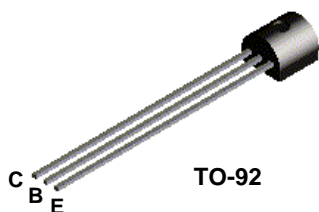
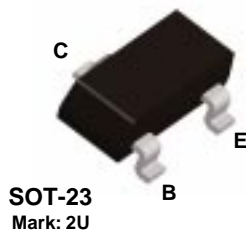


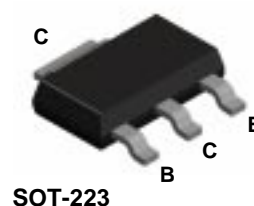
## MPSA63



## MMBTA63



## PZTA63



## PNP Darlington Transistor

This device is designed for applications requiring extremely high current gain at currents to 800 mA. Sourced from Process 61. See MPSA64 for characteristics.

### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

| Symbol                            | Parameter  | Value       | Units |
|-----------------------------------|--|-------------|-------|
| V <sub>CES</sub>                  | Collector-Emitter Voltage                        | 30          | V     |
| V <sub>CBO</sub>                  | Collector-Base Voltage                           | 30          | V     |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                             | 10          | V     |
| I <sub>C</sub>                    | Collector Current - Continuous                   | 1.2         | A     |
| T <sub>J</sub> , T <sub>stg</sub> | Operating and Storage Junction Temperature Range | -55 to +150 | °C    |

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics

TA = 25°C unless otherwise noted

| Symbol           | Characteristic                          | Max    |          |          | Units |
|------------------|---|--------|----------|----------|-------|
|                  |   | MPSA63 | *MMBTA63 | **PZTA63 |       |
| P <sub>D</sub>   | Total Device Dissipation                | 625    | 350      | 1,000    | mW    |
|                  | Derate above 25°C                       | 5.0    | 2.8      | 8.0      | mW/°C |
| R <sub>θJC</sub> | Thermal Resistance, Junction to Case    | 83.3   |          |          | °C/W  |
| R <sub>θJA</sub> | Thermal Resistance, Junction to Ambient | 200    | 357      | 125      | °C/W  |

\* Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

\*\* Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6 cm<sup>2</sup>.

# PNP Darlington Transistor

(continued)

## Electrical Characteristics

TA = 25°C unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Max | Units |
|--------|-----------|-----------------|-----|-----|-------|
|--------|-----------|-----------------|-----|-----|-------|

### OFF CHARACTERISTICS

|               |                                     |                            |    |     |    |
|---------------|-------------------------------------|----------------------------|----|-----|----|
| $V_{(BR)CES}$ | Collector-Emitter Breakdown Voltage | $I_C = 100 \mu A, I_B = 0$ | 30 |     | V  |
| $I_{CBO}$     | Collector-Cutoff Current            | $V_{CB} = 30 V, I_E = 0$   |    | 100 | nA |
| $I_{EBO}$     | Emitter-Cutoff Current              | $V_{EB} = 10 V, I_C = 0$   |    | 100 | nA |

### ON CHARACTERISTICS\*

|               |                                      |   |                 |     |   |
|---------------|--------------------------------------|---|-----------------|-----|---|
| $h_{FE}$      | DC Current Gain                      | $I_C = 10 mA, V_{CE} = 5.0 V$<br>$I_C = 100 mA, V_{CE} = 5.0 V$ | 5,000<br>10,000 |     |   |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 100 mA, I_B = 0.1 mA$                                    |                 | 1.5 | V |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $I_C = 100 mA, V_{CE} = 5.0 V$                                  |                 | 2.0 | V |

### SMALL SIGNAL CHARACTERISTICS

|       |                                  |   |     |  |     |
|-------|----------------------------------|---|-----|--|-----|
| $f_T$ | Current Gain - Bandwidth Product | $I_C = 10 mA, V_{CE} = 5.0 V,$<br>$f = 100 MHz$ | 125 |  | MHz |
|-------|----------------------------------|---|-----|--|-----|

\*Pulse Test: Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2.0\%$

MPSA63 / MMBTA63 / PZTA63

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| CoolFET™             | GTO™                | QS™                 | UHC™       |
| CROSSVOLT™           | HiSeC™              | QT Optoelectronics™ | VCX™       |
| DOME™                | ISOPLANAR™          | Quiet Series™       |            |
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