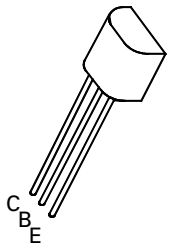
# NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTOR

**ISSUE 2 – SEPT 93**

# MPSA12

FEATURES

* 1 Watt power dissipation
* 1 Amp continuous current
* Minimum gain =8K at 250mA




**E-Line**
**TO92 Compatible**

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 100 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 100 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 12 | V |
| Peak Pulse Current | $I_{CM}$ | 2 | A |
| Continuous Collector Current | $I_C$ | 1 | A |
| Power Dissipation at $T_{amb}$=25°C | $P_{tot}$ | 1 | W |
| Operating and Storage Temperature Range | $T_j$:$T_{stg}$ | -55 to +200 | °C |

## ELECTRICAL CHARACTERISTICS (at $T_{amb}$ = 25°C).

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 100 | | | V | $I_C$=100μA, $I_E$=0 |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CES}$ | 100 | | | V | $I_C$=100μA, $I_B$=0* |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 12 | | | V | $I_E$=10μA, $I_C$=0 |
| Collector Cut-Off Current | $I_{CBO}$ | | | 100 | nA | $V_{CB}$=80V, $I_E$=0 |
| Emitter Cut-Off Current | $I_{EBO}$ | | | 100 | nA | $V_{EB}$=10V, $I_C$=0 |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 1.1 | V | $I_C$=250mA, $I_B$=0.25mA |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | | 2 | V | $I_C$=250mA, $I_B$=0.25mA |
| Static Forward Current Transfer Ratio | $h_{FE}$ | 10K<br>8K | | | | $I_C$=100mA, $V_{CE}$=5V*<br>$I_C$=250mA, $V_{CE}$=5V* |
| Transition Frequency | $f_T$ | 100 | | | MHz | $I_C$=100mA, $V_{CE}$=5V<br>f=20MHz |

*Measured under pulsed conditions. Pulse width =300μs. Duty cycle ≤ 2%