

**BSX 19****BSX 20**

NPN SILICON PLANAR EPITAXIAL TRANSISTORS

MICRO ELECTRONICS

CASE T0-18

THE BSX19 AND BSX20 ARE NPN SILICON PLANAR EPITAXIAL TRANSISTORS DESIGNED FOR VERY HIGH SPEED SATURATED SWITCHING APPLICATIONS.



CBE

ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage	V _{CB0}	40V
Collector-Emitter Voltage (V _{BE} =0)	V _{CEs}	40V
Collector-Emitter Voltage (I _B =0)	V _{CE0}	15V
Emitter-Base Voltage	V _{EB0}	4.5V
Collector Peak Current	I _{CM}	500mA
Total Power Dissipation @ T _A =25°C	P _{tot}	360mW
Operating Junction & Storage Temperature	T _j , T _{stg}	-65 to 200°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	BSX19		BSX20		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
Collector-Emitter Breakdown Voltage	BV _{CE0}	15		15		V	I _C =10mA I _B =0
Collector-Emitter Breakdown Voltage	BV _{CER}	20		20		V	I _C =10mA R _{BE} =10Ω
Collector Cutoff Current	I _{CB0}	400		400		nA	V _{CB} =20V I _E =0
		30		30		μA	V _{CB} =20V I _E =0 T _j =150°C
Collector Cutoff Current	I _{CEs}	0.4		0.4		μA	V _{CE} =15V V _{BE} =0
		1		1		μA	T _j =55°C V _{CE} =40V V _{BE} =0
Collector Cutoff Current	I _{CEV}	0.6		0.6		μA	V _{CE} =15V V _{BE} =-3V T _j =55°C
Emitter Cutoff Current	I _{EB0}	10		10		μA	V _{EB} =4.5V I _C =0
Collector-Emitter Saturation Voltage	V _{CE(sat)}	0.25		0.25		V	I _C =10mA I _B =1mA
		0.3				V	I _C =10mA I _B =0.6mA
				0.3		V	I _C =10mA I _B =0.3mA
		0.6		0.6		V	I _C =100mA I _B =10mA

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1-2-BMP

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PARAMETER	SYMBOL	BSX19 MIN MAX	BSX20 MIN MAX	UNIT	TEST CONDITIONS
Base-Emitter Saturation Voltage	V _{BE(sat)}	0.7 0.85 1.5	0.7 0.85 1.5	V V	I _C =10mA I _B =1mA I _C =100mA I _B =10mA
Base-Emitter Voltage	V _{BE}	0.35	0.35	V	I _C =30uA V _{CE} =20V T _j =100°C
D.C. Current Gain	H _{FE}	20 60 10	40 120 20		I _C =10mA V _{CE} =1V I _C =10mA V _{CE} =1V T _j =-55°C I _C =100mA V _{CE} =2V
Current Gain-Bandwidth Product	f _T	400	500	MHz	I _C =10mA V _{CE} =10V
Collector-Base Capacitance	C _{cb}	4	4	pF	V _{CB} =5V I _E =0 f=1MHz
Emitter-Base Capacitance	C _{eb}	4.5	4.5	pF	V _{EB} =1V I _C =0 f=1MHz
Turn-On Time	t _{on}	12	12	nS	I _C =10mA V _{cc} =3V I _{B1} =3mA
		7	7	nS	I _C =100mA V _{cc} =6V I _{B1} =40mA
Turn-Off Time	t _{off}	15	18	nS	I _C =10mA V _{cc} =3V I _{B1} =3mA -I _{B2} =1.5mA
		18	21	nS	I _C =100mA I _{B1} =40mA -I _{B2} =20mA
Storage Time	t _s	10	13	nS	I _C =10mA V _{cc} =10V I _{B1} =-I _{B2} =10mA