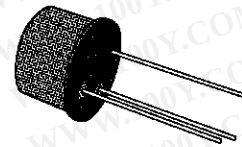


HIGH-VOLTAGE, HIGH-CURRENT SWITCH

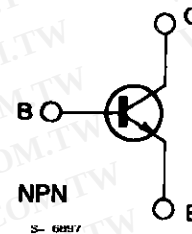
DESCRIPTION

The BSX32 is a silicon planar epitaxial NPN transistor in Jedec TO-39 metal case. It is designed for high voltage, high current switching applications.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	65	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	40	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	6	V
I_C	Collector Current	1	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$ at $T_{case} \leq 25^\circ\text{C}$	0.8 3.5	W W
T_{stg}, T_j	Storage and Junction Temperature	- 55 to 200	$^\circ\text{C}$

BSX32

THERMAL DATA

R _{th j-case}	Thermal Resistance Junction-case	Max	50	°C/W
R _{th j-amb}	Thermal Resistance Junction-ambient	Max	219	°C/W

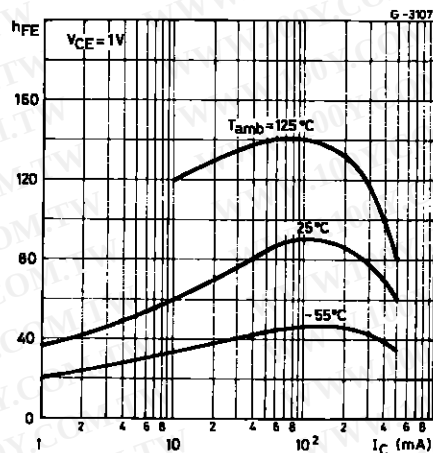
ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cutoff Current (I _E = 0)	V _{CB} = 50 V		0.25	4	μA
V _{(BR)CBO}	Collector-base Breakdown Voltage (I _E = 0)	I _C = 100 μA	65			V
V _{(BR)CEO} *	Collector-emitter Breakdown Voltage (I _B = 0)	I _C = 10 mA	40			V
V _{(BR)EBO}	Emitter-base Breakdown Voltage (I _C = 0)	I _E = 100 μA	6			V
V _{CE(sat)} *	Collector-emitter Saturation Voltage	I _C = 100 mA I _B = 10 mA I _C = 500 mA I _B = 50 mA I _C = 1 A I _B = 100 mA		0.17 0.36 0.6	0.25 0.5 0.85	V V V
V _{BE(sat)} *	Base-emitter Saturation Voltage	I _C = 100 mA I _B = 10 mA I _C = 500 mA I _B = 50 mA I _C = 1 A I _B = 100 mA		0.8	0.9 1.5 2	V V V
h _{FE} *	DC Current Gain	I _C = 10 mA V _{CE} = 1 V I _C = 100 mA V _{CE} = 1 V I _C = 500 mA V _{CE} = 1 V I _C = 1 A V _{CE} = 5 V V _{CE} = 1 V T _{amb} = - 55 °C I _C = 100 mA I _C = 500 mA	30 60 25 20 30 15	60 90 60 60 45 35	150	
f _T	Transition Frequency	I _C = 50 mA V _{CE} = 10 V f = 100 MHz		400		MHz
C _{EBO}	Emitter-base Capacitance	I _C = 0 V _{EB} = 0.5 V f = 1 MHz		40	55	pF
C _{CBO}	Collector-base Capacitance	I _E = 0 V _{CB} = 10 V f = 1 MHz		6	10	pF
t _{on} **	Turn-on Time	I _C = 500 mA V _{CC} = 30 V I _{B1} = 50 mA		22	35	ns
t _{off} **	Turn-off Time	I _C = 500 mA V _{CC} = 30 V I _{B1} = - I _{B2} = 50 mA		40	60	ns

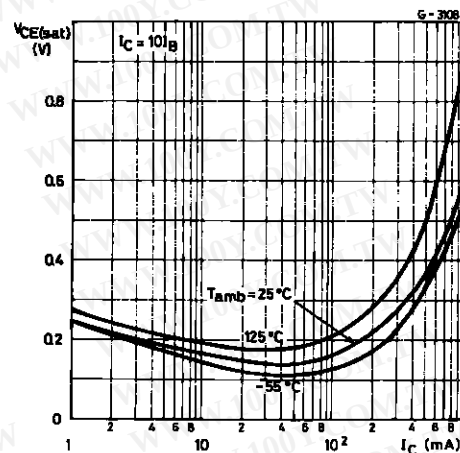
* Pulsed : pulse duration = 300 μs, duty cycle = 1 %.

** See test circuit.

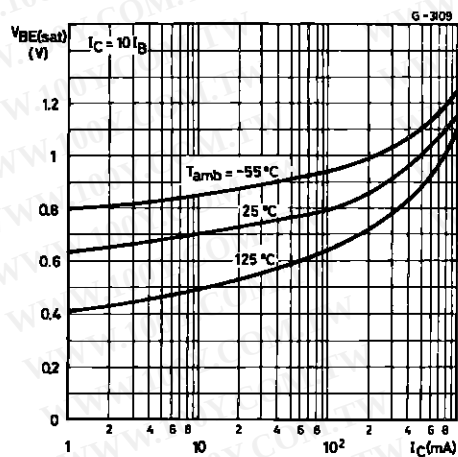
DC Current Gain.



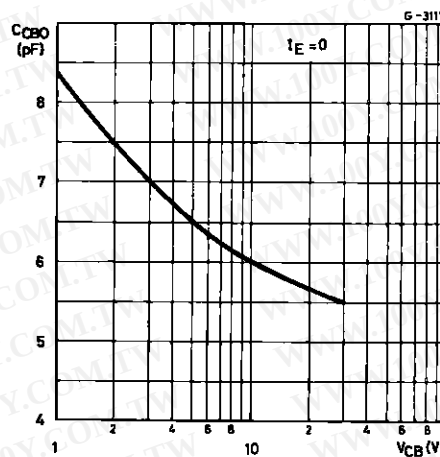
Collector-emitter Saturation Voltage.

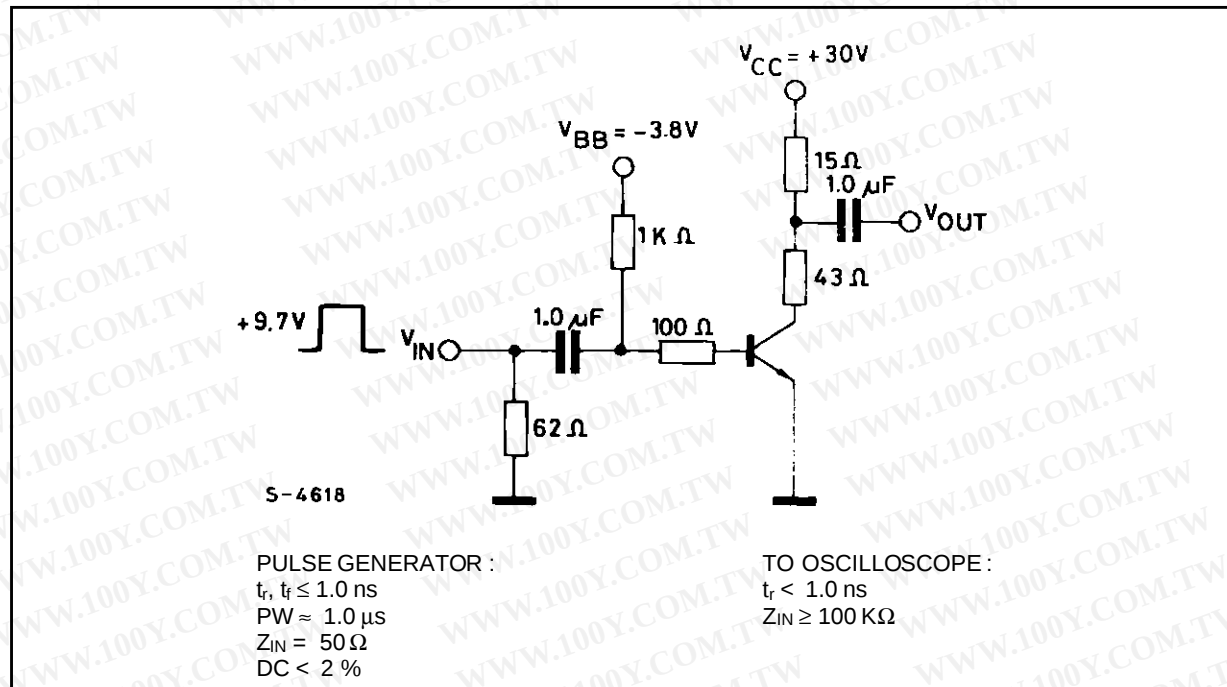


Base-emitter Saturation Voltage.



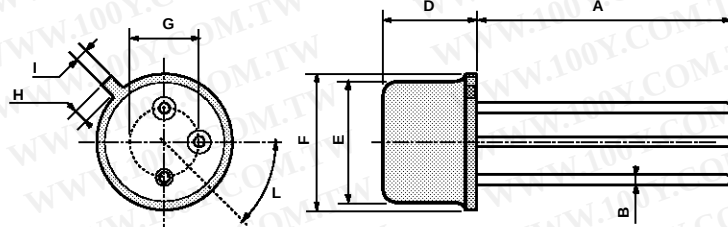
Collector-base Capacitance.



Test circuit for t_{on} , t_{off} .

TO39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



P008B

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