Data Sheet

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Manufacturers of World Class Discrete Semiconductors

BSX59
BSX60
BSX61

NPN SILICON TRANSISTORS

JEDEC TO-39 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR BSX59 series types are NPN Silicon Transistors designed for high speed switching applications.

MAXIMUM RATINGS (T_C=25°C)

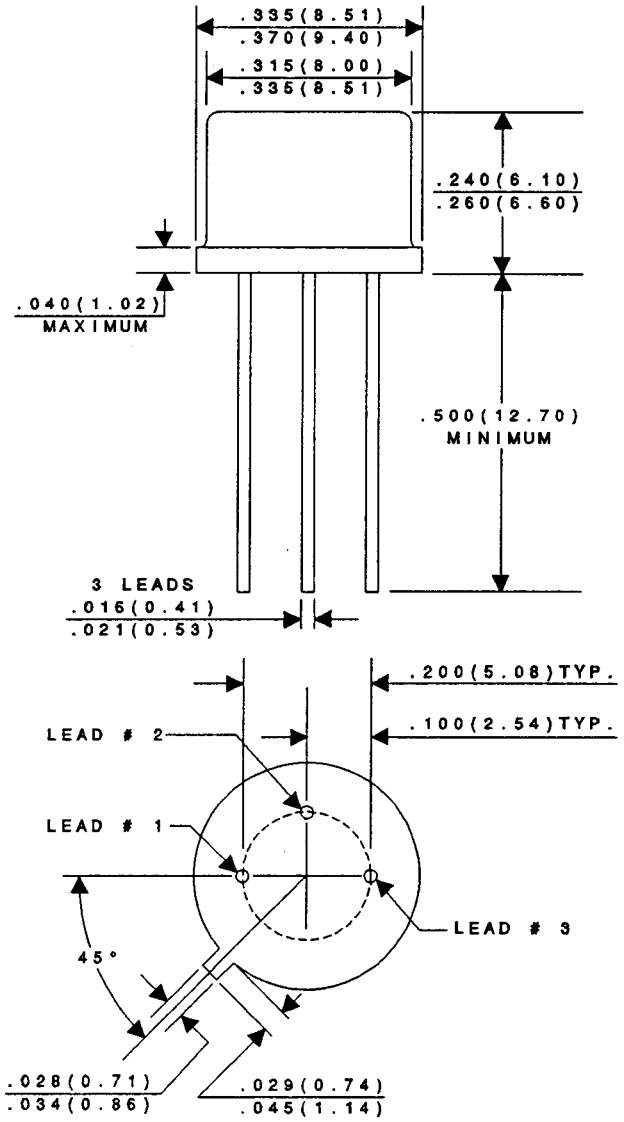
	SYMBOL	BSX59	BSX60	BSX61	UNITS
Collector-Base Voltage	V_{CBO}	70	70	70	V
Collector-Emitter Voltage	V_{CEO}	45	30	45	V
Emitter-Base Voltage	V_{EBO}		5.0		V
Collector Current	I_C		1.0		A
Collector Current (Peak)	I_{CM}		1.0		A
Emitter Current (Peak)	I_{EM}		1.0		A
Power Dissipation	P_D		4.0		W
Power Dissipation (T_A=25°C)	P_D		0.8		W
Operating and Storage Junction Temperature	T_J, T_{stg}		-65 to +200		°C
Thermal Resistance	Θ_{JC}		43		°C/W
Thermal Resistance	Θ_{JA}		219		°C/W

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

		BSX59		BSX60		BSX61		
SYMBOL	TEST CONDITIONS	MIN	MAX	MIN	MAX	MIN	MAX	UNITS
I_{CBO}	V_{CE}=40V		500		500		500	nA
I_{CBO}	V_{CE}=40V, T_C=150°C		300		300		300	µA
I_{CEV}	V_{CE}=40V, $V_{EB(off)}$=4.0V		500		500		1000	nA
I_{CEV}	V_{CE}=40V, $V_{EB(off)}$=4.0V, T_C=150°C		300		300		500	µA
I_{EBO}	V_{EB}=4.0V		300		300		500	nA
I_{EBO}	V_{EB}=4.0V, T_C=150°C		50		50		50	µA
$V_{CE(SAT)}$	I_C=150mA, I_B=15mA		0.3		0.3		0.5	V
$V_{CE(SAT)}$	I_C=500mA, I_B=50mA		0.5		0.5		0.7	V
$V_{CE(SAT)}$	I_C=1.0A, I_B=100mA		1.0		1.0		1.3	V
$V_{BE(SAT)}$	I_C=150mA, I_B=15mA		1.0		1.0		1.0	V
$V_{BE(SAT)}$	I_C=500mA, I_B=50mA	0.85	1.2	0.7	1.3	0.7	1.3	V
$V_{BE(SAT)}$	I_C=1.0A, I_B=100mA		1.8		1.8		1.8	V
h_{FE}	V_{CE}=1.0V, I_C=150mA	30		30		30		
h_{FE}	V_{CE}=1.0V, I_C=500mA	30	90	30	90	30	90	
h_{FE}	V_{CE}=5.0V, I_C=1.0A	20		25		20		
f_T	V_{CE}=10V, I_C=50mA, f=1.0MHz	250		250		250		MHz
C_c	V_{CB}=10V, I_E=0		10		10		10	pF
C_e	V_{EB}=0.5V, I_C=0		50		50		50	pF

SYMBOL	TEST CONDITIONS	BSX59 MIN	BSX59 MAX	BSX60 MIN	BSX60 MAX	BSX61 MIN	BSX61 MAX	UNITS
t_{on}	V_{CC}=50V, I_C=500mA, I_{B1}=50mA		35		-		50	ns
t_{on}	V_{CC}=30V, I_C=500mA, I_{B1}=50mA		-		40		-	ns
t_{off}	V_{CC}=50V, I_C=500mA, I_{B1}=I_{B2}=50mA		60		-		100	ns
t_{off}	V_{CC}=30V, I_C=500mA, I_{B1}=I_{B2}=50mA		-		70		-	ns

JEDEC TO-39 CASE - MECHANICAL OUTLINE



All Dimensions in Inches (mm).

Lead Code:

1. Emitter
2. Base
3. Collector

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