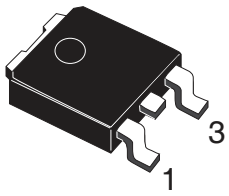
STD888T4

Medium Current, High Performance, Low Voltage PNP Transistor

General features

- Very low Collector to Emitter saturation voltage
- D.C. Current gain, h_{FE} >100
- 5A continuous collector current
- Surface mounting DPAK(TO-252) power package in tape & reel packing
- In compliance with the 2002/93/EC European Directive

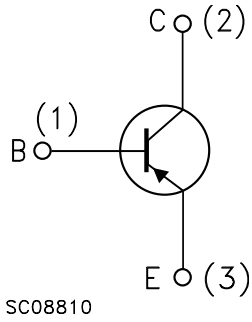


DPAK
(TO-252)

Description

The device in 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.

Internal schematic diagram



Applications

- Power management in portable equipment
- Voltage regulation in bias supply circuits
- Switching regulator in battery charger applications
- Heavy load driver

Order codes

Part Number	Marking	Package	Packing
STD888T4	D888	DPAK	Tape & reel

Contents

1 Electrical ratings

Table 1. Absolute maximum rating

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage (I_E = 0)	-45	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 < 5ms)	-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

Table 2. Thermal data

Symbol	Parameter		Value	Unit
$R_{thj\text{-}case}$	Thermal resistance junction-case	max	8.33	°C/W

2 Electrical characteristics

(T_{case} = 25°C unless otherwise specified)

Table 3. Electrical characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E =0)	V_{CB} = -30V V_{CB} = -30V; T_C = 100°C			-10 100	µA µA
I_{EBO}	Emitter cut-off current (I_C =0)	V_{EB} = -6V			-10	µA
$V_{(BR)CEO}$ (2)	Collector-emitter breakdown voltage (I_B =0)	I_C = -10mA	-30			V
$V_{(BR)CBO}$	Collector-base breakdown voltage (I_E =0)	I_C = -100µA	-45			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage (I_C =0)	I_E = -100µA	-6			V
$V_{CE(sat)}$ (2)	Collector-emitter saturation voltage	I_C = -0.5A I_B = -5mA I_C = -2A I_B = -50mA I_C = -5A I_B = -250mA I_C = -6A I_B = -250mA I_C = -8A I_B = -400mA I_C = -10A I_B = -500mA		 -0.7 -1 -1.2	-0.15 -0.35 -0.7 	V V V V V V
$V_{BE(sat)}$ (2)	Base-emitter saturation voltage	I_C = -2A I_B = -50mA I_C = -6A I_B = -250mA		 -1.2	-1.1	V V
h_{FE} (2)	DC current gain	I_C = -10mA V_{CE} = -1V I_C = -500mA V_{CE} = -1V I_C = -5A V_{CE} = -1V I_C = -5A V_{CE} = -1V T_C = 100°C I_C = -8A V_{CE} = -1V I_C = -10A V_{CE} = -1V	120 100 70 	200 200 100 100 55 35	 300 	
t_d t_r t_s t_f	Resistive load Delay time Rise time Storage time Fall time	I_C = -3A V_{CC} = -20V I_{B1} = -I_{B2} = -60mA (see figure 7)		 180 160 250 80	 220 210 300 100	 ns ns ns ns

Note (2) Pulsed duration = 300 µs, duty cycle ≤1.5%

2.1 Electrical characteristics (curves)

Figure 1. DC current gain

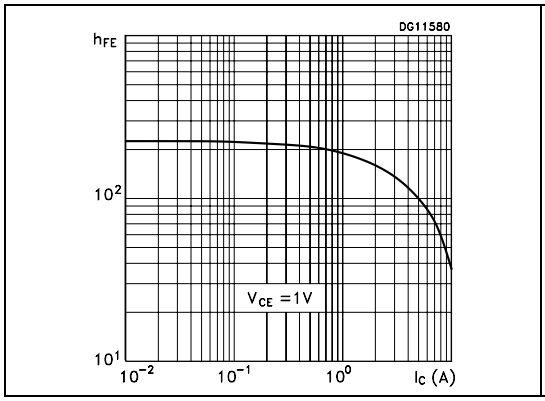


Figure 2. DC current gain

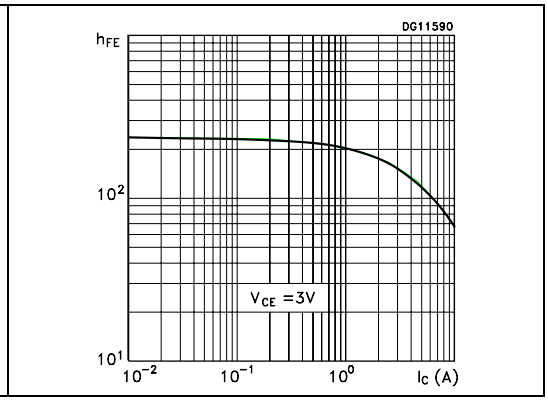


Figure 3. Collector-emitter saturation voltage

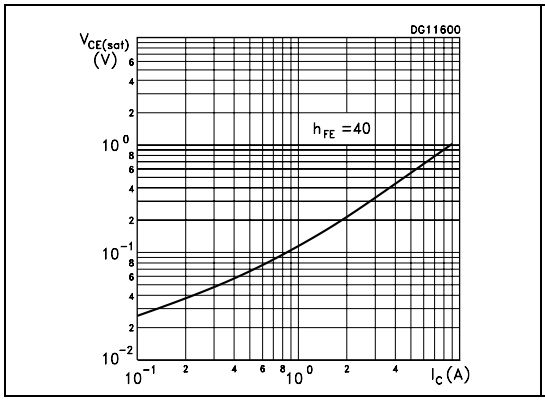


Figure 4. Base-emitter saturation voltage

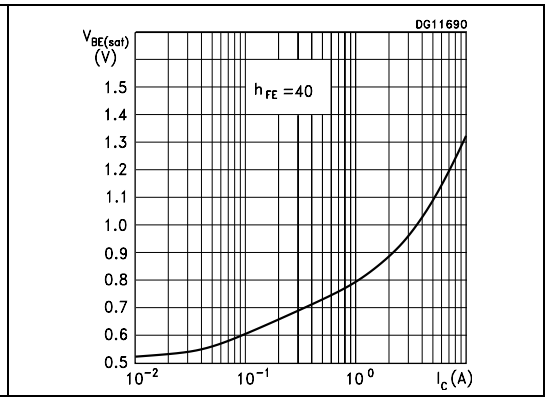


Figure 5. Switching time resistive load

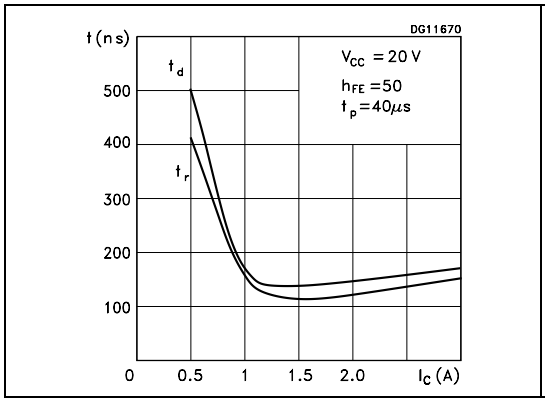
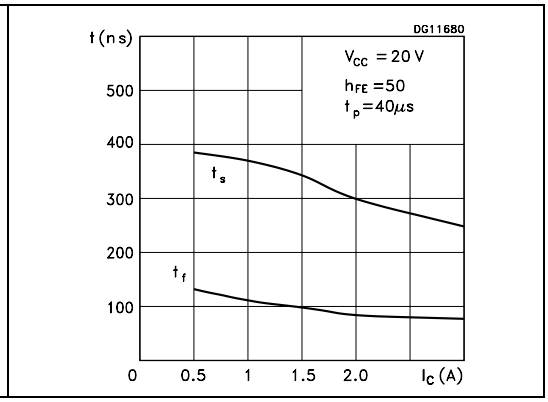
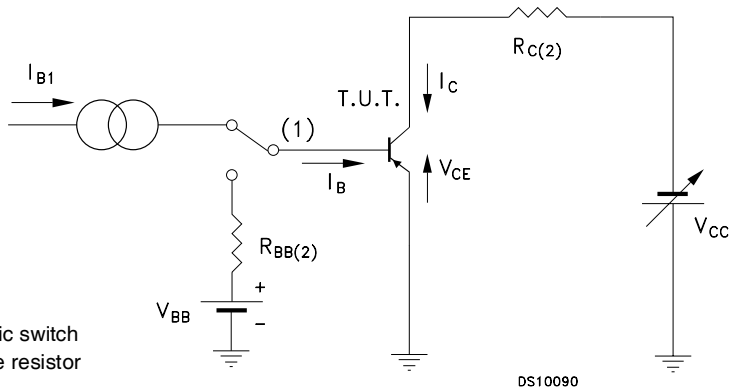


Figure 6. Switching time resistive load



2.2 Test circuits

Figure 7. Resistive load switching test circuit



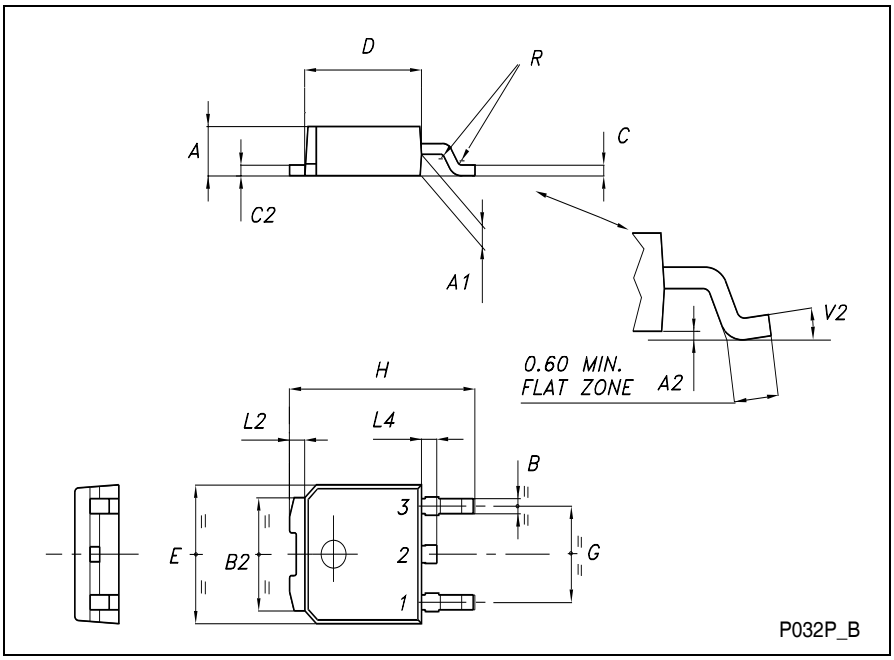
1) Fast electronic switch
2) Non-inductive resistor

3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

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°



4 Revision history

Table 4. Revision history

Date	Revision	Changes
24-Mar-2004	1	Initial release.
03-Apr-2006	2	New template.

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