

isc Silicon PNP Darlington Power Transistor

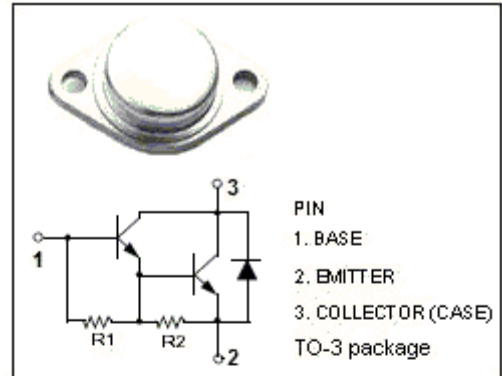
MJ901

DESCRIPTION

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = -80V(\text{Min.})$
- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min.}) @ I_C = -3A$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = -2.0V(\text{Max.}) @ I_C = -3A$

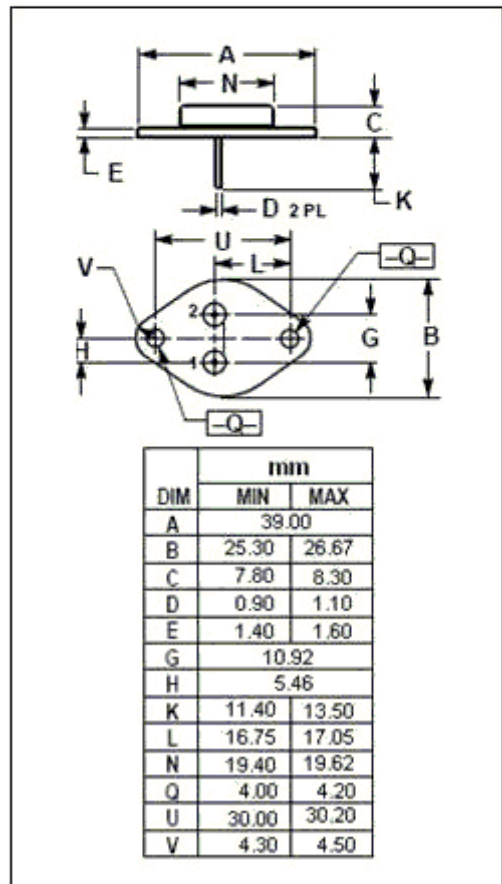
APPLICATIONS

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



ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

| SYMBOL    | PARAMETER  | VALUE    | UNIT       |
|-----------|--|----------|------------|
| $V_{CBO}$ | Collector-Base Voltage                           | -80      | V          |
| $V_{CEO}$ | Collector-Emitter Voltage                        | -80      | V          |
| $V_{EBO}$ | Emitter-Base Voltage                             | -5       | V          |
| $I_C$     | Collector Current-Continuous                     | -8       | A          |
| $I_B$     | Base Current-Continuous                          | -0.1     | A          |
| $P_C$     | Collector Power Dissipation @ $T_C = 25^\circ C$ | 90       | W          |
| $T_j$     | Junction Temperature                             | 200      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature Range                        | -55~+200 | $^\circ C$ |



THERMAL CHARACTERISTICS

| SYMBOL       | PARAMETER                            | MAX  | UNIT         |
|--------------|--------------------------------------|------|--------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 1.94 | $^\circ C/W$ |

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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  | $I_C=-0.1\text{A}; I_B=0$   | -80  |      |              | 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    |
| $I_{CER}$       | Collector Cutoff Current             | $V_{CE}=-80\text{V}; R_{BE}=1\text{k}\Omega$<br>$V_{CE}=-80\text{V}; R_{BE}=1\text{k}\Omega; T_C=150^{\circ}\text{C}$ |      |      | -1.0<br>-5.0 | mA   |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE}=-40\text{V}; I_B=0$   |      |      | -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  |      |              |      |