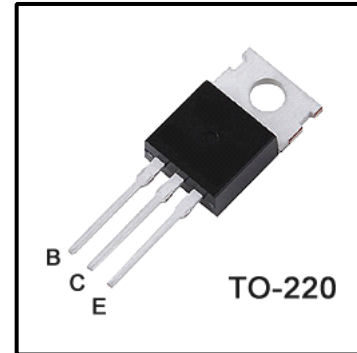


High Voltage Fast-Switching NPN Power Transistor
Features

- 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_{CBO}	Collect-Emmitter Voltage	$V_{BE}=0$	950	V
V_{CEO}	Collector-Emmitter Voltage	$I_B=0$	400	V
V_{EBO}	Emmitter-Base Voltage	$I_C=0$	12	V
I_C	Collector Current		4	A
I_{CP}	Collector pulse Current (Note)		8	A
P_C	Total Dissipation at $T_c=25^\circ\text{C}$		70	W
T_J	Operation Junction Temperature		150	$^\circ\text{C}$
T_{STG}	Storage Temperature		-65~150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.8	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Test conditions	Value			Units
			Min	Typ	Max	
I_{CBO}	Collector Cut-off Current	$V_{CB}=950V, I_e=0A$	-	-	10	μA
I_{CEO}	Collector Cut-off Current	$V_{CE}=400V, I_B=0A$	-	-	10	μA
BV_{CBO}	Collector-Base Breakdown Voltage	$I_c=0.5mA$	950	-	-	V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_c=5mA$	400	-	-	V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_e=1mA$	12	-	-	V
$V_{CE(sat)1}$	Collector -Emitter Saturation Voltage	$I_c=1A, I_b=0.2A$	-	-	0.5	V
$V_{CE(sat)2}$	Collector -Emitter Saturation Voltage	$I_c=3.5A, I_b=1A$	-	-	1.5	V
$V_{BE(sat)1}$	Base -Emitter saturation Voltage	$I_c=3.5A, I_b=1A$	-	-	1.5	V
h_{FE}	DC Current Gain	$V_{ce}=5V, I_c=0.1A$	35	-	100	
		$V_{ce}=5V, I_c=0.5A$	35	-	-	
		$V_{ce}=3V, I_c=0.8A$	25	-	50	
t_r	Rise Time	$V_{CC}=125V, I_c=2A$ $I_{B1}=-I_{B2}=-0.4A$ $t_p=300\mu s, V_{BE(OFF)}=-5V$	-	0.17	2	μs
t_{STG}	Storage Time		-	-	6	μs
t_f	Fall Time		-	-	0.5	μs

Note:

 Pulsed duration=380 μs , Duty cycle $\leq 2\%$

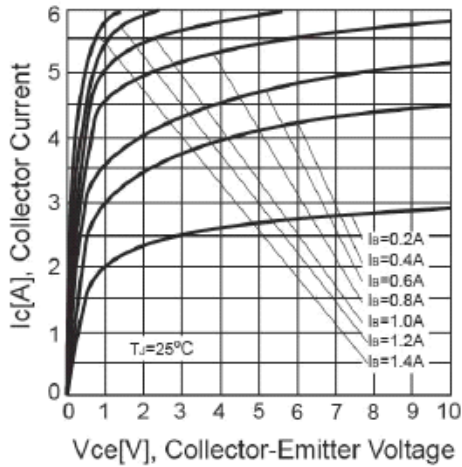


Fig. 1 Static Characteristics

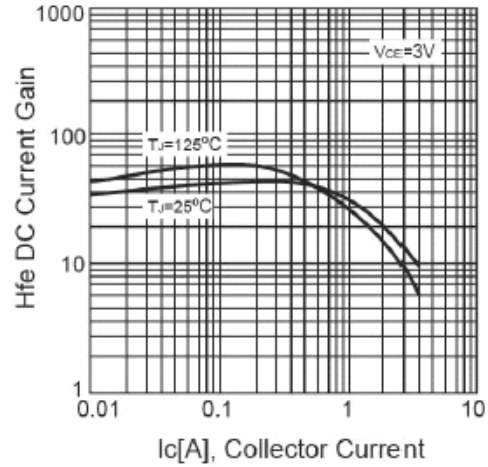


Fig. 2 DC Current Gain

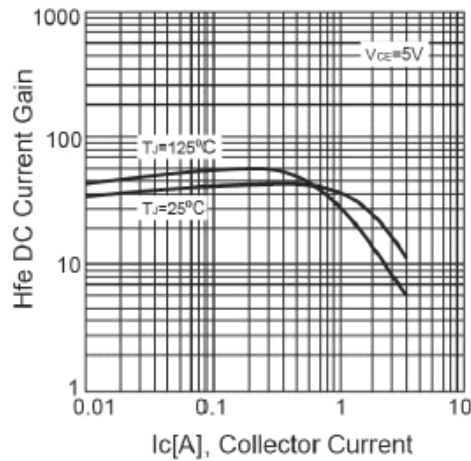


Fig. 3 DC Current Gain

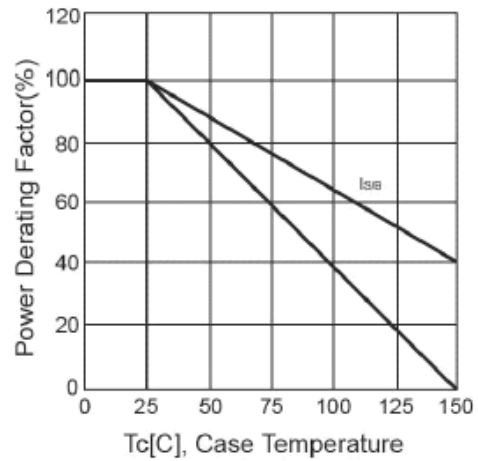


Fig. 4 Power Derating

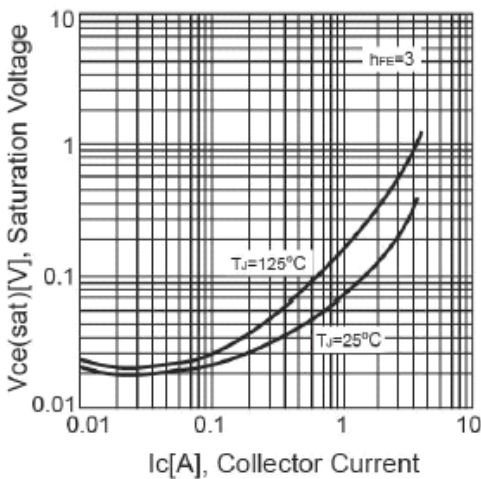


Fig. 5 Collector-Emitter Saturation Voltage

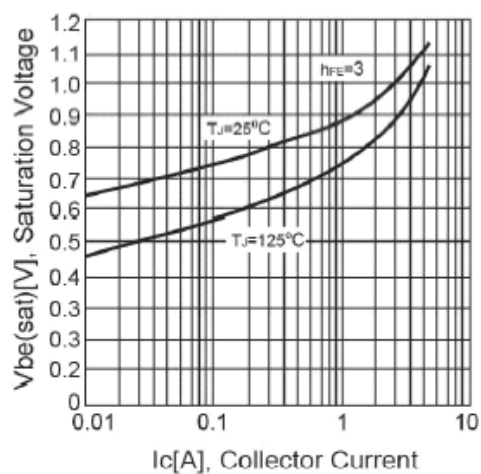


Fig. 6 Base-Emitter Saturation Voltage

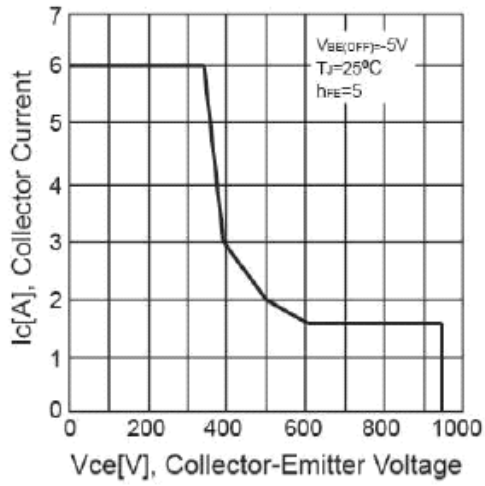


Fig.7 Reverse Bias SOA

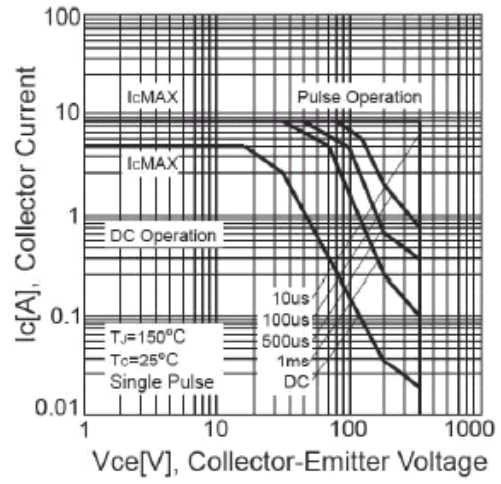


Fig.8 Safe Operation Area

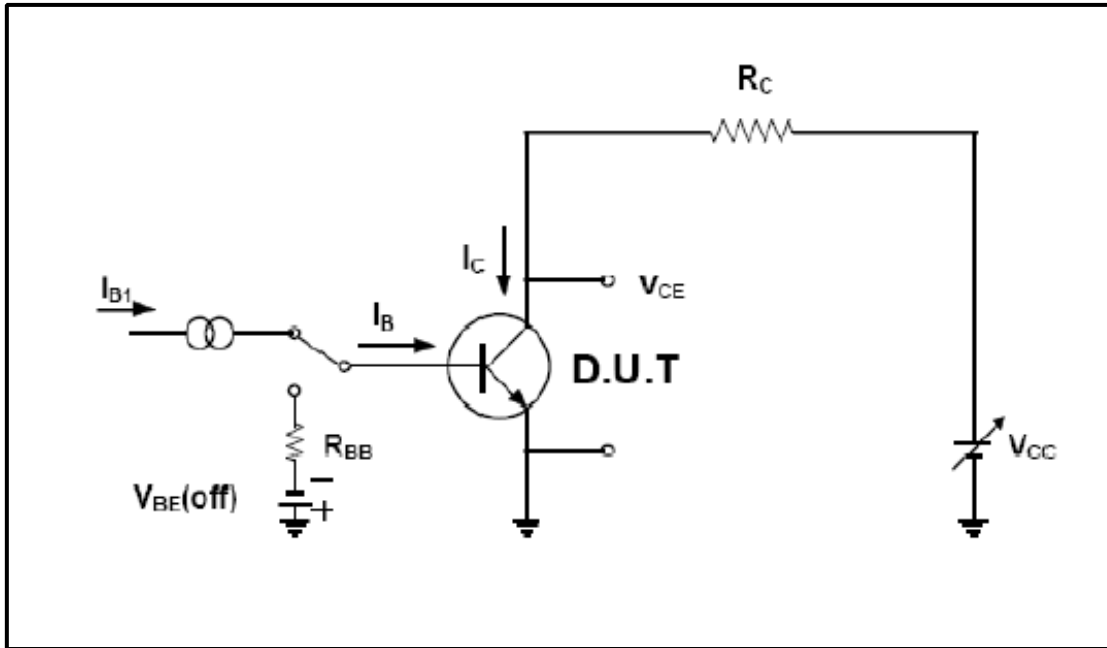


Fig.9 Inductive Load Switching & RBSOA Test Circuit

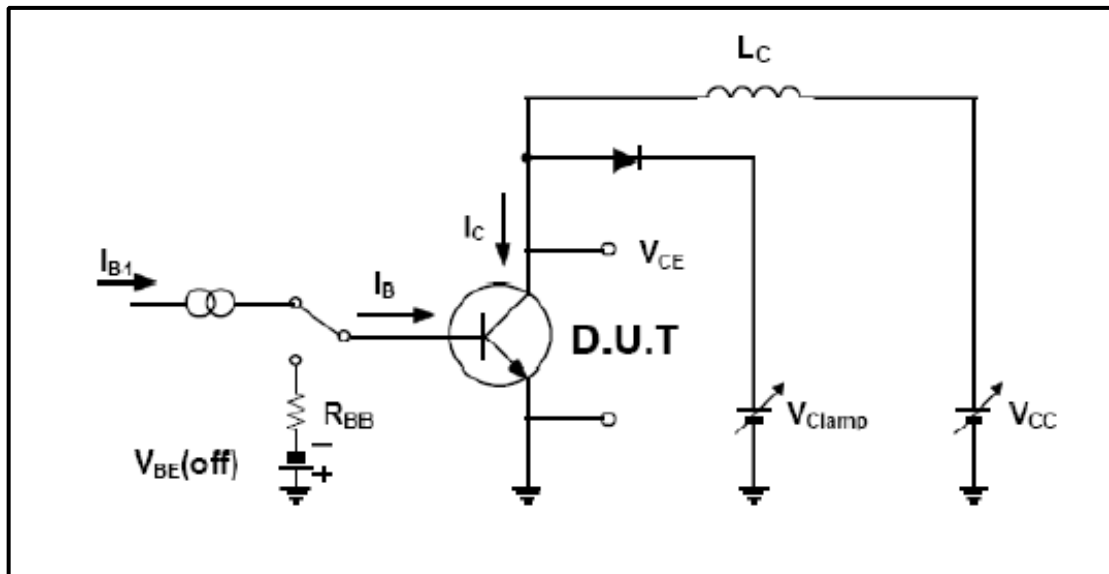


Fig.10 Inductive Load Switching & RBSOA Test Circuit

