

## isc Silicon NPN Darlington Power Transistor

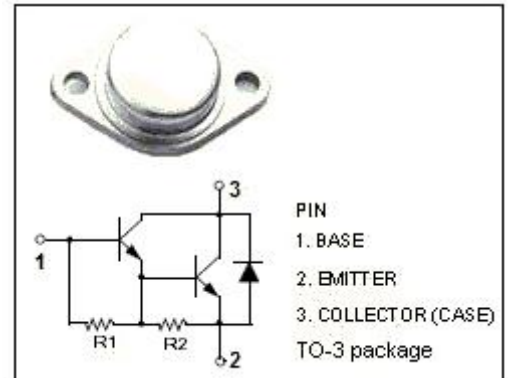
MJ11028

## DESCRIPTION

- Collector-Emitter Breakdown Voltage  
:  $V_{(BR)CEO} = 60V(\text{Min.})$
- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min.})@I_C = 25A$   
:  $h_{FE} = 400(\text{Min.})@I_C = 50A$
- Complement to the PNP MJ11029
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

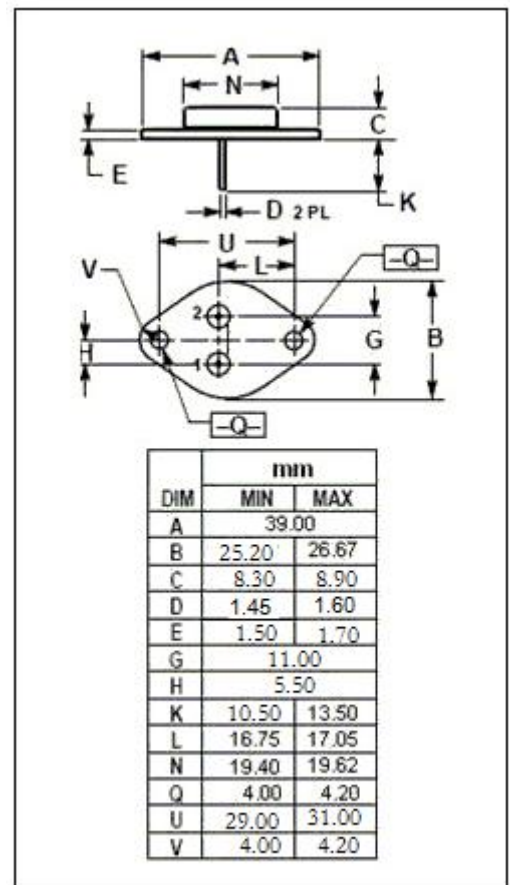
- Designed for use as output devices in complementary general purpose amplifier applications.

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                              | 50       | A                |
| $I_{CM}$  | Collector Current-Peak                                    | 100      | A                |
| $I_B$     | Base Current-Continuous                                   | 2        | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C = 25^\circ\text{C}$ | 300      | W                |
| $T_j$     | Junction Temperature                                      | 200      | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -55~+200 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX   | UNIT               |
|---------------|--------------------------------------|-------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 0.584 | $^\circ\text{C/W}$ |



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL          | PARAMETER                            | CONDITIONS                                                                        | MIN  | TYP. | MAX        | UNIT |
|-----------------|--------------------------------------|-----------------------------------------------------------------------------------|------|------|------------|------|
| $V_{(BR)CEO}$   | Collector-Emitter Breakdown Voltage  | $I_C=50\text{mA}; I_B=0$                                                          | 60   |      |            | V    |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C=25\text{A}; I_B=250\text{mA}$                                                |      |      | 2.5        | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=50\text{A}; I_B=500\text{mA}$                                                |      |      | 3.5        | V    |
| $V_{BE(sat)-1}$ | Base-Emitter Saturation Voltage      | $I_C=25\text{A}; I_B=250\text{mA}$                                                |      |      | 3.0        | V    |
| $V_{BE(sat)-2}$ | Base-Emitter Saturation Voltage      | $I_C=50\text{A}; I_B=500\text{mA}$                                                |      |      | 4.5        | V    |
| $I_{CBO}$       | Collector Cutoff Current             | $V_{CB}=60\text{V}; I_E=0$<br>$V_{CB}=60\text{V}; I_E=0; T_C=150^{\circ}\text{C}$ |      |      | 2.0<br>5.0 | mA   |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE}=60\text{V}; I_B=0$                                                        |      |      | 2.0        | mA   |
| $I_{EBO}$       | Emitter Cutoff Current               | $V_{EB}=5\text{V}; I_C=0$                                                         |      |      | 5.0        | mA   |
| $h_{FE-1}$      | DC Current Gain                      | $I_C=25\text{A}, V_{CE}=5\text{V}$                                                | 1000 |      | 18000      |      |
| $h_{FE-2}$      | DC Current Gain                      | $I_C=50\text{A}, V_{CE}=5\text{V}$                                                | 400  |      |            |      |

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