

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N2221

2N2222

NPN SILICON TRANSISTOR

JEDEC TO-18 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N2221, 2N2222 types are Silicon NPN Planar Epitaxial Transistors designed for small signal general purpose and switching applications.

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

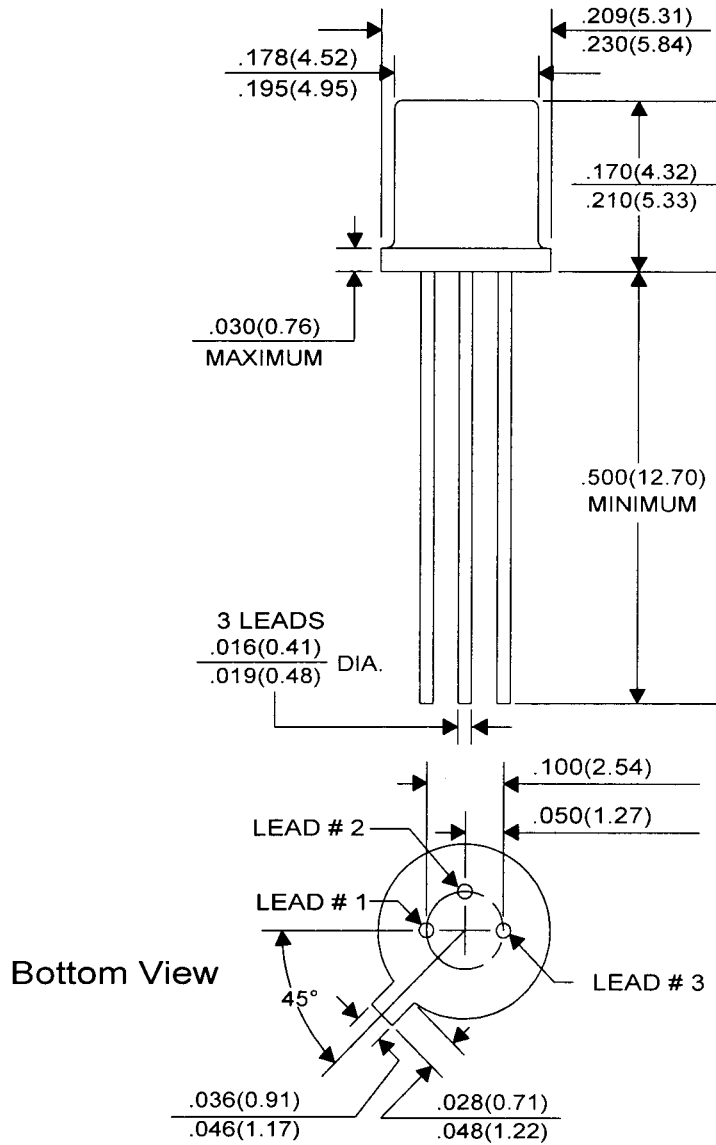
	<u>SYMBOL</u>		<u>UNITS</u>
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	800	mA
Power Dissipation	P_D	400	mW
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	1.2	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	438	$^\circ\text{C/W}$
Thermal Resistance	θ_{JC}	146	$^\circ\text{C/W}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	2N2221		2N2222		<u>UNITS</u>
		<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	
I_{CBO}	$V_{CB}=50\text{V}$		10	10		nA
I_{CBO}	$V_{CB}=50\text{V}, T_A=150^\circ\text{C}$		10	10		μA
I_{EBO}	$V_{EB}=3.0\text{V}$		10	10		nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		60		V
BV_{CEO}	$I_C=10\text{mA}$	30		30		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		5.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.4		0.4	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.6		1.6	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.3	0.6	1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.6		2.6	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	20		35		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	25		50		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	35		75		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}, T_A=-55^\circ\text{C}$	15		35		
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	40	120	100	300	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	20		50		
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	25		40		
f_T	$V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	250		250		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=100\text{kHz}$		8.0		8.0	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=100\text{kHz}$		30		30	pF

(See Reverse Side)

JEDEC TO-18 CASE - MECHANICAL OUTLINE



All Dimensions in Inches (mm).

Lead Code:

1. Emitter
2. Base
3. Collector