

BCY58, VII, VIII, IX, X
BCY59, VII, VIII, IX, X

**SILICON
NPN TRANSISTORS**



TO-18 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BCY58 and BCY59 series types are silicon NPN epitaxial planar transistors, mounted in a hermetically sealed metal case, designed for low noise amplifier and switching applications.

MARKING: FULL PART NUMBER

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

	SYMBOL	BCY58	BCY59	UNITS
Collector-Base Voltage	V_{CB0}	32	45	V
Collector-Emitter Voltage	V_{CEO}	32	45	V
Emitter-Base Voltage	V_{EBO}	7.0		V
Continuous Collector Current	I_C	100		mA
Peak Collector Current	I_{CM}	200		mA
Peak Base Current	I_{BM}	200		mA
Power Dissipation	P_D	340		mW
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	1.0		W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +200		$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	450		$^{\circ}\text{C/W}$
Thermal Resistance	θ_{JC}	150		$^{\circ}\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}$		10	nA
I_{CBO}	$V_{CB}=\text{Rated } V_{CB0}, T_A=150^{\circ}\text{C}$		10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CB0}	$I_C=10\mu\text{A}$ (BCY58)	32		V
BV_{CBO}	$I_C=10\mu\text{A}$ (BCY59)	45		V
BV_{CEO}	$I_C=2.0\text{mA}$ (BCY58)	32		V
BV_{CEO}	$I_C=2.0\text{mA}$ (BCY59)	45		V
BV_{EBO}	$I_E=1.0\mu\text{A}$	7.0		V
$V_{CE}(\text{SAT})$	$I_C=10\text{mA}, I_B=250\mu\text{A}$		0.35	V
$V_{CE}(\text{SAT})$	$I_C=100\text{mA}, I_B=2.5\text{mA}$		0.70	V
$V_{BE}(\text{SAT})$	$I_C=10\text{mA}, I_B=250\mu\text{A}$	0.60	0.85	V
$V_{BE}(\text{SAT})$	$I_C=100\text{mA}, I_B=2.5\text{mA}$	0.75	1.20	V

		BCY58-VII			BCY58-VIII		BCY58-IX		BCY58-X	
		MIN	TYP	MAX	MIN	MAX	MIN	MAX	MIN	MAX
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$	-	20	-	20	-	40	-	100	-
h_{FE}	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$	120	-	220	180	310	250	460	380	630
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	80	-	-	120	400	160	630	240	1000
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	40	-	-	45	-	60	-	60	-

BCY58, VII, VIII, IX, X
BCY59, VII, VIII, IX, X

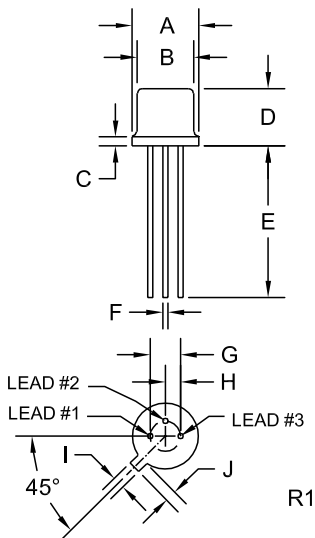
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
f_T	$V_{CE}=5.0\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$	150			MHz
C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1.0\text{MHz}$			5.0	pF
C_{ib}	$V_{EB}=0.5\text{V}$, $I_C=0$, $f=1.0\text{MHz}$			15	pF
NF	$V_{CE}=5.0\text{V}$, $I_C=0.2\text{mA}$, $R_S=2.0\text{k}\Omega$, $f=1.0\text{kHz}$, $B=200\text{Hz}$			10	dB
t_{on}	$V_{CC}=10\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		85	150	ns
t_d	$V_{CC}=10\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		35		ns
t_r	$V_{CC}=10\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		50		ns
t_{off}	$V_{CC}=10\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		450	800	ns
t_s	$V_{CC}=10\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		400		ns
t_f	$V_{CC}=10\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		80		ns
t_{on}	$V_{CC}=10\text{V}$, $I_C=100\text{mA}$, $I_{B1}=I_{B2}=10\text{mA}$		55	150	ns
t_d	$V_{CC}=10\text{V}$, $I_C=100\text{mA}$, $I_{B1}=I_{B2}=10\text{mA}$		5.0		ns
t_r	$V_{CC}=10\text{V}$, $I_C=100\text{mA}$, $I_{B1}=I_{B2}=10\text{mA}$		50		ns
t_{off}	$V_{CC}=10\text{V}$, $I_C=100\text{mA}$, $I_{B1}=I_{B2}=10\text{mA}$		450	800	ns
t_s	$V_{CC}=10\text{V}$, $I_C=100\text{mA}$, $I_{B1}=I_{B2}=10\text{mA}$		250		ns
t_f	$V_{CC}=10\text{V}$, $I_C=100\text{mA}$, $I_{B1}=I_{B2}=10\text{mA}$		200		ns

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**

R3 (26-July 2022)

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 (2nd 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

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).

CONTACT US

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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



<https://www.centalsemi.com>

Product End of Life Notification

PDN ID:	PDN01269
Notification Date:	2/04/25
Last Buy Date:	8/04/25
Last Shipment Date	2/04/26

Summary: The following Small Signal transistors are discontinued and now classified as End of Life (EOL).

Although Central Semiconductor makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by other manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's ongoing Product Portfolio Management. Any replacement products are noted below. The effective date for placing last purchase orders will be six (6) months from the date of this notice and twelve (12) months from the notice date for final shipments, and minimum order quantities may apply. The last purchase and shipment dates may be extended if inventory is available.

*** All Plating types (PBFREE,TIN/LEAD) for each item listed are included in this notice.**

Central Part Number	Suggested Replacement
BCV72 BK	N/A
BCV72 TR	N/A
BCY58-VII	N/A
BCY59	N/A
BCY59-VII	N/A
BC107A	N/A
BC848A TR	N/A
CMPT930 BK	N/A
CMPT930 TR	N/A
MPS3393	N/A
MPS3707	N/A
MPS3710	N/A
MPS6520	N/A
MPS6520 APM	N/A
MPS6520 TRE	N/A
PE4001	N/A
PE4001-18	N/A
PN3565	N/A
PN3565 APM	N/A
PN3565 TRE	N/A
PN3565-18	N/A
PN930	N/A
2N2923	N/A
2N2923 APM	N/A
2N2923 TRE	N/A
2N2924	N/A
2N2924 APM	N/A
2N2924 TRE	N/A
2N2926	N/A
2N2926 APM	N/A
2N2926 TRE	N/A
2N3392	N/A
2N3392 APM	N/A
2N3392 TRE	N/A
2N3393	N/A
2N3393 APM	N/A

*** CONTINUED ***

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.



<https://www.centalsemi.com>

Product End of Life Notification

PDN ID:	PDN01269
Notification Date:	2/04/25
Last Buy Date:	8/04/25
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*** CONTINUED FROM PRIOR PAGE ***

* All Plating types (PBFREE,TIN/LEAD) for each item listed are included in this notice.

Central Part Number	Suggested Replacement
2N3393 TRE	N/A
2N3397	N/A
2N3414	N/A
2N3416	N/A
2N3416 APM	N/A
2N3416 APP	N/A
2N3416 TRA	N/A
2N3416 TRE	N/A
2N3709	N/A
2N5172	N/A
2N5172 APM	N/A
2N5172 TRE	N/A
2N5209	N/A
2N5209 APM	N/A
2N5209 TRE	N/A
2N5961	N/A
2N5961 APM	N/A
2N5961 TRE	N/A
2N930	N/A
2N930A	N/A
2N930B	N/A
2SC1815	N/A
2SC1815 APM	N/A
2SC1815 TRE	N/A
2SC1815-BL	N/A
2SC1815-GR	N/A
2SC1815-O	N/A
2SC1815-Y	N/A
2SC1815-Y APM	N/A

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. If you would like assistance, please visit <https://my.centalsemi.com/submit-inquiry?type=ER> to submit an online inquiry.

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Mouser Electronics

Authorized Distributor

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