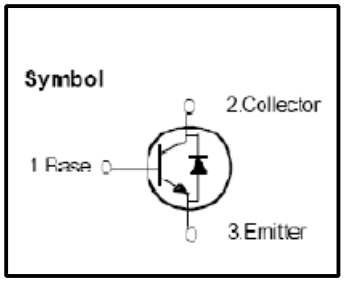
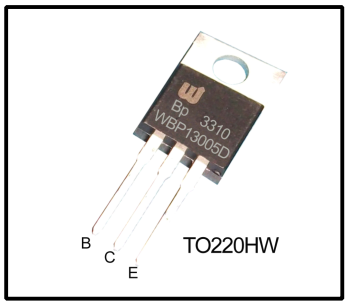
High Voltage Fast -Switching NPN Power Transistor



Features

- Very High Switching Speed
- High Voltage Capability
- Wide Reverse Bias SOA
- Built-in free wheeling diode



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	700	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		4	A
I_{CP}	Collector pulse Current		8	A
I_B	Base Current		2	A
I_{BM}	Base peak Current	t_P=5ms	4	A
P_C	Total Dissipation		75	W
T_J	Operation Junction Temperature		150	℃
T_{STG}	Storage Temperature		-55~150	℃

Thermal characteristics

Symbol	Parameter	Value	Units
$R_{\Theta JC}$	Thermal Resistance Junction to Case	3.12	℃/W
$R_{\Theta JA}$	Thermal Resistance Junction to Ambient	8.9	℃/W

Electrical Characteristics(Tc=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	I_B=0,I_C=10mA	400	–	–	V
I_{CBO}	Collector –Base Cutoff current	V_{CB}=700V,I_E=0	–	–	100	μA
$I_{CE\ O}$	Collector –Emitter Cutoff Current	V_{CE}=400V,I_B=0	–	–	50	μA
I_{EBO}	Emitter –Base Cutoff Current	V_{BE}=9V，I_C=0	–	–	10	μA
$V_{CE(sat)}$	Collector –Emitter Saturation Voltage	I_C=1.0A,I_B=0.2A I_C=4.0A,I_B=1.0A	–	–	1.5 2.0	V
$V_{BE(sat)}$	Base –Emitter Saturation Voltage	I_C=2.0A,I_B=0.5A	–	–	1.8	V
hFE	DC Current Gain	I_C=500mA,V_{CE}=10V I_C=2A,V_{CE}=5V	8 5	–	50 –	
ts tf	Storage Time Fall Time	I_C=2A,V_{CC}=24V I_{B1}=-I_{B2}=0.4A	–	–	4 0.7	μs
f_T	Current Gain Bandwidth Product	I_C=0.5A,V_{CE}=10V	4	–	–	MHz
V_F	Diode Forward Voltage	I_F=4A	–	–	2	V

Note:

Pulse Test :Pulse width 300, Duty cycle 2%

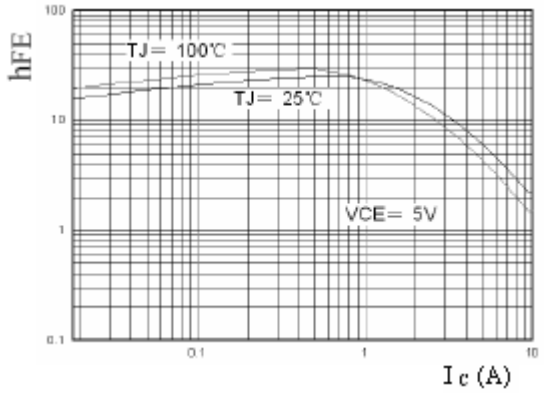


Fig.1 DC Current Gain

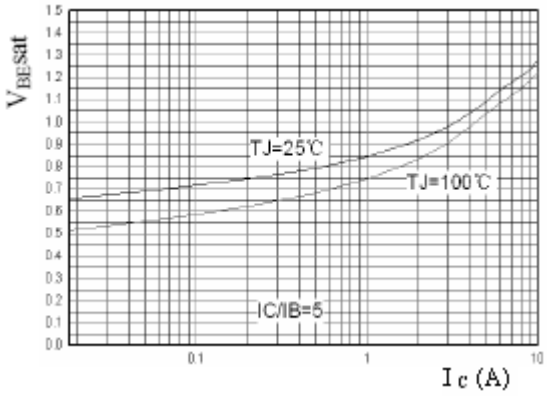


Fig.2 Saturation Voltage

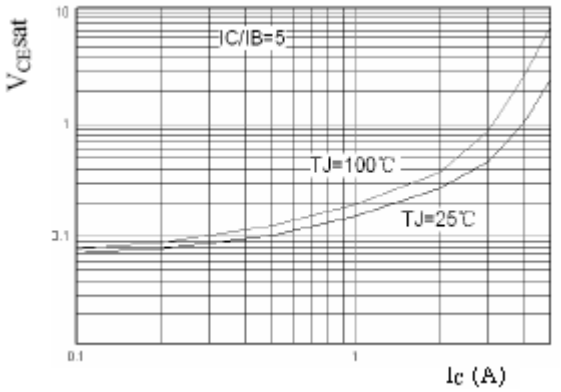


Fig.3 Safe Operation

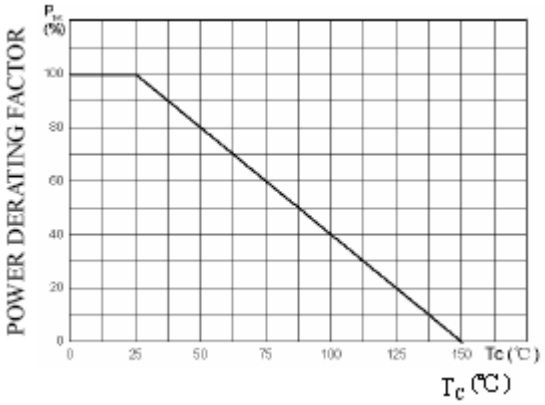


Fig.4 Power Derating

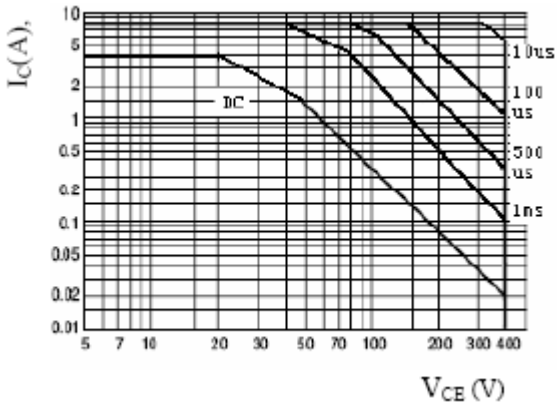
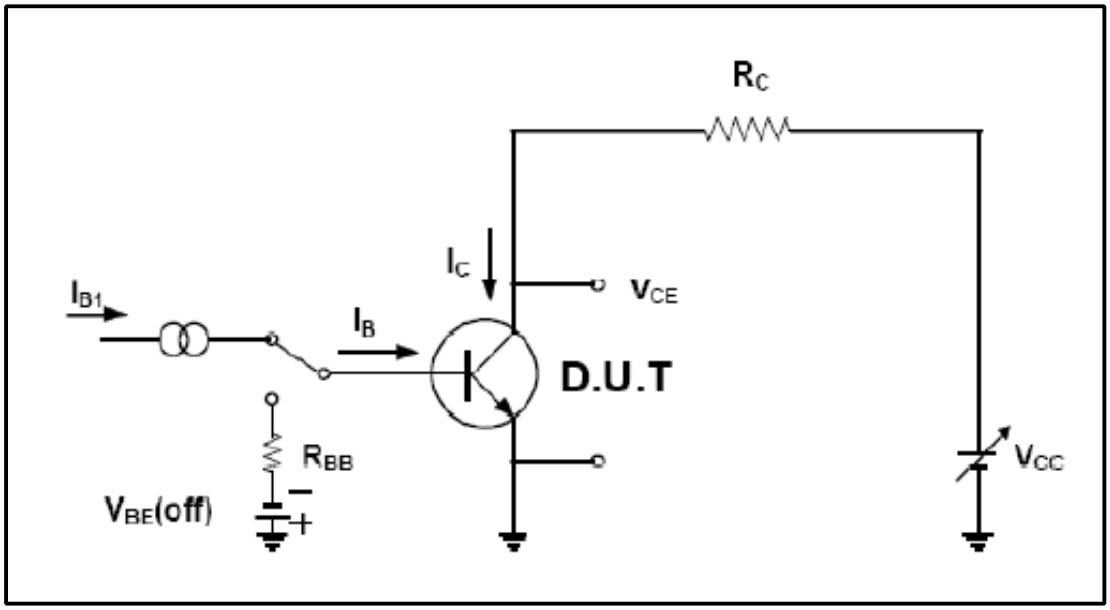
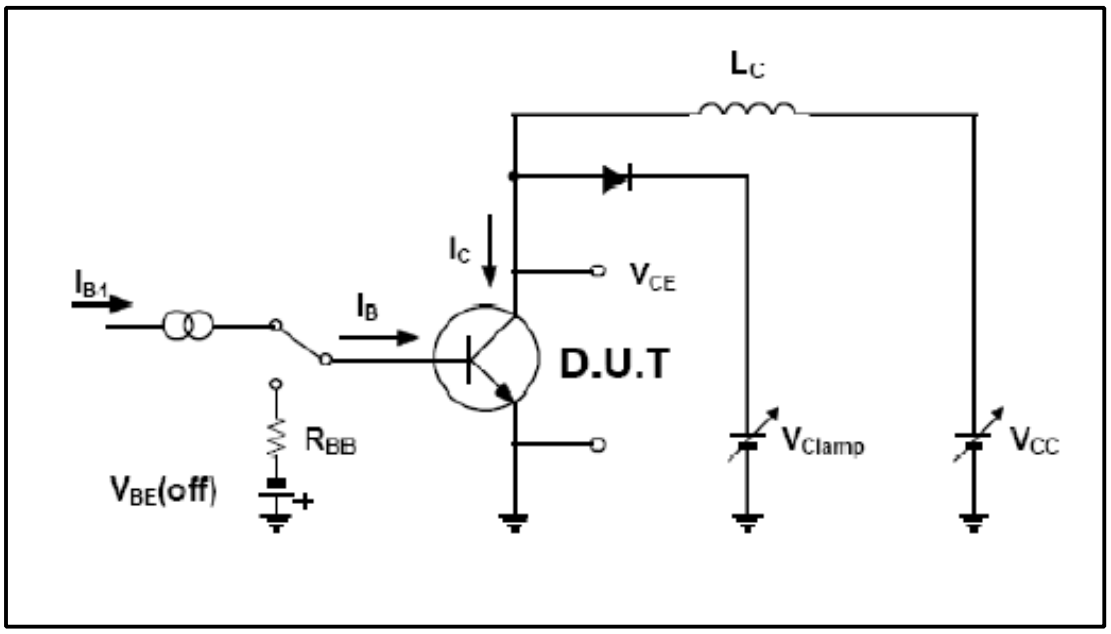


Fig.5 Static Characteristics



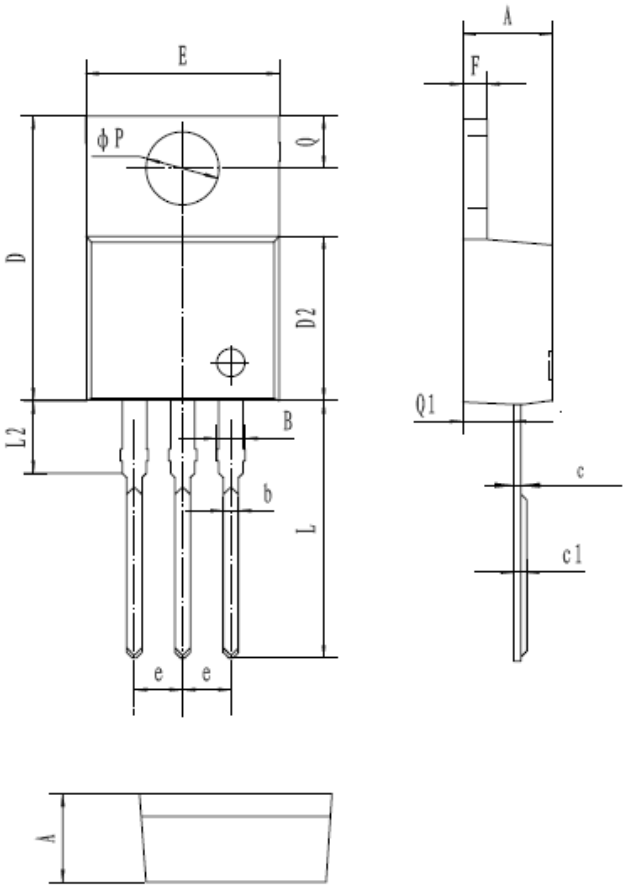
Resistive Load Switching Test Circuit



Inductive Load Switching & RBSOA Test Circuit

TO-220HW Package Dimension

Unit:mm



符号 symbol	MIN	MAX
A	4.40	4.80
B	1.10	1.40
b	0.70	0.95
c	0.28	0.48
c1	0.32	0.52
D	14.45	16.00
D2	8.20	9.20
E	9.60	10.40
e	2.39	2.69
F	1.20	1.35
L	13.05	14.05
L2	3.70	3.90
Q	2.40	3.00
Q1	2.20	2.90
P	3.50	4.00