SOT-23 Formed SMD Package

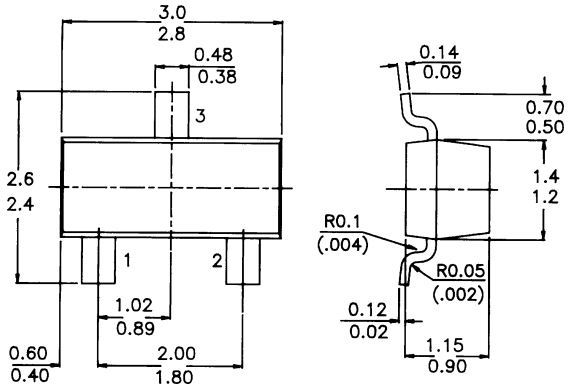
BCW61A BCW61B
BCW61C BCW61D

SILICON PLANAR EPITAXIAL TRANSISTORS

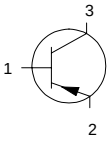
P–N–P silicon transistors

Marking
BCW61A = BA
BCW61B = BB
BCW61C = BC
BCW61D = BD

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)	$-V_{CEO}$	*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.*	*180* MHz
Noise figure at f = 1 kHz			
$-V_{CE}$ = 5 V; $-I_C$ = 200 mA	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 temperatu re	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_{EB} = 0; $-V_{CE}$ = 32 V	$-I_{CES}$	<	*20 nA*
V_{EB} = 0; $-V_{CE}$ = 32 V; 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			
$-I_C$ = 10 mA; $-I_B$ = 0,25 mA	$-V_{CEsat}$		*0,06 to 0,25 V*
	$-V_{BEsat}$		*0,6 to 0,85 V*
$-I_C$ = 50mA; $-I_B$ = 1,25mA	$-V_{CEsat}$		*0,12 to 0,55 V*
	$-V_{BEsat}$		*0,68 to 1,05 V*
Transition frequency at f = 100 MHz ·			
$-V_{CE}$ = 5 V; $-I_C$ = 10 mA	f_T	*typ.*	*180* MHz
Collector capacitance at f = 1 MHz			
$-V_{CB}$ = 10 V; $I_{E:}$ I_e = 0	C_c	*typ.*	*4,5 pF*
Emitter capacitance at f = 1 MHz			
$-V_{EB}$ = 0,5 V; I_C = I_c = 0	C_e	*typ.*	*11 pF*
*Noise figure at R_S = 2 k*W		*typ.*	*2 dB*
$-V_{CE}$ = 5 V; $-I_C$ = 200 mA; B = 200 Hz	F	<	*6 dB*

			BCW61A	***61B***	***61C***	***61D***	
D.C. current gain							
$-V_{CE}$ = 5 V; $-I_C$ = 10 mA	h_{FE}	>	*20*	*30*	*40*	*100*	
$-V_{CE}$ = 5 V; $-I_C$ = 2 mA	h_{FE}	>	*120*	*180*	*250*	*380*	
		<	*220*	*310*	*460*	*630*	
$-V_{CE}$ = 1 V; $-I_C$ = 50mA	h_{FE}	>	*60*	*80*	*100*	*110*	
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}		0,6 to 0,75				V
		typ.	0,65				V
$-V_{CE}$ = 5 V; $-I_C$ = 10 mA	V_{BE}	typ.	0,55				V
$-V_{CE}$ = 1 V; $-I_C$: 50 mA	V_{BE}	typ.	0,72				V

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