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Manufacturers of World Class Discrete Semiconductors

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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°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°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

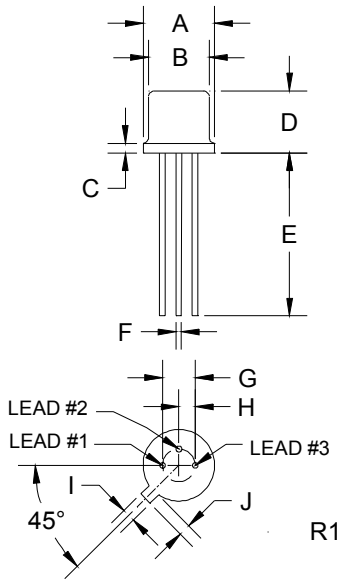
SYMBOL	TEST CONDITIONS	BCY58-VII		BCY58-VIII		BCY58-IX		BCY58-X	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
h _{FE}	V _{CE} =5.0V, I _C =10μA	20 TYP		20		40		100	
h _{FE}	V _{CE} =5.0V, I _C =2.0mA	120	220	180	310	250	460	380	630
h _{FE}	V _{CE} =1.0V, I _C =10mA	80		120	400	160	630	240	1000
h _{FE}	V _{CE} =1.0V, I _C =100mA	40		45		60		60	

(SEE REVERSE SIDE)

ELECTRICAL CHARACTERISTICS Continued

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
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)