

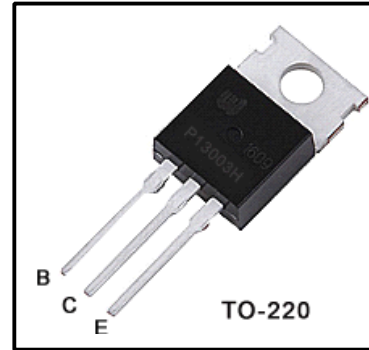
*High Voltage Fast -Switching NPN Power Transistor*

**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 <sub>CES</sub>	Collector-Emitter Voltage	V <sub>BE</sub> =0	900	V
V <sub>CEO</sub>	Collector-Emitter Voltage	I <sub>B</sub> =0	530	V
V <sub>EBO</sub>	Emitter-Base Voltage	I <sub>C</sub> =0	9.0	V
I <sub>C</sub>	Collector Current		1.5	A
I <sub>CP</sub>	Collector pulse Current		3.0	A
I <sub>B</sub>	Base Current		0.75	A
I <sub>BM</sub>	Base Peak Current	t <sub>p</sub> =5ms	1.5	A
P <sub>C</sub>	Total Dissipation at T <sub>c</sub> =25 °C		30	W
T <sub>J</sub>	Operation Junction temperature		-40~150	°C
T <sub>STG</sub>	Storage Temperature		-40~150	°C

T<sub>c</sub>:Case temperature(good cooling)

**Thermal Characteristics**

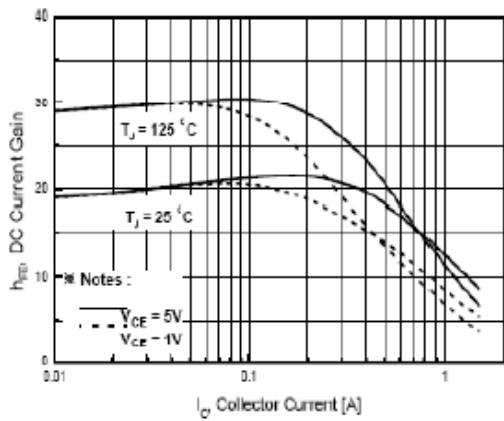
Symbol	Parameter	value	Units
R <sub>QJA</sub>	Thermal Resistance Junction to Ambient	13.6	°C/W

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

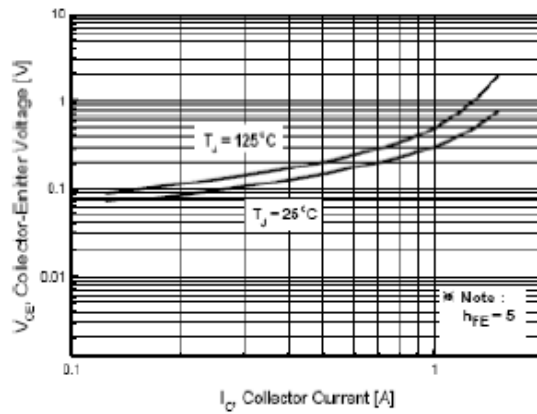
Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
V <sub>CEO(sus)</sub>	Collector-Emitter Breakdown Voltage	I <sub>c</sub> =10mA, I <sub>b</sub> =0	530	-	-	V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>c</sub> =0.5A, I <sub>b</sub> =0.1A I <sub>c</sub> =1.0A, I <sub>b</sub> =0.25A	-	-	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 1.5	V
I <sub>CBO</sub>	Collector Base Cutoff Current (V <sub>be</sub> =-1.5v)	V <sub>cb</sub> =900V V <sub>cb</sub> =900V, T <sub>c</sub> =100 °C	-	-	1.0 5.0	mA
h <sub>FE</sub>	DC Current Gain	V <sub>ce</sub> =10V, I <sub>c</sub> =0.4A V <sub>ce</sub> =10V, I <sub>c</sub> =1A	20 6	- -	35 35	
ton	Resistive Load Turn-on 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	-	0.25	1.0	μs
ts	Storage time					
tf	Fall Time					
ts	Inductive Load Storage 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	4.0	μs
tf	Fall Time					
ts	Inductive Load Storage 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	-	1.8	5.0	μs
tf	Fall Time					

Note:

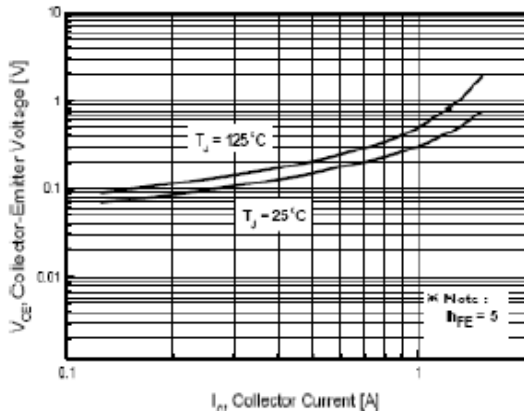
Pulse Test : Pulse width 300, Duty cycle 2%



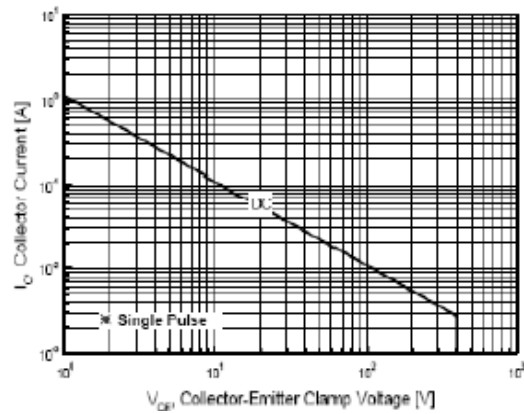
**Fig.1 DC Current Gain**



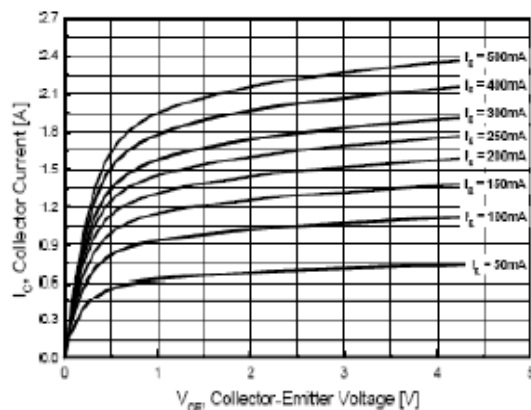
**Fig.2 Base-Emitter Saturation Voltage**



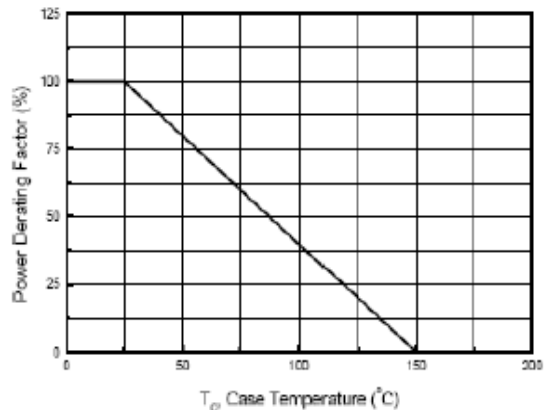
**Fig.3 Collector-Emitter Saturation Voltage**



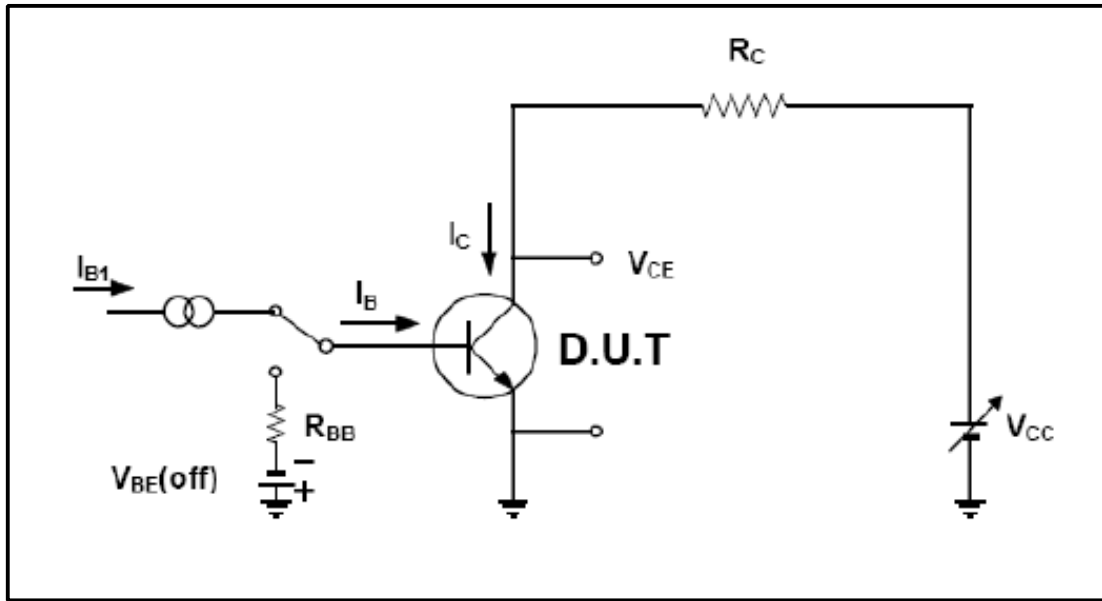
**Fig.4 Safe Operation Area**



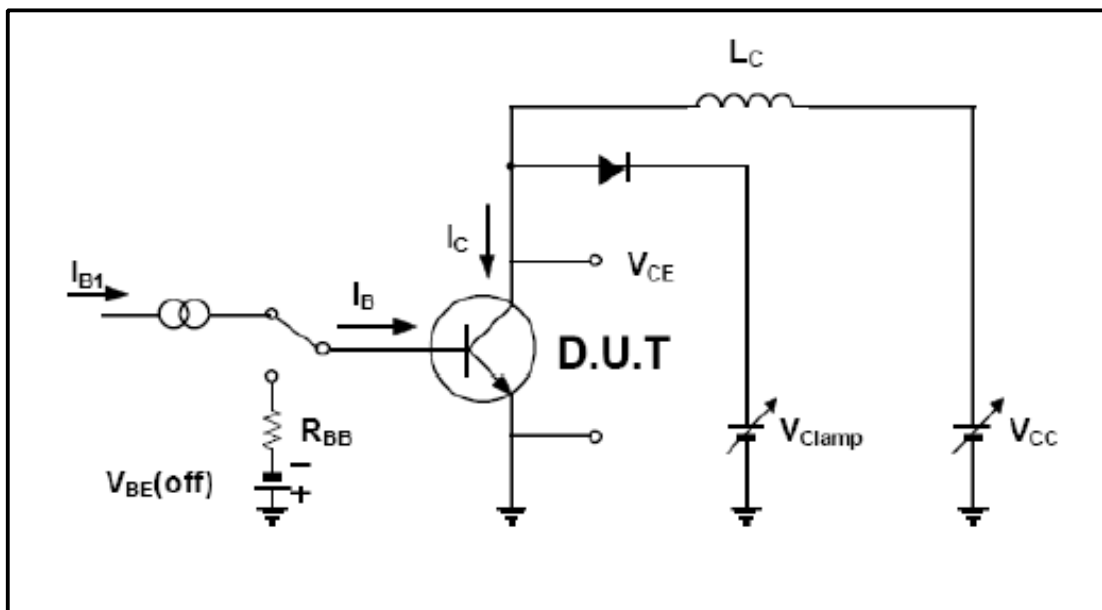
**Fig.5 Static Characteristics**



**Fig.6 Power Derating**



**Resistive Load Switching Test Circuit**



**Inductive Load Switching & RBSOA Test Circuit**

**To-220 Package Dimension**

