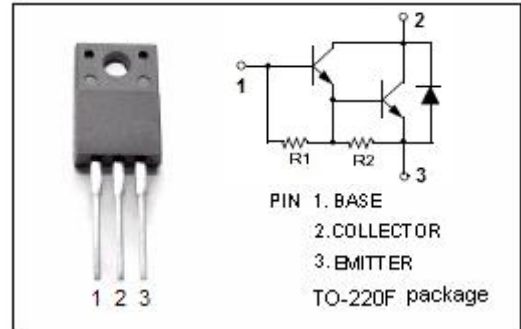


**isc Silicon NPN Darlington Power Transistor**
**2SD2271**
**DESCRIPTION**

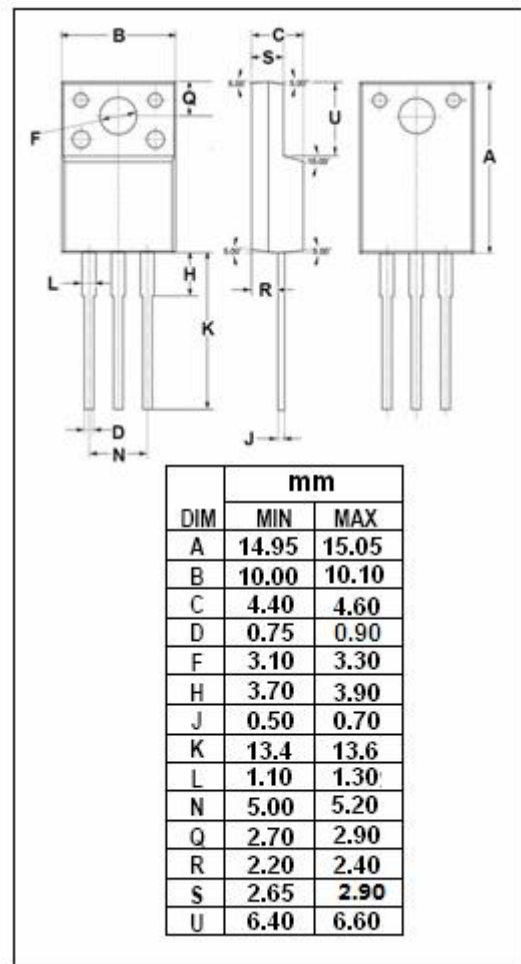
- High DC Current Gain-  
:  $h_{FE} = 500(\text{Min}) @ (V_{CE} = 2V, I_C = 5A)$
- High Breakdown Voltage :  $V_{CEO}(\text{sus}) = 200V$  (Min)
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Motor drive applications
- High current switching applications


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

| SYMBOL    | PARAMETER  | VALUE   | UNIT             |
|-----------|--|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                 | 300     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                              | 200     | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                   | 6       | V                |
| $I_C$     | Collector Current-Continuous                           | 12      | A                |
| $I_{CP}$  | Collector Current-Peak                                 | 18      | A                |
| $I_B$     | Base Current   | 1       | A                |
| $P_C$     | Collector Power Dissipation @ $T_a = 25^\circ\text{C}$ | 2.0     | W                |
|           | Collector Power Dissipation @ $T_c = 25^\circ\text{C}$ | 30      |                  |
| $T_J$     | Junction Temperature                                   | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature                                    | -55~150 | $^\circ\text{C}$ |



## isc Silicon NPN Darlington Power Transistor

2SD2271

## ELECTRICAL CHARACTERISTICS

T<sub>j</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> = 50mA; L=40mH                   | 200 |      |      | V    |
| V <sub>(BR)CBO</sub>  | Collector-Base Breakdown Voltage     | I <sub>C</sub> = 1mA; I <sub>E</sub> = 0        | 300 |      |      | V    |
| V <sub>CE(sat)</sub>  | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 10A; I <sub>B</sub> = 0.1A     |     |      | 2.0  | V    |
| V <sub>BE(sat)</sub>  | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 10A; I <sub>B</sub> = 0.1A     |     |      | 2.3  | V    |
| I <sub>CBO</sub>      | Collector Cutoff Current             | V <sub>CB</sub> = 300V; I <sub>E</sub> = 0      |     |      | 100  | μ A  |
| I <sub>EBO</sub>      | Emitter Cutoff Current               | V <sub>EB</sub> = 6V; I <sub>C</sub> = 0        | 50  |      | 150  | mA   |
| h <sub>FE 1</sub>     | DC Current Gain                      | I <sub>C</sub> = 5A; V <sub>CE</sub> = 2V       | 500 |      | 5000 |      |
| h <sub>FE 2</sub>     | DC Current Gain                      | I <sub>C</sub> = 10A; V <sub>CE</sub> = 2V      | 100 |      |      |      |
| f <sub>T</sub>        | Transition Frequency                 | I <sub>C</sub> = 1A; V <sub>CE</sub> = 2V       |     | 40   |      | MHz  |
| C <sub>ob</sub>       | Collector Output Capacitance         | V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz |     | 200  |      | pF   |

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