

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

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Manufacturers of World Class Discrete Semiconductors

PN2221  
PN2221A  
PN2222  
PN2222A

NPN Silicon Transistor

JEDEC TO-92 Case

## DESCRIPTION

The CENTRAL SEMICONDUCTOR PN2221,A,PN2222,A are Silicon NPN Planar Epitaxial Transistors designed for small signal general purpose and switching applications.

MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

		PN2221 PN2222	PN2221A PN2222A	
Collector-Base Voltage	V <sub>CB0</sub>	60	75	Vdc
Emitter-Base Voltage	V <sub>EB0</sub>	5.0	6.0	Vdc
Collector-Emitter Voltage	V <sub>CE0</sub>	30	40	Vdc
Collector Current-Continuous	I <sub>C</sub>		800	mAdc
Power Dissipation	P <sub>T</sub>		625	mW
Operating and Storage Junction Temperature	T <sub>J</sub> ,T <sub>stg</sub>	-65 TO +150		°C

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

Symbol	Test Conditions	PN2221 PN2222		PN2221A PN2222A		Unit
		Min	Max	Min	Max	
I <sub>CB0</sub>	V <sub>CB</sub> =50V		10			nA
I <sub>CB0</sub>	V <sub>CB</sub> =60V			10		nA
I <sub>CEV</sub>	V <sub>CE</sub> =60V, V <sub>EB</sub> =3.0V			10		nA
I <sub>EB0</sub>	V <sub>EB</sub> =3.0V		10	10		nA
BV <sub>CB0</sub>	I <sub>C</sub> =10uA	60		75		V
BV <sub>EB0</sub>	I <sub>E</sub> =10uA	5.0		6.0		V
BV <sub>CE0</sub>	I <sub>C</sub> =10mA	30		40		V
V <sub>CE(s)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA		0.4		0.3	V
V <sub>CE(s)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		1.6		1.0	V
V <sub>BE(s)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA		1.3		1.2	V
V <sub>BE(s)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		2.6		2.0	V
		PN2221 PN2221A		PN2222 PN2222A		Unit
		Min	Max	Min	Max	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =100uA	20		35		-
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1mA	25		50		-
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	35		75		-
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	40	120	100	300	-
h <sub>FE</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =150mA	20		50		-
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA (PN2221, PN2222 Only)	20		30		-
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA (PN2221A, PN2222A Only)	25		40		-
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, f=100MHz (Except PN2222A)	250		250		MHz
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, f=100MHz (PN2222A only)			300		MHz
C <sub>ob</sub>	V <sub>CB</sub> =10V, f=100kHz		8.0		8.0	pF
t <sub>ON</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA, I <sub>B</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		285		285	ns