

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	$\mu\text{s}$

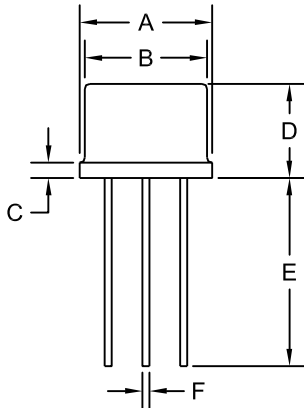
R1 (25-January 2011)

2N5781 PNP  
2N5784 NPN

COMPLEMENTARY SILICON  
POWER TRANSISTORS

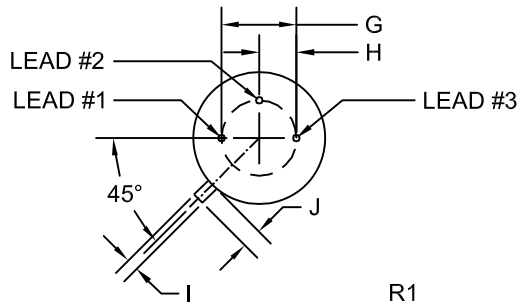


TO-39 CASE - MECHANICAL OUTLINE



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



---

### 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 (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

---

### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centalsemi.com](http://www.centalsemi.com)

**Worldwide Field Representatives:**  
[www.centalsemi.com/wwreps](http://www.centalsemi.com/wwreps)

**Worldwide Distributors:**  
[www.centalsemi.com/wwdistributors](http://www.centalsemi.com/wwdistributors)

---

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centalsemi.com/terms](http://www.centalsemi.com/terms)