

2N3798 2N3798A  
2N3799 2N3799A

**SILICON  
PNP TRANSISTORS**



**TO-18 CASE**



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N3798, 2N3799 series devices are silicon PNP epitaxial planar transistors designed for low noise amplifier applications.

**MARKING: FULL PART NUMBER**

<b>MAXIMUM RATINGS:</b> ( $T_A=25^\circ\text{C}$ unless otherwise noted)		<b>2N3798</b>	<b>2N3798A</b>	<b>UNITS</b>
<b>SYMBOL</b>		<b>2N3799</b>	<b>2N3799A</b>	
Collector-Base Voltage	$V_{CBO}$	60	90	V
Collector-Emitter Voltage	$V_{CEO}$	60	90	V
Emitter-Base Voltage	$V_{EBO}$		5.0	V
Continuous Collector Current	$I_C$		50	mA
Power Dissipation	$P_D$		360	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	$\theta_{JA}$	0.49		$^\circ\text{C}/\text{mW}$
Thermal Resistance	$\theta_{JC}$	150		$^\circ\text{C}/\text{W}$

<b>ELECTRICAL CHARACTERISTICS:</b> ( $T_A=25^\circ\text{C}$ unless otherwise noted)				<b>UNITS</b>
<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>MIN</b>	<b>MAX</b>	
$I_{CBO}$	$V_{CB}=50\text{V}$		10	nA
$I_{CBO}$	$V_{CB}=50\text{V}, T_A=150^\circ\text{C}$		10	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=4.0\text{V}$		20	nA
$BV_{CBO}$	$I_C=10\mu\text{A}$ (2N3798, 2N3799)	60		V
$BV_{CBO}$	$I_C=10\mu\text{A}$ (2N3798A, 2N3799A)	90		V
$BV_{CEO}$	$I_C=10\text{mA}$ (2N3798, 2N3799)	60		V
$BV_{CEO}$	$I_C=10\text{mA}$ (2N3798A, 2N3799A)	90		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=100\mu\text{A}, I_B=10\mu\text{A}$		0.20	V
$V_{CE(SAT)}$	$I_C=1.0\text{mA}, I_B=100\mu\text{A}$		0.25	V
$V_{BE(SAT)}$	$I_C=100\mu\text{A}, I_B=10\mu\text{A}$		0.70	V
$V_{BE(SAT)}$	$I_C=1.0\text{mA}, I_B=100\mu\text{A}$		0.80	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$		0.70	V

		<b>2N3798</b>		<b>2N3799</b>	
		<b>2N3798A</b>		<b>2N3799A</b>	
		<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\mu\text{A}$	-	-	75	-
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$	100	-	225	-
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	150	-	300	-
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, T_A=-55^\circ\text{C}$	75	-	150	-
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}$	150	450	300	900
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	150	-	300	-
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	125	-	250	-

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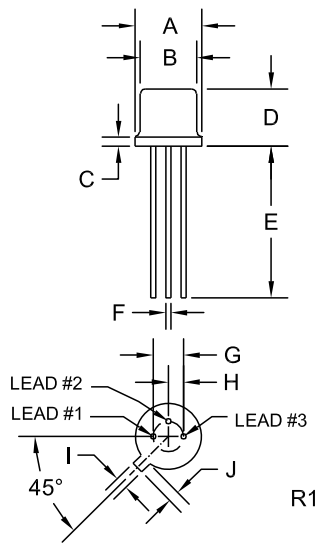


**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N3798			2N3799			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
$f_T$	$V_{CE}=5.0\text{V}$ , $I_C=500\mu\text{A}$ , $f=30\text{MHz}$	30	-	-	30	-	-	MHz
$f_T^*$	$V_{CE}=5.0\text{V}$ , $I_C=1.0\text{mA}$ , $f=100\text{MHz}$	-	80	-	-	80	-	MHz
$C_{ob}^*$	$V_{CB}=5.0\text{V}$ , $I_E=0$ , $f=100\text{kHz}$	-	-	5.0	-	-	5.0	pF
$C_{ib}^*$	$V_{EB}=0.5\text{V}$ , $I_C=0$ , $f=100\text{kHz}$	-	-	15	-	-	15	pF
$h_{ie}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	3.0	-	15	10	-	40	$k\Omega$
$h_{re}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	-	-	25	-	-	25	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	150	-	600	300	-	900	
$h_{oe}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	5.0	-	60	5.0	-	60	$\mu\text{S}$
NF	$V_{CE}=10\text{V}$ , $I_C=100\mu\text{A}$ , $R_G=3.0k\Omega$ , $f=100\text{Hz}$ , $BW=20\text{Hz}$	-	4.0	7.0	-	2.5	4.0	dB
NF	$V_{CE}=10\text{V}$ , $I_C=100\mu\text{A}$ , $R_G=3.0k\Omega$ , $f=1.0\text{kHz}$ , $BW=200\text{Hz}$	-	1.5	3.0	-	0.8	1.5	dB
NF	$V_{CE}=10\text{V}$ , $I_C=100\mu\text{A}$ , $R_G=3.0k\Omega$ , $f=10\text{kHz}$ , $BW=2.0\text{kHz}$	-	1.0	2.5	-	0.8	1.5	dB
NF	$V_{CE}=10\text{V}$ , $I_C=100\mu\text{A}$ , $R_G=3.0k\Omega$ , Broadband $BW=10\text{Hz}$ to $15.7\text{kHz}$	-	2.5	3.5	-	1.5	2.5	dB

\* Limits not in accordance with JEDEC registered values.

**TO-18 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.209	0.230	5.31	5.84
B (DIA)	0.178	0.195	4.52	4.95
C	-	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	
H	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

R1 (22-September 2014)

## 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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