

CentralTM Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

2N4404
2N4405

PNP SILICON TRANSISTOR

JEDEC TO-39 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4404, 2N4405 types are PNP Silicon Epitaxial Planar Transistors designed for general purpose and switching applications.

MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$)

	<u>SYMBOL</u>		<u>UNITS</u>
Collector-Base Voltage	V_{CB0}	80	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	1.0	A
Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	1.25	W
Power Dissipation	P_D	8.75	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	140	$^\circ\text{C/W}$
Thermal Resistance	θ_{JC}	25	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>2N4404</u>		<u>2N4405</u>		<u>UNITS</u>
		<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	
I_{CBO}	$V_{CB} = 60\text{V}$		25		25	nA
I_{EBO}	$V_{EB} = 3.0\text{V}$		25		25	nA
BV_{CEO}	$I_C = 10\text{mA}$	80		80		V
BV_{CBO}	$I_C = 10\mu\text{A}$	80		80		V
BV_{EBO}	$I_E = 10\mu\text{A}$	5.0		5.0		V
$V_{CE(SAT)}$	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$		0.15		0.15	V
$V_{CE(SAT)}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$		0.2		0.2	V
$V_{CE(SAT)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		0.5		0.5	V
$V_{BE(SAT)}$	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$		0.8		0.8	V
$V_{BE(SAT)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	0.85	1.2	0.85	1.2	V
$V_{BE(ON)}$	$V_{CE} = 1.0\text{V}, I_C = 150\text{mA}$		0.9		0.9	V
h_{FE}	$V_{CE} = 5.0\text{V}, I_C = 0.1\text{mA}$		30		75	
h_{FE}	$V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$		40		100	
h_{FE}	$V_{CE} = 5.0\text{V}, I_C = 150\text{mA}$		40	120	300	
h_{FE}	$V_{CE} = 5.0\text{V}, I_C = 500\text{mA}$		30		50	

ELECTRICAL CHARACTERISTICS (Continued)

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>MAX</u>	<u>UNITS</u>
f_T	$V_{CE} = 20V, I_C = 50mA, f = 100MHz$	150	600	MHz
C_{cb}	$V_{CB} = 10V, I_E = 0, f = 1.0MHz$		20	pF
C_{eb}	$V_{BE} = 0.5V, I_C = 0, f = 1.0MHz$		110	pF
t_d	$V_{CC} = 30V, V_{BE(off)} = 2.0V, I_C = 500mA, I_{B1} = 50mA$		40	ns
t_r	$V_{CC} = 30V, V_{BE(off)} = 2.0V, I_C = 500mA, I_{B1} = 50mA$		60	ns
t_s	$V_{CC} = 30V, I_C = 500mA, I_{B1} = I_{B2} = 50mA$		350	ns
t_f	$V_{CC} = 30V, I_C = 500mA, I_{B1} = I_{B2} = 50mA$		50	ns

Central[™] **Semiconductor Corp.**

145 Adams Avenue
Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824
www.centalsemi.com

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd 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

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).

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

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
www.centrasemi.com/wwdistributors

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: www.centrasemi.com/terms