

BCW68F/G/H**List**

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BCW68F/G/H

PNP Epitaxial Silicon Transistor

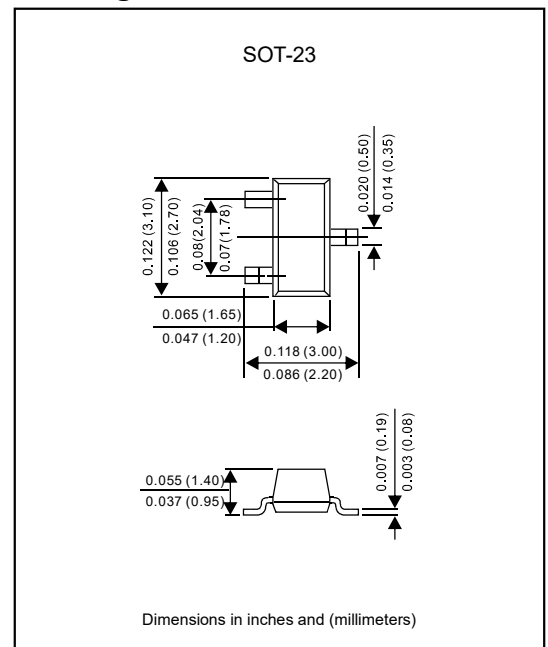
Features

- Epitaxial planar die construction.
- For high current application.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex.BCW68F-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline



Maximum ratings (At $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Collector to Base voltage	$-V_{CBO}$	60	V
Collector to Emitter voltage	$-V_{CEO}$	45	V
Emitter to Base voltage	$-V_{EBO}$	5	V
Collector current	$-I_C$	800	mA
Peak collector current	$-I_{CM}$	1	A
Base current	$-I_B$	100	mA
Peak base current	$-I_{BM}$	200	mA
Total power dissipation	P_{TOT}	200	mW
Junction temperature	T_J	150	$^{\circ}\text{C}$
Storage temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

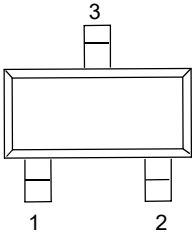
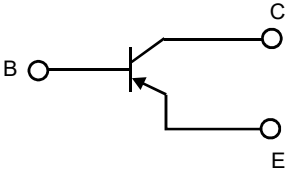
BCW68F/G/H

Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
DC current gain	h_{FE}	$-V_{CE} = 10\text{ V}, -I_C = 100\text{ }\mu\text{A}$	BCW68F	35		
			BCW68G	50		
			BCW68H	80		
		$-V_{CE} = 1\text{ V}, -I_C = 10\text{ mA}$	BCW68F	75		
			BCW68G	120		
			BCW68H	180		
		$-V_{CE} = 1\text{ V}, -I_C = 100\text{ mA}$	BCW68F	100		250
			BCW68G	160		400
			BCW68H	250		630
		$-V_{CE} = 2\text{ V}, -I_C = 500\text{ mA}$	BCW68F	35		
			BCW68G	60		
			BCW68H	100		
Collector cut-off current	$-I_{CBO}$	$-V_{CB} = 45\text{ V}$			20	nA
Emitter cut-off current	$-I_{EBO}$	$-V_{EB} = 4\text{ V}$			20	nA
Collector-Base breakdown voltage	$-V_{(BR)CBO}$	$-I_C = 10\text{ }\mu\text{A}$	60			V
Collector-Emitter breakdown voltage	$-V_{(BR)CEO}$	$-I_C = 10\text{ mA}$	45			V
Emitter-Base breakdown voltage	$-V_{(BR)EBO}$	$-I_E = 10\text{ }\mu\text{A}$	5			V
Collector-Emitter saturation voltage	$-V_{CE(sat)}$	$-I_C = 100\text{ mA}, -I_B = 10\text{ mA}$			0.3	V
Collector-Emitter saturation voltage	$-V_{CE(sat)}$	$-I_C = 500\text{ mA}, -I_B = 50\text{ mA}$			0.7	V
Base-Emitter saturation voltage	$-V_{BE(sat)}$	$-I_C = 100\text{ mA}, -I_B = 10\text{ mA}$			1.25	V
Base-Emitter saturation voltage	$-V_{BE(sat)}$	$-I_C = 500\text{ mA}, -I_B = 50\text{ mA}$			2	V
Transition frequency	f_T	$-V_{CE} = 5\text{ V}, -I_C = 50\text{ mA}, f=100\text{ MHz}$		200		MHz
Collector base capacitance	C_{ob}	$-V_{CB} = 10\text{ V}, f=1\text{ MHz}$		6		pF
Emitter base capacitance	C_{eb}	$-V_{BE} = 0.5\text{ V}, f=1\text{ MHz}$		60		pF

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Pinning information

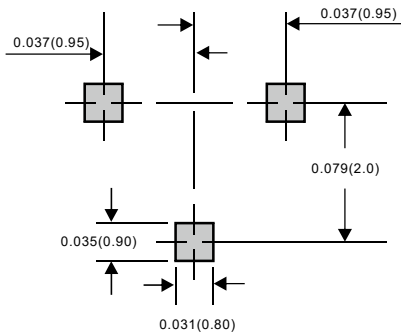
Pin	Simplified outline	Symbol
Pin 1 Base Pin 2 Emitter Pin 3 Collector		

Marking and h_{FE} range

Type number	Marking code	DC current gain range (h_{FE})
BCW68F	DF	100-250
BCW68G	DG	160-400
BCW68H	DH	250-630

Suggested solder pad layout

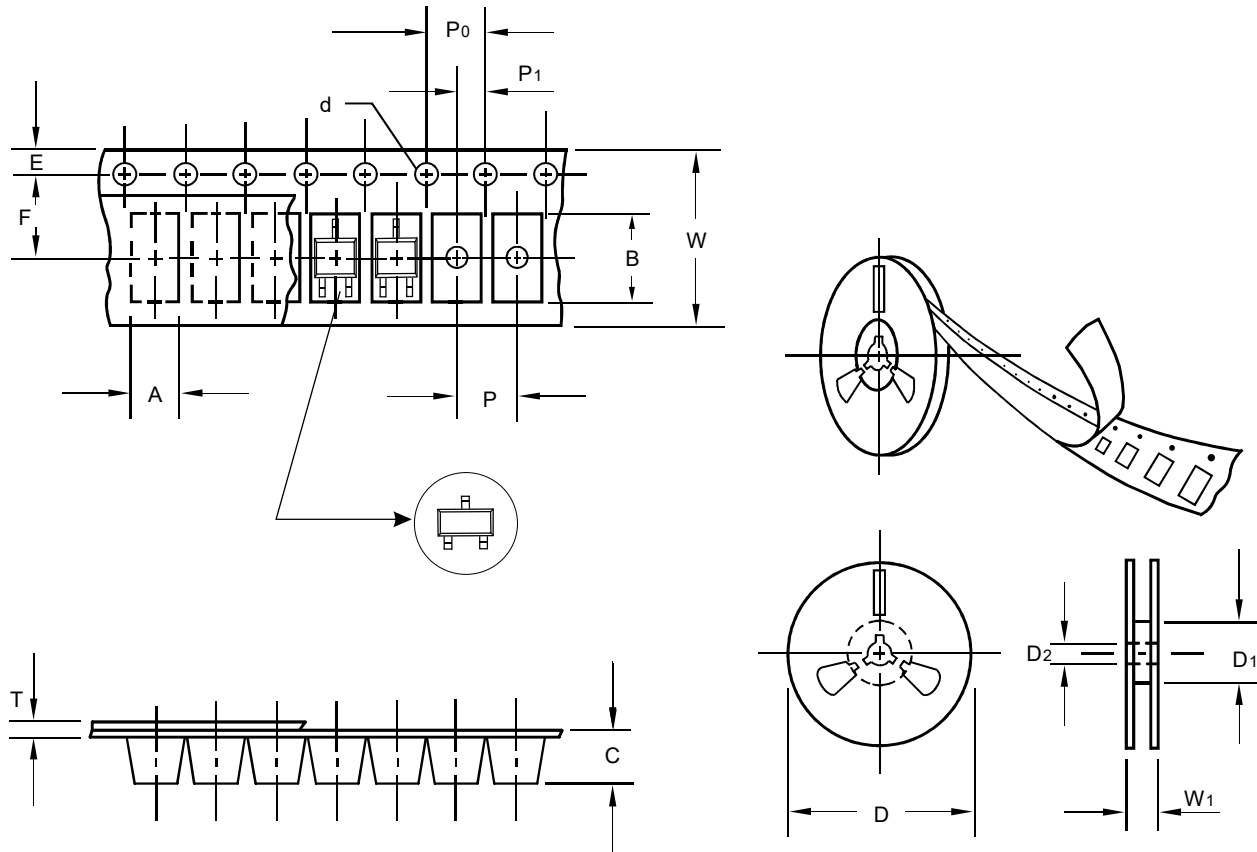
SOT-23



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D ₁	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	55.00
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	12.0

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

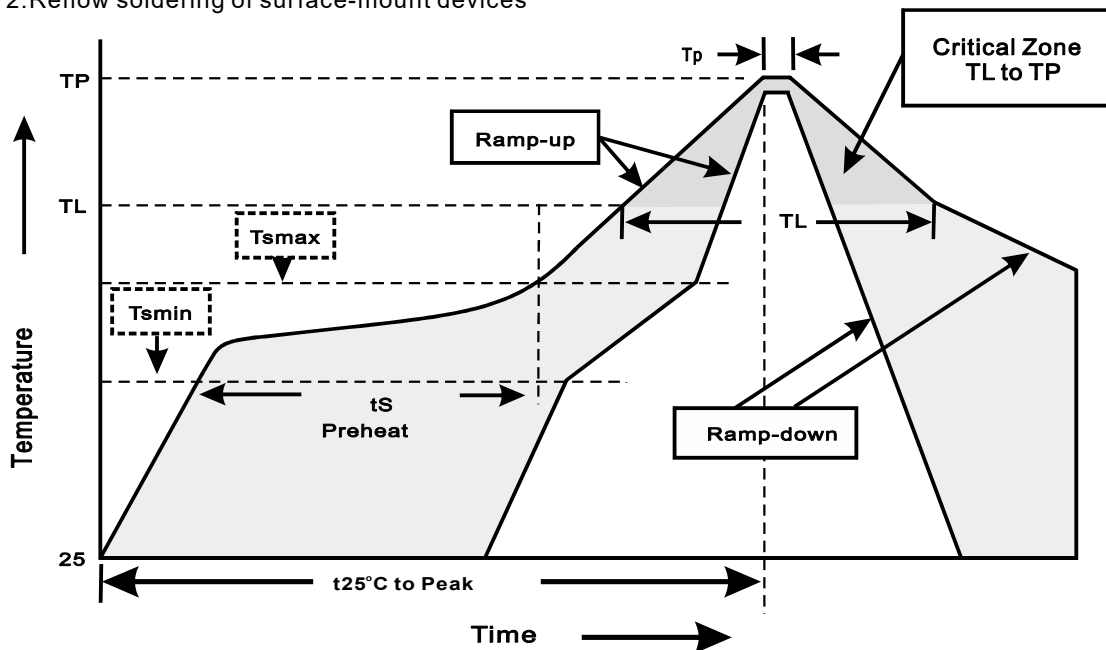
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
SOT-23	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes