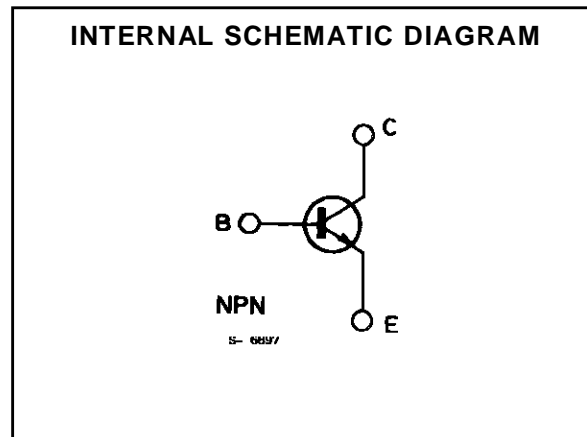
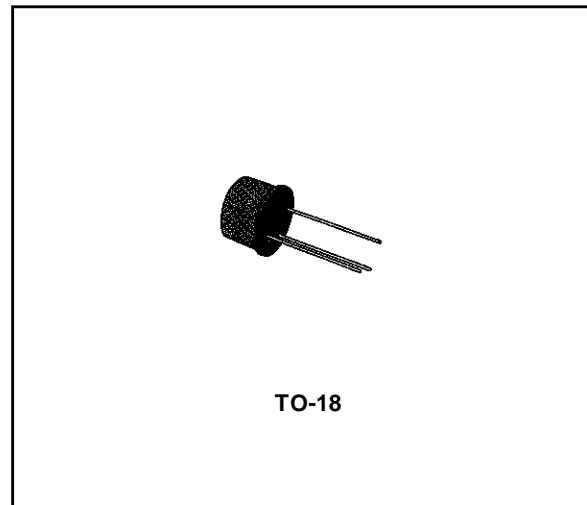


HIGH-SPEED SATURATED SWITCH

DESCRIPTION

The BSX28 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case. It is designed specifically for high speed saturated switching applications.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	30	V
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)	30	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	12	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	4.5	V
I_C	Collector Current	500	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$	0.36	W
	at $T_{case} \leq 25\text{ }^\circ\text{C}$	1.2	W
	at $T_{case} \leq 100\text{ }^\circ\text{C}$	0.68	W
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

BSX28

THERMAL DATA

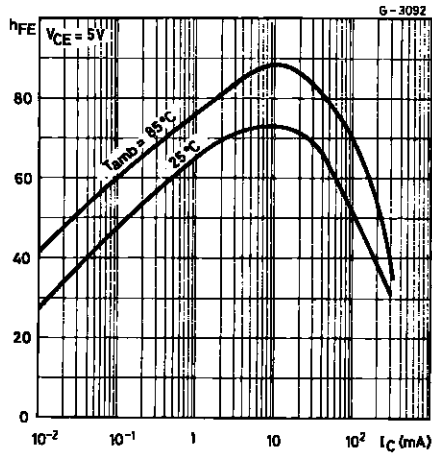
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	146	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	486	°C/W

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

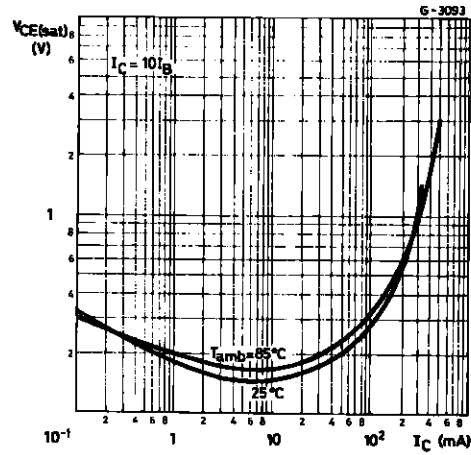
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cutoff Current ($V_{BE} = 0$)	$V_{CE} = 20\text{ V}$ $V_{CE} = 20\text{ V}$ $T_{amb} = 85\text{ °C}$			0.4 10	μA μA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = 10\ \mu\text{A}$	30			V
$V_{(BR)CES}$	Collector-emitter Breakdown Voltage ($V_{BE} = 0$)	$I_C = 10\ \mu\text{A}$	30			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ($I_B = 0$)	$I_C = 10\text{ mA}$	12			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 100\ \mu\text{A}$	4.5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$ $I_C = 30\text{ mA}$ $I_B = 3\text{ mA}$ $I_C = 100\text{ mA}$ $I_B = 10\text{ mA}$ $I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$ $T_{amb} = 85\text{ °C}$		0.15 0.18 0.3 0.17	0.2 0.25 0.5 0.3	V V V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$ $I_C = 30\text{ mA}$ $I_B = 3\text{ mA}$ $I_C = 100\text{ mA}$ $I_B = 10\text{ mA}$	0.72	0.8 0.9 1.1	0.87 1.15 1.6	V V V
h_{FE}^*	DC Current Gain	$I_C = 10\text{ mA}$ $V_{CE} = 0.35\text{ V}$ $I_C = 30\text{ mA}$ $V_{CE} = 0.4\text{ V}$ $I_C = 100\text{ mA}$ $V_{CE} = 1\text{ V}$	30 25 15	70 70 50	120	
f_T	Transition Frequency	$I_C = 20\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 100\text{ MHz}$	400	650		MHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 5\text{ V}$ $f = 1\text{ MHz}$		2.3	4	pF
t_s	Storage Time	$I_C = 10\text{ mA}$ $V_{CC} = 10\text{ V}$ $I_{B1} = -I_{B2} = 10\text{ mA}$		6.5	13	ns
t_{on}	Turn-on Time	$I_C = 30\text{ mA}$ $V_{CC} = 2\text{ V}$ $I_{B1} = 3\text{ mA}$		9	15	ns
t_{off}	Turn-off Time	$I_C = 30\text{ mA}$ $V_{CC} = 2\text{ V}$ $I_{B1} - I_{B2} = 3\text{ mA}$		13	20	ns

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

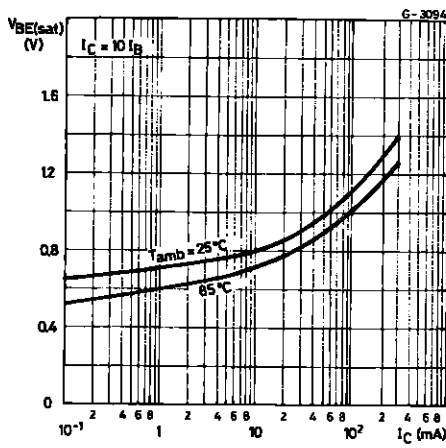
DC Current Gain.



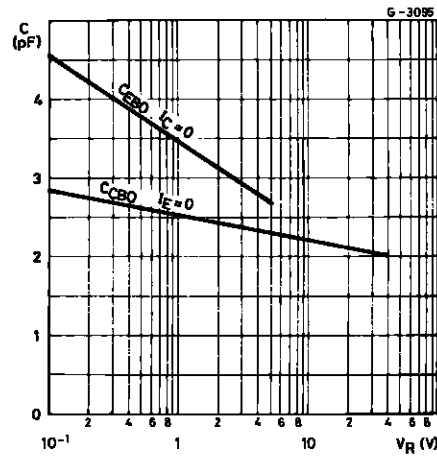
Collector-emitter Saturation Voltage.



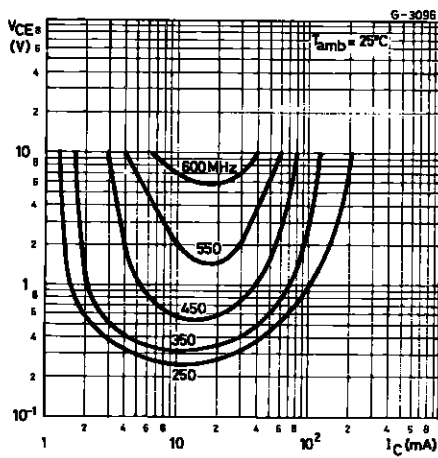
Base-emitter Saturation Voltage.



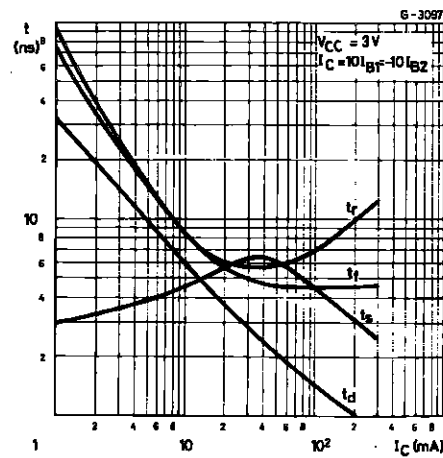
Emitter-base and Collector-base Capacitances.



Contours of Constant Transition Frequency.

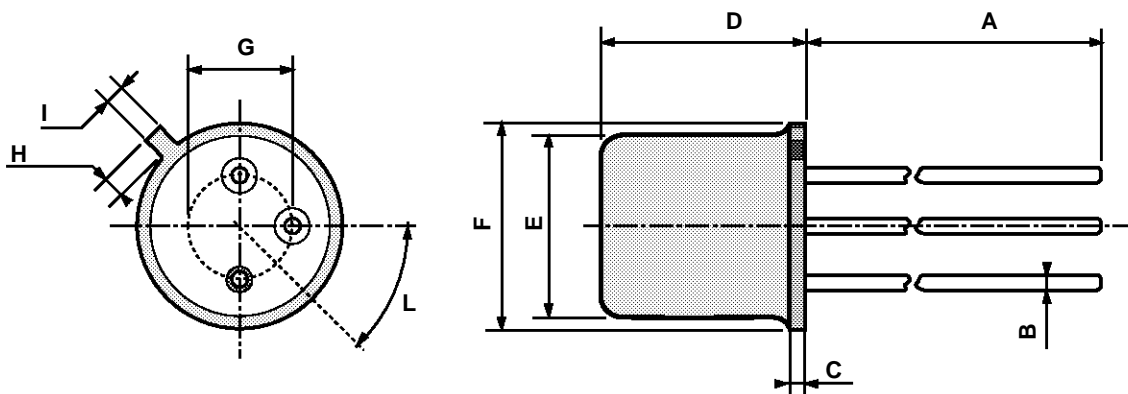


Switching Characteristics.



TO-18 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		12.7			0.500	
B			0.49			0.019
D			5.3			0.208
E			4.9			0.193
F			5.8			0.228
G	2.54			0.100		
H			1.2			0.047
I			1.16			0.045
L	45°			45°		



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