

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

www.centrasemi.com

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

NPN SILICON TRANSISTOR

JEDEC TO-18 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR BCY58, BCY59 Series types are Silicon NPN Epitaxial Planar Transistors, mounted in a hermetically sealed metal case, designed for low noise amplifier and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ 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
Collector Current	I_C	100		mA
Collector Current (Peak)	I_{CM}	200		mA
Base Current (Peak)	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_{CBO}	$V_{CB} = \text{Rated } V_{CBO}$		10	nA
I_{CBO}	$V_{CB} = \text{Rated } V_{CBO}, T_A=150^{\circ}\text{C}$		10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$ (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
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=250\mu\text{A}$		0.35	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=2.5\text{mA}$		0.70	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=250\mu\text{A}$	0.60	0.85	V
$V_{BE(SAT)}$	$I_C=100\text{mA}, I_B=2.5\text{mA}$	0.75	1.20	V

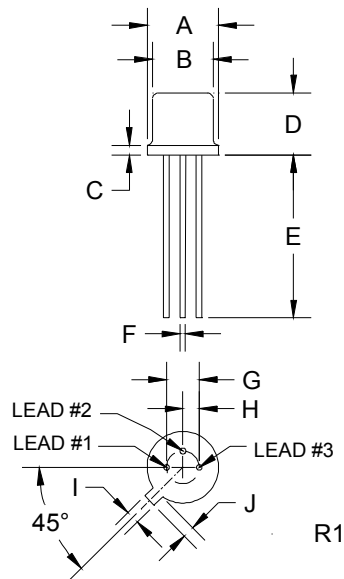
SYMBOL	TEST CONDITIONS	BCY58-VII BCY59-VII		BCY58-VIII BCY59-VIII		BCY58-IX BCY59-IX		BCY58-X BCY59-X	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$	20 TYP		20		40		100	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$	120	220	180	310	250	460	380	630
h_{FE}	$V_{CE}=1.0\text{V},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

(SEE REVERSE SIDE)

ELECTRICAL CHARACTERISTICS Continued

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	$V_{CE}=5.0V, I_C=200\mu A, R_S=2k\Omega, f=1.0kHz, B=200Hz$			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	$V_{CC}=10V, I_C=100mA, I_{B1}=-I_{B2}=10mA$		200		ns

TO-18 PACKAGE - MECHANICAL OUTLINE



SYMBOL	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)