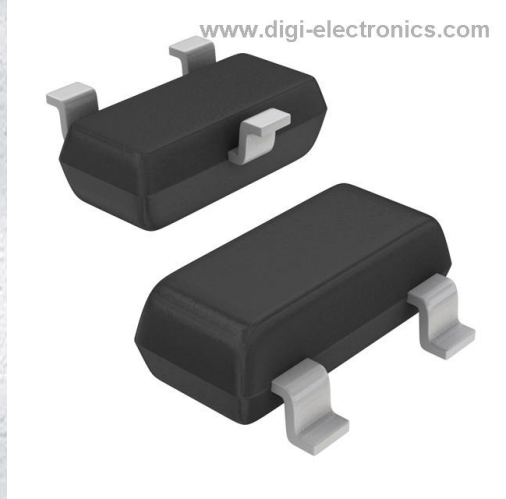
BCW65ALT1 Datasheet



DiGi Electronics Part Number	BCW65ALT1-DG
Manufacturer	onsemi
Manufacturer Product Number	BCW65ALT1
Description	TRANS NPN 32V 0.8A SOT23-3
Detailed Description	Bipolar (BJT) Transistor NPN 32 V 800 mA 100MHz 2 25 mW Surface Mount SOT-23-3 (TO-236)

https://www.DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
BCW65ALT1	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	800 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
32 V	700mV @ 50mA, 500mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
20nA	100 @ 100mA, 1V
Power - Max:	Frequency - Transition:
225 mW	100MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SOT-23-3 (TO-236)
Base Product Number:	
BCW65	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
RoHS non-compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

BCW65ALT1, BCW65CLT1

General Purpose Transistor

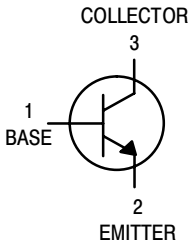
NPN Silicon

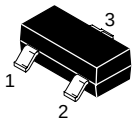
Features

- Pb−Free Packages are Available

ON Semiconductor®

http://onsemi.com





SOT−23
CASE 318
STYLE 6

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

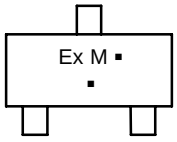
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board (Note 1), T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (Note 2) T_A = 25°C Derate above 25°C	P_D	300 2.4	mW 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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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

MARKING DIAGRAMS



Ex = Device Code
x = A or C
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
BCW65ALT1	SOT−23	3000/Tape & Reel
BCW65ALT1G	SOT−23 (Pb−Free)	3000/Tape & Reel
BCW65CLT1	SOT−23	3000/Tape & Reel
BCW65CLT1G	SOT−23 (Pb−Free)	3000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

BCW65ALT1, BCW65CLT1

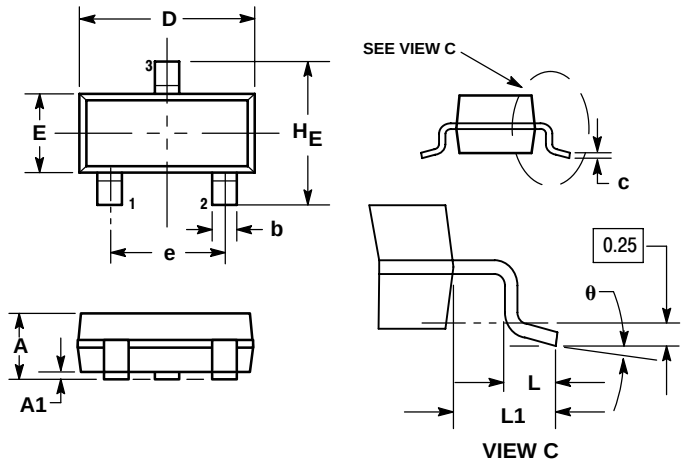
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector−Emitter Breakdown Voltage (I_C = 10 mAdc, 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
ON CHARACTERISTICS					
DC Current Gain BCW65ALT1	h_{FE}				−
(I_C = 100 μAdc, V_{CE} = 10 Vdc)		35	−	−	
(I_C = 10 mAdc, V_{CE} = 1.0 Vdc)		75	−	−	
(I_C = 100 mAdc, V_{CE} = 1.0 Vdc)		100	−	250	
(I_C = 500 mAdc, V_{CE} = 2.0 Vdc)		35	−	−	
DC Current Gain BCW65CLT1	h_{FE}				−
(I_C = 100 μAdc, V_{CE} = 10 Vdc)		80	−	−	
(I_C = 10 mAdc, V_{CE} = 1.0 Vdc)		180	−	−	
(I_C = 100 mAdc, V_{CE} = 1.0 Vdc)		250	−	630	
(I_C = 500 mAdc, V_{CE} = 2.0 Vdc)		100	−	−	
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 (I_C = 500 mAdc, I_B = 50 mAdc)	$V_{BE(sat)}$	−	−	2.0	Vdc
SMALL−SIGNAL CHARACTERISTICS					
Current−Gain — Bandwidth Product (I_C = 20 mAdc, 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 = 1.0 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

BCW65ALT1, BCW65CLT1

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AN

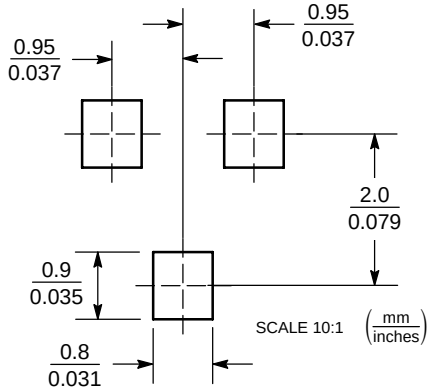


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318−01 THRU −07 AND −09 OBSOLETE, NEW STANDARD 318−08.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 6:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

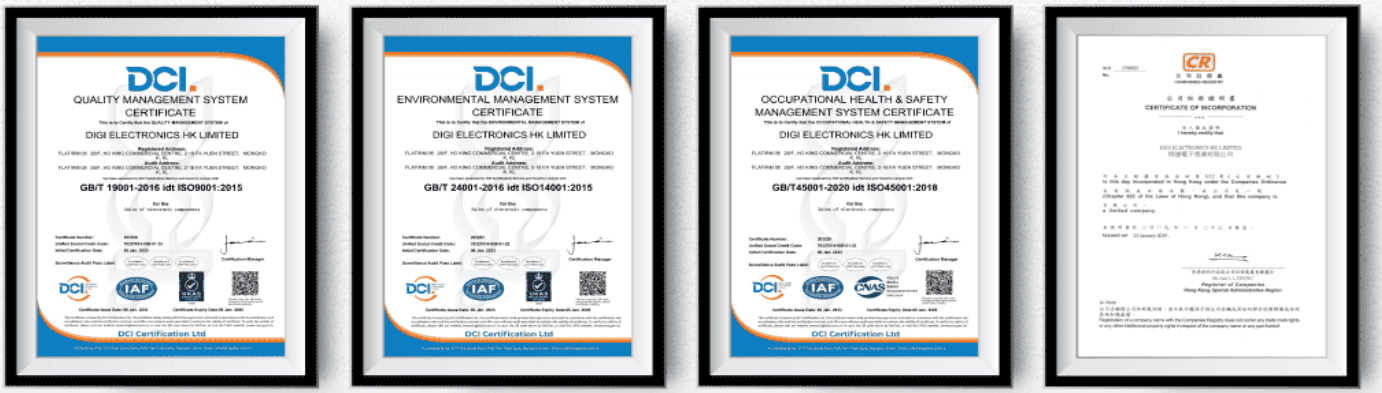
ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



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