



STD888

HIGH CURRENT, HIGH PERFORMANCE, LOW VOLTAGE PNP TRANSISTOR

| Ordering Code | Marking |
|---------------|---------|
| STD888 | D888 |

- VERY LOW COLLECTOR TO EMITTER SATURATION VOLTAGE
- DC CURRENT GAIN, $h_{FE} > 100$
- 5 A CONTINUOUS COLLECTOR CURRENT
- SURFACE-MOUNTING DPAK (TO-252)
- POWER PACKAGE IN TAPE & REEL (Suffix "T4")

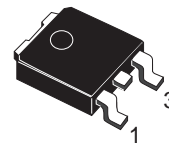
APPLICATIONS

- POWER MANAGEMENT IN PORTABLE EQUIPMENT
- VOLTAGE REGULATION IN BIAS SUPPLY CIRCUITS
- SWITCHING REGULATOR IN BATTERY CHARGER APPLICATIONS
- HEAVY LOAD DRIVER

DESCRIPTION

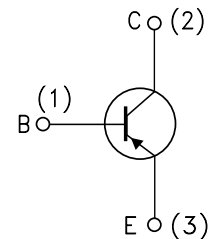
The device is manufactured in low voltage PNP Planar Technology by using a "Base Island" layout.

The resulting Transistor shows exceptional high gain performance coupled with very low saturation voltage.



**DPAK
TO-252**
(Suffix "T4")

INTERNAL SCHEMATIC DIAGRAM



SC08810

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | -60 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | -30 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | -6 | V |
| I_C | Collector Current | -5 | A |
| I_{CM} | Collector Peak Current ($t_p < 5$ ms) | -10 | A |
| P_{tot} | Total Dissipation at $T_C = 25$ °C | 15 | W |
| T_{stg} | Storage Temperature | -65 to 150 | °C |
| T_j | Max. Operating Junction Temperature | 150 | °C |

THERMAL DATA

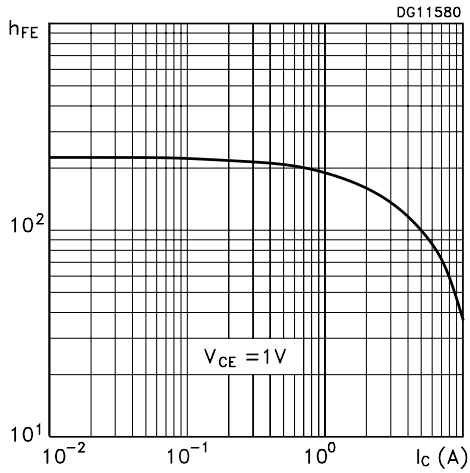
| | | | | |
|------------------|----------------------------------|-----|------|------|
| $R_{thj-case}$ • | Thermal Resistance Junction-Case | Max | 8.33 | °C/W |
|------------------|----------------------------------|-----|------|------|

ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

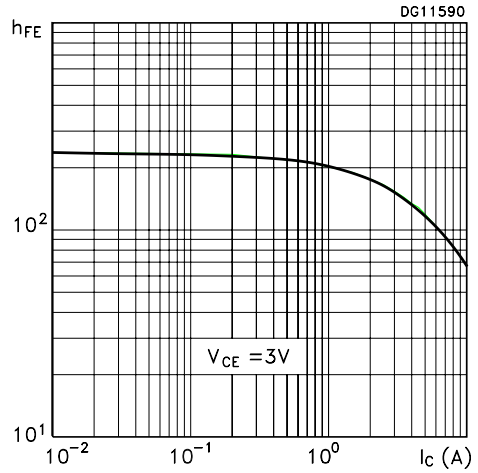
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------------------------|--|---|------------------------------------|--------------------------------------|--|----------------------------|
| I_{CBO} | Collector Cut-off Current ($I_E = 0$) | $V_{CB} = -30\text{ V}$ $V_{CB} = -30\text{ V}$ $T_j = 100\text{ °C}$ | | | -10 -1 | nA μA |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = -6\text{ V}$ | | | -10 | nA |
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage ($I_B = 0$) | $I_C = -10\text{ mA}$ | -30 | | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_E = 0$) | $I_C = -100\text{ }\mu\text{A}$ | -60 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_C = 0$) | $I_E = -100\text{ }\mu\text{A}$ | -6 | | | V |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = -500\text{ mA}$ $I_B = -5\text{ mA}$ $I_C = -2\text{ A}$ $I_B = -50\text{ mA}$ $I_C = -5\text{ A}$ $I_B = -250\text{ mA}$ $I_C = -6\text{ A}$ $I_B = -250\text{ mA}$ $I_C = -8\text{ A}$ $I_B = -400\text{ mA}$ $I_C = -10\text{ A}$ $I_B = -500\text{ mA}$ | | | -0.15 -0.25 -0.70 -0.70 -1 -1.5 | V V V V V V |
| $V_{BE(sat)}^*$ | Base-Emitter Saturation Voltage | $I_C = -2\text{ A}$ $I_B = -50\text{ mA}$ $I_C = -6\text{ A}$ $I_B = -250\text{ mA}$ | | | -1.1 -1.4 | V V |
| h_{FE}^* | DC Current Gain | $I_C = -10\text{ mA}$ $V_{CE} = -1\text{ V}$ $I_C = -500\text{ mA}$ $V_{CE} = -1\text{ V}$ $I_C = -5\text{ A}$ $V_{CE} = -1\text{ V}$ $I_C = -5\text{ A}$ $V_{CE} = -1\text{ V}$ $T_j = 100\text{ °C}$ $I_C = -8\text{ A}$ $V_{CE} = -1\text{ V}$ $I_C = -10\text{ A}$ $V_{CE} = -1\text{ V}$ | 150 150 75 75 40 15 | 200 200 100 100 55 35 | 300 | |
| t_d t_r t_s t_f | RESISTIVE LOAD Delay Time RiseTime StorageTime Fall Time | $I_C = -3\text{ A}$ $I_{B1} = - I_{B2} = -60\text{ mA}$ $V_{CC} = -20\text{ V}$ (see figure 1) | | 180 160 250 80 | 220 210 300 100 | ns ns ns ns |

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 1.5\%$

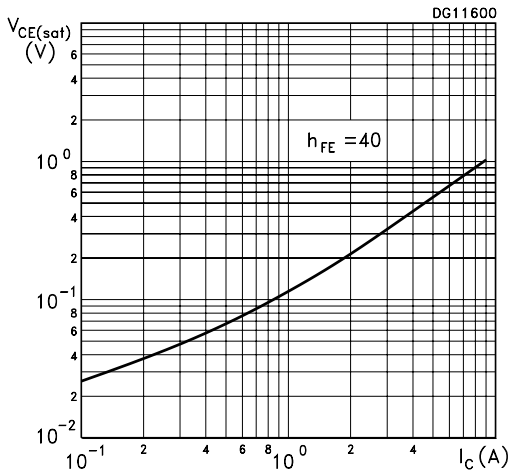
DC Current Gain



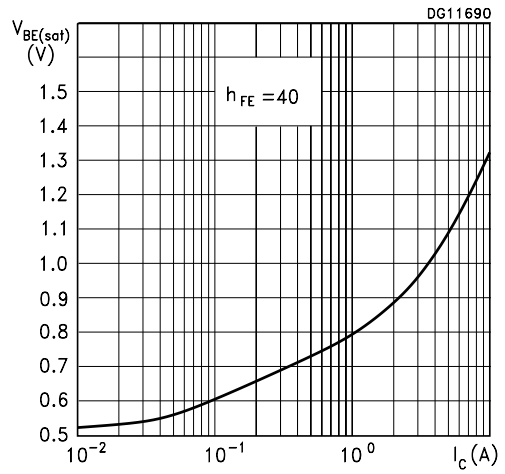
DC Current Gain



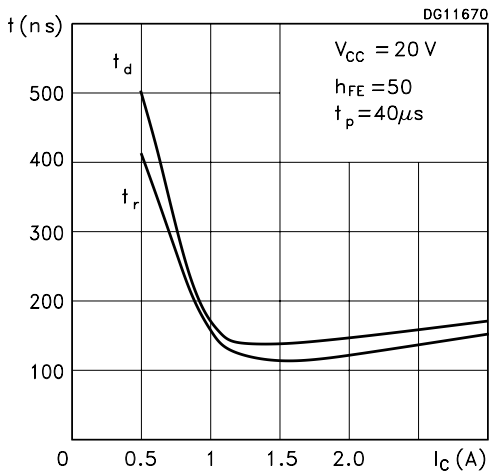
Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage



Switching Times Resistive Load



Switching Times Resistive Load

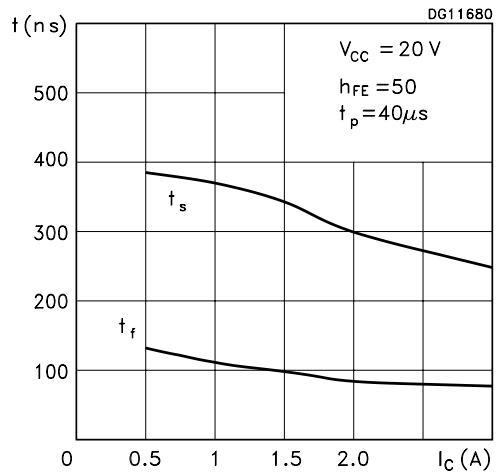
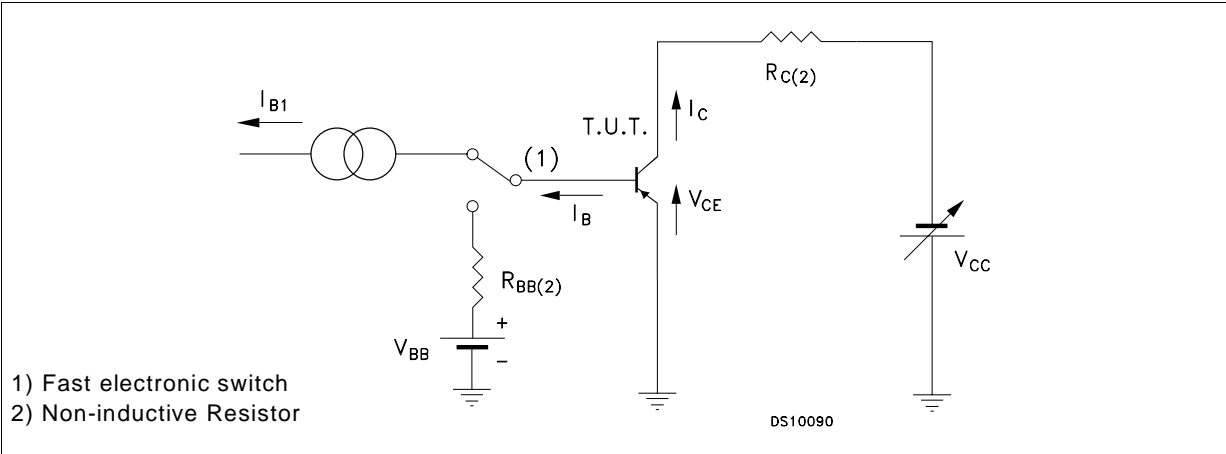
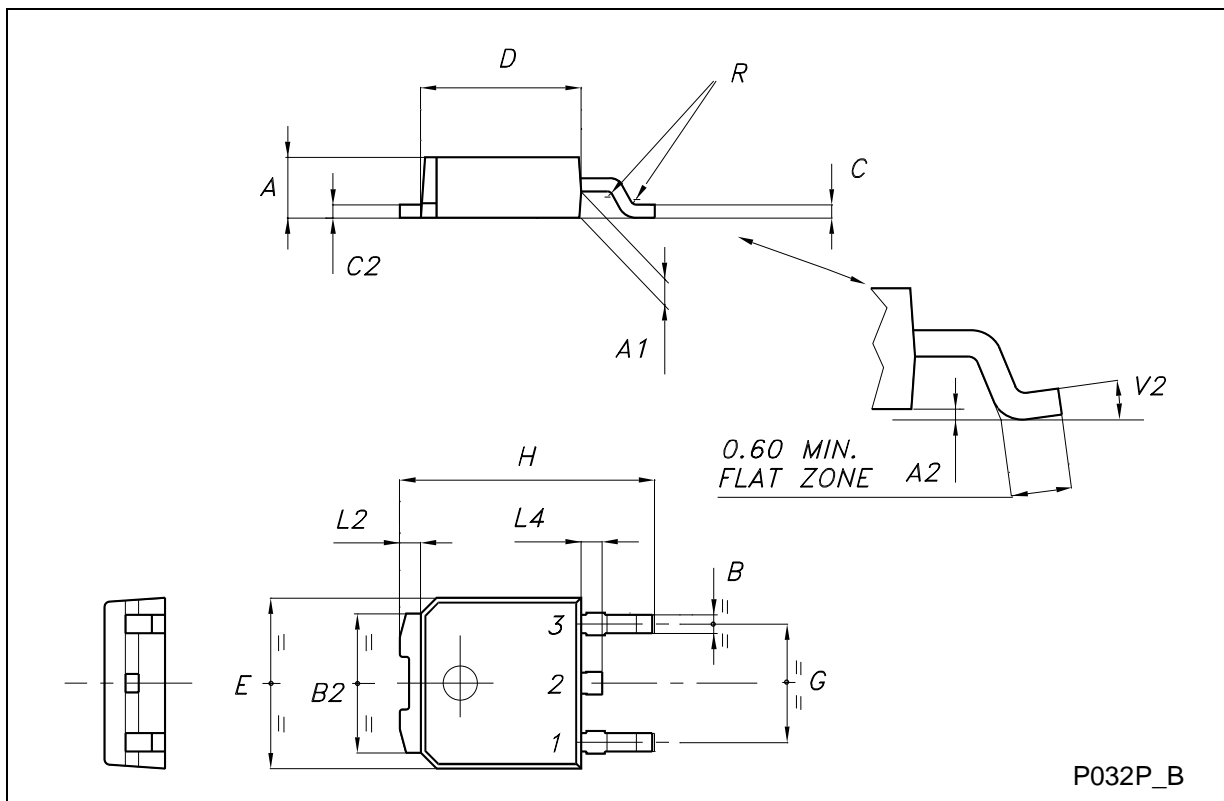


Figure 1: Resistive Load Switching Test Circuit.



TO-252 (DPAK) MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 2.20 | | 2.40 | 0.087 | | 0.094 |
| A1 | 0.90 | | 1.10 | 0.035 | | 0.043 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.64 | | 0.90 | 0.025 | | 0.035 |
| B2 | 5.20 | | 5.40 | 0.204 | | 0.213 |
| C | 0.45 | | 0.60 | 0.018 | | 0.024 |
| C2 | 0.48 | | 0.60 | 0.019 | | 0.024 |
| D | 6.00 | | 6.20 | 0.236 | | 0.244 |
| E | 6.40 | | 6.60 | 0.252 | | 0.260 |
| G | 4.40 | | 4.60 | 0.173 | | 0.181 |
| H | 9.35 | | 10.10 | 0.368 | | 0.398 |
| L2 | | 0.8 | | | 0.031 | |
| L4 | 0.60 | | 1.00 | 0.024 | | 0.039 |
| V2 | 0° | | 8° | 0° | | 0° |



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