

BSX45, -10, -16
BSX46, -10, -16
BSX47, -10

SILICON
NPN TRANSISTORS



TO-39 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BSX45 series devices are silicon NPN epitaxial transistors designed for general purpose amplifier and switching applications.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Peak Collector Current
Peak Base Current
Power Dissipation ($T_C=25^\circ\text{C}$)
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL	BSX45	BSX46	BSX47	UNITS
V_{CB0}	80	100	120	V
V_{CEO}	40	60	80	V
V_{EBO}		7.0		V
I_C		1.0		A
I_{CM}		1.5		A
I_{BM}		200		mA
P_D		6.25		W
P_D		0.8		W
T_J, T_{stg}		-65 to +200		$^\circ\text{C}$
θ_{JC}		28		$^\circ\text{C/W}$
θ_{JA}		219		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	BSX45		BSX46		BSX47		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=60\text{V}$	-	30	-	30	-	-	nA
I_{CBO}	$V_{CB}=60\text{V}, T_A=150^\circ\text{C}$	-	10	-	10	-	-	μA
I_{CBO}	$V_{CB}=80\text{V}$	-	-	-	-	-	30	nA
I_{CBO}	$V_{CB}=80\text{V}, T_A=150^\circ\text{C}$	-	-	-	-	-	10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	10	-	10	-	10	nA
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$	-	1.0	-	1.0	-	-	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=25\text{mA}$	-	-	-	-	-	0.9	V
$V_{BE(ON)}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	-	1.0	-	1.0	-	1.0	V
$V_{BE(ON)}$	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$	0.75	1.5	0.75	1.5	0.75	1.5	V
$V_{BE(ON)}$	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}$	-	2.0	-	2.0	-	2.0	V
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	50	-	50	-	50	-	MHz
C_c	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$	-	25	-	20	-	15	pF
t_{on}	$I_C=100\text{mA}, I_{B1}=I_{B2}=5.0\text{mA}$	-	200	-	200	-	200	ns
t_{off}	$I_C=100\text{mA}, I_{B1}=I_{B2}=5.0\text{mA}$	-	850	-	850	-	850	ns
NF	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=1.0\text{k}\Omega$ $f=1.0\text{kHz}, BW=200\text{Hz}$		3.5 TYP		3.5 TYP		3.5 TYP	dB

R2 (14-December 2018)

BSX45, -10, -16
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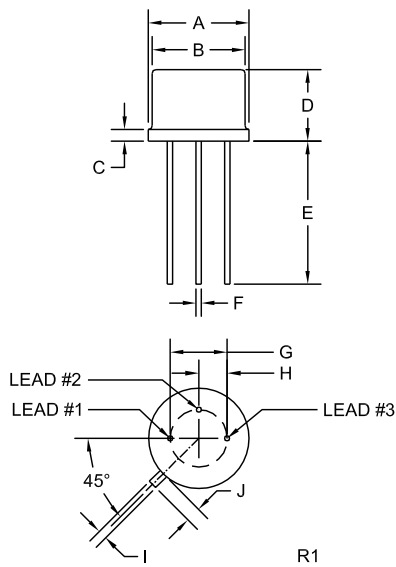
SILICON
 NPN TRANSISTORS



ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	BSX45-10			BSX45-16		
		MIN	TYP	MAX	MIN	TYP	MAX
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\mu\text{A}$	15	-	-	25	-	-
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	63	-	160	100	-	250
h_{FE}	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$	25	-	-	35	-	-
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}$	-	20	-	-	30	-

TO-39 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING:

FULL PART NUMBER

R2 (14-December 2018)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

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