

2N4400  
2N4401

SILICON  
NPN TRANSISTORS



TO-92 CASE

**Central**  
Semiconductor Corp.

www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N4400 and 2N4401 are silicon NPN transistors designed for general purpose amplifier and switching applications. PNP complementary types are 2N4402 and 2N4403.

**MARKING: FULL PART NUMBER**

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

Collector-Base Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Power Dissipation  
Operating and Storage Junction Temperature

SYMBOL		UNITS
V <sub>CBO</sub>	60	V
V <sub>CEO</sub>	40	V
V <sub>EBO</sub>	6.0	V
I <sub>C</sub>	600	mA
P <sub>D</sub>	625	mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C

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

SYMBOL	TEST CONDITIONS	2N4400		2N4401		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CEV</sub>	V <sub>CE</sub> =35V, V <sub>EB</sub> =0.4V	-	100	-	100	nA
BV <sub>CBO</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>EBO</sub>	I <sub>E</sub> =0.1mA	6.0	-	6.0	-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	-	0.40	-	0.40	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	0.75	-	0.75	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	0.75	0.95	0.75	0.95	V
V <sub>BE(SAT)</sub>	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, I <sub>E</sub> =0, f=100kHz	-	6.5	-	6.5	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=100kHz	-	30	-	30	pF
t <sub>on</sub>	V <sub>CC</sub> =30V, V <sub>EB(OFF)</sub> =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

R2 (2-December 2014)

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TO-92 CASE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.500	-	12.70	-
D	0.016	0.022	0.41	0.56
E	0.100		2.54	
F	0.050		1.27	
G	0.125	0.165	3.18	4.19
H	0.080	0.105	2.03	2.67
I	0.015		0.38	

TO-92 (REV: R1)

LEAD CODE:

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

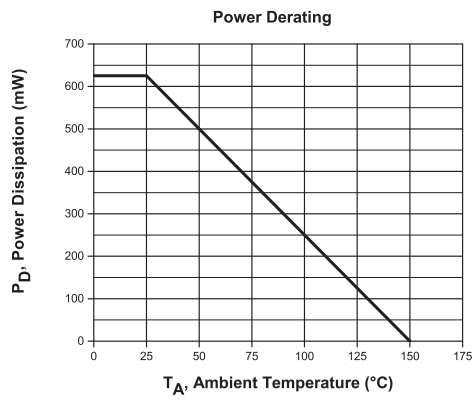
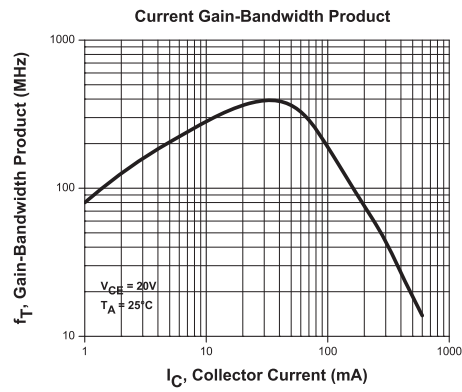
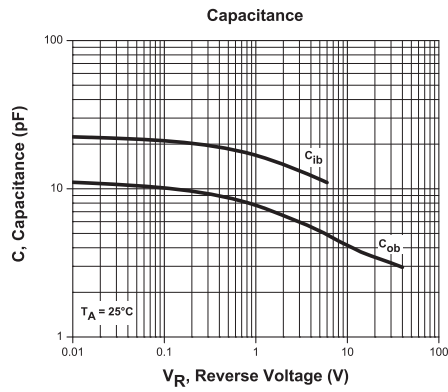
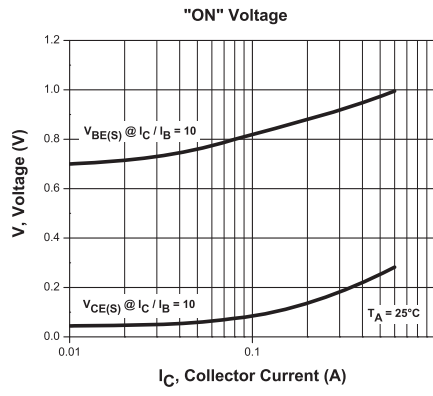
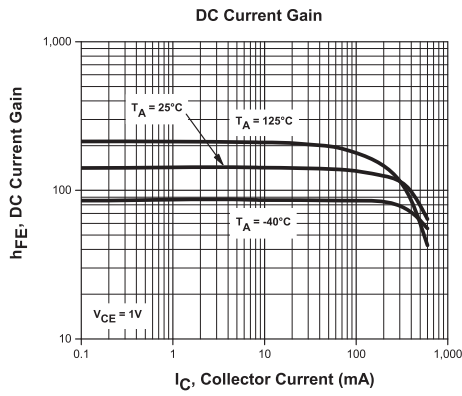
MARKING:  
FULL PART NUMBER

R2 (2-December 2014)

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TYPICAL ELECTRICAL CHARACTERISTICS



R2 (2-December 2014)

## 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

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

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[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

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