

Features

- For Switching and AF Amplifier Applications
- 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)

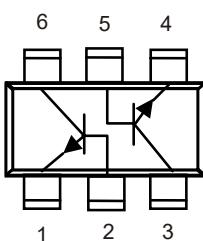
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 417°C/W Junction to Ambient

| Parameter | Symbol | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 45 | V |
| Emitter-Base Voltage | V_{EBO} | 6 | V |
| Collector Current | I_C | 100 | mA |
| Peak Collector Current | I_{CM} | 200 | mA |
| Power Dissipation | P_D | 300 | 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.

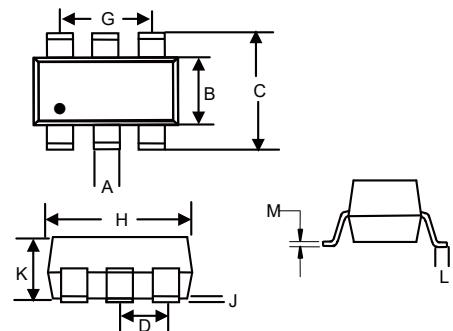
Internal Structure



Marking: 1C

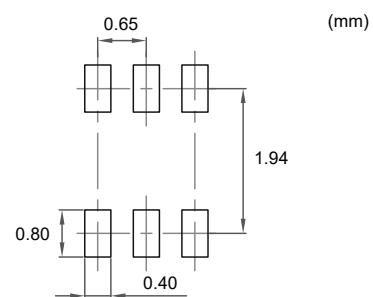
Dual NPN Small Signal Transistors

SOT-363



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.006 | 0.014 | 0.15 | 0.35 | |
| B | 0.045 | 0.053 | 1.15 | 1.35 | |
| C | 0.079 | 0.096 | 2.00 | 2.45 | |
| D | 0.026 | | 0.65 | | TYP. |
| G | 0.047 | 0.055 | 1.20 | 1.40 | |
| H | 0.071 | 0.087 | 1.80 | 2.20 | |
| J | ----- | 0.004 | ----- | 0.10 | |
| K | 0.031 | 0.043 | 0.80 | 1.10 | |
| L | 0.010 | 0.018 | 0.26 | 0.46 | |
| M | 0.003 | 0.006 | 0.08 | 0.15 | |

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 | $I_C=10\mu A, I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 45 | | | V | $I_C=10mA, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 6 | | | V | $I_E=10\mu A, I_C=0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | 15 | nA | $V_{CB}=30V, I_E=0$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | 100 | nA | $V_{EB}=5V, I_C=0$ |
| DC Current Gain ⁽²⁾ | h_{FE} | 200 | | 450 | | $V_{CE}=5V, I_C=2mA$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 0.25 | V | $I_C=10mA, I_B=0.5mA$ |
| | | | | 0.60 | V | $I_C=100mA, I_B=5mA$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | 0.7 | | V | $I_C=10mA, I_B=0.5mA$ |
| | | | 0.9 | | V | $I_C=100mA, I_B=5mA$ |
| Base-Emitter Voltage | V_{BE} | 0.58 | 0.665 | 0.7 | V | $V_{CE}=5V, I_C=2mA$ |
| Transition Frequency | f_T | 100 | | | MHz | $V_{CE}=5V, I_C=10mA, f=100MHz$ |
| Output Capacitance | C_{ob} | | 2 | | pF | $V_{CB}=10V, I_E=0, f=1MHz$ |

Note: 2. Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

Curve Characteristics

Fig. 1 - Static Characteristics

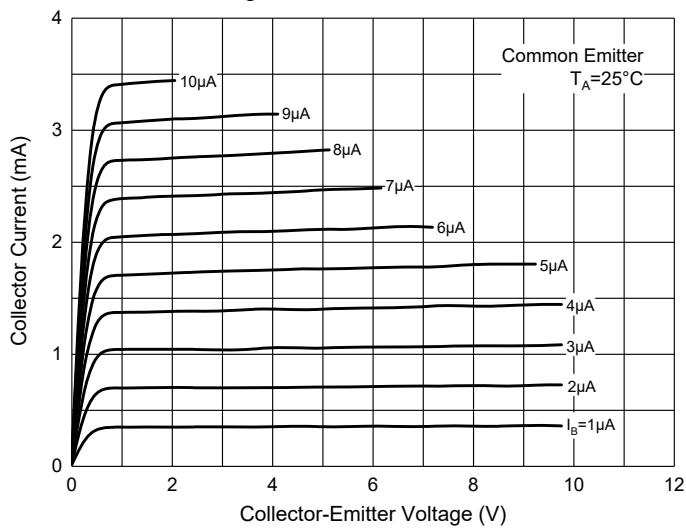


Fig. 2 - DC Current Gain Characteristics

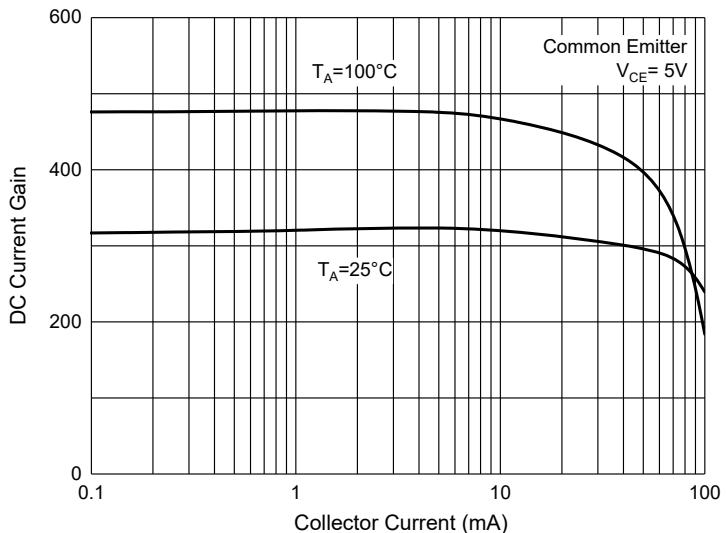


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

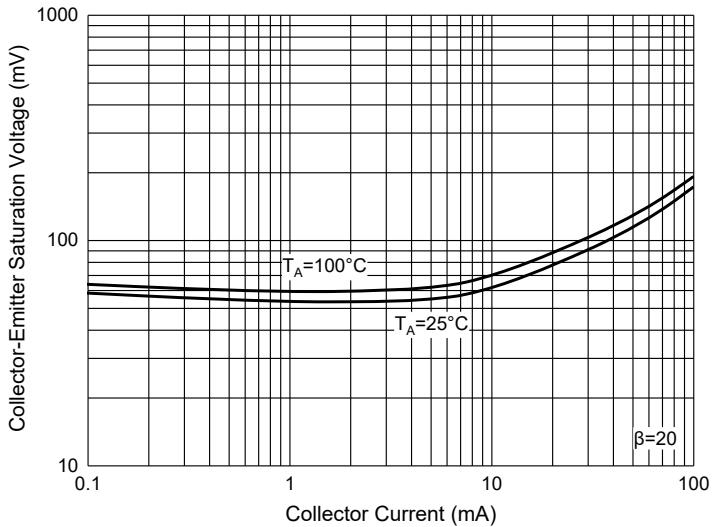


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

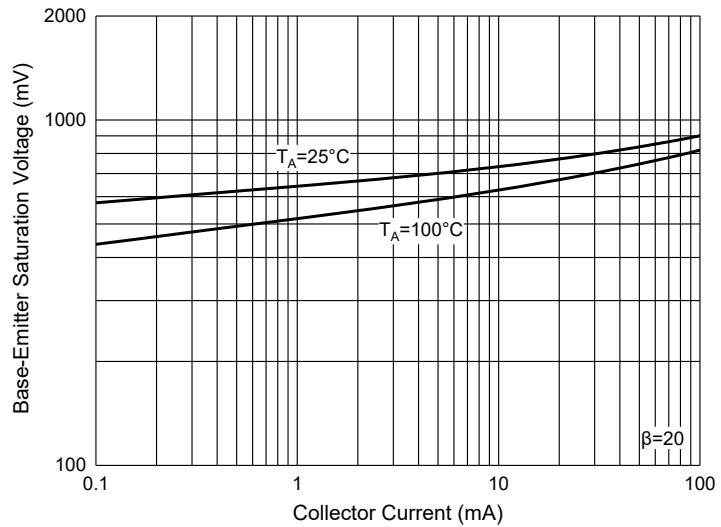


Fig. 5 - Base-Emitter Voltage Characteristics

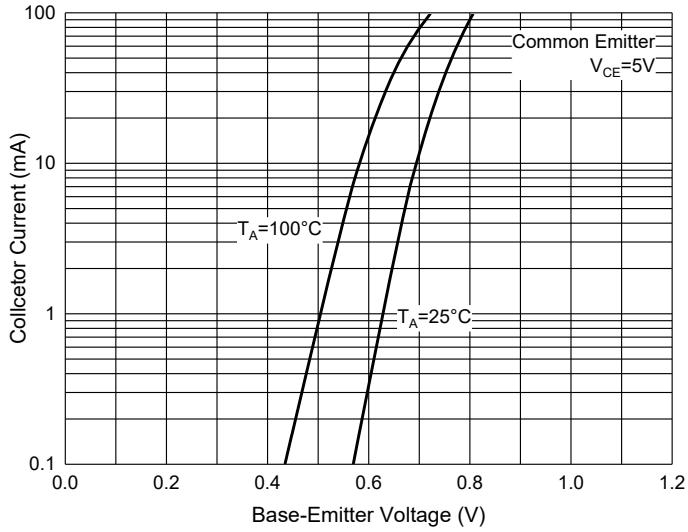
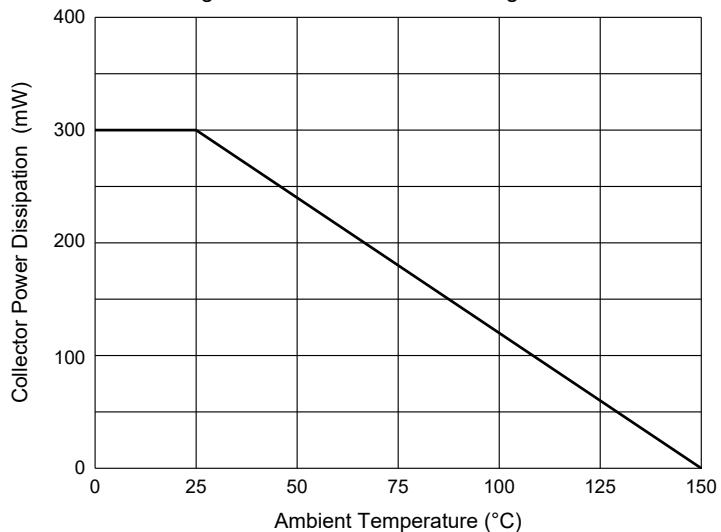


Fig. 6 - Collector Power Derating Curve



Ordering Information

| Device | Packing |
|------------------|-----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |
| Part Number-13P | Tape&Reel:10Kpcs/Reel |
| Part Number-TPQ2 | Tape&Reel:3Kpcs/Reel |

For packaging details, go to our website at <https://www.mccsemi.com/pdf/ProductPackaging/SOT-363%20Package.pdf>

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