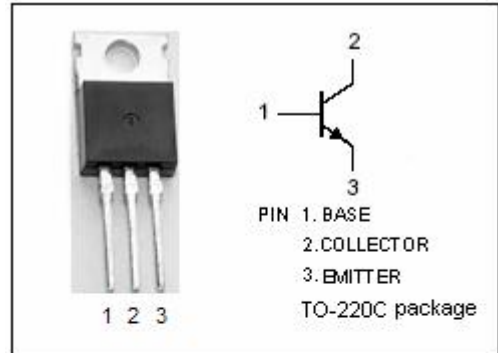


**DESCRIPTION**

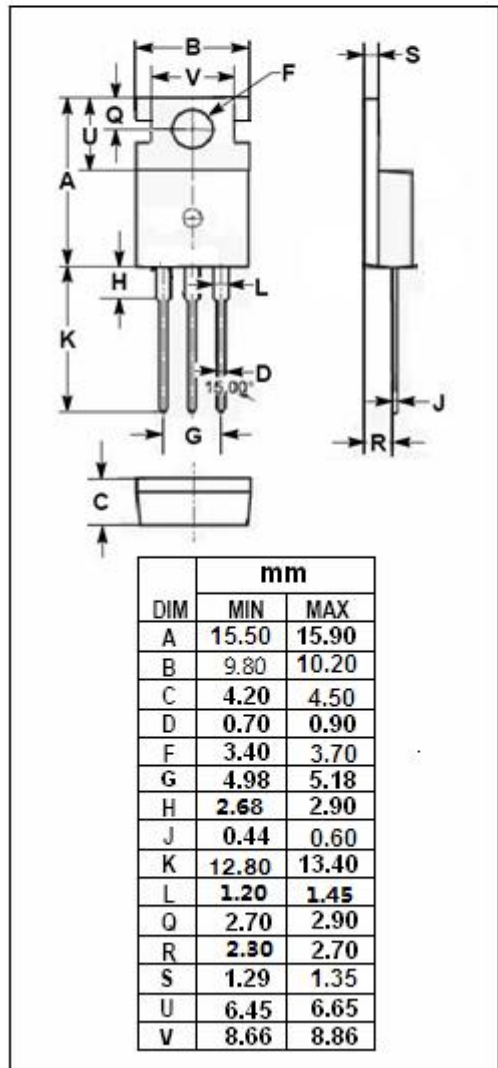
- Low Saturation Voltage
- Good Linearity of  $h_{FE}$
- Fast Switching Speeds
- Complement to Type D45C7
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Designed for various specific and general purpose application such as: output and driver stages of amplifiers operating at frequencies from DC to greater than 1.0MHz series, shunt and switching regulators; low and high frequency inverters/converters and many others.


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

| SYMBOL    | PARAMETER  | VALUE   | UNIT             |
|-----------|--|---------|------------------|
| $V_{CES}$ | Collector-Emitter Voltage                            | 70      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                            | 60      | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                 | 5       | V                |
| $I_C$     | Collector Current-Continuous                         | 4       | A                |
| $I_{CM}$  | Collector Current-Peak                               | 6       | A                |
| $I_B$     | Base Current-Continuous                              | 1       | A                |
| $P_C$     | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 30      | W                |
| $T_j$     | Junction Temperature                                 | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                            | -55~150 | $^\circ\text{C}$ |


**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                            | MAX | UNIT               |
|---------------|--------------------------------------|-----|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 4.2 | $^\circ\text{C/W}$ |

**ELECTRICAL CHARACTERISTICS**

 T<sub>c</sub>=25°C unless otherwise specified

| SYMBOL               | PARAMETER                            | CONDITIONS  | MIN | TYP | MAX | UNIT |
|----------------------|--------------------------------------|---|-----|-----|-----|------|
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 1A; I <sub>B</sub> = 100mA                           |     |     | 0.5 | V    |
| V <sub>BE(sat)</sub> | Base-Emitter Saturation Voltage      | I <sub>C</sub> = 1A; I <sub>B</sub> = 100mA                           |     |     | 1.3 | V    |
| I <sub>CES</sub>     | Collector Cutoff Current             | V <sub>CE</sub> = 70V, V <sub>BE</sub> = 0                            |     |     | 10  | μ A  |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = 5V; I <sub>C</sub> = 0                              |     |     | 100 | μ A  |
| h <sub>FE-1</sub>    | DC Current Gain                      | I <sub>C</sub> = 0.2A; V <sub>CE</sub> = 1V                           | 25  |     |     |      |
| h <sub>FE-2</sub>    | DC Current Gain                      | I <sub>C</sub> = 1A; V <sub>CE</sub> = 1V                             | 10  |     |     |      |
| f <sub>T</sub>       | Current-Gain—Bandwidth Product       | I <sub>C</sub> = 20mA; V <sub>CE</sub> = 4V; f <sub>test</sub> = 1MHz |     | 50  |     | MHz  |

**Switching Times**

|                |              |  |  |  |     |     |
|----------------|--------------|--|--|--|-----|-----|
| t <sub>r</sub> | Rise Time    | I <sub>C</sub> = 1A; I <sub>B1</sub> = -I <sub>B2</sub> = 0.1A;<br>V <sub>CC</sub> = 20V |  |  | 0.3 | μ s |
| t <sub>s</sub> | Storage Time |  |  |  | 0.7 | μ s |
| t <sub>f</sub> | Fall Time    |  |  |  | 0.4 | μ s |

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