Data Sheet

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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_A=25°C unless otherwise noted)

		PN2221 PN2222	PN2221A PN2222A	
Collector-Base Voltage	V_{CBO}	60	75	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	6.0	Vdc
Collector-Emitter Voltage	V_{CEO}	30	40	Vdc
Collector Current-Continuous	I_C	800		mAdc
Power Dissipation	P_T	625		mW
Operating and Storage Junction Temperature	T_J,T_{stg}	-65 TO +150		°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Symbol	Test Conditions	PN2221 PN2222 Min	PN2221 PN2222 Max	PN2221A PN2222A Min	PN2221A PN2222A Max	Unit
I_{CBO}	V_{CB}=50V		10			nA
I_{CBO}	V_{CB}=60V				10	nA
I_{CEV}	V_{CE}=60V, V_{EB}=3.0V				10	nA
I_{EBO}	V_{EB}=3.0V		10		10	nA
BV_{CBO}	I_C=10uA	60		75		V
BV_{EBO}	I_E=10uA	5.0		6.0		V
BV_{CEO}	I_C=10mA	30		40		V
$V_{CE(s)}$	I_C=150mA, I_B=15mA		0.4		0.3	V
$V_{CE(s)}$	I_C=500mA, I_B=50mA		1.6		1.0	V
$V_{BE(s)}$	I_C=150mA, I_B=15mA		1.3		1.2	V
$V_{BE(s)}$	I_C=500mA, I_B=50mA		2.6		2.0	V

Symbol	Test Conditions	PN2221 PN2221A Min	PN2221 PN2221A Max	PN2222 PN2222A Min	PN2222 PN2222A Max	Unit
h_{FE}	V_{CE}=10V, I_C=100uA	20		35		-
h_{FE}	V_{CE}=10V, I_C=1mA	25		50		-
h_{FE}	V_{CE}=10V, I_C=10mA	35		75		-
h_{FE}	V_{CE}=10V, I_C=150mA	40	120	100	300	-
h_{FE}	V_{CE}=1V, I_C=150mA	20		50		-
h_{FE}	V_{CE}=10V, I_C=500mA(PN2221, PN2222 Only)	20		30		-
h_{FE}	V_{CE}=10V, I_C=500mA(PN2221A,PN2222A Only)	25		40		-
f_T	V_{CE}=20V, I_C=20mA,f=100MHz(Except PN2222A)	250		250		MHz
f_T	V_{CE}=20V, I_C=20mA,f=100MHz(PN2222A only)			300		MHz
C_{ob}	V_{CB}=10V, f=100kHz		8.0		8.0	pF
t_{ON}	V_{CC}=30V, I_C=150mA, I_B=15mA		35		35	ns
t_{OFF}	V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA		285		285	ns