SOT-23 Formed SMD Package

BCW60A BCW60B
BCW60C BCW60D

SILICON PLANAR EPITAXIAL TRANSISTORS

N–P–N silicon transistors

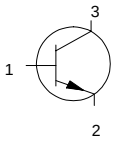
Marking

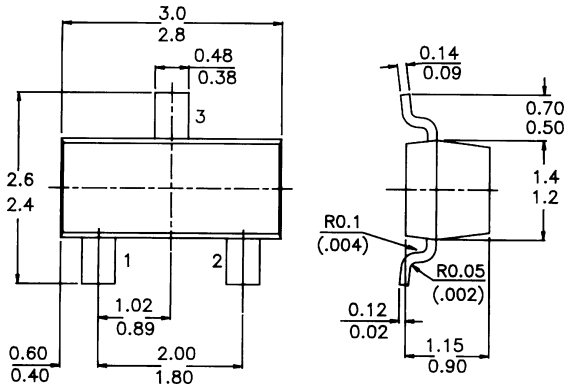
BCW60A = AA
BCW60B = AB
BCW60C = AC
BCW60D = AD

PACKAGE OUTLINE DETAILS
ALL DIMENSIONS IN mm

Pin configuration

1 = BASE
2 = EMITTER
3 = COLLECTOR





ABSOLUTE MAXIMUM RATINGS

Collector–emitter voltage (V_{BE} = 0)	V_{CES}	*max.*	*32 V*
Collector–emitter voltage (open base)	V_{CE0}	*max.*	*32 V*
Collector current (d.c.)	I_C	*max.*	*200 mA*
Total power dissipation	P_{tot}	*max.*	*250* mW
Junction temperature	T_j	*max.*	*150 °C*
Transition frequency at f = 100 MHz			
V_{CE} = 5 V; I_C = 10 mA	f_T	*typ.*	*250* MHz
Noise figure at f = 1 kHz			
V_{CE} = 5V; I_C = 200 mA; B = 200Hz	F	*typ.*	*2 dB*

RATINGS *(at T_A = 25°C unless otherwise specified)*

Limiting values				
Collector–emitter voltage (V_{BE} = 0)	V_{CES}	*max.*	*32*	*V*
Collector–emitter voltage (open base)	V_{CE0}	*max.*	*32*	*V*
Emitter–base voltage (open collector)	V_{EB0}	*max.*	*5*	*V*
Collector current (d.c.)	I_C	*max.*	*200*	*mA*
Base current	I_B	*max.*	*50*	*mA*
Total power dissipation up to T_{amb}: 25 °C	P_{tot}	*max.*	*250*	mW
Storage temperature	T_{stg}		*–55 to +150*	*° C*
Junction temperature	T_j	*max.*	*150*	*° C*

THERMAL RESISTANCE

*From junction to ambient**	$R_{th\ j-a}$	=	*500*	KW

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

Collector–emitter cut–off current				
V_{BE} = 0; V_{CE} = 32 V	I_{CES}	<	*20*	*nA*
V_{BE} = 0; V_{CE} = 32V; T_{amb} = 150°C	I_{CES}	<	*20*	mA
Emitter–base cut–off current				
I_C = 0; V_{EB} = 4 V	I_{EB0}	<	*20*	*nA*
Saturation voltages				
at I_C = 10 mA; I_B = 0,25 mA	V_{CEsat}	*0,05 to 0,35*		*V*
	V_{BEsat}	*0,6 to 0,85*		*V*
at I_C = 50 mA; I_B = 1,25 mA	V_{CEsat}	*0,1 to 0,55*		*V*
	V_{BEsat}	*0,7 to 1,05*		*V*
Transition frequency at f = 100 MHz ·		>	*125*	MHz
I_C = 10 mA; V_{CE} = 5 V	f_T	*typ.*	*250*	MHz
Collector capacitance at f = 1 MHz				
I_E = I_e = 0; V_{CB} = 10V	C_c	*typ.*	*2,5*	*pF*
Emitter capacitance at f = 1 MHz				
I_C = I_c = 0; V_{EB} = 0,5 V	C_e	*typ.*	*8*	*pF*
Noise figure at R_S = 2 kW		*typ.*	*2*	*dB*
I_C = 200 mA; V_{CE} = 5 V; f: 1 kHz; B = 200 Hz	F	<	*6*	*dB*

			BCW60A	***60B***	***60C***	***60D***	
D.C. current gain							
V_{CE} = 5 V; I_C = 10 mA	h_{FE}	>	–	*20*	*40*	*100*	
V_{CE} = 5 V; I_C: 2 mA	h_{FE}	>	*120*	*180*	*250*	*380*	
		<	*220*	*310*	*460*	*630*	
V_{CE} = 1 V; I_C: 50 mA	h_{FE}	>	*50*	*70*	*90*	*100*	
Input impedance							
V_{CE} = 5 V; I_C = 2 mA, f = 1 kHz	h_{ie}	*typ.*	*2,7*	*3,6*	*4,5*	*7,5*	kW

			A	B	C	D	
Reverse voltage transfer ratio							
V_{CE} = 5 V; I_C = 2 mA; f: 1 kHz	h_{re}	typ.	1,5	2	2	3	10^{-4}
Small–signal current gain							
V_{CE} = 5 V; I_C = 2 mA; f = 1 kHz	h_{fe}	min.	125	175	250	350	
		max.	250	350	500	700	
Output admittance							
V_{CE} = 5 V; I_C = 2 mA; f = 1 kHz	h_{oe}	typ.	18	24	30	50	ms
Base–emitter voltage							
V_{CE} = 5 V; $I_{C:}$ 2 mA	V_{BE}			0,55 to 0,75			V
		typ.		0,65			V
V_{CE} = 5 V; I_C = 10 mA	V_{BE}	typ.		0,52			V
V_{CE} = 1 V; I_C = 50 mA	V_{BE}	typ.		0,78			V

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/ CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.

CDIL is a registered Trademark of
Continental Device India Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290
e-mail sales@cdil.com www.cdil.com