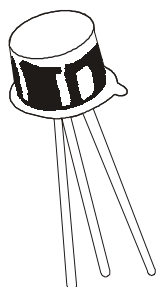


NPN SILICON PLANAR EPITAXIAL TRANSISTORS

**BSX20
TO-18**



APPLICATIONS

High Speed Saturated Switching Applications

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector -Base Voltage	VCBO	40	V
Collector -Emitter Voltage	VCES	40	V
Collector -Emitter Voltage	VCEO	15	V
Emitter -Base Voltage	VEBO	4.5	V
Collector Peak Current (t=10us)	ICM	0.5	A
Power Dissipation@ Ta=25 degC	Ptot	0.36	W
@Tc=25 deg C		1.20	W
Operating And Storage Junction Temperature Range	Tj, Tstg	-65 to +200	deg C

THERMAL RESISTANCE

Junction to Case	Rth(j-c)	146	deg C/W
Junction to Ambient	Rth(j-a)	486	deg C/W

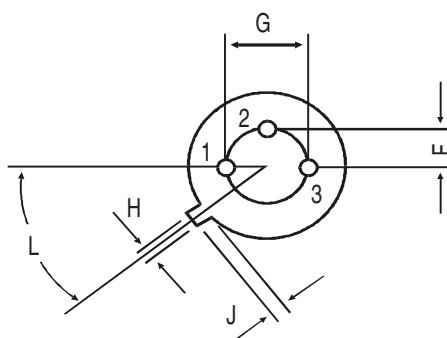
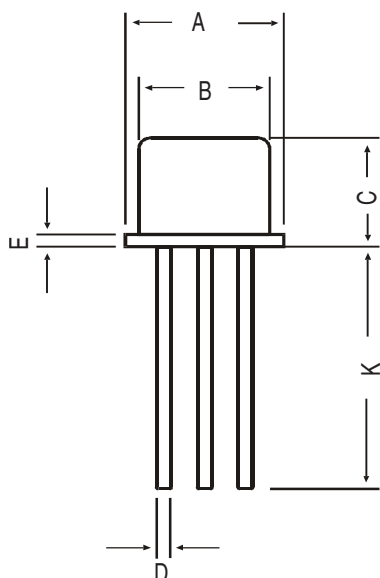
ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Collector-Cut off Current	ICBO	VCB=20V, IE=0	-	400	nA
		VCB=20V, IE=0, Ta=150 deg C	-	30	uA
	ICES	VCE=15V, VBE=0, Ta=55 deg C	-	400	nA
		VCE=40V, VBE=0	-	1.0	uA
Emitter-Cut off Current	ICEX	VCE=15V, VBE=-3V, Ta=55 deg C	-	600	nA
		VEB=4.5V, IC=0	-	10	uA
Base-Cut off Current	IBEX	VCE=15V, VBE=-3V, Ta=55 deg C	-	600	nA
Collector -Emitter (sus) Voltage	VCER (sus)*	IC=10mA, RBE=10 ohms	20	-	
Collector -Emitter Voltage	VCEO*	IC=10mA, IB=0	15	-	V
Collector Emitter Saturation Voltage	VCE(Sat)*	IC=10mA, IB=1mA	-	0.25	V
		IC=100mA, IB=10mA	-	0.60	V
		IC=10mA, IB=0.3mA	-	0.30	V
			-	0.30	V
Base Emitter on Voltage	VBE(on)	IC=30uA, VCE=20V, Ta=100deg C	0.35	-	V
Base Emitter Saturation Voltage	VBE(Sat) *	IC=10mA, IB=1mA	0.70	0.85	V
		IC=100mA, IB=10mA	-	1.50	V
			-	1.50	V
DC Current	hFE*	IC=10mA, VCE=1V	40	120	
		IC=100mA, VCE=2V	20	-	
		IC=10mA, VCE=1V, Ta= -55 deg C	20	-	

ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)			BSX20		
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Transition Frequency	ft	VCE=10V, IC=10mA	500	-	MHZ
Emitter Base Capacitance	Cebo	IC=0, VEB=1V	-	4.5	pF
Collector Base Capacitance	Cbo	IE=0, VCB=5V	-	4.0	pF
Storage Time	ts	IC=10mA, VCC=10V IB1=-IB2=10mA	-	13	ns
Turn-on Time	ton	IC=10mA, VCC=3V, IB1=3mA	-	12	ns
Turn-off Time	toff	IC=100mA, VCC=6V, IB1=40mA	-	7.0	ns
		IC=10mA, VCC=3V IB1=3mA, IB2= -1.5mA	-	18	ns
		IC=100mA, VCC=6V IB1=40mA, IB2= -20mA	-	21	ns

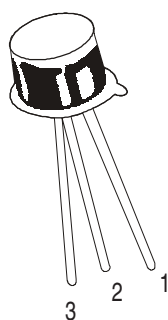
*Pulsed : Pulse duration=300us, duty cycle=1%

TO-18 Metal Can Package



DIM	MIN	MAX
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	0.53
E	—	0.76
F	—	1.27
G	—	2.97
H	0.91	1.17
J	0.71	1.21
K	12.70	—
L	45 DEG	

All dimensions in mm.



PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-18	1K/polybag	350 gm/1K pcs	3" x 7.5" x 7.5"	5.0K	17" x 15" x 13.5"	80.0K	34 kgs

Notes

Disclaimer

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