

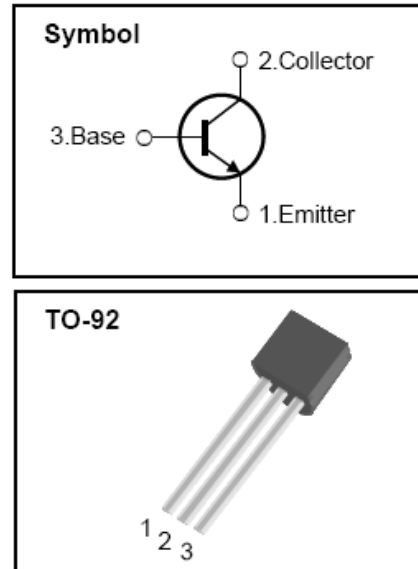
High Voltage Fast-Switching NPN Power Transistor

Features

- ◆ Very High Switching Speed
- ◆ High Voltage Capability
- ◆ Wide Reverse Bias SOA

General Description

This Device is designed for high voltage, High speed switching characteristics required such as lighting system, switching mode power supply.



Absolute Maximum Ratings

Symbol	Parameter	Test Conditions	Value	Units
V_{CES}	Collector-Emitter Voltage	$V_{BE} = 0$	600	V
V_{CEO}	Collector-Emitter Voltage	$I_B = 0$	400	V
V_{EBO}	Emitter-Base Voltage	$I_C = 0$	9.0	V
I_C	Collector Current		1.0	A
I_{CP}	Collector pulse Current		2.0	A
I_B	Base Current		-	A
I_{BM}	Base Peak Current	$t_P = 5ms$	-	A
P_C	Total Dissipation at $T_c = 25^\circ C$		10	W
	Total Dissipation at $T_a = 25^\circ C$		0.75	
T_J	Operation Junction Temperature		- 40 ~ 150	$^\circ C$
T_{STG}	Storage Temperature		- 40 ~ 150	$^\circ C$

T_c : Case temperature (good cooling)

T_a : Ambient temperature (without heat sink)

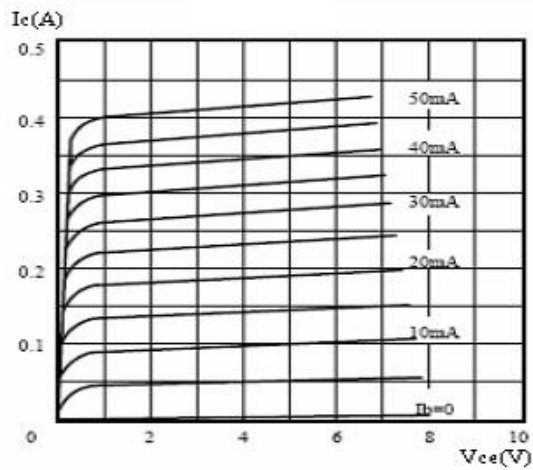
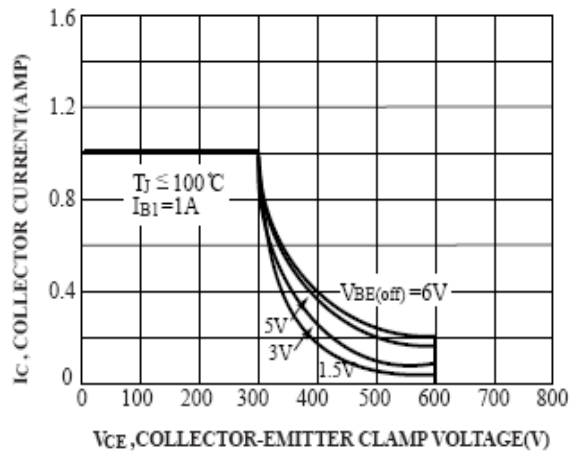
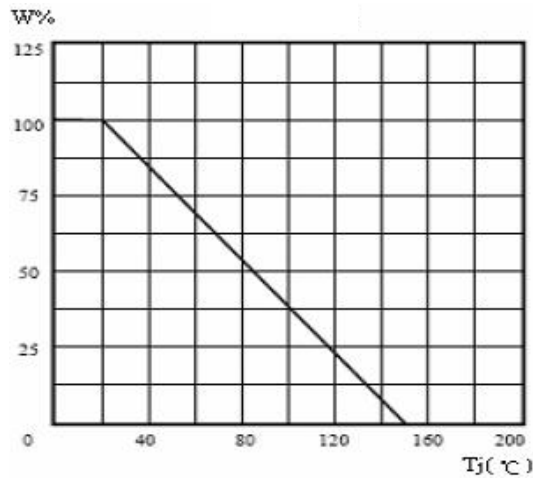
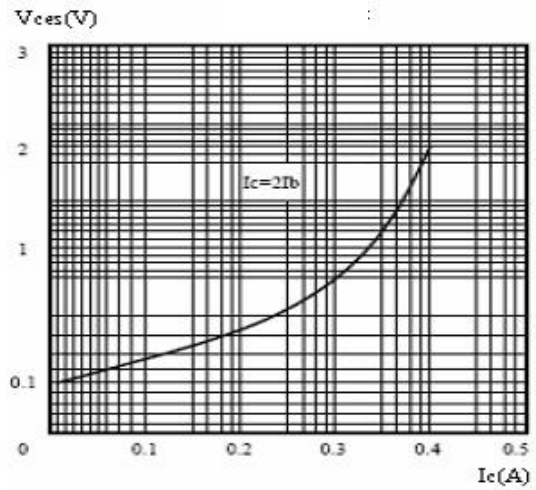
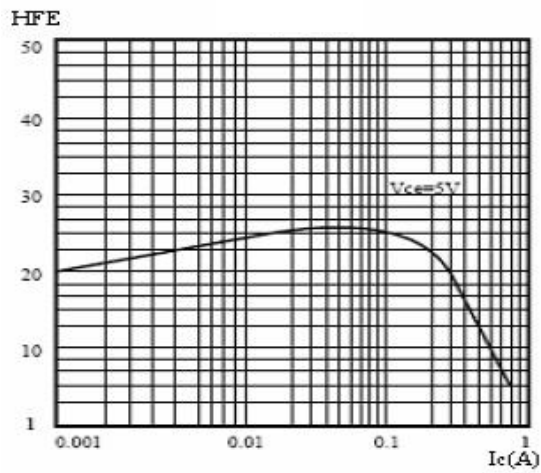
SBN13002A1

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

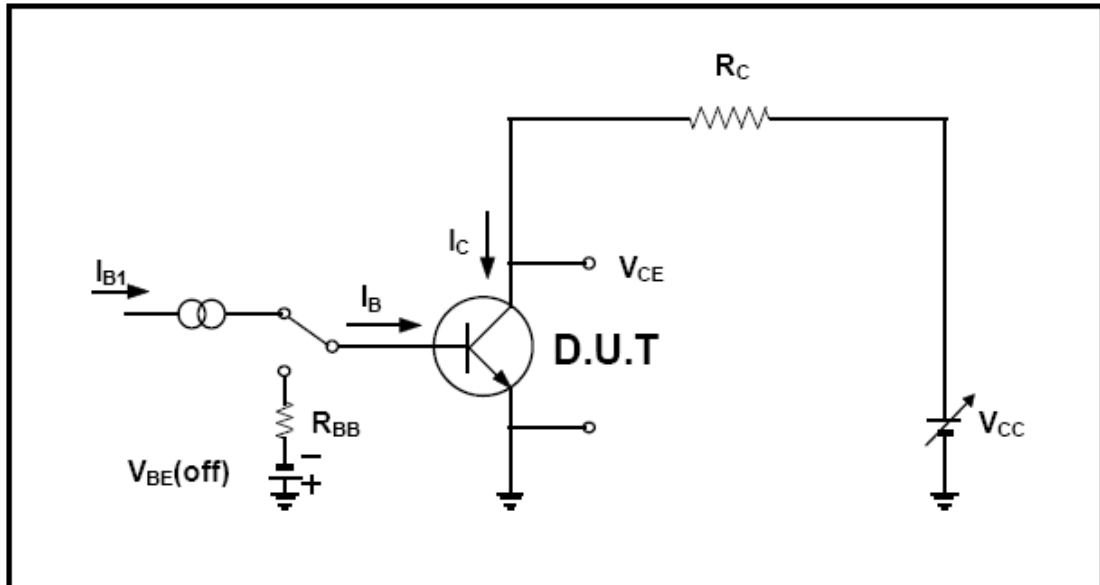
Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C=0.5\text{mA}, I_E=0$	600			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C=10\text{mA}, I_B=0$	400	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=200\text{mA}, I_B=100\text{mA}$	-	-	1.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=200\text{mA}, I_B=100\text{mA}$	-	-	1.2	V
I_{CBO}	Collector-Base Cutoff Current	$V_{CB}=550\text{V}, I_E=0\text{mA}$	-	-	10	μA
I_{CEO}	Collector-Emitter Cutoff Current	$V_{CE}=400\text{V}, I_B=0\text{mA}$	-	-	20	μA
I_{EBO}	Emitter- Base Cutoff Current	$V_{EB}=9\text{V}, I_C=0\text{mA}$	-	-	20	μA
h_{FE}	DC Current Gain	$V_{CE}=20\text{V}, I_C=20\text{mA}$ $V_{CE}=5\text{V}, I_C=1\text{mA}$	10 9		40	
t_s	Storage Time	$V_{CC}=250\text{V}$ $I_C=5 I_B$	2	-	-	μs
t_f	Fall Time	$I_{B1}=-I_{B2}=0.04\text{A}$	-	-	0.8	

Note:

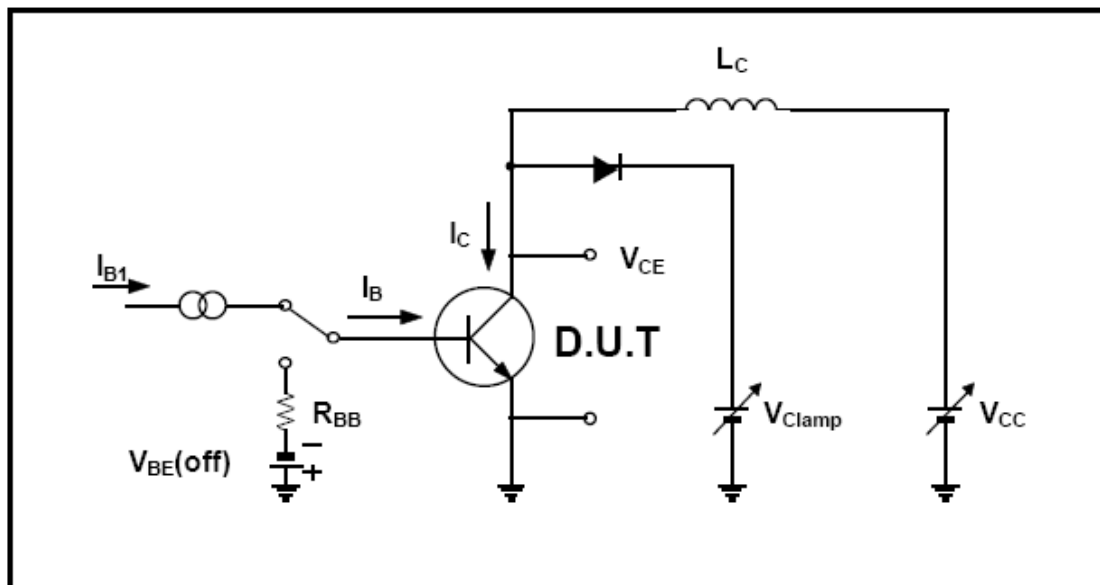
Pulse Test : Pulse width 300, Duty cycle 2%



Resistive Load Switching Test Circuit



Inductive Load Switching & RBSOA Test Circuit



TO-92 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		4.2			0.165	
B			3.7			0.146
C	4.43		4.83	0.174		0.190
D	14.07		14.87	0.554		0.585
E			0.4			0.016
F	4.43		4.83	0.174		0.190
G			0.45			0.017
H		1.27			0.050	
I		1.27			0.050	
J	0.33		0.48	0.013		0.019

