BSX20

Low Power Bipolar Transistors

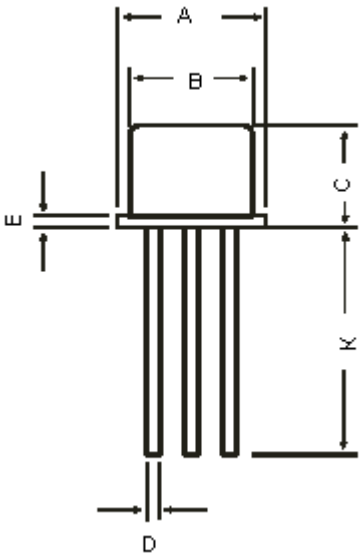
Feature:

- NPN Silicon Planar Switching Transistors.

Applications:

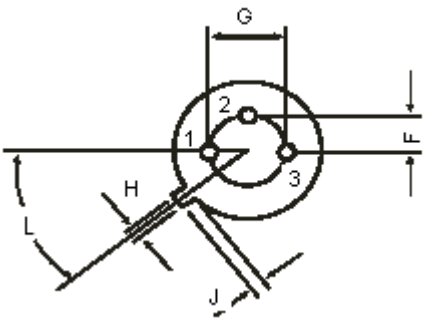
- High speed saturated switching applications.

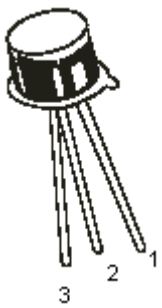
TO-18 Metal Can Package



Dimensions	Minimum	Maximum
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°	

Dimensions : Millimetres





Pin Configuration:

1. Emitter
2. Base
3. Collector

Absolute Maximum Ratings

Description	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CES}	40	
Collector Emitter Voltage	V_{CEO}	15	
Emitter Base Voltage	V_{EBO}	4.5	
Collector Peak Current (t = 10µs)	I_{CM}	0.5	A
Power Dissipation at T_a = 25°C at T_C = 25°C	P_{tot}	0.36 1.20	W
Operating and Storage Junction Temperature Range	T_J, Tstg	-65 to +200	°C
Thermal Resistance			
Junction to Case	$R_{th\ (j-c)}$	146	°C/W
Junction to Ambient	$R_{th\ (j-a)}$	486	

Electrical Characteristics (T_a = 25°C unless otherwise specified)

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector-Cut off Current	I_{CBO} I_{CES} I_{CEX}	V_{CB} = 20V, I_E = 0 V_{CB} = 20V, I_E = 0, T_a = 150°C V_{CE} = 15V, V_{BE} = 0, T_a = 55°C V_{CE} = 40V, V_{BE} = 0 V_{CE} = 15V, V_{BE} = -3V, T_a = 55°C	-	400 30 400 1.0 600	nA µA nA µA nA
Emitter-Cut off Current	I_{EBO}	V_{EB} = 4.5V, I_C = 0	-	10	µA
Base-Cut off Current	I_{BEX}	V_{CE} = 15V, V_{BE} = -3V, T_a = 55°C	-	600	nA
Collector-Emitter (sus) Voltage	$V_{CER\ (sus)}$*	I_C = 10mA, R_{BE} = 10Ω	20	-	V
Collector-Emitter Voltage	V_{CEO}*	I_C = 10mA, I_B = 0	15	-	
Collector Emitter Saturation Voltage	$V_{CE\ (Sat)}$*	I_C = 10mA, I_B = 1mA I_C = 100mA, I_B = 10mA I_C = 10mA, I_B = 0.3mA	-	0.25 0.60 0.30	
Base Emitter On Voltage	$V_{BE\ (on)}$	I_C = 30µA, V_{CE} = 20V, T_a = 100°C	0.35	-	
Base Emitter Saturation Voltage	$V_{BE\ (Sat)}$*	I_C = 10mA, I_B = 1mA I_C = 100mA, I_B = 10mA	0.70 -	0.85 1.50	
DC Current	h_{FE} *	I_C = 10mA, V_{CE} = 1V I_C = 100mA, V_{CE} = 2V I_C = 10mA, V_{CE} = 1V, T_a = -55°C	40 20 20	-	-

Electrical Characteristics (T_a = 25°C unless otherwise specified)

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Dynamic Characteristics					
Transistion Frequency	f_t	V_{CE} = 10V, I_C = 10mA	500	-	MHz
Emitter Base Capacitance	C_{ebo}	I_C = 0, V_{EB} = 1V	-	4.5	pF
Collector Base Capacitance	C_{bo}	I_E = 0, V_{CB} = 5V	-	4.0	
Storage Time	t_s	I_C = 10mA, V_{CC} = 10V, I_{B1} = -I_{B2} = 10mA	-	13	ns
Turn on Time	t_{on}	I_C = 10mA, V_{CC} = 3V, I_{B1} = 3mA I_C = 100mA, V_{CC} = 6V, I_{B1} = 40mA	-	12 7.0	
Turn off Time	t_{off}	I_C = 10mA, V_{CC} = 3V, I_{B1} = 3mA, I_{B2} = -1.5mA I_C = 100mA, V_{CC} = 6V, I_{B1} = 40mA, I_{B2} = -20mA	-	18 21	

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

Part Number Table

Package	Part Number
TO-18	BSX20

Notes:

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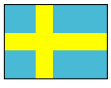

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