Contents

1 Electrical ratings

Table 1. Absolute maximum rating

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage (I_E = 0)	100	V
V_{CEO}	Collector-emitter voltage (I_B = 0)	80	V
V_{EBO}	Emitter-base voltage (I_C = 0)	5	V
I_C	Collector current	1	A
I_{CM}	Collector peak current (t_P < 5ms)	1.5	A
I_B	Base current	0.1	A
I_{BM}	Base peak current (t_P < 5ms)	0.2	A
P_{tot}	Total dissipation at T_{amb} = 25°C	1.6	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
$R_{thj\text{-}amb}$	Thermal resistance junction-ambient (1) max	78	°C/W

1. Device mounted on PCB area of 1 cm^2.

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_j = 125°C			100 10	nA µA
$V_{(BR)CEO}$ (2)	Collector-emitter breakdown voltage (I_B =0)	I_C = 20mA	80			V
$V_{(BR)CBO}$	Collector-base breakdown voltage (I_E =0)	I_C = 100µA	100			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage (I_C =0)	I_E = 10µA	5			V
$V_{CE(sat)}$ (2)	Collector-emitter saturation voltage	I_C = 500mA I_B = 50mA			0.5	V
$V_{BE(on)}$ (2)	Base-emitter on voltage	I_C = 500mA V_{CE} = 2V			1	V
h_{FE} (2)	DC current gain	I_C = 5mA V_{CE} = 2V I_C = 150mA V_{CE} = 2V I_C = 500mA V_{CE} = 2V	40 100 25		250	

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

2.1 Electrical characteristics (curves)

Figure 1. DC current gain

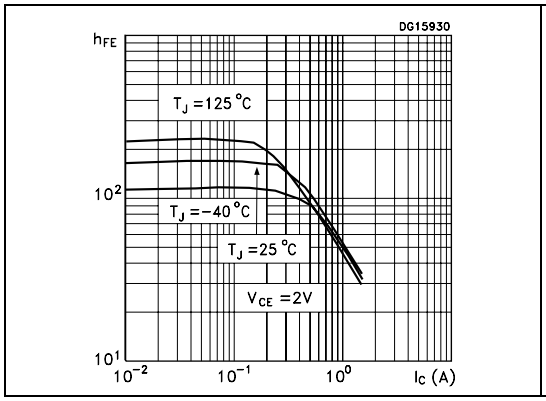


Figure 2. Collector-emitter saturation voltage

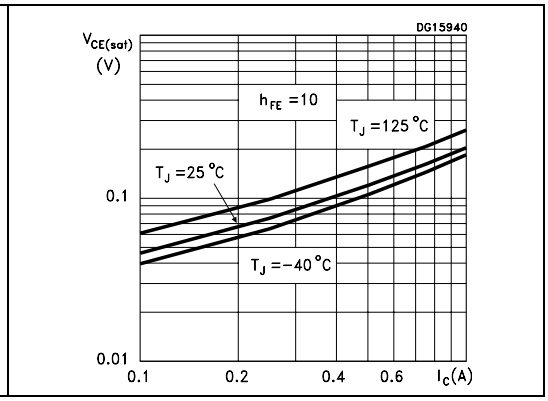
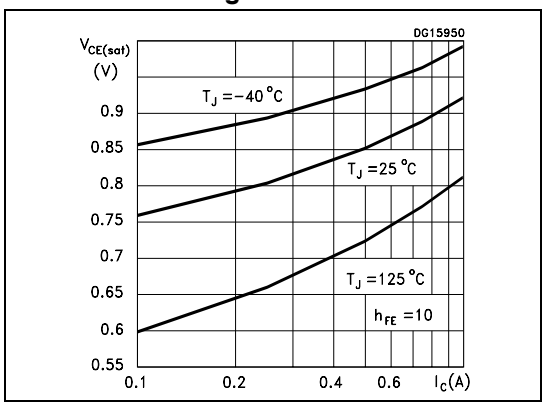


Figure 3. Base-emitter saturation voltage

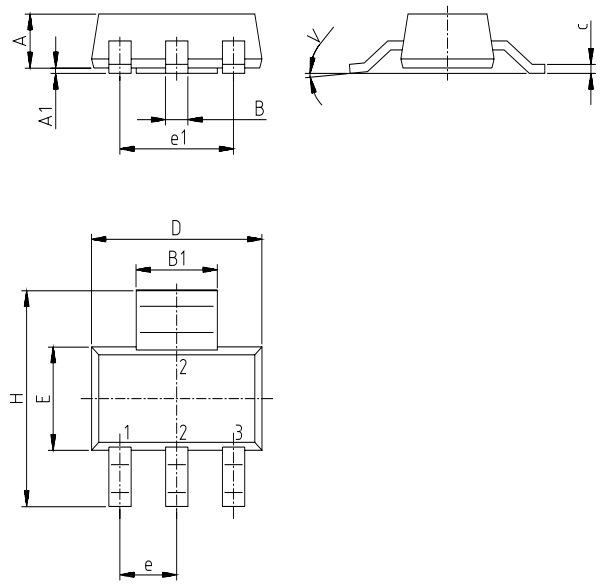


3 Package mechanical data

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

SOT-223 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.80			0.071
B	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
c	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
e		2.30			0.090	
e1		4.60			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276	0.287
V			10^o			10^o
A1		0.02				



P008B

4 Revision history

Table 4. Revision history

Date	Revision	Changes
02-Sep-2004	1	Initial release.
26-May-2006	2	New template
14-Jun-2006	3	Three curves has been added on page 5.

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