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

SILICON
NPN TRANSISTORS

TO-18 CASE

Central Semiconductor Corp.

www.centralsemi.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°C unless otherwise noted)	**SYMBOL**	**BCY58**	**BCY59**	**UNITS**
Collector-Base Voltage	V_{CBO}	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°C)	P_D	1.0		W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +200		°C
Thermal Resistance	Θ_{JA}	450		°C/W
Thermal Resistance	Θ_{JC}	150		°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

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

		BCY58-VII BCY59-VII			**BCY58-VIII BCY59-VIII**		**BCY58-IX BCY59-IX**		**BCY58-X BCY59-X**	
		MIN	**TYP**	**MAX**	**MIN**	**MAX**	**MIN**	**MAX**	**MIN**	**MAX**
h_{FE}	V_{CE}=5.0V, I_C=10µA	-	20	-	20	-	40	-	100	-
h_{FE}	V_{CE}=5.0V, I_C=2.0mA	120	-	220	180	310	250	460	380	630
h_{FE}	V_{CE}=1.0V, I_C=10mA	80	-	-	120	400	160	630	240	1000
h_{FE}	V_{CE}=1.0V, I_C=100mA	40	-	-	45	-	60	-	60	-

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

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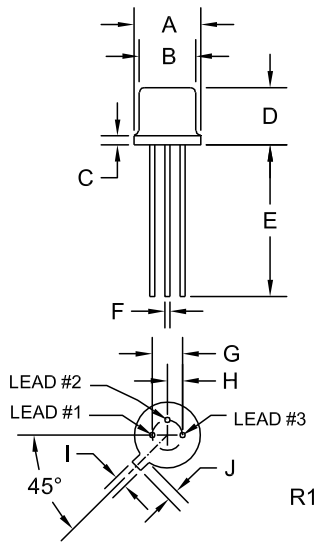
ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
f_T	V_{CE}=5.0V, I_C=10mA, f=100MHz	150			MHz
C_{ob}	V_{CB}=10V, I_E=0, f=1.0MHz			5.0	pF
C_{ib}	V_{EB}=0.5V, I_C=0, f=1.0MHz			15	pF
NF	V_{CE}=5.0V, I_C=0.2mA, R_S=2.0kΩ, f=1.0kHz, B=200Hz			10	dB
t_{on}	V_{CC}=10V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		85	150	ns
t_d	V_{CC}=10V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		35		ns
t_r	V_{CC}=10V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		50		ns
t_{off}	V_{CC}=10V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		450	800	ns
t_s	V_{CC}=10V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		400		ns
t_f	V_{CC}=10V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		80		ns
t_{on}	V_{CC}=10V, I_C=100mA, I_{B1}=I_{B2}=10mA		55	150	ns
t_d	V_{CC}=10V, I_C=100mA, I_{B1}=I_{B2}=10mA		5.0		ns
t_r	V_{CC}=10V, I_C=100mA, I_{B1}=I_{B2}=10mA		50		ns
t_{off}	V_{CC}=10V, I_C=100mA, I_{B1}=I_{B2}=10mA		450	800	ns
t_s	V_{CC}=10V, I_C=100mA, I_{B1}=I_{B2}=10mA		250		ns
t_f	V_{CC}=10V, I_C=100mA, I_{B1}=I_{B2}=10mA		20		ns

TO-18 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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

R2 (8-November 2013)

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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