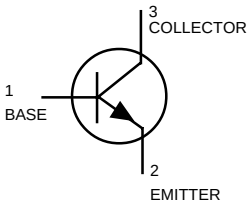
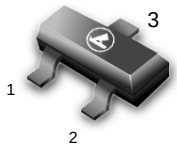
General Purpose Transistors

NPN Silicon

BCW65ALT1





CASE 318–08, STYLE 6
SOT–23 (TO–236AB)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	32	Vdc
Collector–Base Voltage	V_{CBO}	60	Vdc
Emitter–Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	800	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR– 5 Board, (1) T_A = 25°C	P_D	225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (2) T_A = 25°C	P_D	300	mW
Derate above 25°C		2.4	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C

DEVICE MARKING

BCW65ALT1 = EA

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I_C = 10mAdc, I_B= 0)	$V_{(BR)CEO}$	32	—	—	Vdc
Collector–Emitter Breakdown Voltage (I_C = 10 µAdc, V_{EB} = 0)	$V_{(BR)CES}$	60	—	—	Vdc
Emitter–Base Breakdown Voltage (I_E= 10 µAdc, I_C = 0)	$V_{(BR)EBO}$	5.0	—	—	Vdc
Collector Cutoff Current	I_{CES}				
(V_{CE} = 32 Vdc, I_E = 0)		—	—	20	nAdc
(V_{CE} = 32 Vdc, I_E = 0 , T_A = 150°C)		—	—	20	µAdc
Emitter Cutoff Current (V_{EB}= 4.0 Vdc, I_C = 0)	I_{EBO}	—	—	20	nAdc

1. FR– 5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

BCW65ALT1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain	h_{FE}				—
(I_C= 100 µAdc, V_{CE} = 10 Vdc)		35	—	—	
(I_C= 10 mAdc, V_{CE} = 1.0 Vdc)		75	—	220	
(I_C= 100 mAdc, V_{CE} = 1.0 Vdc)		100	—	250	
(I_C= 500 mAdc, V_{CE} = 2.0 Vdc)		35	—	—	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$				Vdc
(I_C = 500 mAdc, I_B = 50 mAdc)		—	0.7	—	
(I_C = 100 mAdc, I_B = 10 mAdc)		—	0.3	—	
Base–Emitter Saturation Voltage	$V_{BE(sat)}$				Vdc
(I_C = 500 mAdc, I_B = 50 mAdc)		—	—	2.0	
SMSMALL–SIGNAL CHARACTERISTICS					
Current–Gain — Bandwidth Product (I_C = 20mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	100	—	—	MHz
Output Capacitance (V_{CB}= 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	—	—	12	pF
Input Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ibo}	—	—	80	pF
Noise Figure (V_{CE}= 5.0 Vdc, I_C= 0.2 mAdc, R_S = 2.0 kΩ, f = 1.0 kHz, BW = 200 Hz)	NF	—	—	10	dB
SWITCHING CHARACTERISTICS					
Turn–On Time (I_{B1}= I_{B2}= 15 mAdc)	t_{on}	—	—	100	ns
Turn–Off Time (I_C= 150 mAdc, R_L = 150 Ω)	t_{off}	—	—	400	ns