

## isc Silicon NPN Darlington Power Transistor

2SD1572

## DESCRIPTION

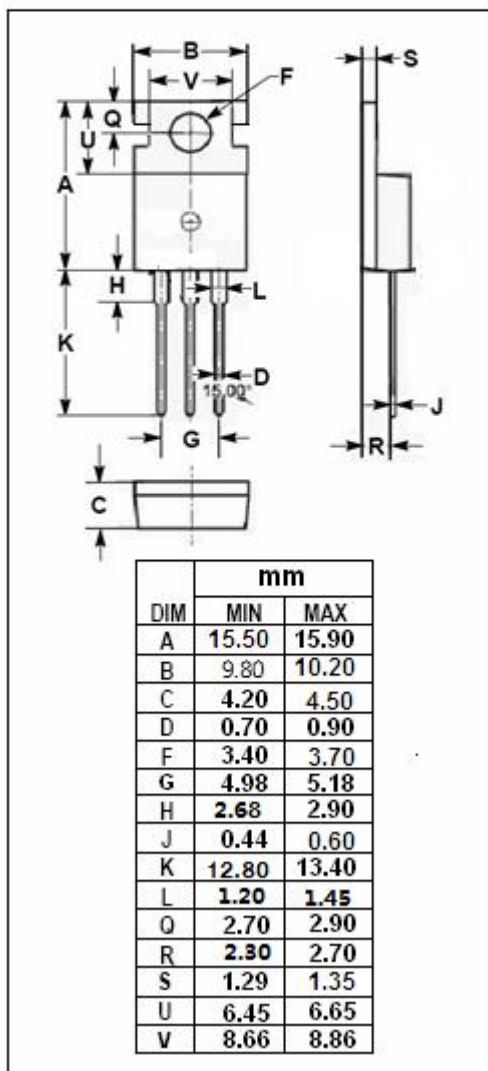
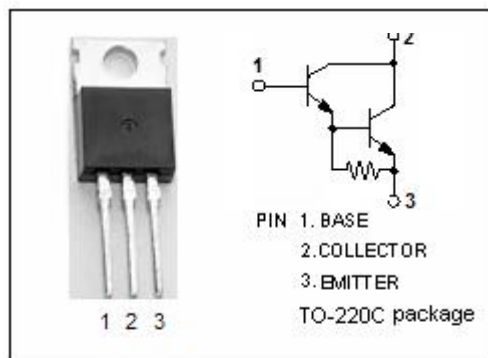
- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min}) @ I_C = 4\text{A}$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(\text{SUS})} = 60\text{V}(\text{Min})$
- Low Collector-Emitter Saturation Voltage-  
:  $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max}) @ I_C = 4\text{A}$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Designed for low frequency power 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                                      | 7       | V                |
| $I_C$     | Collector Current-Continuous                              | 8       | A                |
| $I_{CM}$  | Collector Current-Peak                                    | 12      | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C = 25^\circ\text{C}$ | 40      | W                |
|           | Collector Power Dissipation<br>@ $T_a = 25^\circ\text{C}$ | 2       |                  |
| $T_j$     | Junction Temperature                                      | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -55~150 | $^\circ\text{C}$ |



**isc Silicon NPN Darlington Power Transistor****2SD1572****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

| SYMBOL                 | PARAMETER                            | CONDITIONS                                 | MIN  | TYP. | MAX   | UNIT |
|------------------------|--------------------------------------|--------------------------------------------|------|------|-------|------|
| V <sub>CEO(SUS)</sub>  | Collector-Emitter Sustaining Voltage | I <sub>C</sub> = 25mA, I <sub>B</sub> = 0  | 60   |      |       | V    |
| V <sub>(BR)EBO</sub>   | Emitter-Base Breakdown Voltage       | I <sub>E</sub> = 50mA; I <sub>C</sub> = 0  | 7    |      |       | V    |
| V <sub>CE(sat)-1</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 4A, I <sub>B</sub> = 8mA  |      |      | 1.5   | V    |
| V <sub>CE(sat)-2</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 8A, I <sub>B</sub> = 80mA |      |      | 3.0   | V    |
| V <sub>BE(sat)-1</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 4A, I <sub>B</sub> = 8mA  |      |      | 2.0   | V    |
| V <sub>BE(sat)-2</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 8A, I <sub>B</sub> = 80mA |      |      | 3.5   | V    |
| I <sub>CBO</sub>       | Collector Cutoff Current             | V <sub>CB</sub> = 60V, I <sub>E</sub> = 0  |      |      | 0.1   | mA   |
| I <sub>CEO</sub>       | Collector Cutoff Current             | V <sub>CE</sub> = 50V, I <sub>B</sub> = 0  |      |      | 10    | uA   |
| I <sub>EBO</sub>       | Emitter Cutoff Current               | V <sub>EB</sub> = 7V; I <sub>C</sub> = 0   |      |      | 50    | mA   |
| h <sub>FE-1</sub>      | DC Current Gain                      | I <sub>C</sub> = 4A; V <sub>CE</sub> = 3V  | 1000 |      | 20000 |      |

**Switching Times**

|                 |              |                                                              |  |     |  |     |
|-----------------|--------------|--------------------------------------------------------------|--|-----|--|-----|
| t <sub>on</sub> | Turn-on Time | I <sub>C</sub> = 4A; I <sub>B1</sub> = I <sub>B2</sub> = 8mA |  | 0.5 |  | μ s |
| t <sub>s</sub>  | Storage Time |                                                              |  | 6.0 |  | μ s |
| t <sub>f</sub>  | Fall Time    |                                                              |  | 1.5 |  | μ s |

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