

## NPN SILICON POWER TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- LOW COLLECTOR-EMITTER SATURATION VOLTAGE
- FAST SWITCHING SPEED

### APPLICATIONS

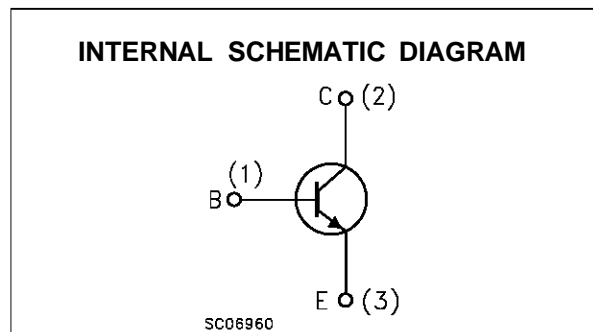
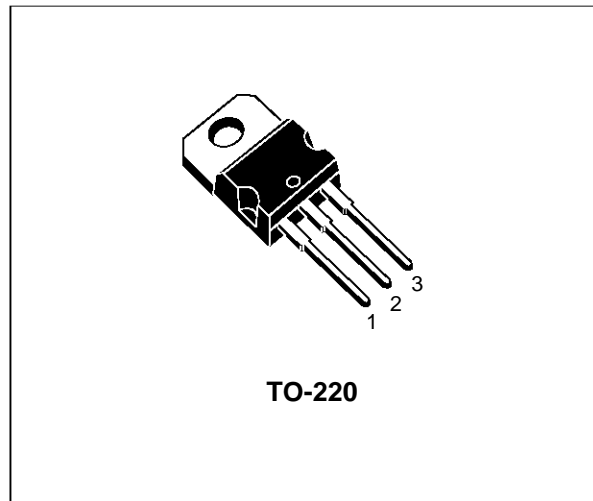
- GENERAL PURPOSE SWITCHING
- GENERAL PURPOSE AMPLIFIER

### 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

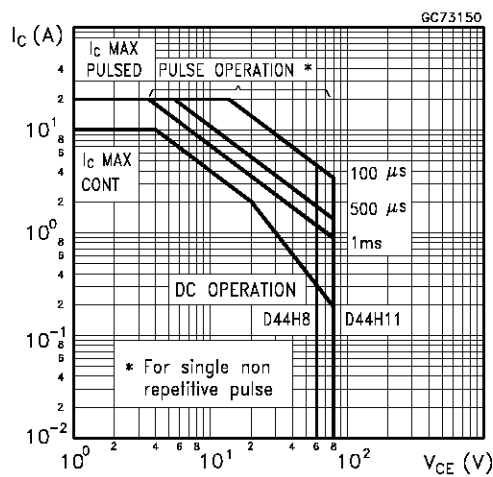
|                |                                  |     |     |               |
|----------------|----------------------------------|-----|-----|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 2.5 | $^{\circ}C/W$ |
|----------------|----------------------------------|-----|-----|---------------|

## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

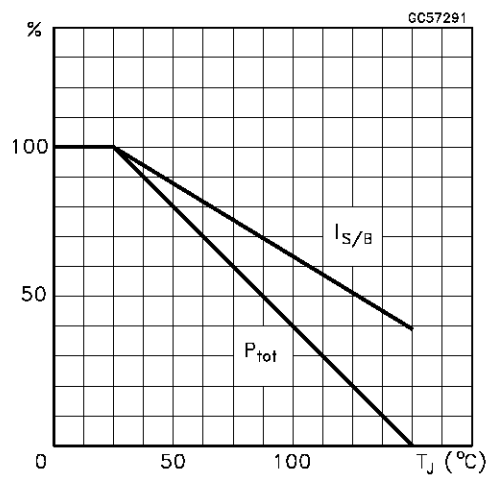
| Symbol          | Parameter                               | Test Conditions  | Min.     | Typ. | Max. | Unit    |
|-----------------|---|--|----------|------|------|---------|
| $I_{CBO}$       | Collector Cut-off Current ( $I_E = 0$ ) | $V_{CB} = \text{rated } V_{CEO}$   |          |      | 10   | $\mu A$ |
| $I_{EBO}$       | Emitter Cut-off Current ( $I_C = 0$ )   | $V_{EB} = 5V$  |          |      | 100  | $\mu A$ |
| $V_{CEO(sus)*}$ | Collector-Emitter Sustaining Voltage    | $I_C = 100 \text{ mA}$<br>for <b>D44H8</b><br>for <b>D44H11</b>                          | 60<br>80 |      |      | V<br>V  |
| $V_{CE(sat)*}$  | Collector-Emitter Saturation Voltage    | $I_C = 8 \text{ A}$ $I_B = 0.4 \text{ A}$  |          |      | 1    | V       |
| $V_{BE(sat)*}$  | Base-Emitter Saturation Voltage         | $I_C = 8 \text{ A}$ $I_B = 0.8 \text{ A}$  |          |      | 1.5  | V       |
| $h_{FE*}$       | DC Current Gain                         | $I_C = 2 \text{ A}$ $V_{CE} = 1 \text{ V}$<br>$I_C = 4 \text{ A}$ $V_{CE} = 1 \text{ V}$ | 60<br>40 |      |      |         |

\* Pulsed: Pulse duration = 300  $\mu s$ , duty cycle  $\leq 2\%$

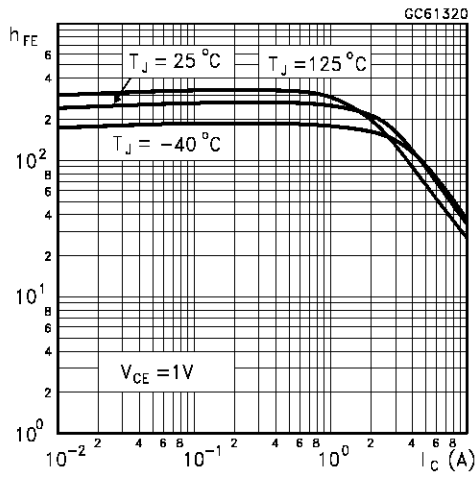
## Safe Operating Area



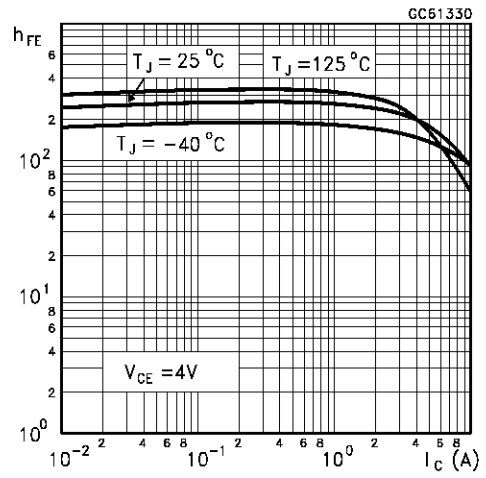
## Derating Curves



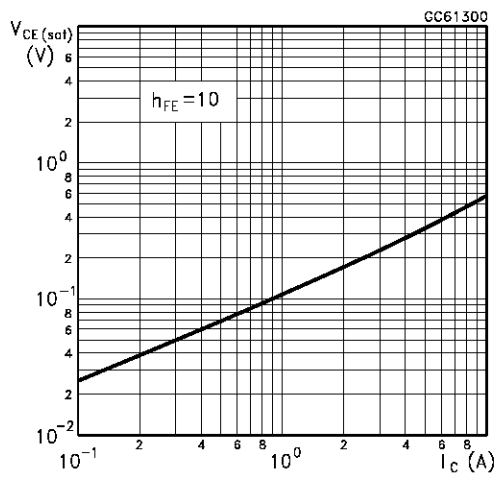
DC Current Gain



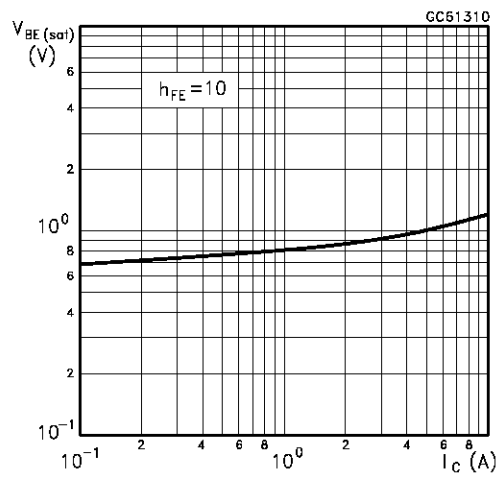
DC Current Gain



Collector-Emitter Saturation Voltage

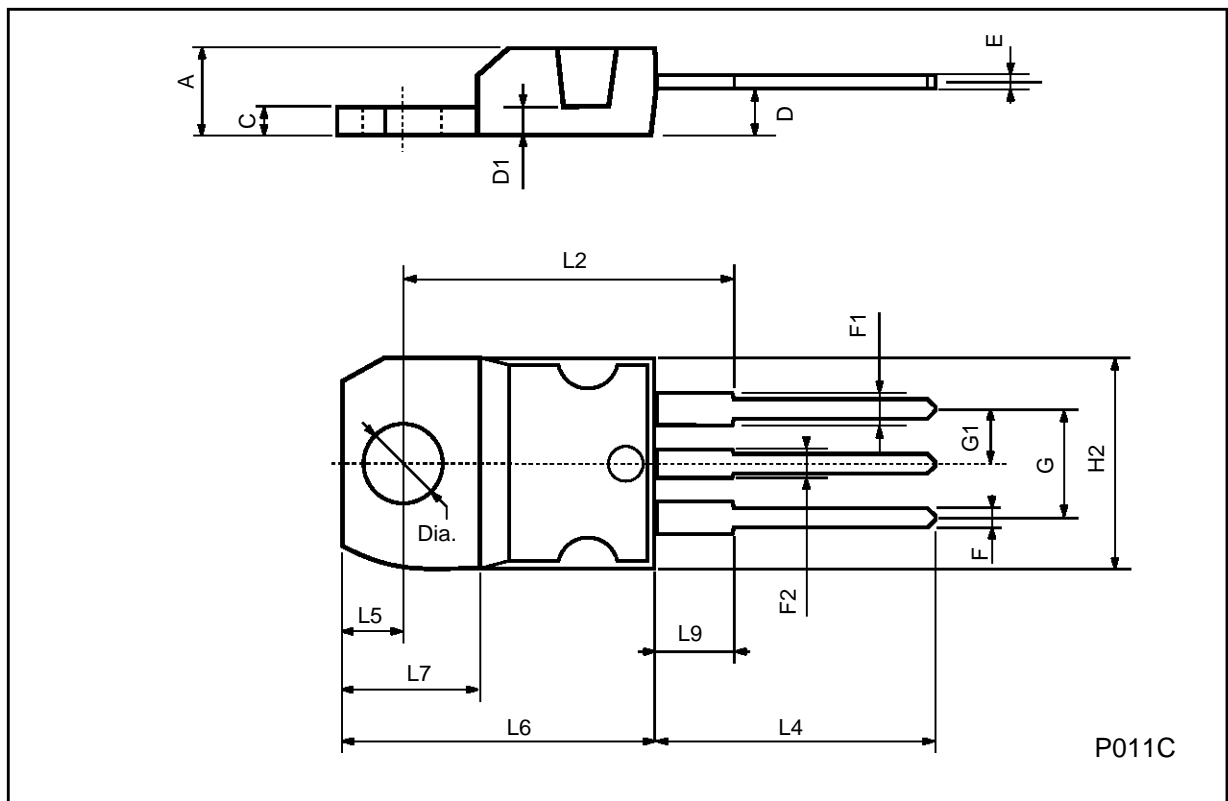


Base-Emitter Saturation Voltage



**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 |       | 0.051 |
| D    | 2.40  |      | 2.72  | 0.094 |       | 0.107 |
| D1   |       | 1.27 |       |       | 0.050 |       |
| 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 |       | 0.203 |
| G1   | 2.4   |      | 2.7   | 0.094 |       | 0.106 |
| H2   | 10.0  |      | 10.40 | 0.393 |       | 0.409 |
| L2   |       | 16.4 |       |       | 0.645 |       |
| L4   | 13.0  |      | 14.0  | 0.511 |       | 0.551 |
| L5   | 2.65  |      | 2.95  | 0.104 |       | 0.116 |
| L6   | 15.25 |      | 15.75 | 0.600 |       | 0.620 |
| L7   | 6.2   |      | 6.6   | 0.244 |       | 0.260 |
| L9   | 3.5   |      | 3.93  | 0.137 |       | 0.154 |
| DIA. | 3.75  |      | 3.85  | 0.147 |       | 0.151 |



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