

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 -Base voltage	$I_C=0$	9.0	V
I_C	Collector Current		1.2	A
I_{CP}	Collector pulse Current		2.4	A
I_B	Base Current		0.75	A
I_{BM}	Base Peak Current	$t_p=5ms$	1.5	A
P_C	Total Dissipation at $T_c=25^\circ C$		18	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_{QJc}	Thermal Resistance Junction to Case	6.9	$^\circ C/W$
R_{QJA}	Thermal Resistance Junction to Ambient	89	

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

Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
BV_{CBO}	Collector-Base Breakdown Voltage	$I_c=10\text{mA}, I_e=0$	600			V
BV_{CEO}	Collector-Base Breakdown Voltage	$I_c=10\text{mA}, I_b=0$	400	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_c=500\text{mA}, I_b=100\text{mA}$	-	-	0.8	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_c=500\text{mA}, I_b=100\text{mA}$	-	-	1.2	V
I_{CBO}	Collector-Base Cutoff Current	$V_{cb}=600\text{V}, I_e=0\text{mA}$	-	-	5	μA
I_{CEO}	Collector-Emitter Cutoff Current	$V_{ce}=400\text{V}, I_b=0\text{mA}$	-	-	10	μA
I_{EBO}	Emitter- Base Cutoff Current	$V_{eb}=9\text{V}, I_c=0\text{mA}$	-	-	5	μA
h_{FE}	DC Current Gain	$V_{ce}=20\text{V}, I_c=20\text{mA}$ $V_{ce}=5\text{V}, I_c=1\text{mA}$	10 9	- -	40 -	
t_s	Storage Time	$V_{cc}=24\text{V}$ $I_c=5I_B$	-	-	4	μs
t_f	Fall Time	$I_{B1}=-I_{B2}=0.05\text{A}$	-	-	0.7	
f_T	Characteristic frequency	$V_{CE}=10\text{V}, I_c=0.1\text{A}$	4	-	-	MHz

Note:

Pulse Test : Pulse width 300,Duty cycle 2%

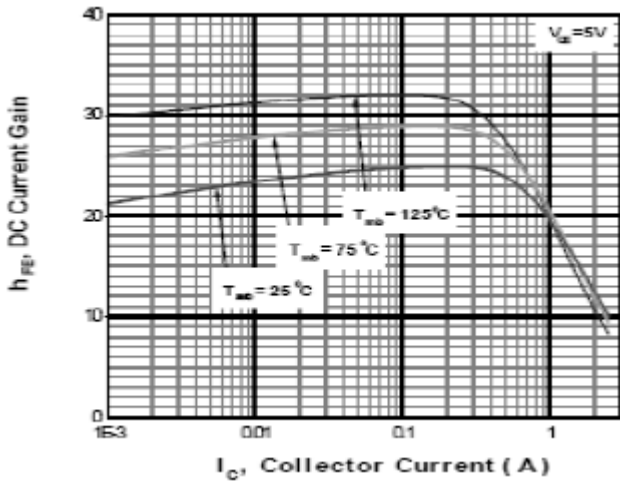


Fig.1 DC Current Gain

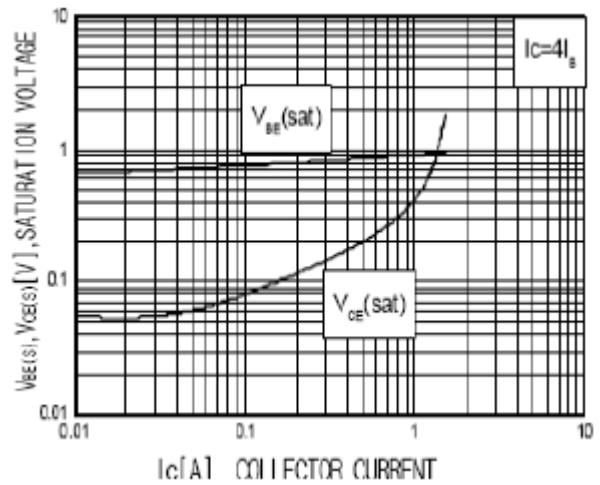


Fig.2 Saturation Voltage

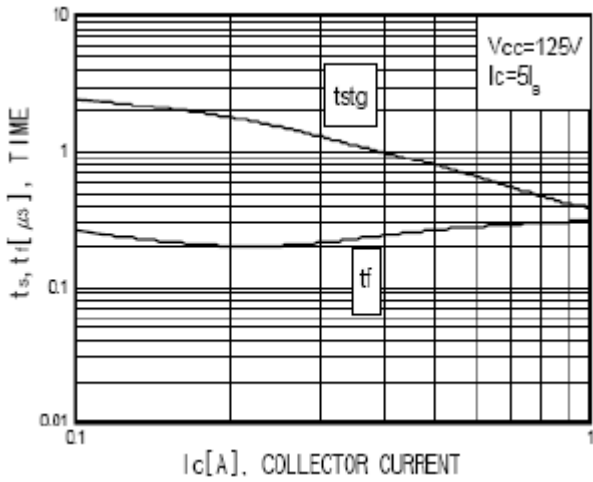


Fig.3 Switching time

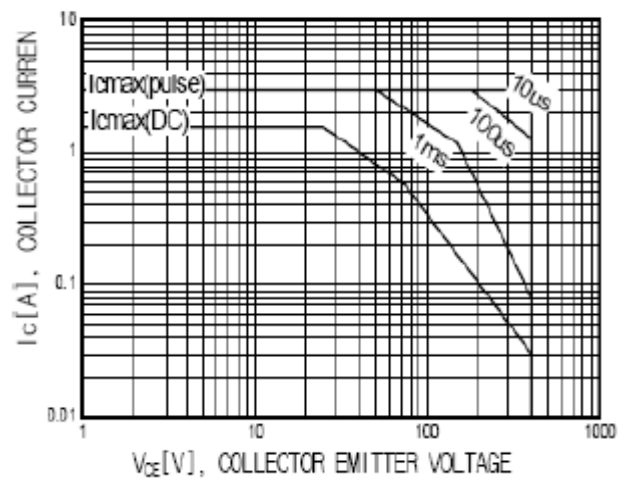


Fig.4 Safe Operation Area

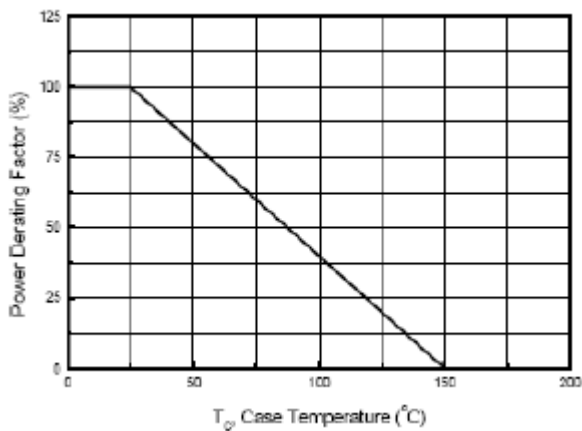
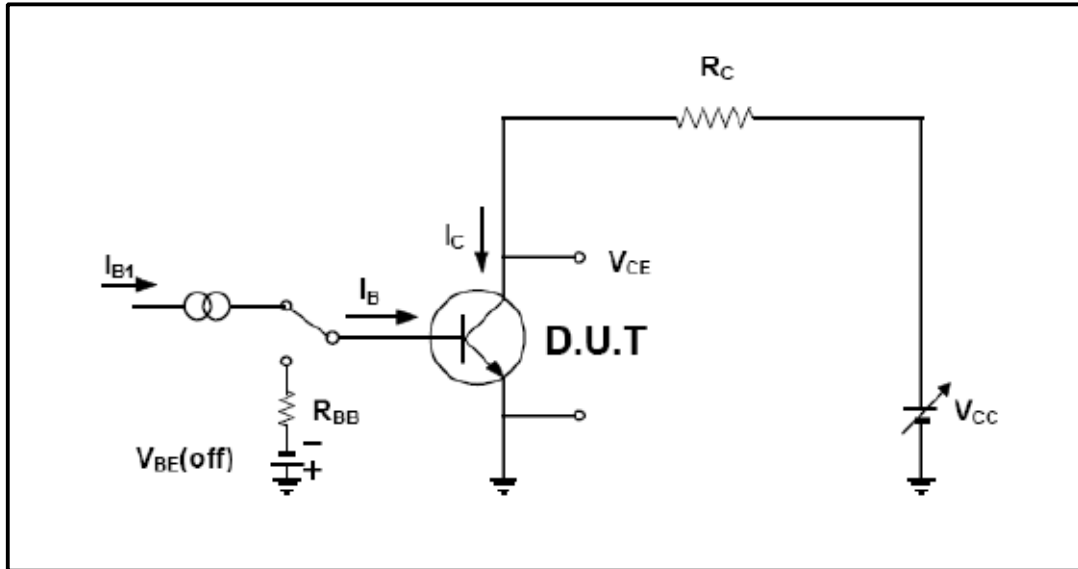
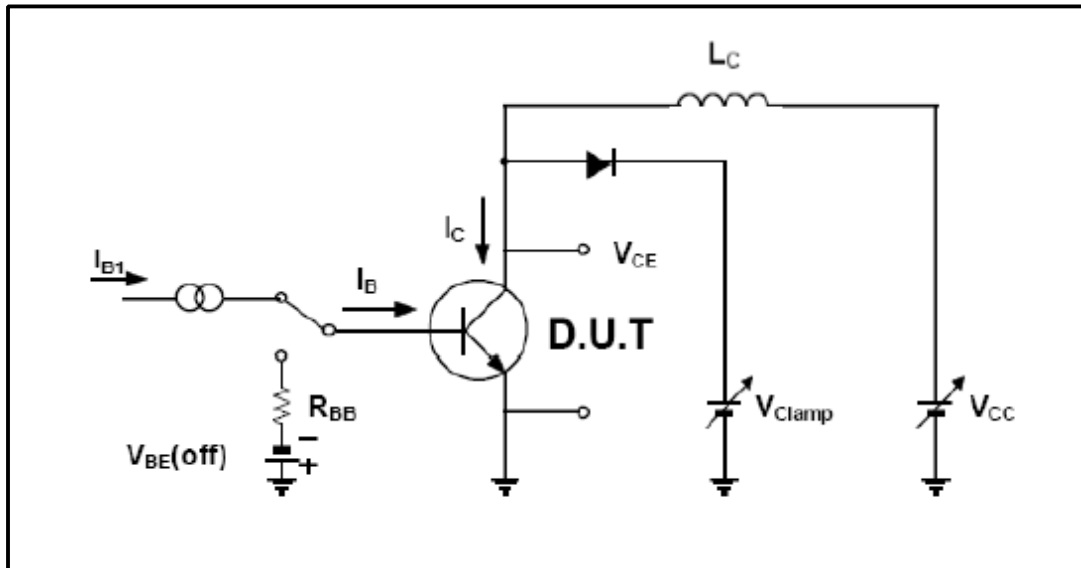


Fig.6 Power Derating



Resistive Load Switching Test Circuit



Inductive Load Switching & RBSOA Test Circuit

To-92 Package Dimension

Unit : mm

