

# isc Silicon NPN Power Transistor

## 2SD856

### DESCRIPTION

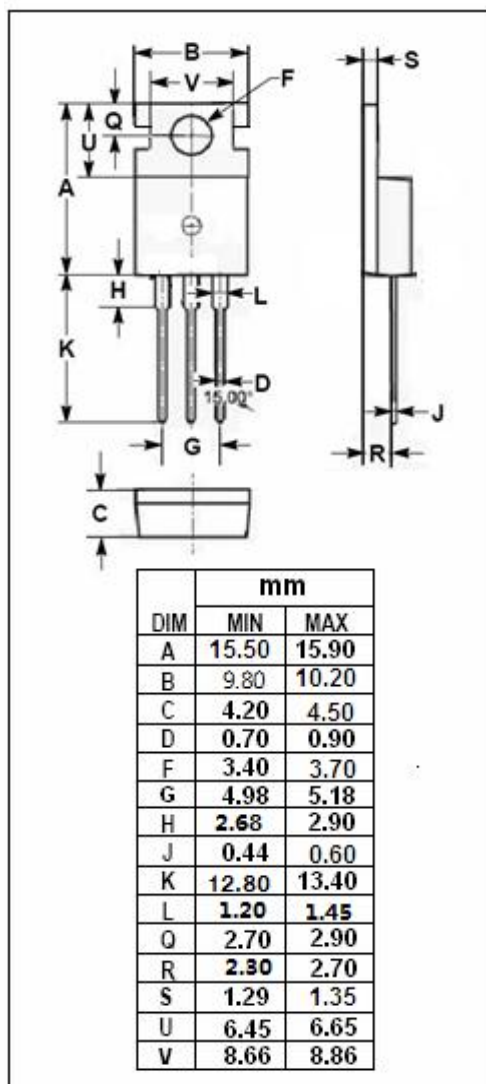
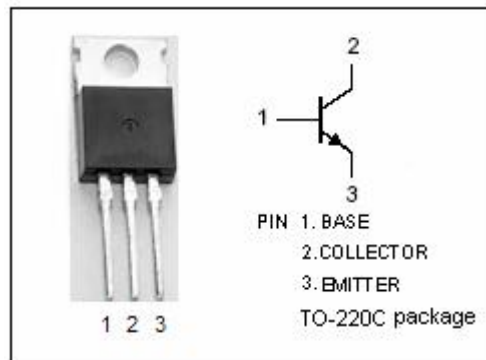
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 60V(\text{Min})$
- Good Linearity of  $h_{FE}$
- Wide Area of Safe Operation
- Complement to Type 2SB761
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

- Designed for AF 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                                    | 6       | V                |
| $I_C$     | Collector Current-Continuous                            | 3       | A                |
| $I_{CM}$  | Collector Current-Peak                                  | 5       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_c=25^\circ\text{C}$ | 35      | W                |
| $T_J$     | Junction Temperature                                    | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               | -55~150 | $^\circ\text{C}$ |



**isc Silicon NPN Power Transistor****2SD856****ELECTRICAL CHARACTERISTICS****T<sub>c</sub>=25°C unless otherwise specified**

| SYMBOL               | PARAMETER                            | CONDITIONS                                   | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|----------------------------------------------|-----|------|-----|------|
| V <sub>(BR)CEO</sub> | Collector-Emitter Breakdown Voltage  | I <sub>C</sub> = 10mA; I <sub>B</sub> = 0    | 60  |      |     | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 3A; I <sub>B</sub> = 0.375A |     |      | 1.2 | V    |
| V <sub>BE(on)</sub>  | Base-Emitter On Voltage              | I <sub>C</sub> = 3A; V <sub>CE</sub> = 4V    |     |      | 1.8 | V    |
| I <sub>CEO</sub>     | Collector Cutoff Current             | V <sub>CE</sub> = 30V; I <sub>B</sub> = 0    |     |      | 300 | μ A  |
| I <sub>CES</sub>     | Collector Cutoff Current             | V <sub>CE</sub> = 60V; V <sub>BE</sub> = 0   |     |      | 200 | μ A  |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = 6V; I <sub>C</sub> = 0     |     |      | 1   | mA   |
| h <sub>FE-1</sub>    | DC Current Gain                      | I <sub>C</sub> = 1A; V <sub>CE</sub> = 4V    | 40  |      | 250 |      |
| h <sub>FE-2</sub>    | DC Current Gain                      | I <sub>C</sub> = 3A; V <sub>CE</sub> = 4V    | 10  |      |     |      |

**Switching Times**

|                  |               |                                                               |  |     |  |     |
|------------------|---------------|---------------------------------------------------------------|--|-----|--|-----|
| t <sub>on</sub>  | Turn-On Time  | I <sub>C</sub> = 1A; I <sub>B1</sub> = I <sub>B2</sub> = 0.1A |  | 0.5 |  | μ s |
| t <sub>off</sub> | Turn-Off Time |                                                               |  | 3.0 |  | μ s |

**◆ h<sub>FE-1</sub> Classifications**

| R     | Q      | P       |
|-------|--------|---------|
| 40-90 | 70-150 | 120-250 |

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