

## Features

- Moisture Sensitivity Level 1
- Halogen Free."Green"Device<sup>(Note 1)</sup>
- 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

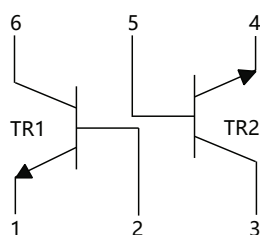
| Parameter                 | Symbol    | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage    | $V_{CBO}$ | 80     | V    |
| Collector-Emitter Voltage | $V_{CEO}$ | 65     | V    |
| Emitter-Base Voltage      | $V_{EBO}$ | 6      | V    |
| Collector Current         | $I_C$     | 100    | mA   |
| Power Dissipation         | $P_D$     | 300    | mW   |

## Thermal characteristics

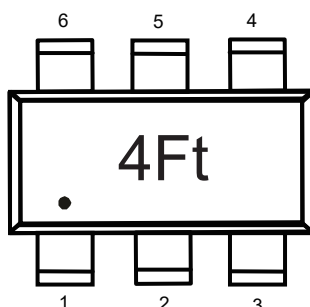
| Parameter                                   | Symbol        | Rating   | Unit |
|---------------------------------------------|---------------|----------|------|
| Junction Temperature Range                  | $T_J$         | -55~+150 | °C   |
| Storage Temperature Range                   | $T_{stg}$     | -55~+150 | °C   |
| Thermal Resistance from Junction to Ambient | $R_{th(j-a)}$ | 417      | °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.

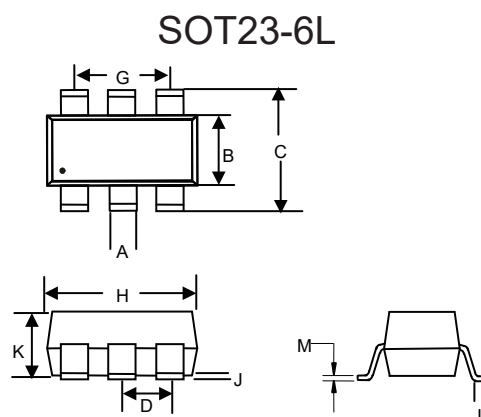
## Internal Structure



## Device Marking

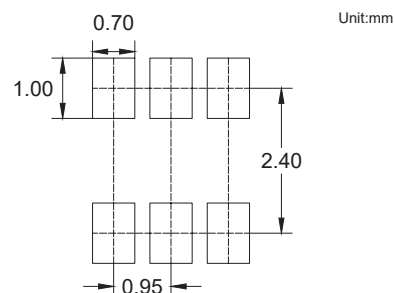


## Dual NPN Transistors



| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.012  | 0.020 | 0.30 | 0.50 |      |
| B   | 0.051  | 0.070 | 1.30 | 1.80 |      |
| C   | 0.087  | 0.126 | 2.20 | 3.20 |      |
| D   | 0.037  |       | 0.95 |      | TYP. |
| G   | 0.074  |       | 1.90 |      | TYP. |
| H   | 0.106  | 0.122 | 2.70 | 3.10 |      |
| J   | 0.002  | 0.006 | 0.05 | 0.15 |      |
| K   | 0.030  | 0.051 | 0.75 | 1.30 |      |
| L   | 0.012  | 0.024 | 0.30 | 0.60 |      |
| M   | 0.003  | 0.008 | 0.08 | 0.22 |      |

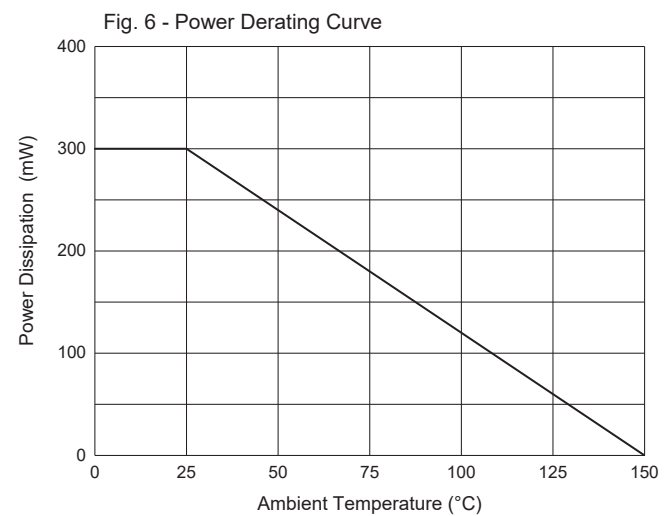
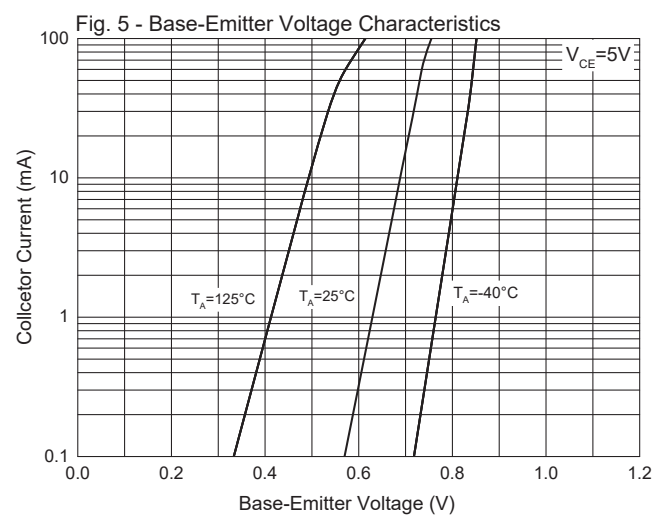
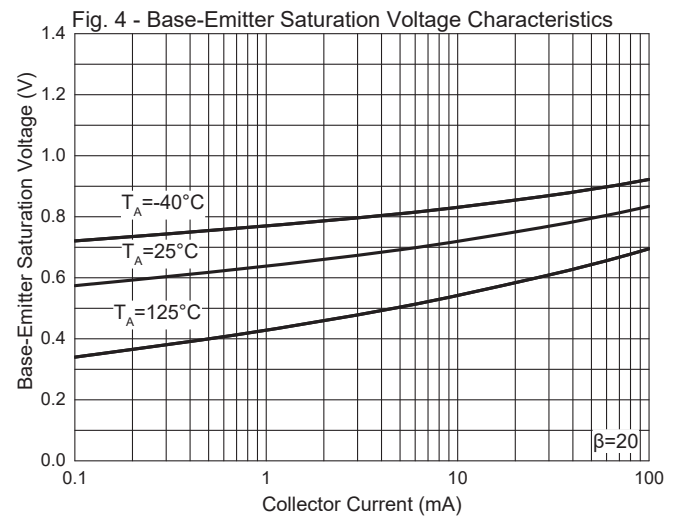
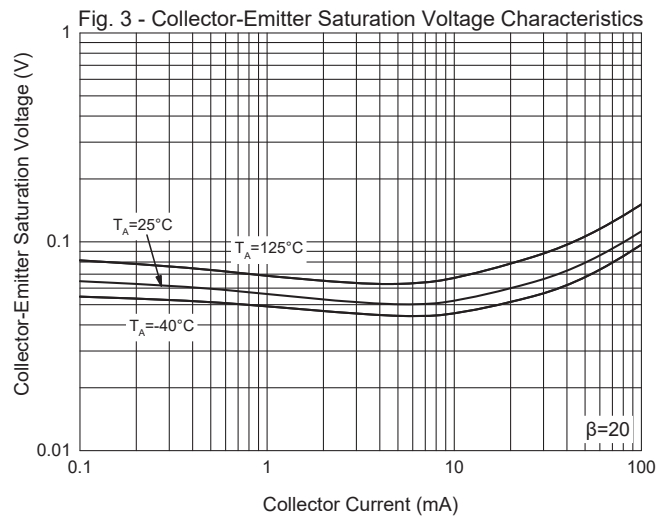
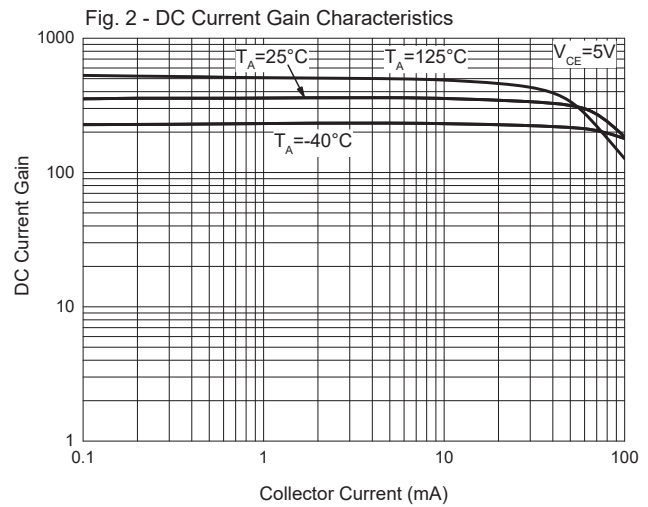
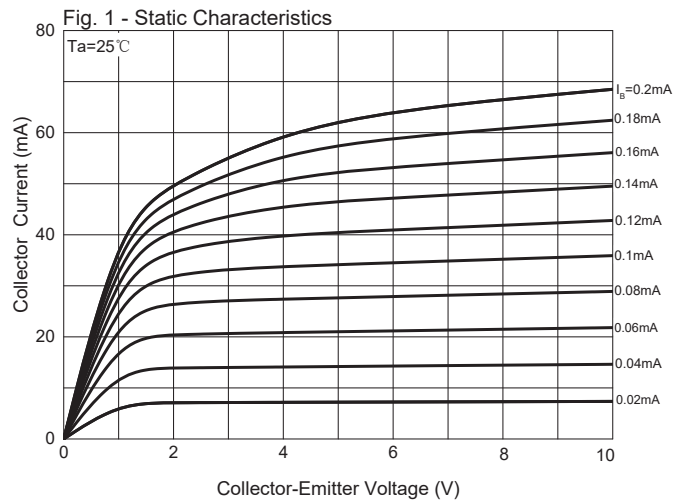
## Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

| Parameter                            | Symbol        | Min | Typ | Max  | Units | Conditions                      |
|--------------------------------------|---------------|-----|-----|------|-------|---------------------------------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | 80  |     |      | V     | $I_C=10\mu A, I_E=0$            |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | 65  |     |      | 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                      | $h_{FE}$      | 200 |     | 450  |       | $V_{CE}=5V, I_C=2mA$            |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |     |     | 0.1  | V     | $I_C=10mA, I_B=0.5mA$           |
|                                      |               |     |     | 0.3  | V     | $I_C=100mA, I_B=5mA$            |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ |     |     | 0.85 | V     | $I_C=10mA, I_B=0.5mA$           |
| Base-Emitter Voltage                 | $V_{BE}$      |     |     | 0.7  | V     | $V_{CE}=5V, I_C=2mA$            |
|                                      |               |     |     | 0.77 | V     | $V_{CE}=5V, I_C=10mA$           |
| Transition Frequency                 | $f_T$         | 100 |     |      | MHz   | $V_{CE}=5V, I_C=10mA, f=100MHz$ |
| Output Capacitance                   | $C_{ob}$      |     |     | 2.8  | pF    | $V_{CB}=10V, I_E=0, f=1MHz$     |

## Curve Characteristics



## Ordering Information

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

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