2N4400
2N4401

SILICON
NPN TRANSISTORS

TO-92 CASE

Central Semiconductor Corp.

www.centralsemi.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_A=25°C)	**SYMBOL**		**UNITS**
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Continuous Collector Current	I_C	600	mA
Power Dissipation	P_D	625	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS: (T_A=25°C)		**2N4400**		**2N4401**		
SYMBOL	**TEST CONDITIONS**	**MIN**	**MAX**	**MIN**	**MAX**	**UNITS**
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)

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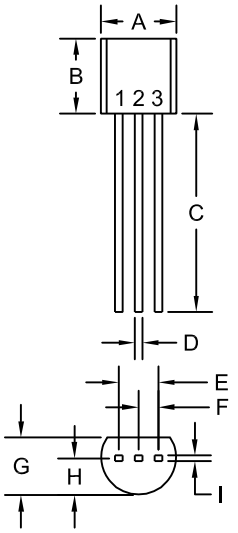
TO-92 CASE - MECHANICAL OUTLINE



R1

DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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

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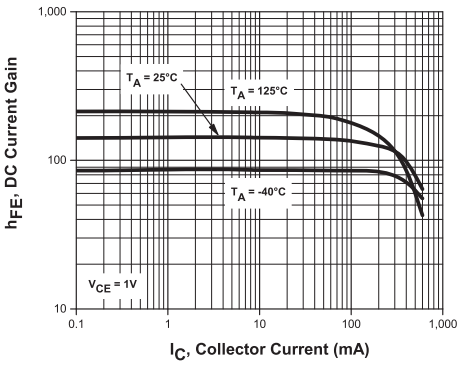
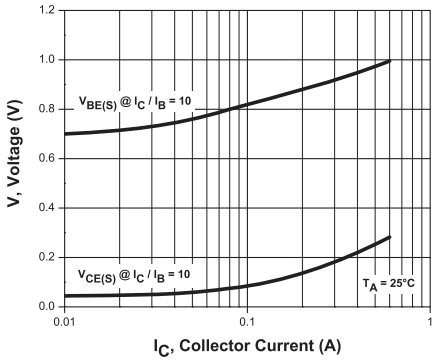
TYPICAL ELECTRICAL CHARACTERISTICS

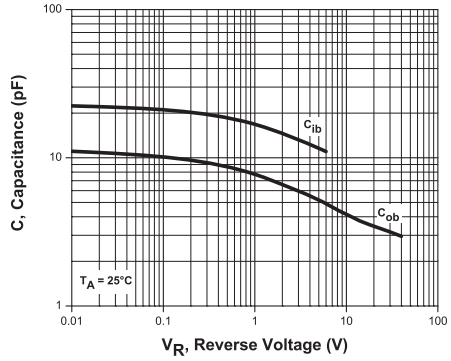
DC Current Gain



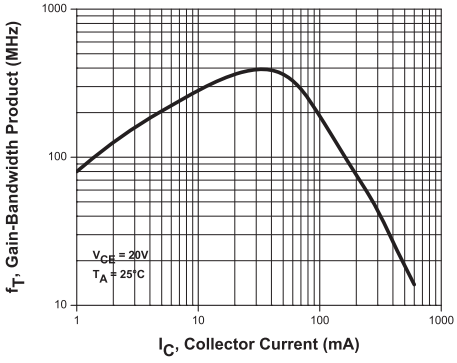
"ON" Voltage



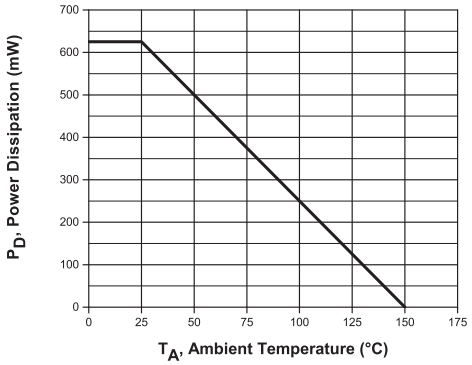
Capacitance



Current Gain-Bandwidth Product



Power Derating



R2 (2-December 2014)

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SERVICES

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development / Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

R2 (2-December 2014)