

### **Features**

- · Ideal for Low Power Amplification and Switching
- 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)

# Dual PNP Plastic Encapsulate Transistor

# **Maximum Ratings**

Operating Junction Temperature Range: -55°C to +150°C

• Storage Temperature Range: -55°C to +150°C

Thermal Resistance: 625 ℃/W Junction to Ambient

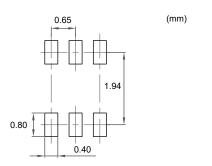
| Parameter                   | Symbol           | Rating | Unit |
|-----------------------------|------------------|--------|------|
| Collector-Base Voltage      | $V_{CBO}$        | -160   | V    |
| Collector-Emitter Voltage   | V <sub>CEO</sub> | -150   | V    |
| Emitter-Base Voltage        | V <sub>EBO</sub> | -5     | V    |
| Collector Current           | Ic               | -200   | mA   |
| Collector Power Dissipation | P <sub>C</sub>   | 200    | 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.

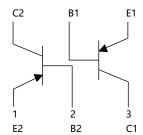
# SOT-363

| DIMENSIONS |        |       |      |      |       |
|------------|--------|-------|------|------|-------|
| DIM        | INCHES |       | MM   |      | NOTE  |
| DIIVI      | MIN    | MAX   | MIN  | MAX  | INOTE |
| Α          | 0.006  | 0.014 | 0.15 | 0.35 |       |
| В          | 0.045  | 0.053 | 1.15 | 1.35 |       |
| С          | 0.079  | 0.096 | 2.00 | 2.45 |       |
| D          | 0.026  |       | 0.65 |      | TYP.  |
| G          | 0.047  | 0.055 | 1.20 | 1.40 |       |
| Н          | 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 |       |
| М          | 0.003  | 0.006 | 80.0 | 0.15 |       |

# Suggested Solder Pad Layout



## **Internal Structure**



Marking: K4M

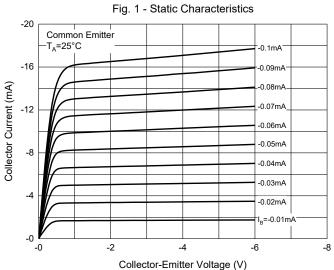


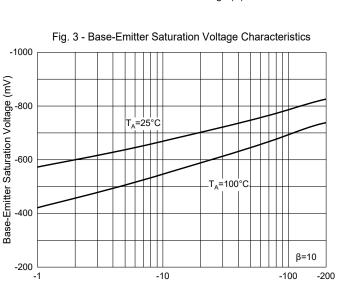
# Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter                            | Symbol                                | Min  | Тур | Max   | Units | Conditions   |
|--------------------------------------|---------------------------------------|------|-----|-------|-------|--|
| Collector-Base Breakdown Voltage     | V <sub>(BR)CBO</sub>                  | -160 |     |       | V     | I <sub>C</sub> =-100μA, I <sub>E</sub> =0                      |
| Collector-Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub>                  | -150 |     |       | V     | I <sub>C</sub> =-1mA, I <sub>B</sub> =0                        |
| Emitter-Base Breakdown Voltage       | V <sub>(BR)EBO</sub>                  | -5   |     |       | V     | I <sub>E</sub> =-10μA, I <sub>C</sub> =0                       |
| Collector Cutoff Current             | I <sub>CBO</sub>                      |      |     | -0.05 | μA    | V <sub>CB</sub> =-120V, I <sub>E</sub> =0                      |
| Emitter-Base Cutoff Current          | I <sub>EBO</sub>                      |      |     | -0.05 | μA    | V <sub>EB</sub> =-3V, I <sub>C</sub> =0                        |
|                                      | h <sub>FE1</sub>                      | 50   |     |       |       | V <sub>CE</sub> =-5V, I <sub>C</sub> =-1mA                     |
| DC Current Gain                      | h <sub>FE2</sub>                      | 100  |     | 300   |       | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA                    |
|                                      | h <sub>FE3</sub>                      | 50   |     |       |       | V <sub>CE</sub> =-5V, I <sub>C</sub> =-50mA                    |
| Collector-Emitter Saturation Voltage | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ |      |     | -0.2  | V     | I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA                    |
|                                      | V <sub>CE(sat)</sub>                  |      |     | -0.5  | V     | I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA                    |
| Base-Emitter Saturation Voltage      | V <sub>BE(sat)</sub>                  |      |     | -1.0  | V     | I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA                    |
|                                      |                                       |      |     | -1.0  | V     | I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA                    |
| Output Capacitance                   | C <sub>ob</sub>                       |      |     | 4.5   | pF    | V <sub>CB</sub> =-5V, I <sub>E</sub> =0, f=1.0MHz              |
| Transition Frequency                 | f <sub>T</sub>                        | 100  |     | 300   | MHz   | V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA, f=100MHz         |
| Noise Figure                         | NF                                    |      |     | 6     | dB    | $V_{CE}$ =-10V, $I_{C}$ =-0.1mA, f=1kHz, $R_{S}$ =1k $\Omega$  |
| Delay Time                           | t <sub>d</sub>                        |      |     | 35    | ns    | V <sub>CC</sub> =-3.0V, V <sub>BE</sub> =-0.5V                 |
| Rise Time                            | t <sub>r</sub>                        |      |     | 35    | ns    | I <sub>C</sub> =-10mA, I <sub>B1</sub> =-I <sub>B2</sub> =-1mA |
| Storage Time                         | t <sub>s</sub>                        |      |     | 225   | ns    | $V_{CC}$ =-3V, $I_C$ =-10mA                                    |
| Fall Time                            | t <sub>f</sub>                        |      |     | 75    | ns    | I <sub>B1</sub> =-I <sub>B2</sub> =-1mA                        |

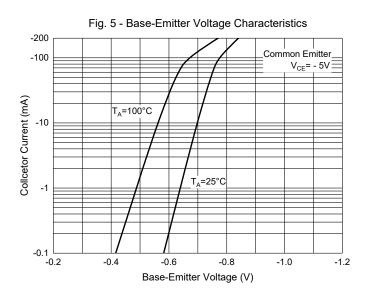


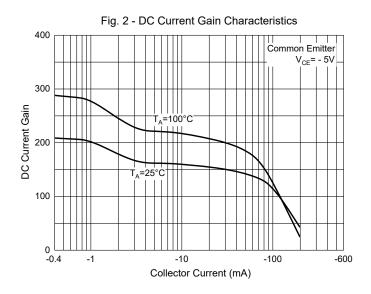
# **Curve Characteristics**

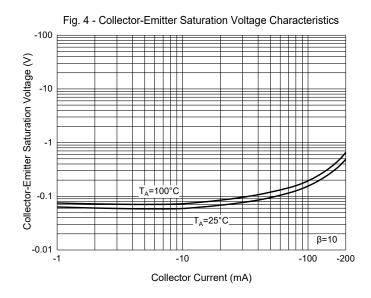


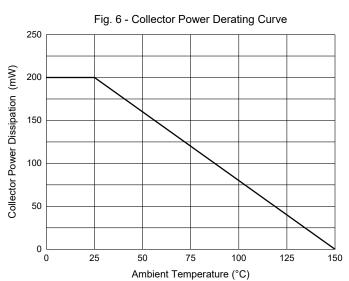


Collector Current (mA)











# **Ordering Information**

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

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