

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

BSS50  
BSS51  
BSS52

NPN SILICON  
DARLINGTON TRANSISTORS

JEDEC TO-39 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR BSS50 series types are NPN Silicon Darlington Transistors designed for industrial switching applications.

## MAXIMUM RATINGS (T<sub>A</sub>=25°C)

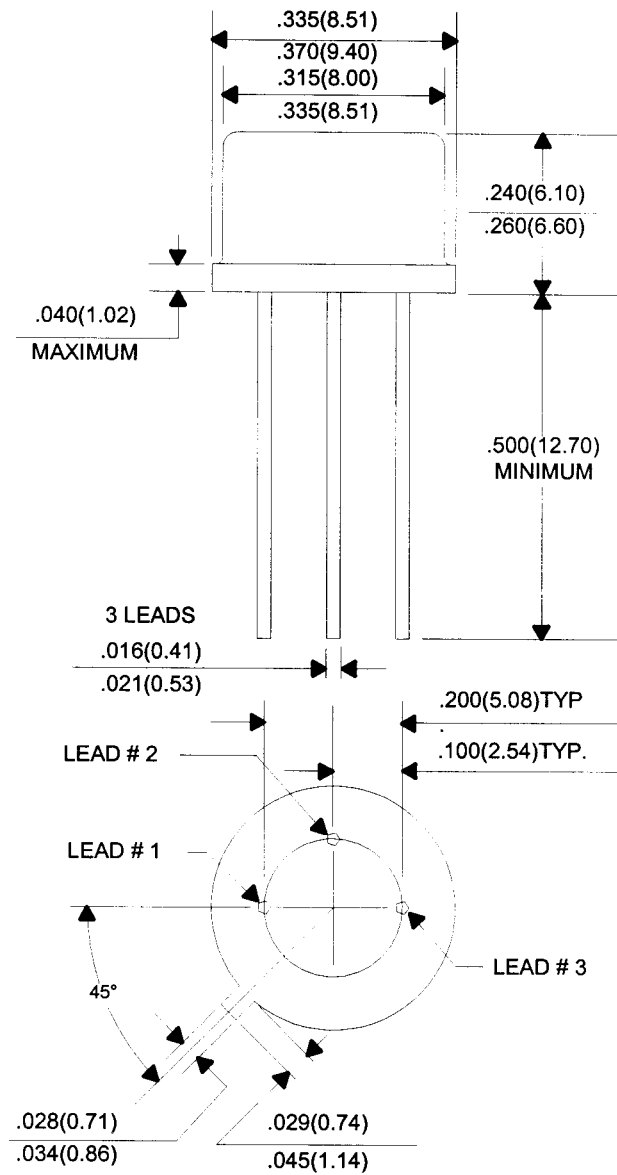
	SYMBOL	BSS50	BSS51	BSS52	UNITS
Collector-Base Voltage	V <sub>CB0</sub>	60	80	90	V
Collector-Emitter Voltage	V <sub>CER</sub>	45	60	80	V
Emitter-Base Voltage	V <sub>EBO</sub>		5.0		V
Collector Current	I <sub>C</sub>		1.0		A
Collector Current (Peak)	I <sub>CM</sub>		2.0		A
Base Current (Peak)	I <sub>BM</sub>		100		mA
Power Dissipation	P <sub>D</sub>		0.8		W
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>		5.0		W
Operating and Storage					
Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>		-65 to +200		°C
Thermal Resistance	θ <sub>JA</sub>		219		°C/W
Thermal Resistance	θ <sub>JC</sub>		35		°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	BSS50		BSS51		BSS52		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I <sub>CB0</sub>	V <sub>CB</sub> =Rated V <sub>CER</sub>		50		50		50	nA
I <sub>EBO</sub>	V <sub>EB</sub> =4.0V		50		50		50	nA
V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =500μA		1.3		1.3		1.3	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =500μA, T <sub>A</sub> =200°C		1.3		1.3		1.3	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =1.0A, I <sub>B</sub> =1.0mA		-		1.6		-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =1.0A, I <sub>B</sub> =1.0mA, T <sub>A</sub> =200°C		-		2.3		-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =1.0A, I <sub>B</sub> =4.0mA		1.6		-		1.6	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =1.0A, I <sub>B</sub> =4.0mA, T <sub>A</sub> =200°C		1.6		-		1.6	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =500μA		1.9		1.9		1.9	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =1.0A, I <sub>B</sub> =1.0mA		-		2.2		-	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =1.0A, I <sub>B</sub> =4.0mA		2.2		-		2.2	V
V <sub>BE(ON)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	1.3	1.65	1.3	1.65	1.3	1.65	V
V <sub>BE(ON)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	1.4	1.75	1.4	1.75	1.4	1.75	V
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA		1K		1K		1K	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA		2K		2K		2K	
h <sub>fe</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =500mA, f=35MHz		10 TYP		10 TYP		10 TYP	
t <sub>on</sub>	I <sub>C</sub> =500mA, I <sub>B1</sub> =I <sub>B2</sub> =0.5mA		0.4 TYP		0.4 TYP		0.4 TYP	μs
t <sub>off</sub>	I <sub>C</sub> =500mA, I <sub>B1</sub> =I <sub>B2</sub> =0.5mA		1.5 TYP		1.5 TYP		1.5 TYP	μs
t <sub>on</sub>	I <sub>C</sub> =1.0A, I <sub>B1</sub> =I <sub>B2</sub> =1.0mA		0.4 TYP		0.4 TYP		0.4 TYP	μs
t <sub>off</sub>	I <sub>C</sub> =1.0A, I <sub>B1</sub> =I <sub>B2</sub> =1.0mA		1.5 TYP		1.5 TYP		1.5 TYP	μs

(See Reverse Side)

# JEDEC TO-39 CASE - MECHANICAL OUTLINE



All Dimensions in Inches (mm).

Lead Code:

1. Emitter
2. Base
3. Collector

**Central**<sup>™</sup>  
**Semiconductor Corp.**

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2<sup>nd</sup> 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

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### 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).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

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