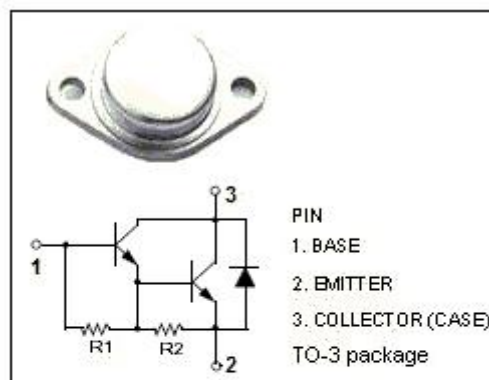


**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 60V(\text{Min.})$
- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min.})@I_C = 3A$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 2.0V(\text{Max.})@I_C = 3A$

**APPLICATIONS**

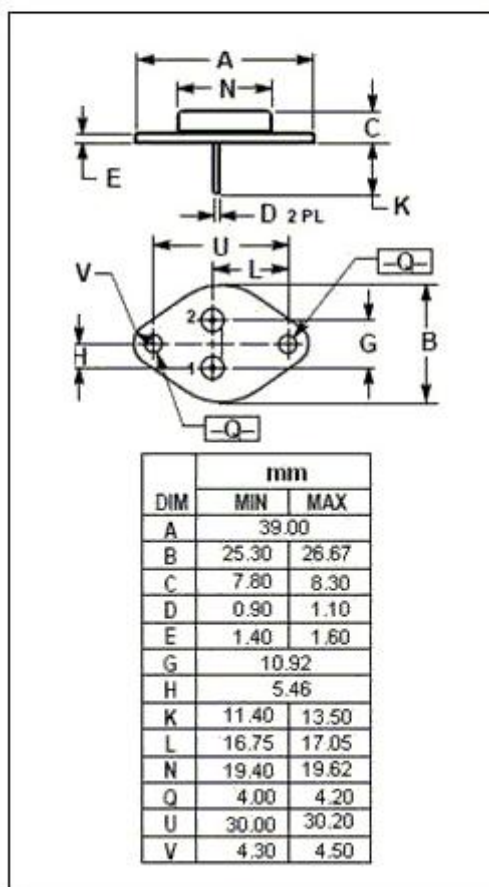
- Designed for use as output devices in complementary general purpose amplifier applications.

**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                              | 10       | A                |
| $I_B$     | Base Current-Continuous                                   | 0.1      | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C = 25^\circ\text{C}$ | 90       | 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 | 1.94 | $^\circ\text{C/W}$ |



## SPTECH Silicon NPN Darlington Power Transistor

MJ1000

## 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 | $I_C=3\text{A}$ ; $I_B=12\text{mA}$                       |      |      | 2.0 | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=8\text{A}$ ; $I_B=40\text{mA}$                       |      |      | 4.0 | V    |
| $V_{BE(on)}$    | Base-Emitter On Voltage              | $I_C=3\text{A}$ , $V_{CE}=3\text{V}$                      |      |      | 2.5 | V    |
| $I_{CBO}$       | Collector Cutoff Current             | $V_{CB}=60\text{V}$ ; $I_E=0$ , $T_C=150^{\circ}\text{C}$ |      |      | 1.0 | mA   |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE}=30\text{V}$ ; $I_B=0$                             |      |      | 0.5 | mA   |
| $I_{EBO}$       | Emitter Cutoff Current               | $V_{EB}=5\text{V}$ ; $I_C=0$                              |      |      | 2.0 | mA   |
| $h_{FE-1}$      | DC Current Gain                      | $I_C=3\text{A}$ , $V_{CE}=3\text{V}$                      | 1000 |      |     |      |
| $h_{FE-2}$      | DC Current Gain                      | $I_C=4\text{A}$ , $V_{CE}=3\text{V}$                      | 750  |      |     |      |