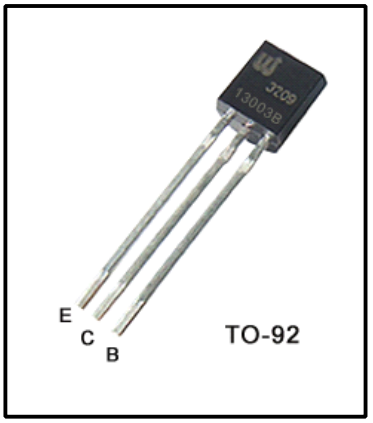
WBN13003B

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-Bade Voltage	I_C=0	9.0	V
I_C	Collector Current		1.5	A
I_{CP}	Collector pulse Current		3.0	A
I_B	Base Current		0.75	A
I_{BM}	Base Peak Current	t_P=5ms	1.5	A
P_C	Total dissipation at Tc=25℃		30	W
T_J	Operation Junction Temperature		-40~150	℃
T_{STG}	Storage Temperature		-40~150	℃

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\Theta JC}$	Thermal Resistance Junction to Case	4.16	℃/W
$R_{\Theta JA}$	Thermal Resistance Junction to Ambient	89	℃/W

Copyright@Winsemi Microelectronics Co., Ltd., All right reserved.

Electrical Characteristics(Tc=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
$V_{CEO(sus)}$	Collector-Emitter Breakdown Voltage	Ic=10mA,Ib=0	400	-	-	V
$V_{CE(sat)}$	Collector -Emitter Saturation Voltage	Ic=0.5A,Ib=0.1A Ic=1.0A,Ib=0.25A Ic=1.5A,Ib=0.5A	-	-	0.3 0.5 1.0	V
$V_{BE(sat)}$	Base -Emitter Saturation Voltage	Ic=0.5A,Ib=0.1A Ic=1.0A,Ib=0.25A	-	-	1.0 1.2	V
I_{CBO}	Collector -Base Cutoff Current (Vbe= -1.5v)	Vcb=700V Vcb=700V,Tc=100℃	-	-	1.0 5.0	mA
hFE	DC Current Gain	Vce=2V,Ic=0.5A Vce=2V,Ic=1.0A	10 5	- -	30 25	
ton ts tf	Resistive Load Turn -on Time Storage Time Fall Time	V_{CC}=125V,Ic=1A I_{B1}=0.2A,I_{B2}= -0.5A T_P=25μs	-	0.2 1.5 0.15	1.0 3.0 0.4	μs
ts tf	Inductive Load Storage Time Fall Time	V_{CC}=15V,Ic=1A I_{B1}=0.2A,I_{B2}= -0.5A L=0.35mH,Vclamp=300V	- -	1.2 0.12	4.0 0.3	μs
ts tf	Inductive Load Storage Time Fall Time	V_{CC}=15V,Ic=1A I_{B1}=0.2A,I_{B2}= -0.5A L=0.35mH,Vclamp=300V Tc=100℃	- -	2.4 0.15	5.0 0.4	μs

Note：

Pulse Test：Pulse width 300,Duty cycle 2%

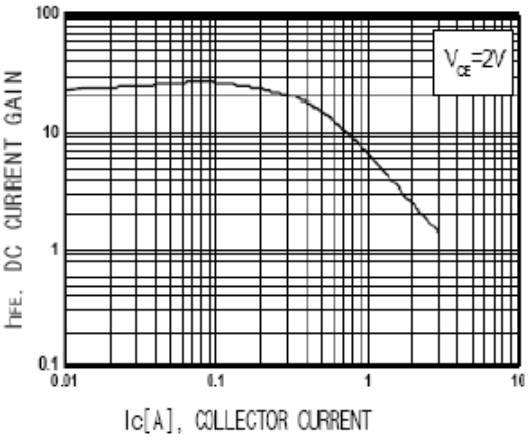


Fig.1 DC Current Gain

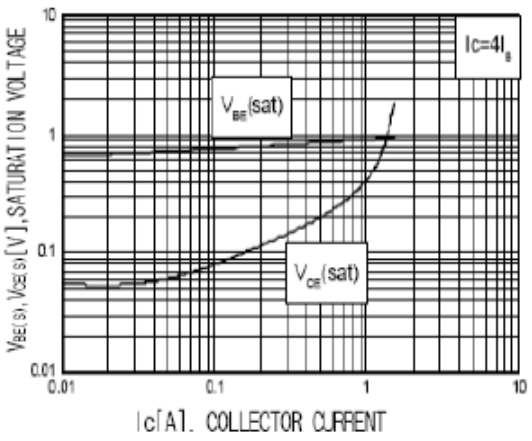


Fig.2 Saturation Voltage

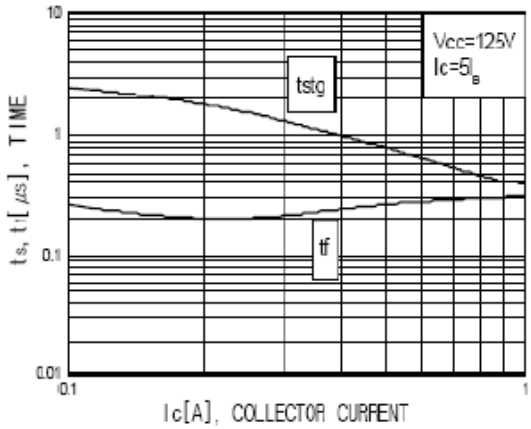


Fig.3 Switching Time

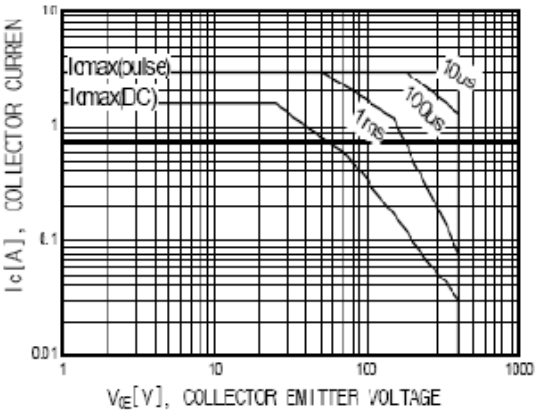


Fig.4 Safe Operation Area

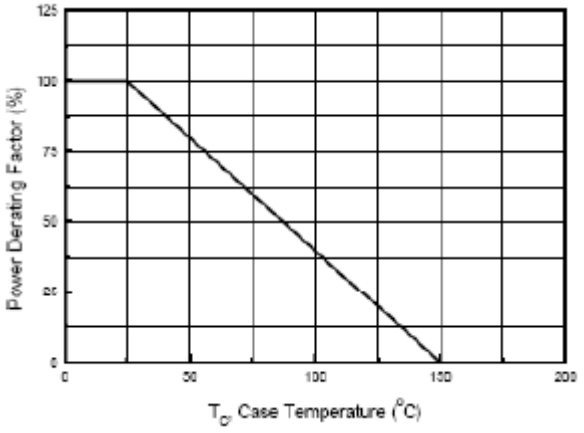
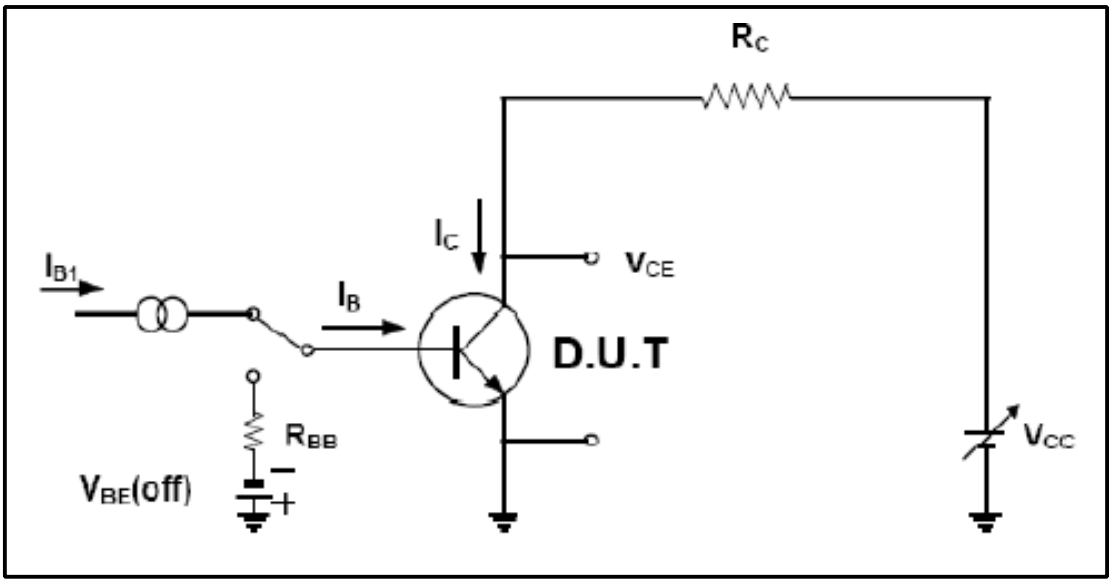
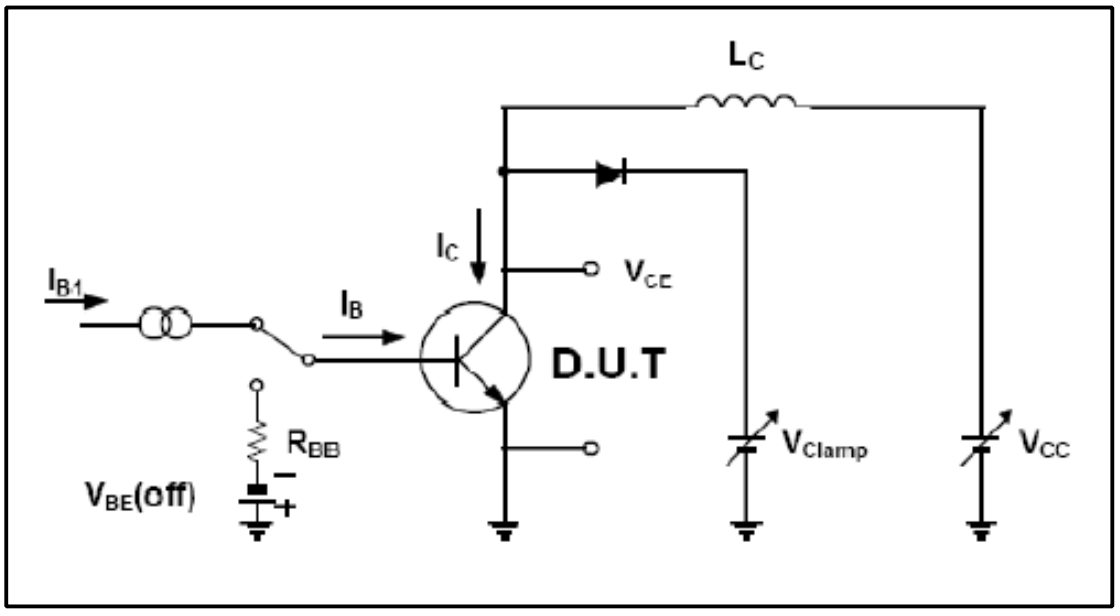


Fig.5 Power Perating



Resistive Load Switching test Circuit



Inductive Load Switching & RBSOA Test circuit

TO-92 Package Dimension

Unit:

