



**THE DATASHEET OF
2N4401 PBFREE**



2N4400
2N4401

**SILICON
NPN TRANSISTORS**



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TO-92 CASE

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_A=25°C)

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

SYMBOL		UNITS
V _{CBO}	60	V
V _{CEO}	40	V
V _{EBO}	6.0	V
I _C	600	mA
P _D	625	mW
T _J , T _{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

SYMBOL	TEST CONDITIONS	2N4400		2N4401		UNITS
		MIN	MAX	MIN	MAX	
I _{CEV}	V _{CE} =35V, V _{EB} =0.4V	-	100	-	100	nA
BV _{CBO}	I _C =0.1mA	60	-	60	-	V
BV _{CEO}	I _C =1.0mA	40	-	40	-	V
BV _{EBO}	I _E =0.1mA	6.0	-	6.0	-	V
V _{CE(SAT)}	I _C =150mA, I _B =15mA	-	0.40	-	0.40	V
V _{CE(SAT)}	I _C =500mA, I _B =50mA	-	0.75	-	0.75	V
V _{BE(SAT)}	I _C =150mA, I _B =15mA	0.75	0.95	0.75	0.95	V
V _{BE(SAT)}	I _C =500mA, I _B =50mA	-	1.2	-	1.2	V
h _{FE}	V _{CE} =1.0V, I _C =0.1mA	-	-	20	-	
h _{FE}	V _{CE} =1.0V, I _C =1.0mA	20	-	40	-	
h _{FE}	V _{CE} =1.0V, I _C =10mA	40	-	80	-	
h _{FE}	V _{CE} =1.0V, I _C =150mA	50	150	100	300	
h _{FE}	V _{CE} =2.0V, I _C =500mA	20	-	40	-	
h _{fe}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	20	250	40	500	
f _T	V _{CE} =10V, I _C =20mA, f=100MHz	200	-	250	-	MHz
C _{ob}	V _{CB} =5.0V, I _E =0, f=100kHz	-	6.5	-	6.5	pF
C _{ib}	V _{BE} =0.5V, I _C =0, f=100kHz	-	30	-	30	pF
t _{on}	V _{CC} =30V, V _{EB(OFF)} =2.0V, I _C =150mA, I _{B1} =15mA	-	35	-	35	ns
t _{off}	V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA	-	255	-	255	ns

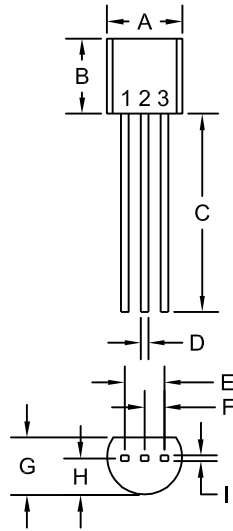
R2 (2-December 2014)

2N4400
2N4401

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TO-92 CASE - MECHANICAL OUTLINE



R1

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

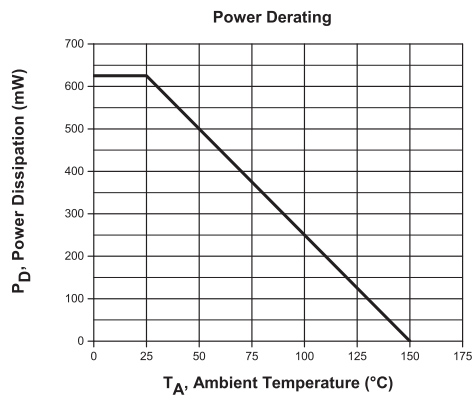
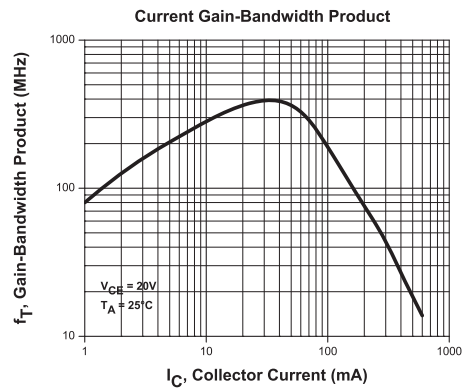
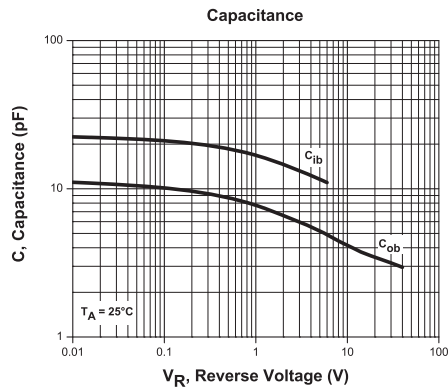
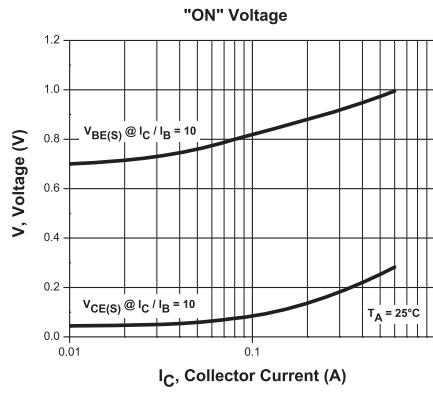
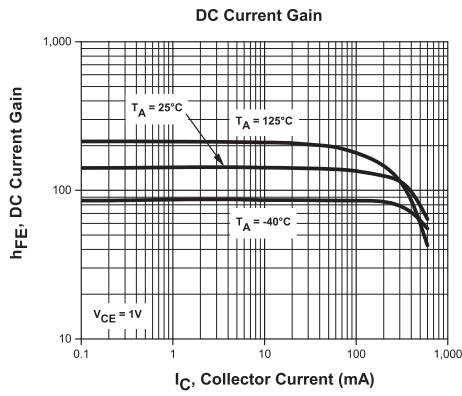
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TYPICAL ELECTRICAL CHARACTERISTICS



R2 (2-December 2014)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

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

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- 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).

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