

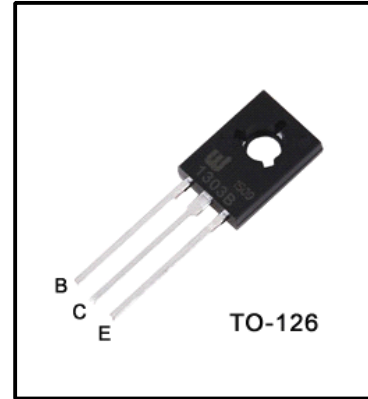
*High Voltage Fast-Switching NPN Power Transistor*

**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 $T_c=25^{\circ}C$		30	W
$T_J$	Operation Junction Temperature		-40~150	$^{\circ}C$
$T_{STG}$	Storage Temperature		-40~150	$^{\circ}C$

**Thermal Characteristics**

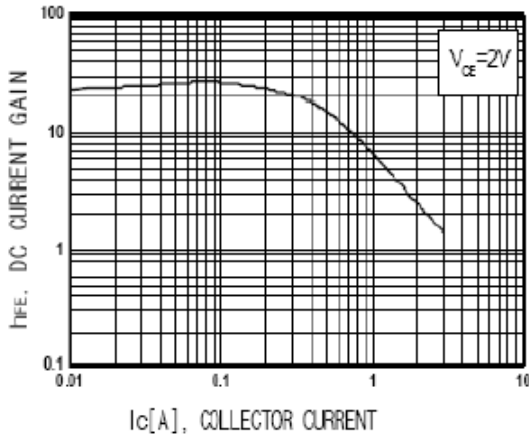
Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance Junction to Case	4.16	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	89	$^{\circ}C/W$

**Electrical Characteristics**(Tc=25°C unless otherwise noted)

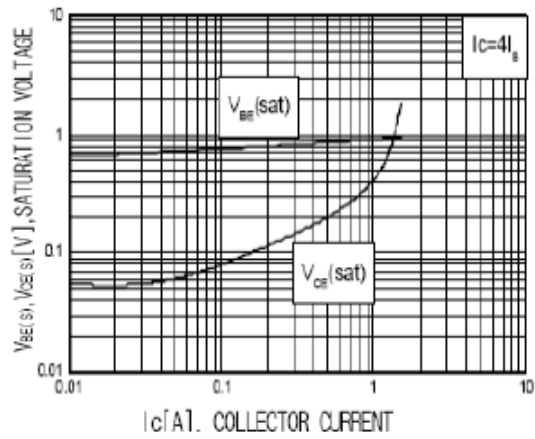
Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
V <sub>CEO(sus)</sub>	Collector-Emitter Breakdown Voltage	I <sub>c</sub> =10mA, I <sub>b</sub> =0	400	-	-	V
V <sub>CE(sat)</sub>	Collector -Emitter Saturation Voltage	I <sub>c</sub> =0.5A, I <sub>b</sub> =0.1A I <sub>c</sub> =1.0A, I <sub>b</sub> =0.25A I <sub>c</sub> =1.5A, I <sub>b</sub> =0.5A	-	-	0.3 0.5 1.0	V
V <sub>BE(sat)</sub>	Base -Emitter Saturation Voltage	I <sub>c</sub> =0.5A, I <sub>b</sub> =0.1A I <sub>c</sub> =1.0A, I <sub>b</sub> =0.25A	-	-	1.0 1.2	V
I <sub>CBO</sub>	Collector -Base Cutoff Current (V <sub>be</sub> = -1.5v)	V <sub>cb</sub> =700V V <sub>cb</sub> =700V, T <sub>c</sub> =100°C	-	-	1.0 5.0	mA
hFE	DC Current Gain	V <sub>ce</sub> =2V, I <sub>c</sub> =0.5A V <sub>ce</sub> =2V, I <sub>c</sub> =1.0A	10 5	- -	30 25	
t <sub>on</sub> t <sub>s</sub> t <sub>f</sub>	Resistive Load Turn -on Time Storage Time Fall Time	V <sub>CC</sub> =125V, I <sub>c</sub> =1A I <sub>B1</sub> =0.2A, I <sub>B2</sub> = -0.5A T <sub>p</sub> =25μs	-	0.2 1.5 0.15	1.0 3.0 0.4	μs
t <sub>s</sub> t <sub>f</sub>	Inductive Load Storage Time Fall Time	V <sub>CC</sub> =15V, I <sub>c</sub> =1A I <sub>B1</sub> =0.2A, I <sub>B2</sub> = -0.5A L=0.35mH, V <sub>clamp</sub> = 300V	- -	1.2 0.12	4.0 0.3	μs
t <sub>s</sub> t <sub>f</sub>	Inductive Load Storage Time Fall Time	V <sub>CC</sub> =15V, I <sub>c</sub> =1A I <sub>B1</sub> =0.2A, I <sub>B2</sub> = -0.5A L=0.35mH, V <sub>clamp</sub> = 300V T <sub>c</sub> =100°C	- -	2.4 0.15	5.0 0.4	μs

Note :

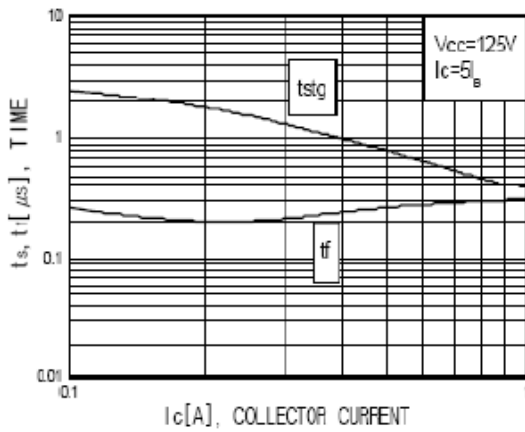
Pulse Test : Pulse width 300,Duty cycle 2%



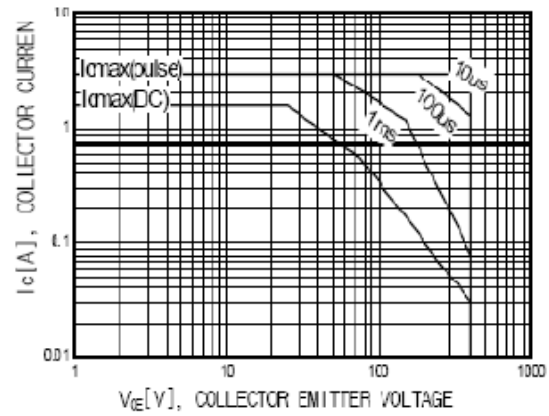
**Fig.1 DC Current Gain**



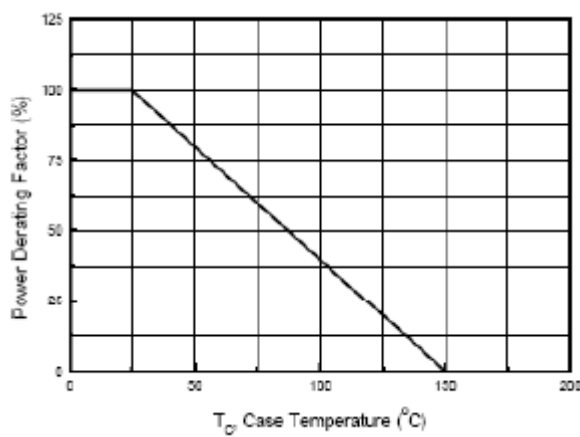
**Fig.2 Saturation Voltage**



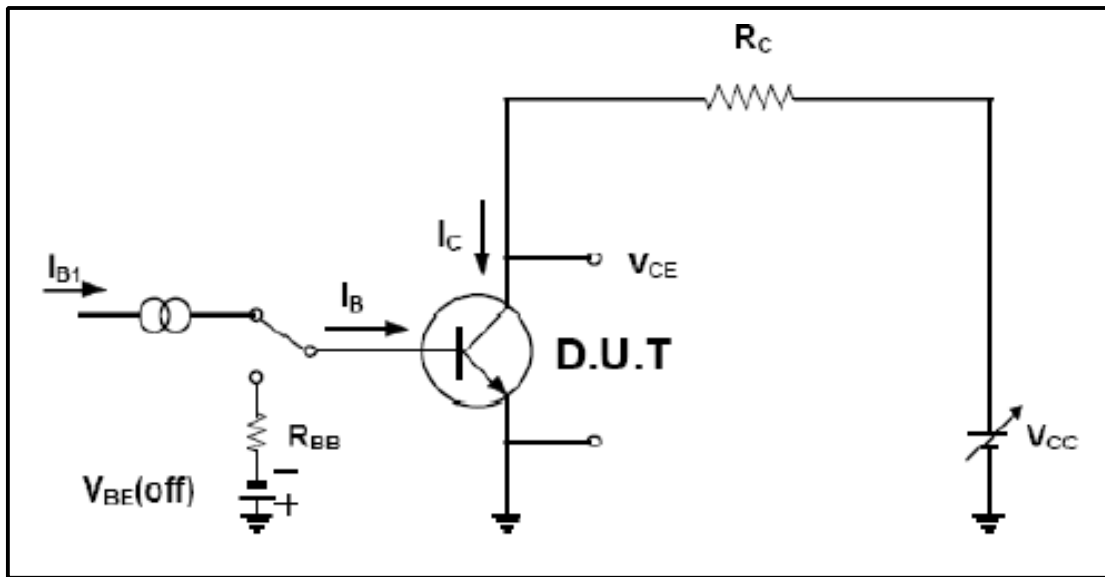
**Fig.3 Switching Time**



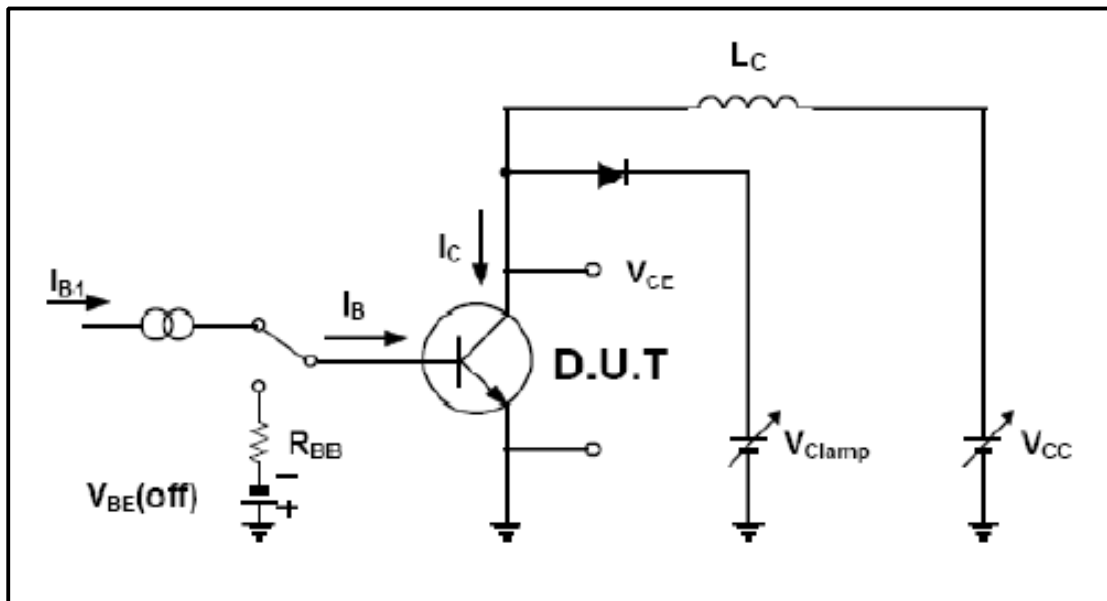
**Fig.4 Safe Operation Area**



**Fig.5 Power Derating**



**Resistive Load Switching test Circuit**



**Inductive Load Switching & RBSOA Test circuit**

**TO-126 Package Dimension**

