

# isc Silicon PNP Darlington Power Transistor

# MJ11011

## DESCRIPTION

- Collector-Emitter Breakdown Voltage  
:  $V_{(BR)CEO} = -60V(\text{Min.})$
- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min.}) @ I_C = -20A$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = -3.0V(\text{Max.}) @ I_C = -20A$
- Complement to NPN Type MJ11012
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

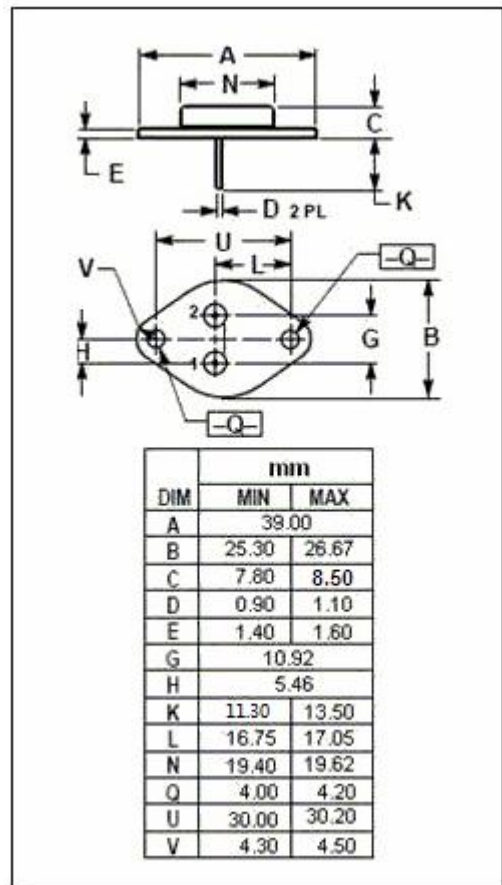
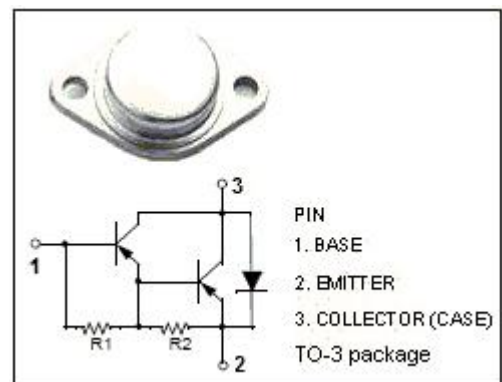
- Designed for use as output devices in complementary general purpose amplifier applications.

## ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER   | VALUE    | UNIT             |
|-----------|---|----------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | -60      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                               | -60      | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                    | -5       | V                |
| $I_C$     | Collector Current-Continuous                            | -30      | A                |
| $I_{CM}$  | Collector Current-Peak                                  | -50      | A                |
| $I_B$     | Base Current-Continuous                                 | -1       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^\circ\text{C}$ | 200      | W                |
| $T_j$     | Junction Temperature                                    | 200      | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               | -65~+200 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT               |
|---------------|--------------------------------------|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 0.87 | $^\circ\text{C/W}$ |



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## ELECTRICAL CHARACTERISTICS

T<sub>c</sub>=25°C unless otherwise specified

| SYMBOL                 | PARAMETER                            | CONDITIONS   | MIN  | TYP. | MAX  | UNIT |
|------------------------|--------------------------------------|--|------|------|------|------|
| V <sub>(BR)CEO</sub>   | Collector-Emitter Breakdown Voltage  | I <sub>C</sub> = -50mA; I <sub>B</sub> = 0                       | -60  |      |      | V    |
| V <sub>CE(sat)-1</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = -20A; I <sub>B</sub> = -0.2A                    |      |      | -3.0 | V    |
| V <sub>CE(sat)-2</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = -30A; I <sub>B</sub> = -0.3A                    |      |      | -4.0 | V    |
| V <sub>BE(sat)-1</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = -20A; I <sub>B</sub> = -0.2A                    |      |      | -3.5 | V    |
| V <sub>BE(sat)-2</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = -30A; I <sub>B</sub> = -0.3A                    |      |      | -5.0 | V    |
| I <sub>CBO</sub>       | Collector Cutoff Current             | V <sub>CE</sub> =-60V; I <sub>E</sub> = 0, T <sub>C</sub> =150°C |      |      | -1.5 | mA   |
| I <sub>CEO</sub>       | Collector Cutoff Current             | V <sub>CE</sub> = -60V; I <sub>B</sub> = 0                       |      |      | -1.0 | mA   |
| I <sub>EBO</sub>       | Emitter Cutoff Current               | V <sub>EB</sub> = -5V; I <sub>C</sub> = 0                        |      |      | -5.0 | mA   |
| h <sub>FE-1</sub>      | DC Current Gain                      | I <sub>C</sub> = -20A, V <sub>CE</sub> = -5V                     | 1000 |      |      |      |
| h <sub>FE-2</sub>      | DC Current Gain                      | I <sub>C</sub> = -30A, V <sub>CE</sub> = -5V                     | 200  |      |      |      |

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