1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value		Unit
		BD440	BD442	
V_{CBO}	Collector-base voltage (I_E = 0)	-60	-80	V
V_{CES}	Collector-emitter voltage (V_{BE} = 0)	-60	-80	V
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	-4		A
I_{CM}	Collector peak current (t_p < 10 ms)	-7		A
I_B	Base current	-1		A
P_{TOT}	Total dissipation at T_{case} = 25 °C	36		W
T_{stg}	Storage temperature	-65 to 150		°C
T_J	Max. operating junction temperature	150		°C

2 Electrical characteristics

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

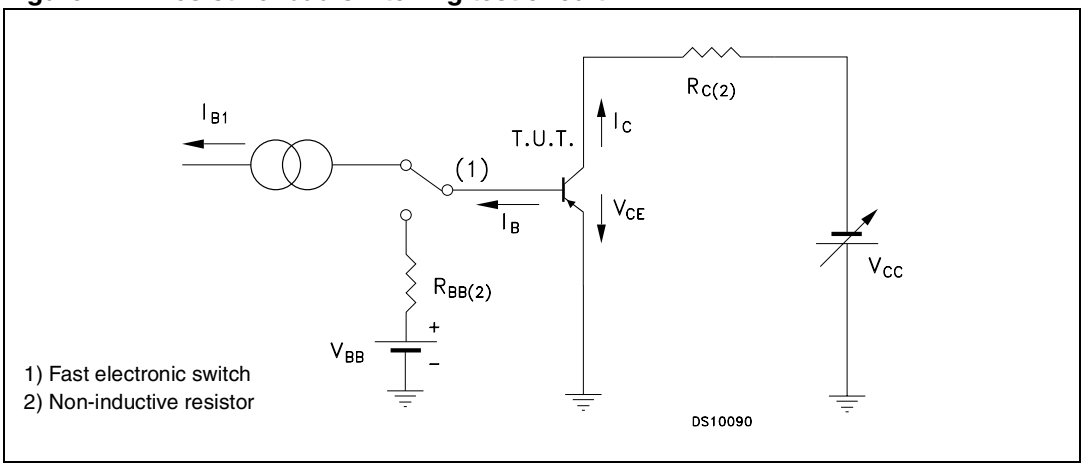
Table 3. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E = 0)	for BD440 V_{CB} = -60 V for BD442 V_{CB} = -80 V			-0.1 -0.1	mA mA
I_{CES}	Collector cut-off current (V_{BE} = 0)	for BD440 V_{CE} = -60 V for BD442 V_{CE} = -80 V			-0.1 -0.1	mA mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = -5 V			-1	mA
$V_{CEO(sus)}$(1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = -100 mA for BD440 for BD442	 -60 -80			 V V
$V_{CE(sat)}$(1)	Collector-emitter saturation voltage	I_C = -2 A I_B = -0.2 A			-0.8	V
V_{BE}(1)	Base-emitter voltage	I_C = -10 mA V_{CE} = -5 V I_C = -2 A V_{CE} = -1 V		-0.58	 -1.5	V V
h_{FE}(1)	DC current gain	I_C = -10 mA V_{CE} = -5 V for BD440 for BD442 I_C = -500 mA V_{CE} = -1 V for BD440 for BD442 I_C = -2 A V_{CE} = -1 V for BD440 for BD442	 20 15 40 40 25 15	 130 130 140 140		

1. Pulsed duration = 300 ms, duty cycle ≥ 1.5%.

2.1 Test circuit

Figure 2. Resistive load switching test circuit



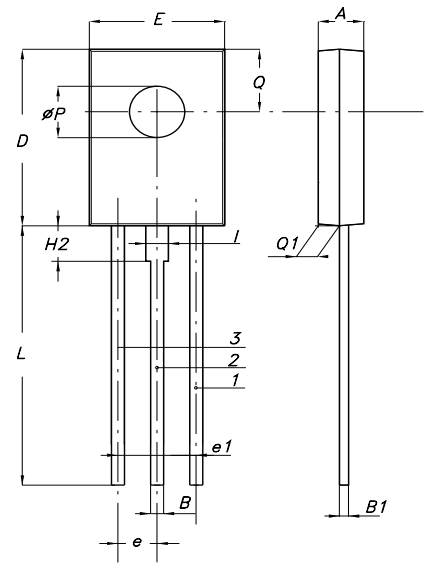
1) Fast electronic switch
2) Non-inductive resistor

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

SOT-32 (TO-126) mechanical data

DIM.	mm.		
	MIN.	TYP	MAX.
A	2.4		2.9
B	0.64		0.88
B1	0.39		0.63
D	10.5		11.05
E	7.4		7.8
e	2.04	2.29	2.54
e1	4.07	4.58	5.08
L	15.3		16
P	2.9		3.2
Q		3.8	
Q1	1		1.52
H2		2.15	
I		1.27	



1 = BASE
2 = COLLECTOR
3 = EMITTER

0016114E

4 Revision history

Table 4. Document revision history

Date	Revision	Changes
08-Feb-2008	1	Initial Release

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