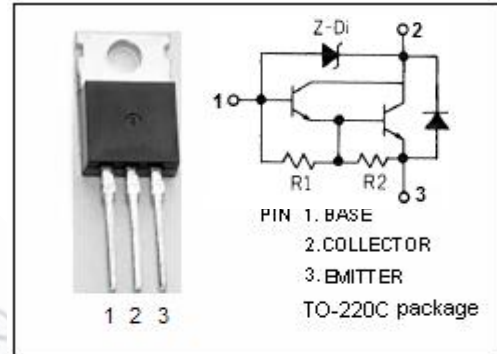


## isc Silicon NPN Darlington Power Transistor

2SD1647

## DESCRIPTION

- Low Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 1.5V(\text{Max}) @ I_C = 1A$
- High DC Current Gain  
:  $h_{FE} = 1000(\text{Min}) @ I_C = 1.0A$
- Low Saturation Voltage
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

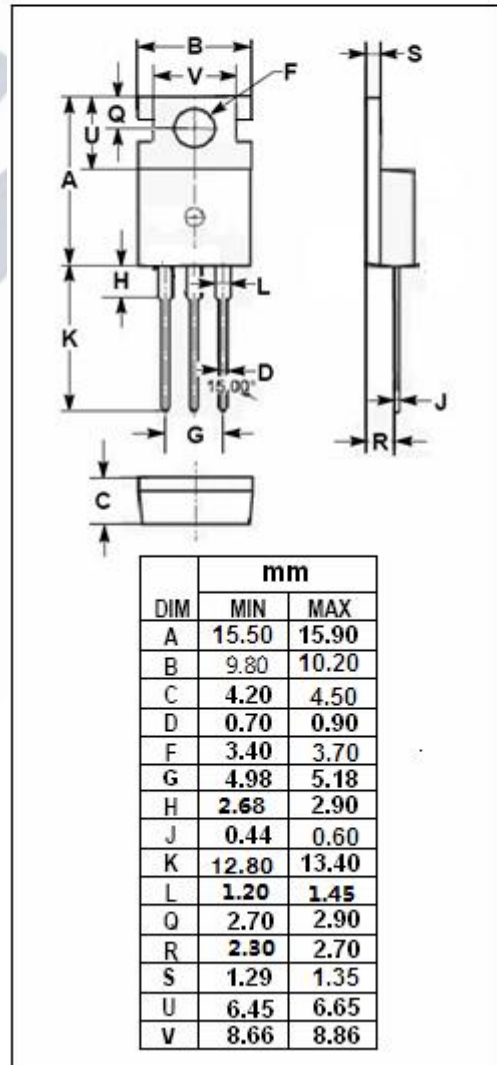


## APPLICATIONS

- Designed for general purpose amplifier and low frequency power Amp applications.

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

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | 50-70   | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                               | 50-70   | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                    | 6       | V                |
| $I_C$     | Collector Current-Continuous                            | 2       | A                |
| $I_{CP}$  | Collector Current-Peak                                  | 3       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^\circ\text{C}$ | 25      | W                |
| $T_J$     | Junction Temperature                                    | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               | -55~150 | $^\circ\text{C}$ |



**isc Silicon NPN Darlington Power Transistor****2SD1647****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL         | PARAMETER                            | CONDITIONS                                       | MIN  | TYP. | MAX   | UNIT          |
|----------------|--------------------------------------|--|------|------|-------|---------------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C=5\text{mA}, I_B=0$                          | 50   |      | 70    | V             |
| $V_{(BR)CBO}$  | Collector-Base Breakdown Voltage     | $I_C=100\mu\text{A}, I_E=0$                      | 50   |      | 70    | V             |
| $V_{CE(sat)}$  | Collector-Emitter Saturation Voltage | $I_C=1\text{A}, I_B=1\text{mA}$                  |      |      | 1.5   | V             |
| $I_{CBO}$      | Collector Cutoff Current             | $V_{CB}=50\text{V}, I_E=0$                       |      |      | 10    | $\mu\text{A}$ |
| $I_{CEO}$      | Collector Cutoff Current             | $V_{CE}=50\text{V}, I_B=0$                       |      |      | 1.0   | mA            |
| $I_{EBO}$      | Emitter Cutoff Current               | $V_{EB}=5\text{V}, I_C=0$                        |      |      | 3.0   | mA            |
| $h_{FE-1}$     | DC Current Gain                      | $I_C=1\text{A}; V_{CE}=2\text{V}$                | 1000 |      | 10000 |               |
| $C_{OB}$       | Output Capacitance                   | $I_E=0; V_{CB}=10\text{V}, f_{test}=1\text{MHz}$ |      | 25   |       | pF            |