

Features

- Epitaxial Planar Die Construction
- 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

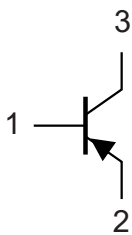
| Parameter | Symbol | Rating | Unit |
|-----------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | -40 | V |
| Collector-Emitter Voltage | V_{CEO} | -40 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Collector Current | I_C | -200 | mA |
| Collector Power Dissipation | P_C | 150 | mW |

Thermal characteristics

| Parameter | Symbol | Rating | Unit |
|---|---------------|----------|------|
| Operating Junction Temperature Range | T_J | -55~+150 | °C |
| Storage Temperature Range | T_{stg} | -55~+150 | °C |
| Thermal Resistance from Junction to Ambient | $R_{th(j-a)}$ | 833 | °C/W |

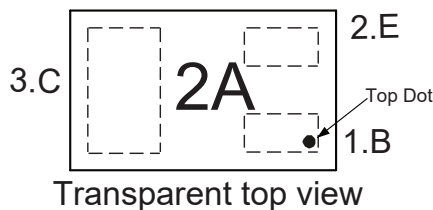
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



1.BASE
2.EMITTER
3.COLLECTOR

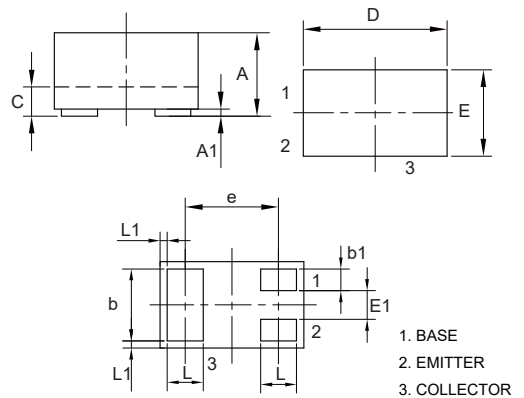
Marking Code



Transparent top view

**PNP
General Purpose
Amplifier**

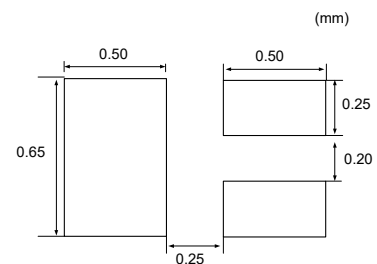
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DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.018 | 0.022 | 0.45 | 0.55 | |
| A1 | 0.000 | 0.002 | 0.00 | 0.05 | |
| b | 0.018 | 0.022 | 0.45 | 0.55 | |
| b1 | 0.004 | 0.008 | 0.10 | 0.20 | |
| c | 0.005 | 0.007 | 0.12 | 0.18 | |
| D | 0.037 | 0.042 | 0.95 | 1.075 | |
| E | 0.022 | 0.026 | 0.55 | 0.675 | |
| E1 | 0.006 | 0.010 | 0.15 | 0.25 | |
| e | 0.026 | | 0.65 | | TYP. |
| L | 0.008 | 0.012 | 0.20 | 0.30 | |
| L1 | 0.0002 | | 0.05 | | TYP. |

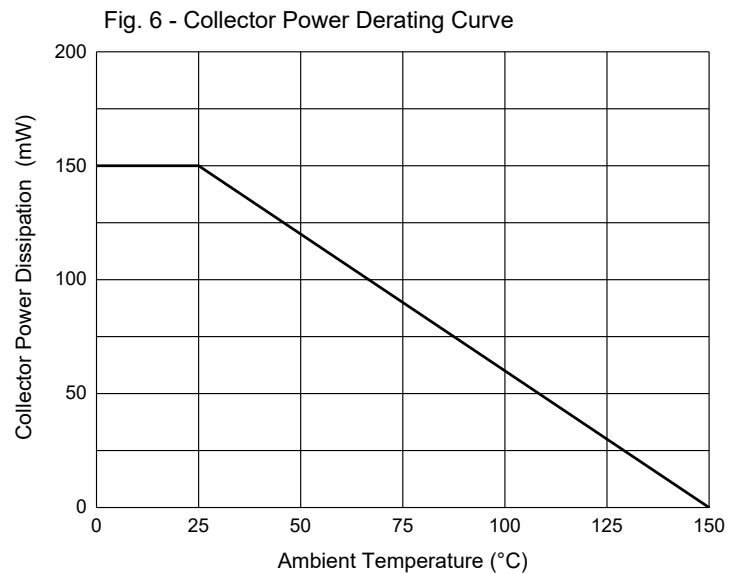
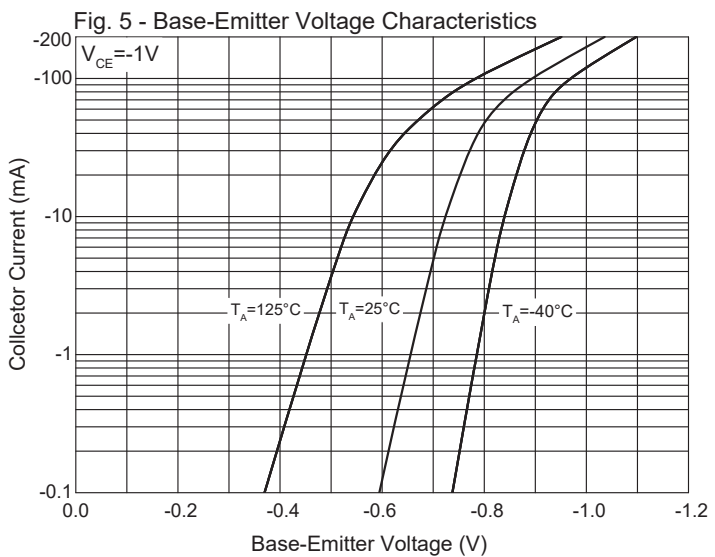
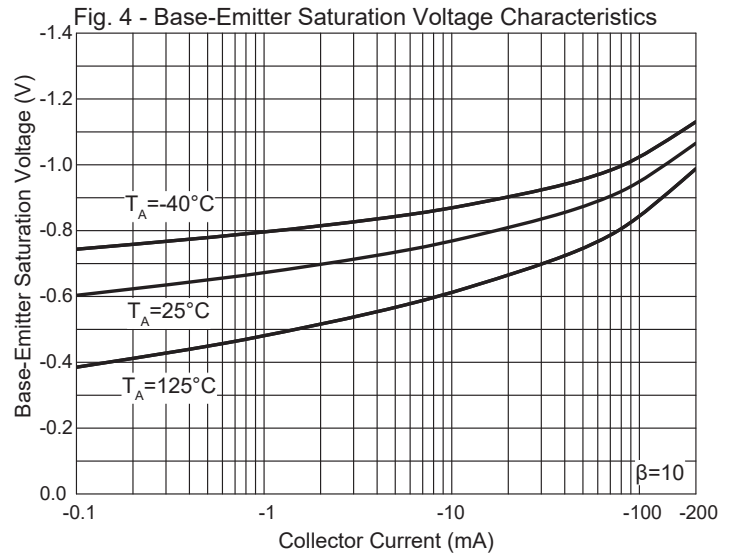
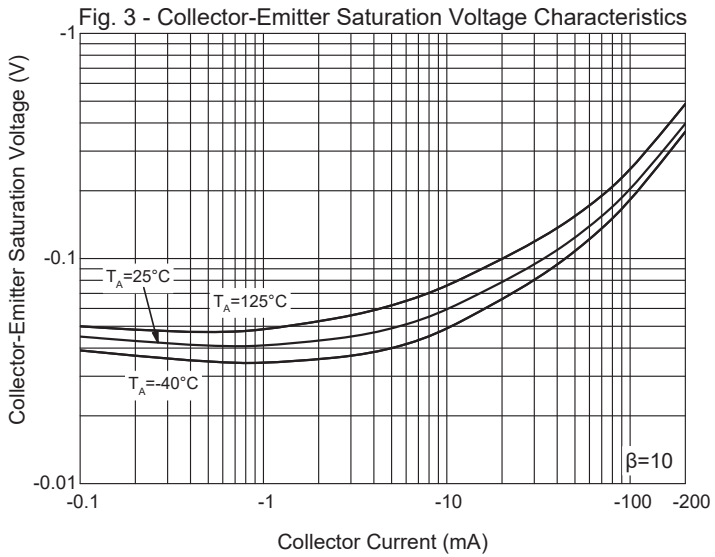
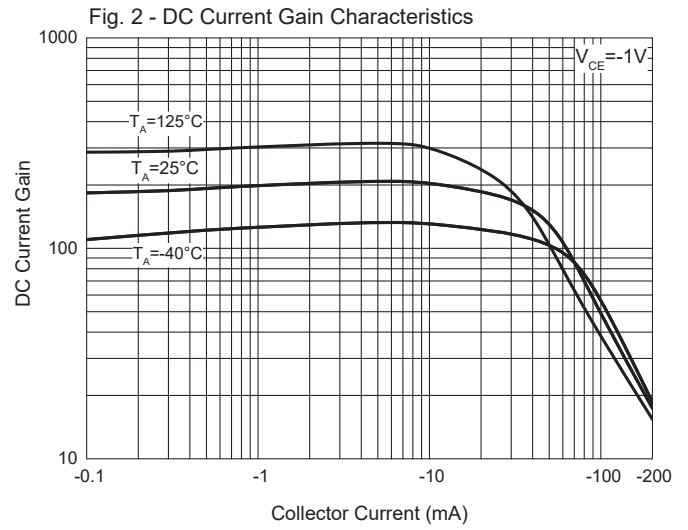
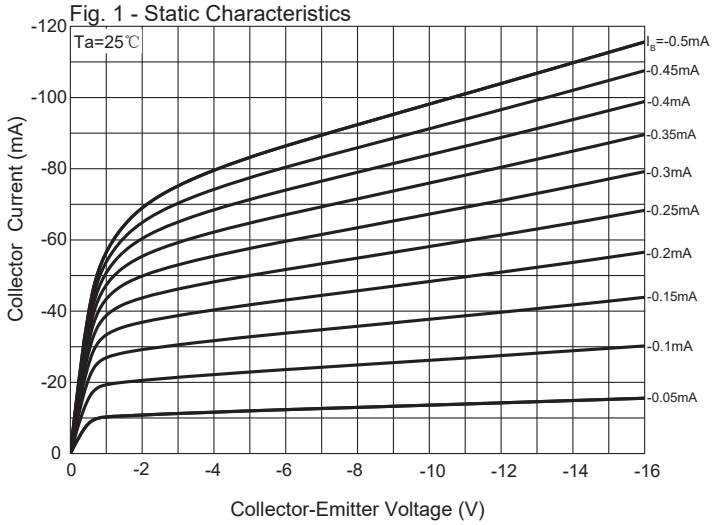
Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|--------------------------------------|---------------|-------|-----|-------|-------|--|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -40 | | | V | $I_C = -10\mu A, I_E = 0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -40 | | | V | $I_C = -1mA, I_B = 0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | | | V | $I_E = -10\mu A, I_C = 0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | -50 | nA | $V_{CB} = -30V, I_E = 0$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | -50 | nA | $V_{EB} = -5V, I_C = 0$ |
| DC Current Gain | $h_{FE(1)}$ | 60 | | | | $V_{CE} = -1V, I_C = -0.1mA$ |
| | $h_{FE(2)}$ | 80 | | | | $V_{CE} = -1V, I_C = -1mA$ |
| | $h_{FE(3)}$ | 100 | | 300 | | $V_{CE} = -1V, I_C = -10mA$ |
| | $h_{FE(4)}$ | 60 | | | | $V_{CE} = -1V, I_C = -50mA$ |
| | $h_{FE(5)}$ | 30 | | | | $V_{CE} = -1V, I_C = -100mA$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | -0.25 | V | $I_C = -10mA, I_B = -1mA$ |
| | | | | -0.4 | V | $I_C = -50mA, I_B = -5mA$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | -0.65 | | -0.85 | V | $I_C = -10mA, I_B = -1mA$ |
| | | | | -0.95 | V | $I_C = -50mA, I_B = -5mA$ |
| Transition Frequency | f_T | 250 | | | MHz | $V_{CE} = -20V, I_C = -10mA, f = 100MHz$ |
| Output Capacitance | C_{obo} | | | 4.5 | pF | $V_{CB} = -5V, I_E = 0, f = 1MHz$ |
| Input Capacitance | C_{ibo} | | | 10 | pF | $V_{BE} = -0.5V, I_C = 0, f = 1KHz$ |
| Noise Figure | NF | | | 4 | dB | $V_{CE} = -5V, I_C = -100\mu A$ $RS = 1K\Omega, f = 1MHz$ |
| Delay Time | t_d | | | 35 | ns | $V_{CC} = -3V, V_{BE} = -0.5V$ |
| Rise Time | t_r | | | 35 | ns | $I_C = -10mA, I_{B1} = -1mA$ |
| Storage Time | t_s | | | 225 | ns | $V_{CC} = -3V, I_C = -10mA$ |
| Fall Time | t_f | | | 75 | ns | $I_{B1} = I_{B2} = -1mA$ |

Curve Characteristics



Ordering Information

| Device | Packing |
|----------------|------------------------|
| Part Number-TP | Tape&Reel: 10Kpcs/Reel |

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