

2N4398  
2N4399  
2N5745

**PNP SILICON  
POWER TRANSISTOR**



**TO-3 CASE**



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N4398 series types are PNP silicon power transistors designed for power amplifier and switching applications.

**MARKING: FULL PART NUMBER**

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

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

SYMBOL	2N4398	2N4399	2N5745	UNITS
$V_{CB0}$	40	60	80	V
$V_{CEO}$	40	60	80	V
$V_{EBO}$	5.0	5.0	5.0	V
$I_C$	30	30	20	A
$I_{CM}$		50		A
$I_B$		7.5		A
$I_{BM}$		15		A
$P_D$		200		W
$P_D$		5.0		W
$T_J, T_{stg}$		-65 to +200		$^\circ\text{C}$
$\theta_{JA}$		35		$^\circ\text{C/W}$
$\theta_{JC}$		0.875		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N4398		2N4399		2N5745		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$I_{CBO}$	$V_{CB}=\text{Rated } V_{CBO}$	-	1.0	-	1.0	-	1.0	mA
$I_{CEX}$	$V_{CE}=\text{Rated } V_{CEO}, V_{EB}=1.5\text{V}$	-	5.0	-	5.0	-	5.0	mA
$I_{CEX}$	$V_{CE}=30\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$	-	10	-	10	-	-	mA
$I_{CEX}$	$V_{CE}=80\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$	-	-	-	-	-	10	mA
$I_{CEO}$	$V_{CE}=\text{Rated } V_{CEO}$	-	5.0	-	5.0	-	5.0	mA
$I_{EBO}$	$V_{EB}=5.0\text{V}$	-	5.0	-	5.0	-	5.0	mA
$BV_{CEO}$	$I_C=200\text{mA}$	40	-	60	-	80	-	V
$V_{CE(\text{SAT})}$	$I_C=10\text{A}, I_B=1.0\text{A}$	-	0.75	-	0.75	-	1.0	V
$V_{CE(\text{SAT})}$	$I_C=15\text{A}, I_B=1.5\text{A}$	-	1.0	-	1.0	-	1.5	V
$V_{CE(\text{SAT})}$	$I_C=20\text{A}, I_B=2.0\text{A}$	-	2.0	-	2.0	-	-	V
$V_{CE(\text{SAT})}$	$I_C=20\text{A}, I_B=4.0\text{A}$	-	-	-	-	-	2.0	V
$V_{CE(\text{SAT})}$	$I_C=30\text{A}, I_B=6.0\text{A}$	-	4.0	-	4.0	-	-	V
$V_{BE(\text{SAT})}$	$I_C=10\text{A}, I_B=1.0\text{A}$	-	1.6	-	1.6	-	1.7	V
$V_{BE(\text{SAT})}$	$I_C=15\text{A}, I_B=1.5\text{A}$	-	1.85	-	1.85	-	2.0	V
$V_{BE(\text{SAT})}$	$I_C=20\text{A}, I_B=2.0\text{A}$	-	2.5	-	2.5	-	-	V
$V_{BE(\text{SAT})}$	$I_C=20\text{A}, I_B=4.0\text{A}$	-	-	-	-	-	2.5	V
$V_{BE(\text{ON})}$	$V_{CE}=2.0\text{V}, I_C=10\text{A}$	-	-	-	-	-	1.5	V
$V_{BE(\text{ON})}$	$V_{CE}=2.0\text{V}, I_C=15\text{A}$	-	1.7	-	1.7	-	-	V
$V_{BE(\text{ON})}$	$V_{CE}=4.0\text{V}, I_C=20\text{A}$	-	-	-	-	-	2.5	V
$V_{BE(\text{ON})}$	$V_{CE}=4.0\text{V}, I_C=30\text{A}$	-	3.0	-	3.0	-	-	V

R0 (30-July 2012)

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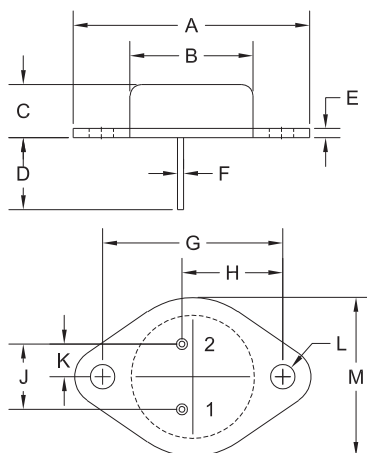
PNP SILICON  
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ELECTRICAL CHARACTERISTICS - Continued: ( $T_C=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N4398		2N4399		2N5745		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$	40	-	40	-	40	-	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=10\text{A}$	-	-	-	-	15	60	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=15\text{A}$	15	60	15	60	-	-	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=20\text{A}$	-	-	-	-	5.0	-	
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=30\text{A}$	5.0	-	5.0	-	-	-	
$h_{fe}$	$V_{CE}=10\text{V}, I_C=1.0\text{A}, f=1.0\text{kHz}$	40	-	40	-	40	-	
$f_T$	$V_{CE}=10\text{V}, I_C=1.0\text{A}, f=1.0\text{MHz}$	4.0	-	4.0	-	2.0	-	MHz
$t_r$	$V_{CC}=30\text{V}, I_C=10\text{A}, I_{B1}=I_{B2}=1.0\text{A}$	-	0.4	-	0.4	-	1.0	$\mu\text{s}$
$t_s$	$V_{CC}=30\text{V}, I_C=10\text{A}, I_{B1}=I_{B2}=1.0\text{A}$	-	1.5	-	1.5	-	2.0	$\mu\text{s}$
$t_f$	$V_{CC}=30\text{V}, I_C=10\text{A}, I_{B1}=I_{B2}=1.0\text{A}$	-	0.6	-	0.6	-	1.0	$\mu\text{s}$

TO-3 CASE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.516	1.573	38.50	39.96
B (DIA)	0.748	0.875	19.00	22.23
C	0.250	0.450	6.35	11.43
D	0.433	0.516	11.00	13.10
E	0.054	0.065	1.38	1.65
F	0.035	0.045	0.90	1.15
G	1.177	1.197	29.90	30.40
H	0.650	0.681	16.50	17.30
J	0.420	0.440	10.67	11.18
K	0.205	0.225	5.21	5.72
L (DIA)	0.151	0.172	3.84	4.36
M	0.984	1.050	25.00	26.67

TO-3 (REV: R2)

R2

LEAD CODE:

- 1) Base
- 2) Emitter
- Case) Collector

MARKING:

FULL PART NUMBER

R0 (30-July 2012)

## 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

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

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

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