

## NPN SILICON POWER TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- LOW COLLECTOR-EMITTER SATURATION VOLTAGE
- FAST SWITCHING SPEED

### APPLICATIONS

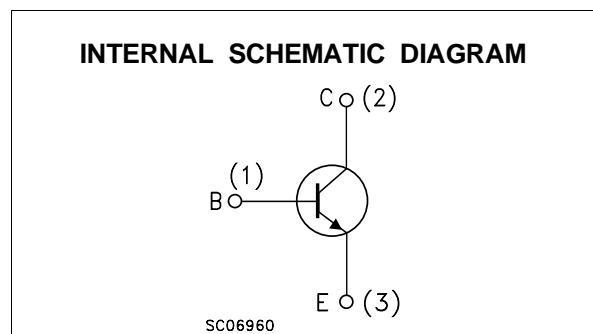
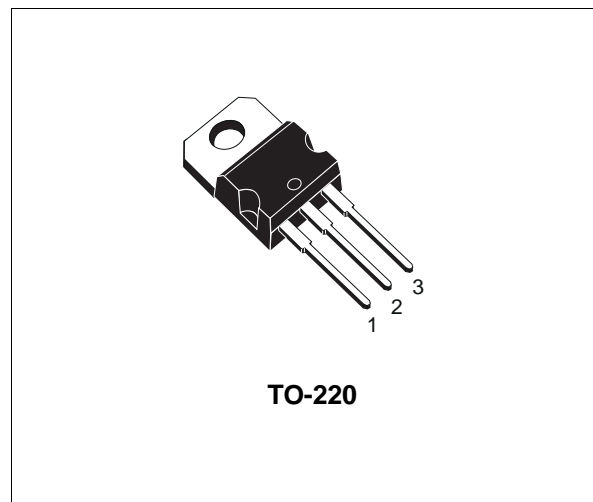
- GENERAL PURPOSE SWITCHING
- GENERAL PURPOSE AMPLIFIER

### DESCRIPTION

The D44H8, and D44H11 are silicon Multiepitaxial Planar NPN transistors mounted in Jedec TO-220 plastic package.

They are intended for various switching and general purpose applications.

D44H8, D44H11 are complementary with D45H8, D45H11.



### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter  | Value      |        | Unit             |
|-----------|--|------------|--------|------------------|
|           |  | D44H8      | D44H11 |                  |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )          | 60         | 80     | V                |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )               | 5          |        | V                |
| $I_C$     | Collector Current                                | 10         |        | A                |
| $I_{CM}$  | Collector Peak Current                           | 20         |        | A                |
| $P_{tot}$ | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | 50         |        | W                |
| $T_{stg}$ | Storage Temperature                              | -65 to 150 |        | $^\circ\text{C}$ |
| $T_j$     | Max. Operating Junction Temperature              | 150        |        | $^\circ\text{C}$ |

# D44H8/D44H11

## THERMAL DATA

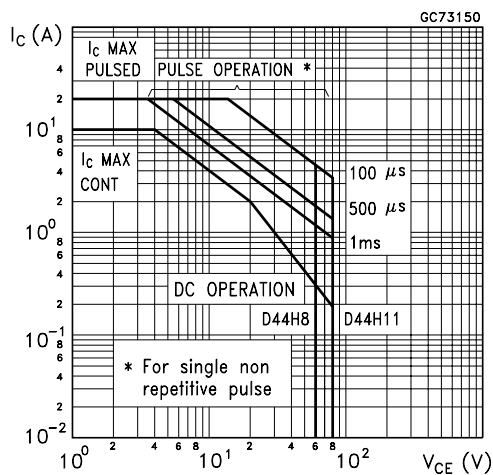
|                       |                                  |     |     |      |
|-----------------------|----------------------------------|-----|-----|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case | Max | 2.5 | °C/W |
|-----------------------|----------------------------------|-----|-----|------|

## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

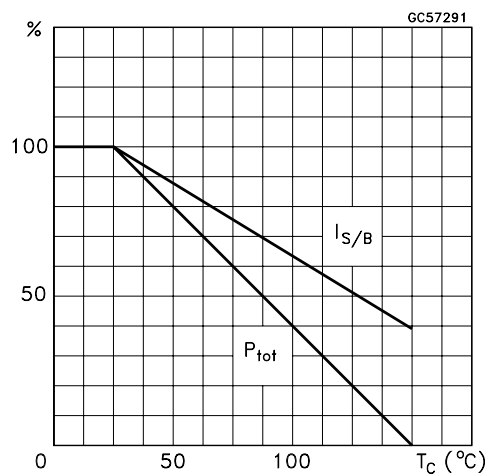
| Symbol                 | Parameter                                      | Test Conditions  | Min.     | Typ. | Max. | Unit   |
|------------------------|--|--|----------|------|------|--------|
| I <sub>CBO</sub>       | Collector Cut-off Current (I <sub>E</sub> = 0) | V <sub>CB</sub> = rated V <sub>CEO</sub>   |          |      | 10   | μA     |
| I <sub>EBO</sub>       | Emitter Cut-off Current (I <sub>C</sub> = 0)   | V <sub>EB</sub> = 5V   |          |      | 100  | μA     |
| V <sub>CEO(sus)*</sub> | Collector-Emitter Sustaining Voltage           | I <sub>C</sub> = 100 mA<br>for <b>D44H8</b><br>for <b>D44H11</b>                               | 60<br>80 |      |      | V<br>V |
| V <sub>CE(sat)*</sub>  | Collector-Emitter Saturation Voltage           | I <sub>C</sub> = 8 A    I <sub>B</sub> = 0.4 A   |          |      | 1    | V      |
| V <sub>BE(sat)*</sub>  | Base-Emitter Saturation Voltage                | I <sub>C</sub> = 8 A    I <sub>B</sub> = 0.8 A   |          |      | 1.5  | V      |
| h <sub>FE*</sub>       | DC Current Gain                                | I <sub>C</sub> = 2 A    V <sub>CE</sub> = 1 V<br>I <sub>C</sub> = 4 A    V <sub>CE</sub> = 1 V | 60<br>40 |      |      |        |

\* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

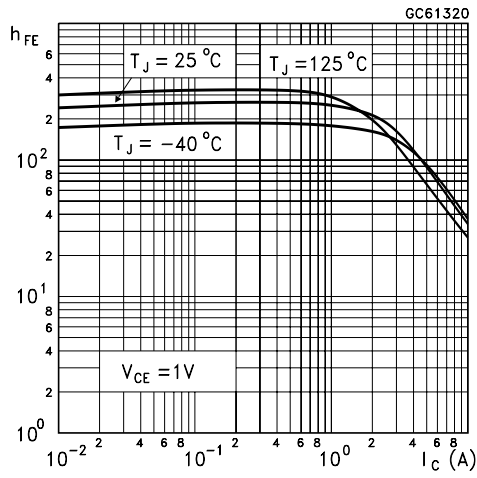
## Safe Operating Area



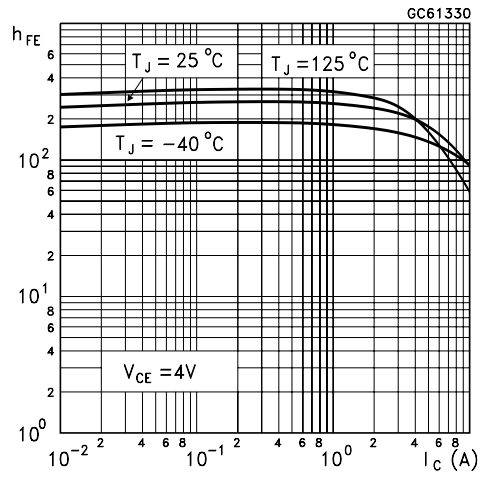
## Derating Curves



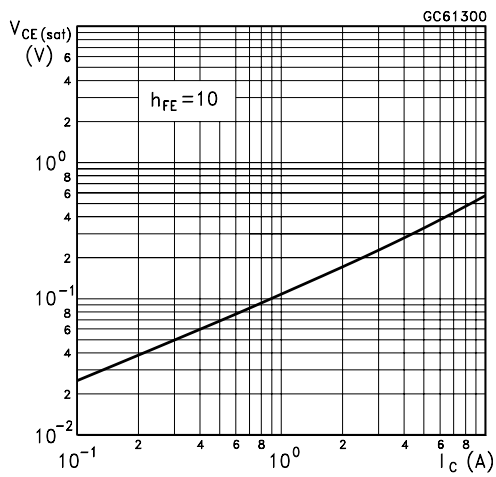
DC Current Gain



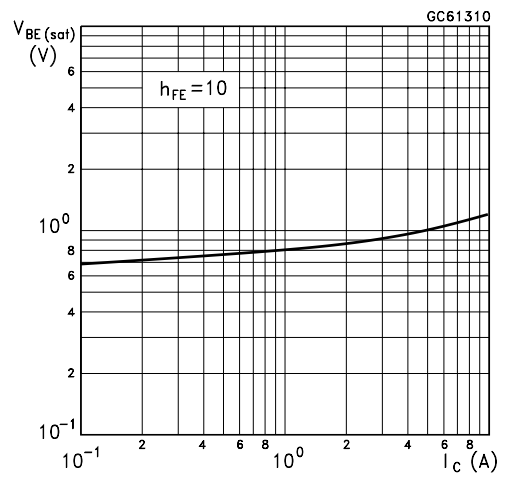
DC Current Gain



Collector-Emitter Saturation Voltage

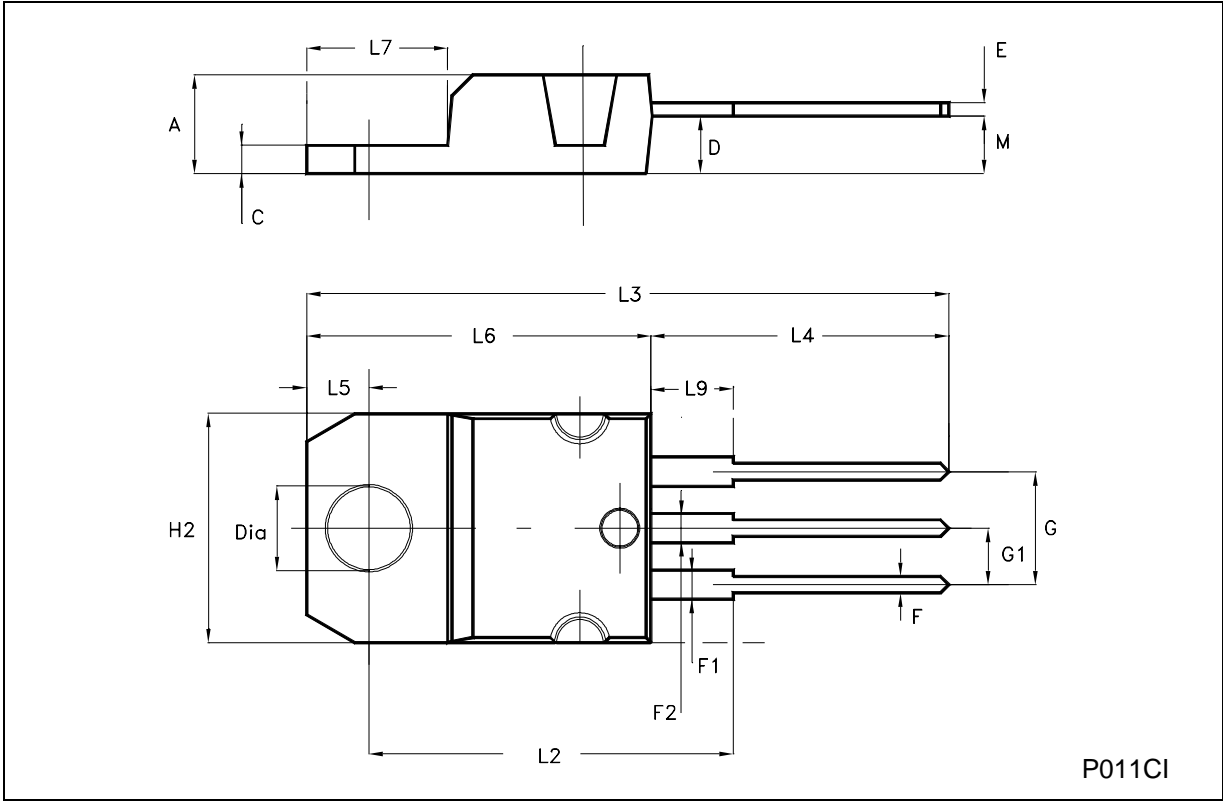


Base-Emitter Saturation Voltage



**TO-220 MECHANICAL DATA**

| DIM. | mm    |       |       | inch  |       |       |
|------|-------|-------|-------|-------|-------|-------|
|      | MIN.  | TYP.  | MAX.  | MIN.  | TYP.  | MAX.  |
| A    | 4.40  |       | 4.60  | 0.173 |       | 0.181 |
| C    | 1.23  |       | 1.32  | 0.048 |       | 0.052 |
| D    | 2.40  |       | 2.72  | 0.094 |       | 0.107 |
| E    | 0.49  |       | 0.70  | 0.019 |       | 0.027 |
| F    | 0.61  |       | 0.88  | 0.024 |       | 0.034 |
| F1   | 1.14  |       | 1.70  | 0.044 |       | 0.067 |
| F2   | 1.14  |       | 1.70  | 0.044 |       | 0.067 |
| G    | 4.95  |       | 5.15  | 0.194 |       | 0.202 |
| G1   | 2.40  |       | 2.70  | 0.094 |       | 0.106 |
| H2   | 10.00 |       | 10.40 | 0.394 |       | 0.409 |
| L2   |       | 16.40 |       |       | 0.645 |       |
| L4   | 13.00 |       | 14.00 | 0.511 |       | 0.551 |
| L5   | 2.65  |       | 2.95  | 0.104 |       | 0.116 |
| L6   | 15.25 |       | 15.75 | 0.600 |       | 0.620 |
| L7   | 6.20  |       | 6.60  | 0.244 |       | 0.260 |
| L9   | 3.50  |       | 3.93  | 0.137 |       | 0.154 |
| M    |       | 2.60  |       |       | 0.102 |       |
| DIA. | 3.75  |       | 3.85  | 0.147 |       | 0.151 |



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