

2N5781 PNP  
2N5784 NPN

**COMPLEMENTARY SILICON  
POWER TRANSISTORS**



**TO-39 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N5781 and 2N5784 types are Complementary Silicon Power Transistors designed for general purpose switching and amplifier applications.

**MARKING: FULL PART NUMBER**

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

Collector-Base Voltage  
Collector-Emitter Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Continuous Base Current  
Power Dissipation  
Power Dissipation ( $T_A=25^\circ\text{C}$ )  
Operating and Storage Junction Temperature  
Thermal Resistance  
Thermal Resistance

**SYMBOL**

$V_{CBO}$	80
$V_{CER}$	80
$V_{CEO}$	65
$V_{EBO}$	5.0
$I_C$	3.5
$I_B$	1.0
$P_D$	10
$P_D$	1.0
$T_J, T_{stg}$	-65 to +200
$\theta_{JC}$	17.5
$\theta_{JA}$	175

**UNITS**

V  
V  
V  
V  
A  
A  
W  
W  
 $^\circ\text{C}$   
 $^\circ\text{C/W}$   
 $^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CEV}$	$V_{CE}=75\text{V}, V_{BE}=1.5\text{V}$		10	$\mu\text{A}$
$I_{CEV}$	$V_{CE}=75\text{V}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$		1.0	mA
$I_{CER}$	$V_{CE}=65\text{V}, R_{BE}=100\Omega$		10	$\mu\text{A}$
$I_{CER}$	$V_{CE}=65\text{V}, R_{BE}=100\Omega, T_C=150^\circ\text{C}$		1.0	mA
$I_{CEO}$	$V_{CE}=50\text{V}$		100	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=5.0\text{V}$		10	$\mu\text{A}$
$BV_{CER}$	$I_C=10\text{mA}, R_{BE}=100\Omega$	80		V
$BV_{CEO}$	$I_C=10\text{mA}$	65		V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$		0.5	V
$V_{BE(ON)}$	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$		1.5	V
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$	20	150	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=3.2\text{A}$	4.0		
$f_T$	$V_{CE}=2.0\text{V}, I_C=100\text{mA}, f=4.0\text{MHz}$ (2N5781)	8.0	60	MHz
$f_T$	$V_{CE}=2.0\text{V}, I_C=100\text{mA}, f=200\text{kHz}$ (2N5784)	1.0	4.0	MHz
$h_{fe}$	$V_{CE}=2.0\text{V}, I_C=100\text{mA}, f=1.0\text{kHz}$	25		
$t_{on}$	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$ (2N5781)		0.5	$\mu\text{s}$
$t_{on}$	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$ (2N5784)		5.0	$\mu\text{s}$
$t_{off}$	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$ (2N5781)		2.5	$\mu\text{s}$
$t_{off}$	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$ (2N5784)		15	$\mu\text{s}$

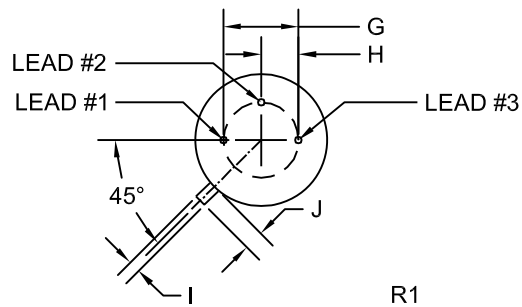
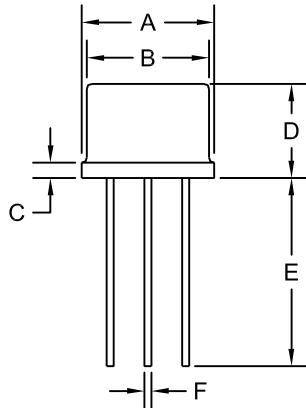
R1 (25-January 2011)

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TO-39 CASE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING: FULL PART NUMBER

R1 (25-January 2011)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2<sup>nd</sup> 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

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### 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).

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### CONTACT US

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