

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

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Manufacturers of World Class Discrete Semiconductors

PN3639  
PN3640

PNP SILICON TRANSISTOR

JEDEC TO-92 CASE (EBC)

## DESCRIPTION

The CENTRAL SEMICONDUCTOR PN3639, PN3640 types are silicon NPN transistors designed for ultra high speed switching applications.

## MAXIMUM RATINGS (TA=25°C unless otherwise noted)

	SYMBOL	PN3639	PN3640	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	6.0	12	V
Collector-Emitter Voltage	V <sub>CEO</sub>	6.0	12	V
Emitter-Base Voltage	V <sub>EBO</sub>	4.0	4.0	V
Collector Current	I <sub>C</sub>	80	80	mA
Power Dissipation	P <sub>D</sub>	625	625	mW
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	1.0	1.0	W
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>STG</sub>	-65 TO +150		°C

## ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	PN3639		PN3640		UNIT
		MIN	MAX	MIN	MAX	
I <sub>CES</sub>	V <sub>CE</sub> =3.0V		50	-		nA
I <sub>CES</sub>	V <sub>CE</sub> =6.0V		-	50		nA
I <sub>CES</sub>	V <sub>CE</sub> =3.0V, T <sub>A</sub> =65°C		1.0	-		μA
I <sub>CES</sub>	V <sub>CE</sub> =6.0V, T <sub>A</sub> =65°C		-	1.0		μA
B <sub>V</sub> C <sub>B0</sub>	I <sub>C</sub> =100μA	6.0		12		V
B <sub>V</sub> C <sub>ES</sub>	I <sub>C</sub> =100μA	6.0		12		V
B <sub>V</sub> C <sub>EO</sub>	I <sub>C</sub> =10mA	6.0		12		V
B <sub>V</sub> E <sub>B0</sub>	I <sub>E</sub> =100μA	4.0		4.0		V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA		0.25		0.30	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA		0.16		0.20	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA, T <sub>A</sub> =65°C		0.23		0.25	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA		0.50		0.60	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA	0.75	0.95	0.75	0.95	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	0.80	1.00	0.80	1.00	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-	1.50	-	1.50	V
h <sub>FE</sub>	V <sub>CE</sub> =0.3V, I <sub>C</sub> =10mA	30	120	30	120	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =50mA	20	-	20	-	
f <sub>T</sub>	V <sub>CB</sub> =0V, I <sub>C</sub> =10mA, f=100MHz	300		300		MHz
f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA, f=100MHz	500		500		MHz
C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=140kHz		3.5		3.5	pF
C <sub>ob</sub>	V <sub>CB</sub> =0V, I <sub>E</sub> =0, f=140kHz		5.5		5.5	pF
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=140kHz		3.5		3.5	pF
t <sub>ON</sub>	V <sub>CC</sub> =1.5V, I <sub>C</sub> =10mA, I <sub>B1</sub> =0.5mA		60		60	ns
t <sub>ON</sub>	V <sub>CC</sub> =6.0V, I <sub>C</sub> =50mA, I <sub>B1</sub> =5.0mA		25		25	ns
t <sub>OFF</sub>	V <sub>CC</sub> =1.5V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =0.5mA		60		75	ns
t <sub>OFF</sub>	V <sub>CC</sub> =6.0V, I <sub>C</sub> =50mA, I <sub>B1</sub> =I <sub>B2</sub> =5.0mA		25		35	ns
τ <sub>s</sub>	V <sub>CC</sub> =3.0V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =10mA		30		50	ns