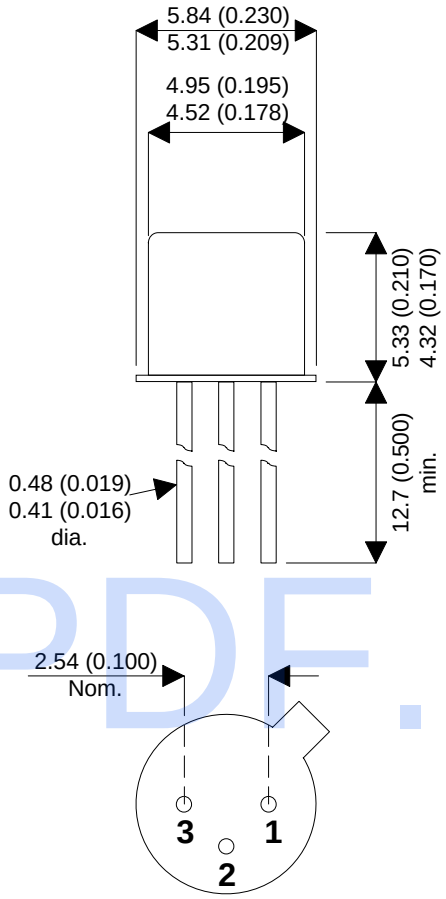
BCY59

MECHANICAL DATA

Dimensions in mm (inches)



TO-18 (TO-206AA)

Underside View

Pin 1 – Emitter PAD 2 – Base PAD 3 – Collector

GENERAL PURPOSE, SMALL SIGNAL, NPN TRANSISTOR

FEATURES

- **SILICON PLANAR EPITAXIAL NPN TRANSISTOR**
- **CECC SCREENING OPTIONS**
- **SPACE QUALITY LEVELS OPTIONS**
- **JAN LEVEL SCREENING OPTIONS**

APPLICATIONS:

Intended for use in audio input stages, driver stages and low noise input applications. The

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{CEO}	Collector - Emitter Voltage (I_B =0)	45V
V_{BEO}	Emitter - Base Voltage (I_C =0)	7V
I_C	Collector Current	200mA
P_{TOT}	Total Power Dissipation @ $T_{amb} \leq$ 25°C	390mW
	@ $T_c \leq$ 45°C	1W
T_J, T_{STG}	Maximum Junction And Storage Temperature	-55°C to 175°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	150°C/W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	385°C/W

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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BCY59

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage	I_B=0	I_C=2mA	45			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_C=0	I_E=10µA	7			V
I_{CES}	Collector Cut-off Current	V_{CE}=45V	V_{BE}=0V		0.1	10	nA
			T_C=150°C		0.1	10	µA
I_{CEX}	Collector Cut-off Current (T_C=100°C)	V_{CE}=45V	V_{BE}= -0.2V			20	µA
I_{EBO}	Emitter Cut-off Current	I_C=0	V_{EB}=5V			10	nA
$V_{BE(sat)}$ *	Base-Emitter Saturation Voltage	I_C=10mA	I_B=0.25mA	600	700	850	mV
		I_C=100mA	I_B=2.5mA	750	900	1200	
$V_{CE(sat)}$ *	Base-Emitter Saturation Voltage	I_C=10mA	I_B=0.25mA		120	350	mV
		I_C=100mA	I_B=2.5mA		400	700	
h_{FE}	DC Current Gain (BCY59**A**)	I_C=2mA	V_{CE}=5V	120		220	—
		I_C=10mA	V_{CE}=1V	80			
		I_C=100mA	V_{CE}=1V	40			
	DC Current Gain (BCY59**B**)	I_C=10µA	V_{CE}=5V	20			—
		I_C=2mA	V_{CE}=5V	180		310	
		I_C=10mA	V_{CE}=1V	120		400	
		I_C=100mA	V_{CE}=1V	45			
	DC Current Gain (BCY59**C**)	I_C=10µA	V_{CE}=5V	40			—
		I_C=2mA	V_{CE}=5V	250		460	
		I_C=10mA	V_{CE}=1V	160		630	
		I_C=100mA	V_{CE}=1V	60			
f_T	Transition Frequency (f=100MHz)	I_C=10mA	V_{CE}=5V		200		MHz
C_{CBO}	Collector-Base Capacitance (f=1MHz)	I_E=0	V_{CB}=10V		3.5	6	pF
C_{EBO}	Emitter-Base Capacitance (f=1MHz)	I_C=0	V_{EB}=0.5V		11	15	
NF	Noise Figure	I_C=200µA	V_{CE}=5V		2	6	dB
		R_S=2KΩ	f=1kHz				
t_{on}	Turn-on Time (V_{CC}=10V)	I_C=10mA	I_{B1}=1mA		85	150	ns
		I_C=100mA	I_{B1}=10mA		55	150	
t_{off}	Turn-off Time (V_{CC}=10V)	I_C=10mA, I_{B1}= I_{B2}=1mA			480	800	ns
		I_C=100mA, I_{B1}= I_{B2}=10mA			480	800	

* Pulsed: Pulse Duration = 300µs, duty cycle = 1.5%

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