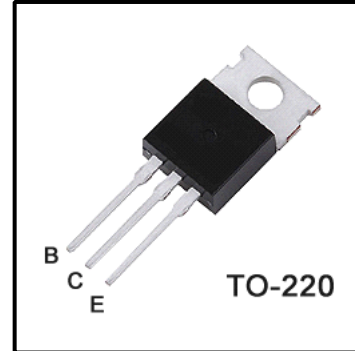


*High Voltage Fast-Switching NPN Power Transistor***Features**

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

Note:

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

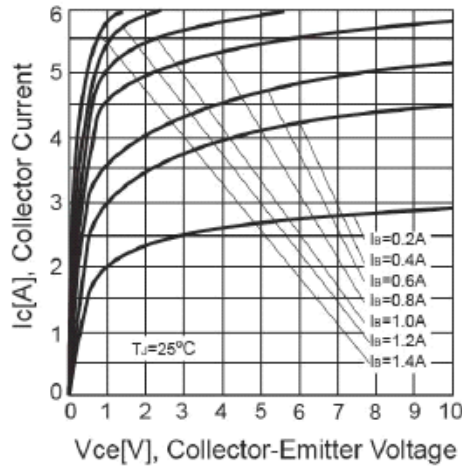


Fig. 1 Static Characteristics

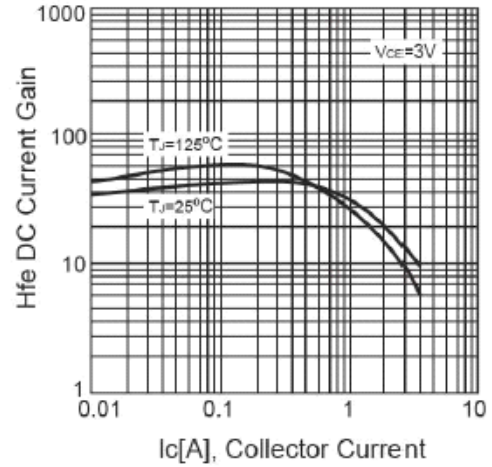


Fig. 2 DC Current Gain

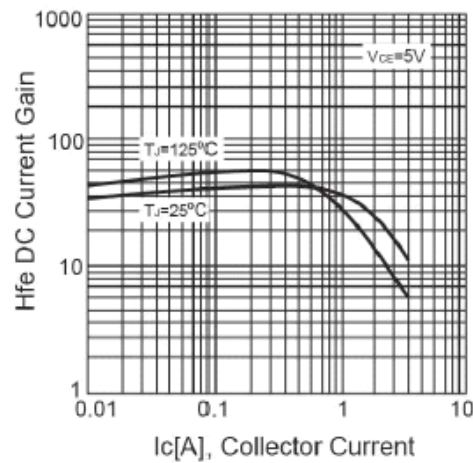


Fig. 3 DC Current Gain

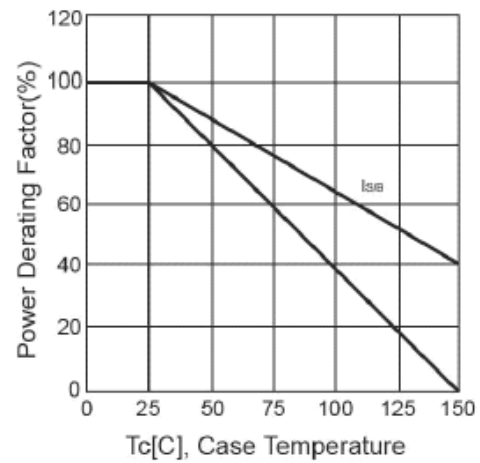


Fig. 4 Power Derating

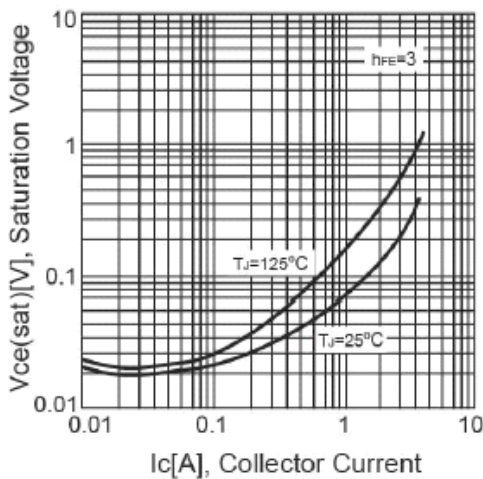


Fig. 5 Collector-Emitter Saturation Voltage

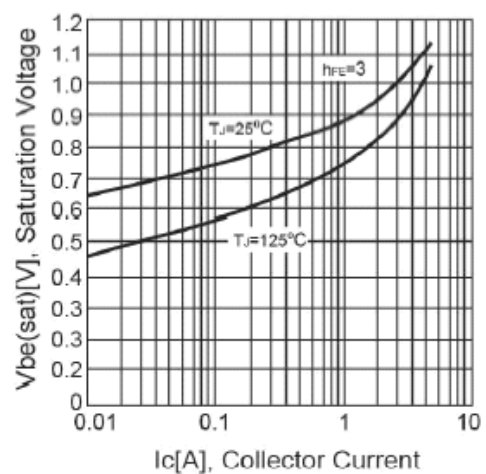


Fig. 6 Base-Emitter Saturation Voltage

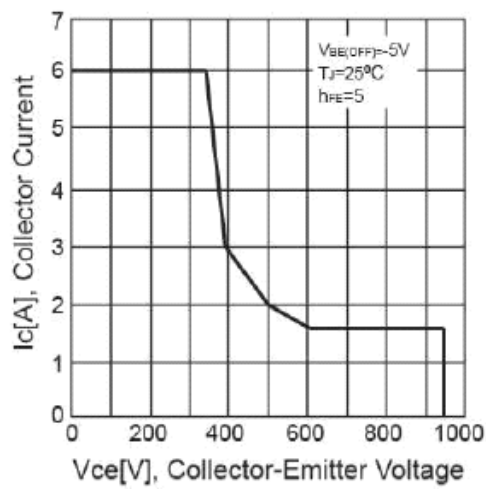


Fig.7 Reverse Bias SOA

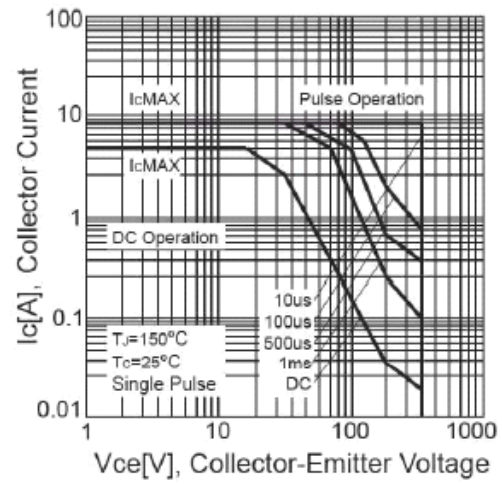


Fig.8 Safe Operation Area

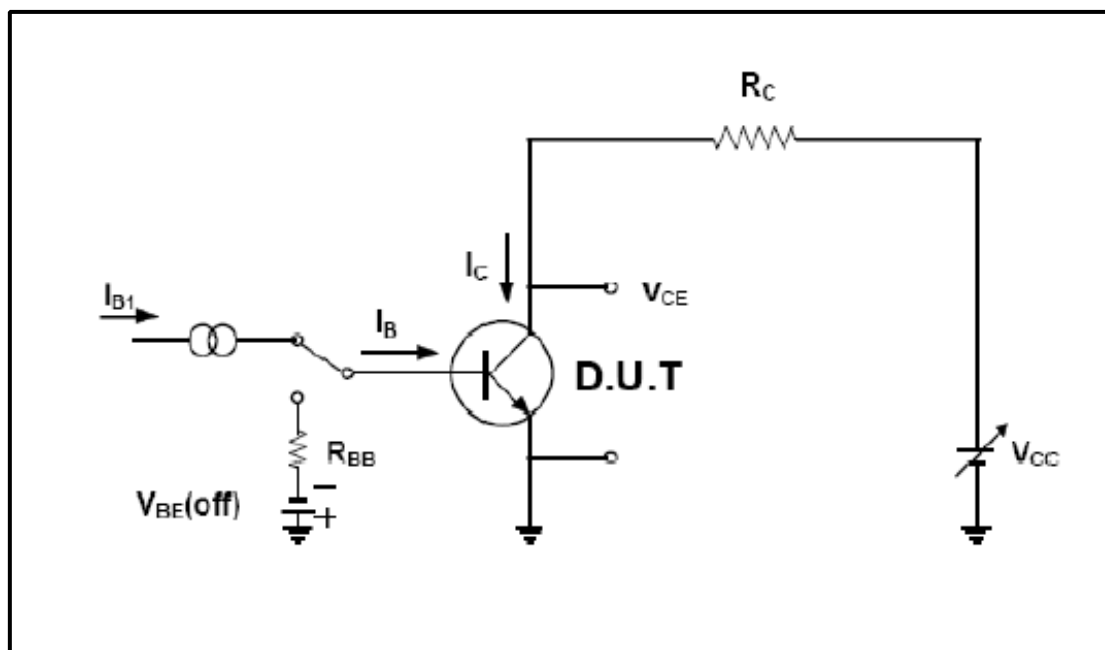


Fig.9 Inductive Load Switching & RBSOA Test Circuit

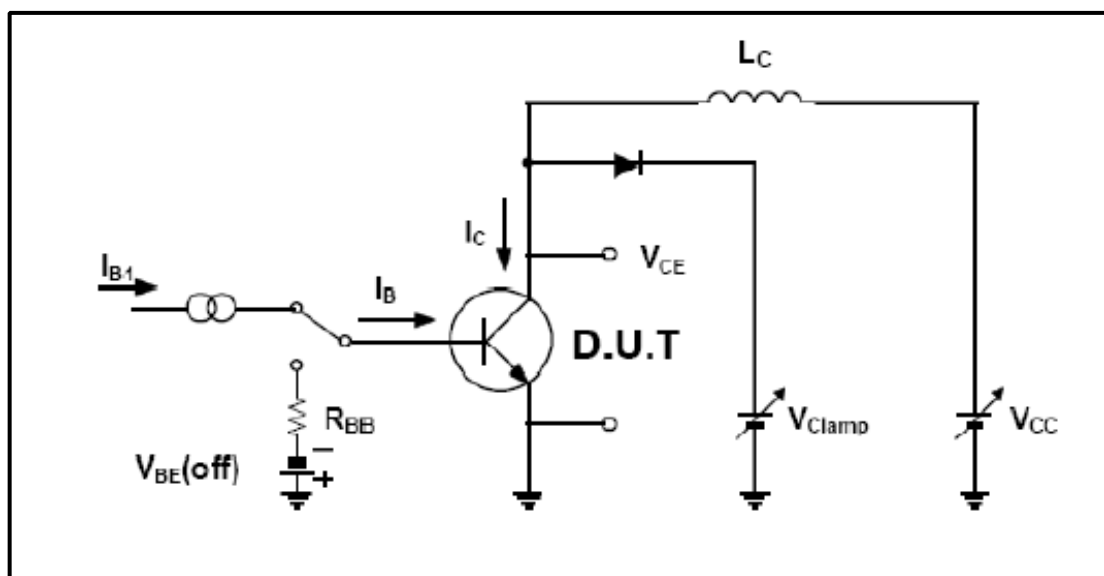


Fig.10 Inductive Load Switching & RBSOA Test Circuit

To-220 Package Dimension

Unit:mm

