

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

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Manufacturers of World Class Discrete Semiconductors

2N4400  
2N4401

NPN SILICON TRANSISTOR

JEDEC TO-92 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4400, 2N4401 types are molded epoxy Silicon NPN Transistors designed for general purpose amplifier and switching applications. The PNP complementary types are 2N4402, 2N4403.

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

	SYMBOL		UNIT
Collector-Base Voltage	V <sub>CB0</sub>	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter-Base Voltage	V <sub>EB0</sub>	6.0	V
Collector Current	I <sub>C</sub>	600	mA
Power Dissipation	P <sub>D</sub>	625	mW
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-55 TO +150	°C

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

SYMBOL	TEST CONDITIONS	2N4400		2N4401		UNIT
		MIN	MAX	MIN	MAX	
I <sub>CEV</sub>	V <sub>CE</sub> =35V, V <sub>EB</sub> (OFF)=0.4V		0.1		0.1	μA
BV <sub>CB0</sub>	I <sub>C</sub> =0.1mA	60		60		V
BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA	40		40		V
BV <sub>EB0</sub>	I <sub>E</sub> =0.1mA	6.0		6.0		V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA		0.4		0.4	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		0.75		0.75	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	0.75	0.95	0.75	0.95	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	1.2	-	1.2	V
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =0.1mA	-		20		
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =1.0mA	20		40		
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =10mA	40		80		
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =150mA	50	150	100	300	
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =500mA	20		40		
h <sub>fe</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	20	250	40	500	
f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =20mA, f=100MHz	200		250		MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, f=100kHz		6.5		6.5	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, f=100kHz		30		30	pF
t <sub>on</sub>	V <sub>CC</sub> =30V, V <sub>EB</sub> (OFF)=2.0V, I <sub>C</sub> =150mA, I <sub>B1</sub> =15mA		35		35	ns
t <sub>off</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA, I <sub>B1</sub> = I <sub>B2</sub> =15mA		255		255	ns