2N2221A 2N2222A

SILICON NPN TRANSISTORS



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DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N2221A and 2N2222A are silicon NPN epitaxial planar transistors designed for small signal, general purpose switching applications.

MARKING: FULL PART NUMBER



 h_{FE}

 h_{FE}

 h_{FE}

V_{CE}=10V, I_C=150mA

 V_{CE} =1.0V, I_{C} =150mA

 V_{CE} =10V, I_{C} =500mA

						_
Collector-Base	ATINGS: (T _A =25°C)	SYMBOL V _{CBO}	7:	5	UNITS V	5
Collector-Emit	ŭ	VCEO	4	-	V	
Emitter-Base	· ·	VEBO	6.	-	V	
	ollector Current	IC	80		mA	
Power Dissipa		P _D	50		mW	
•	ation (T _C =25°C)	P _D	1.	-	W	
	Storage Junction Temperature	T _J , T _{stg}	-65 to		°C	
Thermal Resistance		Θ_{JA}	350		°C/W	
Thermal Resis	stance	ΘJC	9	7	°C/W	
	. CHARACTERISTICS: (T _A =25°C u				LINUTA	
SYMBOL I _{CBO}	TEST CONDITIONS V _{CB} =60V	MIN	M. 4		UNITS nA	•
ICBO	V _{CB} =60V, T _Δ =150°C		10	-	μA	
ICEA	V _{CF} =60V, V _{FR} =3.0V		10		nA	
IFBO	V _{FB} =3.0V		10		nA	
BV _{CBO}	I _C =10µA	75	•		V	
BVCEO	I _C =10mA	40			V	
BVEBO	I⊨=10μA	6.0			V	
VCE(SAT)	I _C =150mA, I _B =15mA		0.	3	V	
VCE(SAT)	I _C =500mA, I _B =50mA		1.	0	V	
VBE(SAT)	I _C =150mA, I _B =15mA	0.6	1.		V	
V _{BE} (SAT)	I _C =500mA, I _R =50mA		2.		V	
BE(SAT)	C 444 7 B 44	<u>2N</u>	2221A	2N2	222A	
		MIN	MAX	MIN	MAX	
h _{FE}	V _{CE} =10V, I _C =0.1mA	20	-	35	-	
h _{FE}	V _{CE} =10V, I _C =1.0mA	25	-	50	-	
h _{FE}	V _{CE} =10V, I _C =10mA	35	-	75	-	
hFE	V _{CE} =10V, I _C =10mA, T _A =-55°C	15	-	35	-	

40

20

25

120

100

50

40

300

R5 (5-December 2013)

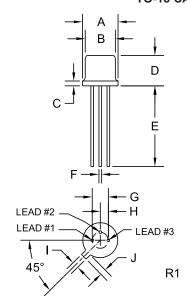
2N2221A 2N2222A





ELECTRICAL CHARACTERISTICS - Continued: (T _A =25°C)			2N2221A		2N2222A	
SYMBOL	TEST CONDITIONS	MIN	MAX	MIN	MAX	UNITS
f_{T}	V_{CE} =20V, I_{C} =20mA, f=100MHz	250	-	300	-	MHz
C_{ob}	V_{CB} =10V, I_E =0, f=100kHz	-	8.0	-	8.0	pF
C _{ib}	V_{EB} =0.5V, I_{C} =0, f=100kHz	-	25	-	25	pF
h _{ie}	V_{CE} =10V, I_{C} =1.0mA, f=1.0kHz	1.0	3.5	2.0	8.0	kΩ
h _{ie}	V_{CE} =10V, I_{C} =10mA, f=1.0kHz	0.2	1.0	0.25	1.25	kΩ
h _{re}	V_{CE} =10V, I_{C} =1.0mA, f=1.0kHz	-	5.0	-	8.0	x10 ⁻⁴
h _{re}	V_{CE} =10V, I_{C} =10mA, f=1.0kHz	-	2.5	-	4.0	x10 ⁻⁴
h _{fe}	V_{CE} =10V, I_{C} =1.0mA, f=1.0kHz	30	150	50	300	
h _{fe}	V_{CE} =10V, I_{C} =10mA, f=1.0kHz	50	300	75	375	
h _{oe}	V_{CE} =10V, I_{C} =1.0mA, f=1.0kHz	3.0	15	5.0	35	μS
h _{oe}	V_{CE} =10V, I_{C} =10mA, f=1.0kHz	10	100	25	200	μS
rb'C _C	V_{CB} =10V, I_E =20mA, f=31.8MHz	-	150	-	150	ps
NF	V_{CE} =10V, I_{C} =100 μ A, R_{S} =1.0 $k\Omega$, f=1.0 k Hz	-	-	-	4.0	dB
t_d	V_{CC} =30V, V_{BE} =0.5V, I_{C} =150mA, I_{B1} =15mA	-	10	-	10	ns
t _r	V_{CC} =30V, V_{BE} =0.5V, I_{C} =150mA, I_{B1} =15mA	-	25	-	25	ns
t _s	V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA	-	225	-	225	ns
t _f	V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA	-	60	-	60	ns

TO-18 CASE - MECHANICAL OUTLINE



DIMENSIONS						
	INC	HES	MILLIMETERS			
SYMBOL	MIN	MAX	MIN	MAX		
A (DIA)	0.209	0.230	5.31	5.84		
B (DIA)	0.178	0.195	4.52	4.95		
С	-	0.030	-	0.76		
D	0.170	0.210	4.32	5.33		
E	0.500	-	12.70	-		
F (DIA)	0.016	0.019	0.41	0.48		
G (DIA)	0.100		2.54			
Н	0.050		1.27			
I	0.036	0.046	0.91	1.17		
J	0.028	0.048	0.71	1.22		

TO-18 (REV: R1)

LEAD CODE:

- 1) Emitter 2) Base
- 3) Collector

MARKING: FULL PART NUMBER

R5 (5-December 2013)

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

CONTACT US

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