

STN749

MEDIUM CURRENT, HIGH PERFORMANCE, LOW VOLTAGE PNP TRANSISTOR

| Ordering Code | Marking |
|---------------|---------|
| STN749 | N749 |

- VERY LOW COLLECTOR TO EMITTER SATURATION VOLTAGE
- DC CURRENT GAIN, h_{FE} > 100
- 3 A CONTINUOUS COLLECTOR CURRENT
- SOT-223 PLASTIC PACKAGE FOR SURFACE MOUNTING CIRCUITS
- AVAILABLE IN TAPE AND REEL PACKING

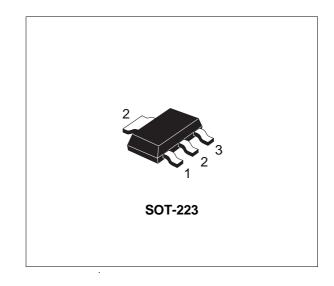
APPLICATIONS

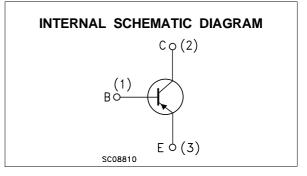
- POWER MANAGEMENT IN PORTABLE EQUIPMENT
- VOLTAGE REGULATION IN BIAS SUPPLY CIRCUITS
- SWITCHING REGULATOR IN BATTERY CHARGER APPLICATIONS
- HEAVY LOAD DRIVER

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.





ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit | |
|------------------|--|------------|------|--|
| V _{CBO} | Collector-Base Voltage (I _E = 0) | -35 | V | |
| V _{CEO} | Collector-Emitter Voltage (I _B = 0) | -25 | V | |
| Vево | Emitter-Base Voltage (Ic = 0) | -5 | V | |
| lc | Collector Current | -3 | А | |
| I _{CM} | Collector Peak Current (t _p < 5 ms) | -6 | А | |
| P _{tot} | Total Dissipation at T _{amb} = 25 °C | 1.6 | W | |
| T _{stg} | Storage Temperature | -65 to 150 | °C | |
| Τ _i | Max. Operating Junction Temperature | 150 | °C | |

THERMAL DATA

| R _{thj-amb} • | Thermal Resistance Junction-Ambient | Max | 78 | °C/W |
|---------------------------------|--|-----|----|------|
| Device mour | ted on a PCB area of 1 cm ² . | | | |

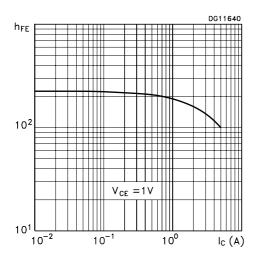
ELECTRICAL CHARACTERISTICS ($T_{case} = 25 \ ^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test | Min. | Тур. | Max. | Unit | |
|----------------------|--|--|--|-----------------------|------|--------------|----------|
| I _{CBO} | Collector Cut-off Current (I _E = 0) | V _{CB} = -30 V V _{CB} = -30 V | T _j = 100 °C | | | -100 -10 | nA μA |
| I _{EBO} | Emitter Cut-off Current $(I_C = 0)$ | V _{EB} = -4 V | | | | -100 | nA |
| V(br)ceo* | Collector-Emitter Breakdown Voltage (I _B = 0) | lc = -10 mA | | -25 | | | V |
| V _{(BR)CBO} | Collector-Base Breakdown Voltage (I _E = 0) | I _C = -100 μA | | -35 | | | V |
| V _{(BR)EBO} | Emitter-Base Breakdown Voltage (Ic = 0) | I _E = -100 μA | | -5 | | | V |
| $V_{CE(sat)^*}$ | Collector-Emitter Saturation Voltage | I _C = -1A I _C = -3A | I _B = -100 mA I _B = -300 mA | | | -0.3 -0.6 | V V |
| VBE(sat)* | Base-Emitter Saturation Voltage | Ic = -1 A | I _B = -100 mA | | | -1.25 | V |
| $V_{BE(on)}$ | Base-Emitter Turn-On Voltage | I _C = -1 A | $V_{CE} = -2 V$ | | | -1 | V |
| hfe* | DC Current Gain | $I_{C} = -50 \text{ mA}$ $I_{C} = -1 \text{ A}$ $I_{C} = -2 \text{ A}$ $I_{C} = -6 \text{ A}$ | • - | 70 100 75 15 | | 300 | |

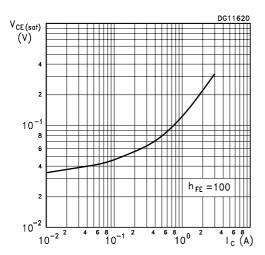
* Pulsed: Pulse duration = 300 $\mu s,$ duty cycle \leq 1.5 %

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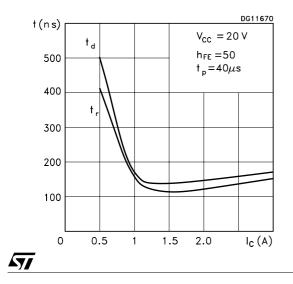
DC Current Gain



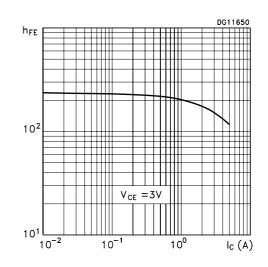
Collector-Emitter Saturation Voltage



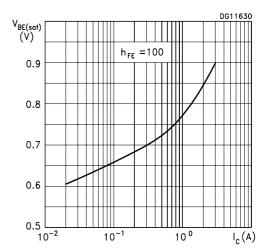
Switching Times Resistive Load



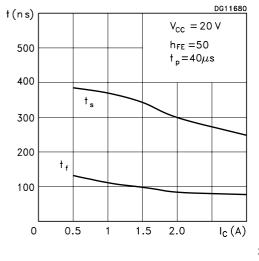
DC Current Gain

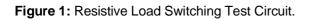


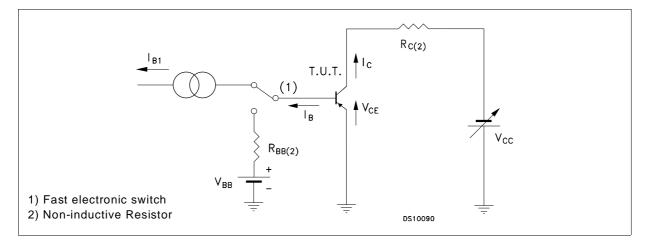








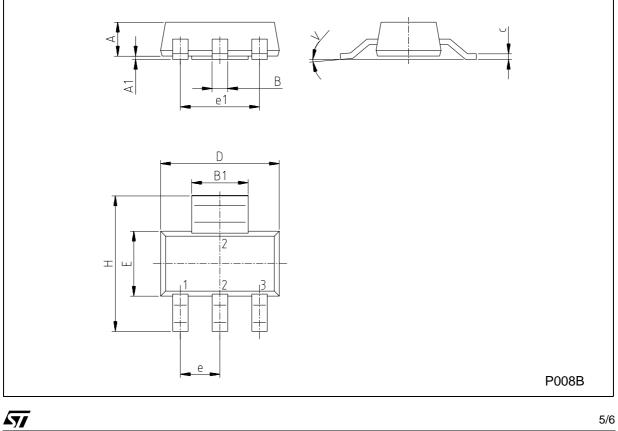




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| DIM. | mm | | | inch | | |
|------|------|------|-----------------|-------|-------|-----------------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| А | | | 1.80 | | | 0.071 |
| В | 0.60 | 0.70 | 0.80 | 0.024 | 0.027 | 0.031 |
| B1 | 2.90 | 3.00 | 3.10 | 0.114 | 0.118 | 0.122 |
| С | 0.24 | 0.26 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 6.30 | 6.50 | 6.70 | 0.248 | 0.256 | 0.264 |
| е | | 2.30 | | | 0.090 | |
| e1 | | 4.60 | | | 0.181 | |
| E | 3.30 | 3.50 | 3.70 | 0.130 | 0.138 | 0.146 |
| Н | 6.70 | 7.00 | 7.30 | 0.264 | 0.276 | 0.287 |
| V | | | 10 ⁰ | | | 10 [°] |
| A1 | | 0.02 | | | | 1 |

SOT-223 MECHANICAL DATA



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