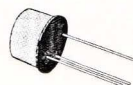


HIGH-SPEED SATURATED SWITCH

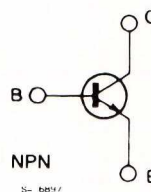
DESCRIPTION

The BSX26 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case. It is designed for switching applications up to 500 mA.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	40	V
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)	40	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	15	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	4	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	$^{\circ}\text{C}$

THERMAL DATA

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

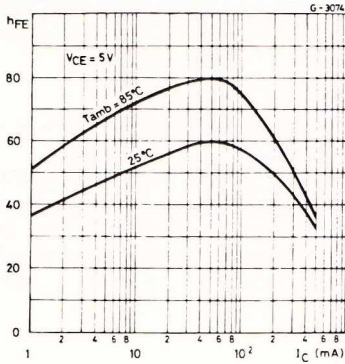
ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cutoff Current ($V_{BE} = 0$)	$V_{CE} = 20\ V$ $V_{CE} = 20\ V$ $T_{amb} = 85^{\circ}C$			0.5 15	μA μA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = 100\ \mu A$	40			V
$V_{(BR)CES}$	Collector-emitter Breakdown Voltage ($V_{BE} = 0$)	$I_C = 100\ \mu A$	40			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ($I_B = 0$)	$I_C = 10\ mA$	15			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 100\ \mu A$	4			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 30\ mA$ $I_B = 3\ mA$ $I_C = 100\ mA$ $I_B = 10\ mA$ $I_C = 300\ mA$ $I_B = 30\ mA$ $I_C = 30\ mA$ $I_B = 3\ mA$ $T_{amb} = 85^{\circ}C$		0.16 0.18 0.39 0.18	0.18 0.28 0.5 0.3	V V V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 30\ mA$ $I_B = 3\ mA$ $I_C = 100\ mA$ $I_B = 10\ mA$ $I_C = 300\ mA$ $I_B = 30\ mA$	0.75	0.82 0.97 1.3	0.95 1.2 1.7	V V V
h_{FE}^*	DC Current Gain	$I_C = 30\ mA$ $V_{CE} = 0.4\ V$ $I_C = 100\ mA$ $V_{CE} = 0.5\ V$ $I_C = 300\ mA$ $V_{CE} = 1\ V$	30 25 15	60 55	120	
f_T	Transition Frequency	$I_C = 30\ mA$ $V_{CE} = 10\ V$ $f = 100\ MHz$	350	550		MHz
C_{EBO}	Emitter-base Capacitance	$I_C = 0$ $V_{EB} = 0.5\ V$ $f = 1\ MHz$		6.5	8	pF
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 5\ V$ $f = 1\ MHz$		3.3	5	pF
t_s	Storage Time	$I_C = 10\ mA$ $V_{CC} = 10\ V$ $I_{B1} = -I_{B2} = 10\ mA$		8	18	ns
t_{on}^{**}	Turn-on Time	$I_C = 300\ mA$ $V_{CC} = 15\ V$ $I_{B1} = 30\ mA$		9	15	ns
t_{off}^{**}	Turn-off Time	$I_C = 300\ mA$ $V_{CC} = 15\ V$ $I_{B1} = -I_{B2} = 30\ mA$		15	25	ns

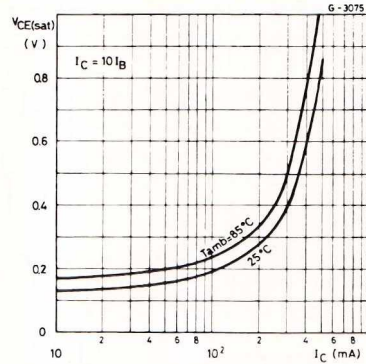
* Pulsed : pulse duration = 300 μs , duty cycle = 1%

** See test circuit.

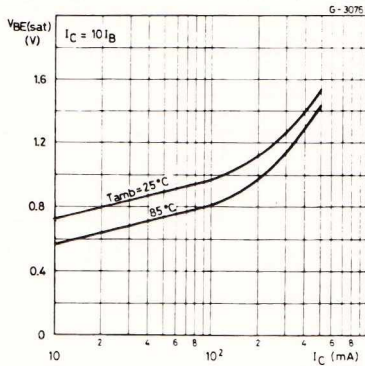
DC Current Gain.



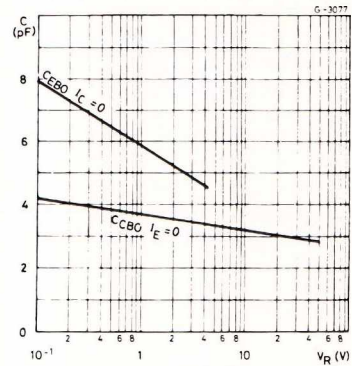
Collector-emitter Saturation Voltage.



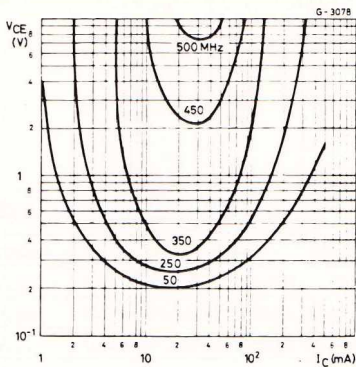
Base-emitter Saturation Voltage.



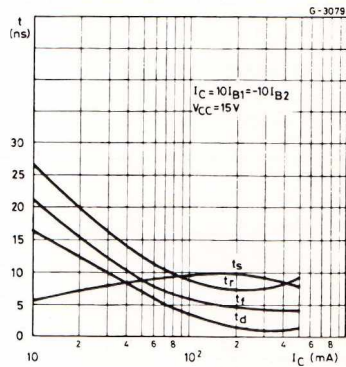
Emitter-base and Collector-base Capacitances.



Contours of Constant Transition Frequency.



Switching Characteristics.



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

