

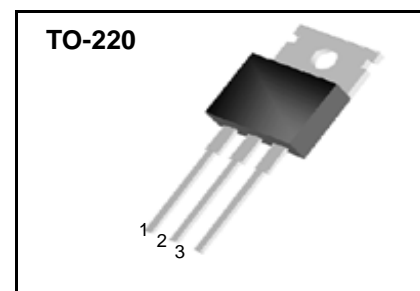
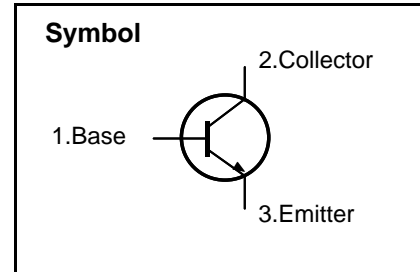
High Voltage Fast-Switching NPN Power Transistor

Features

- High Switching Speed
- Short storage time
- Wide Reverse Bias S.O.A

General Description

This device is designed for high voltage, high speed switching characteristic, especially suitable for ballast system.



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	700	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	8.0	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	16	A
I_B	Base Current	4.0	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	8.0	A
P_C	Total Dissipation at $T_C = 25$ °C	80	W
T_{STG}	Storage Temperature	- 65 ~ 150	°C
T_J	Max. Operating Junction Temperature	150	°C

SBP13007-S

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

Symbol	Parameter	Condition	Min	Typ	Max	Units
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	$V_{CE} = 700V$ $V_{CE} = 700V$ $T_C = 100\text{ }^\circ\text{C}$	-	-	1.0 5.0	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 10\text{ mA}$	400	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2.0A$ $I_C = 5.0A$ $I_C = 8.0A$ $I_C = 5.0A$ $I_B = 0.4A$ $I_B = 1.0A$ $I_B = 2.0A$ $I_B = 1.0A$ $T_C = 100\text{ }^\circ\text{C}$	-	-	0.6 1.5 3.0 3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 2.0A$ $I_C = 5.0A$ $I_C = 5.0A$ $I_B = 0.4A$ $I_B = 1.0A$ $I_B = 1.0A$ $T_C = 100\text{ }^\circ\text{C}$	-	-	1.2 1.6 1.5	V
h_{FE}	DC Current Gain	$I_C = 2.0A$ $I_C = 5.0A$ $V_{CE} = 5V$ $V_{CE} = 5V$	20 5	-	40 30	
t_s t_{on}	Storage Time Turn on time	$I_C = 5.0A$ $I_{B1} = 1.0A$ $T_P = 25\mu s$ $V_{CC} = 125V$ $I_{B2} = -1.0A$	-	-	3.0 1.6	μs

Notes :

Pulse Test : Pulse width 300 μs , Duty cycle 2%



Fig 1. Saturation Voltage

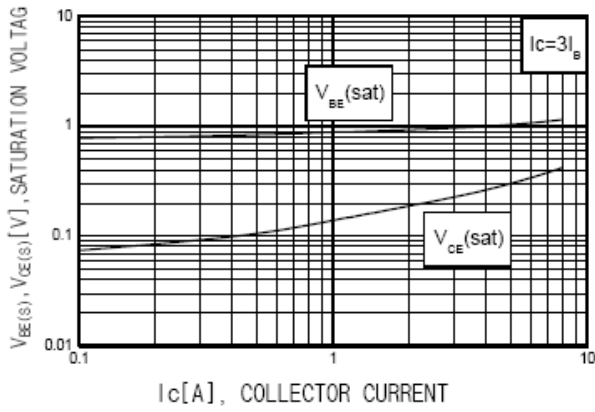


Fig 2. DC Current Gain

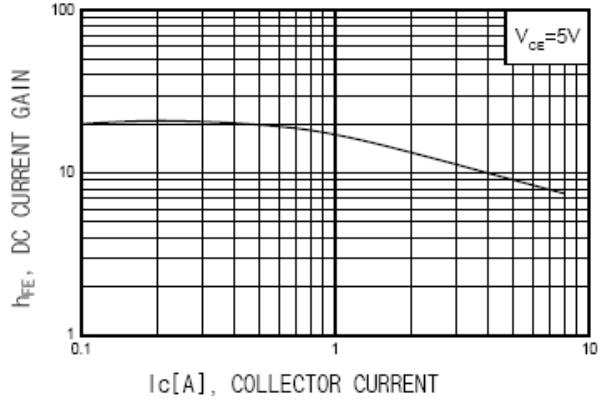


Fig 3. Safe Operation Area

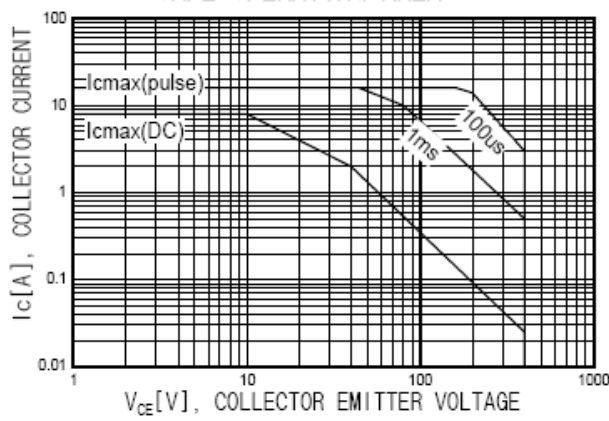


Fig 4. Power Derating

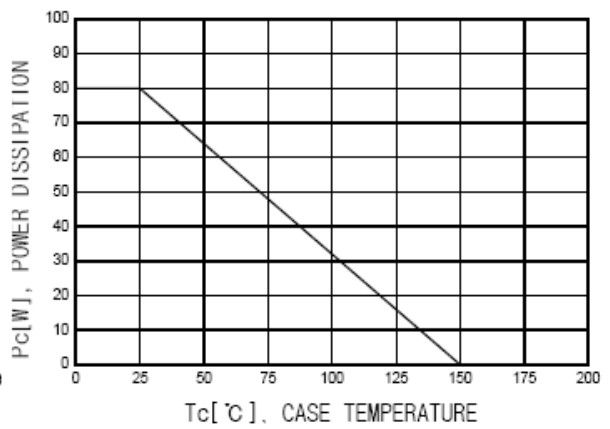
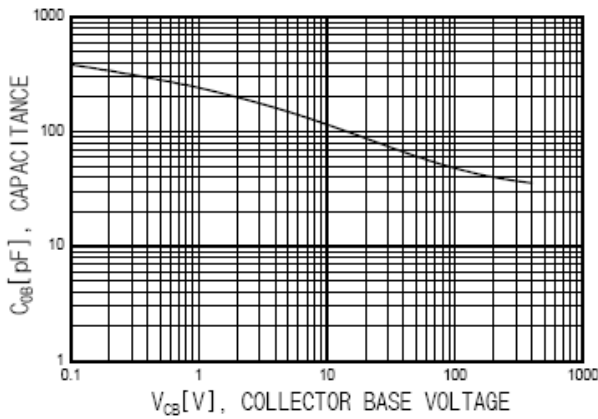


Fig 5. Resistive Load Fall Time



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TO-220 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.7		10.1	0.382		0.398
B	6.3		6.7	0.248		0.264
C	9.0		9.47	0.354		0.373
D	12.8		13.3	0.504		0.524
E	1.2		1.4	0.047		0.055
F		1.7			0.067	
G		2.5			0.098	
H	3.0		3.4	0.118		0.134
I	1.25		1.4	0.049		0.055
J	2.4		2.7	0.094		0.106
K	5.0		5.15	0.197		0.203
L	2.2		2.6	0.087		0.102
M	1.42		1.62	0.056		0.064
N	0.45		0.6	0.018		0.024
O	1.17		1.37	0.046		0.054
		3.6			0.142	

