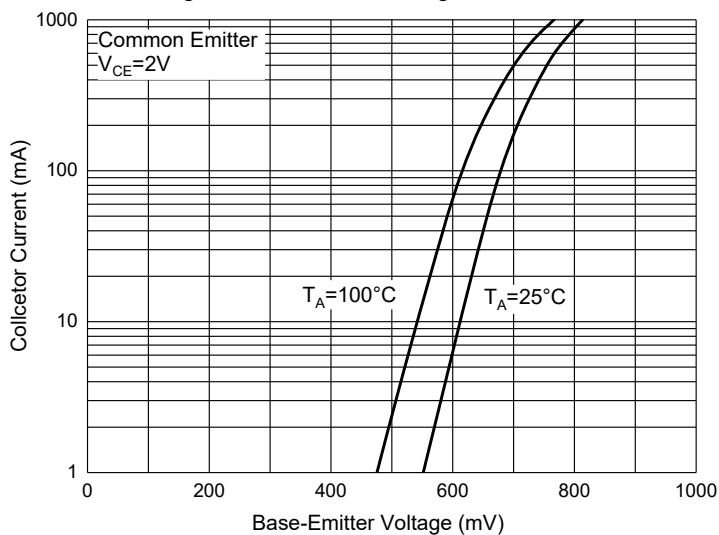
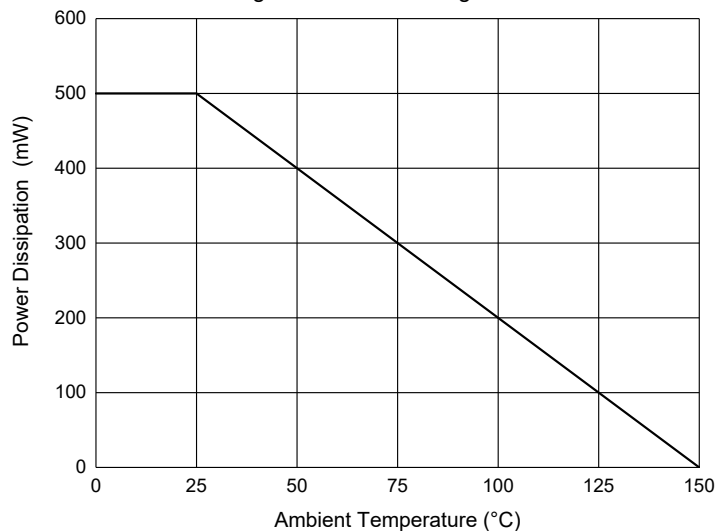


Fig. 6 - Power Derating Curve



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:1Kpcs/Reel |

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