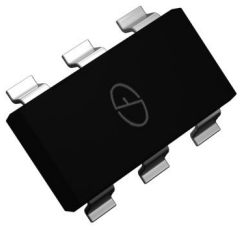
Dual-NPN+NPN Type Bipolar Transistor

RoHS
COMPLIANT



SOT-363

Features

- Low Profile Package
- Ideal for Automated Placement
- Power Dissipation of 200mW
- High Stability and High Reliability
- RoHS Compliant

Applications

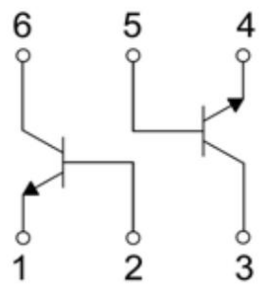
- amplifying signal
- Electronic switch
- Oscillating circuit
- variable resistance

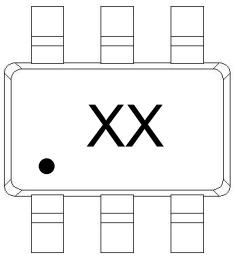
Pin definition

Mechanical Data

- Package: SOT-363
- Lead Finish:Matte Tin
- Case Material: “Green” Molding Compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

Epuivalent circuit





XX= Marking Code

BC846DW-A: 1A; BC846DW-B: 1B;

BC847DW-A: 1E; BC847DW-B: 1F; BC847DW-C: 1G;

BC848DW-A: 1J; BC848DW-B :1K; BC848DW-C :1L;

Maximum Ratings & Electrical Characteristics (T_A=25℃ unless otherwise noted)

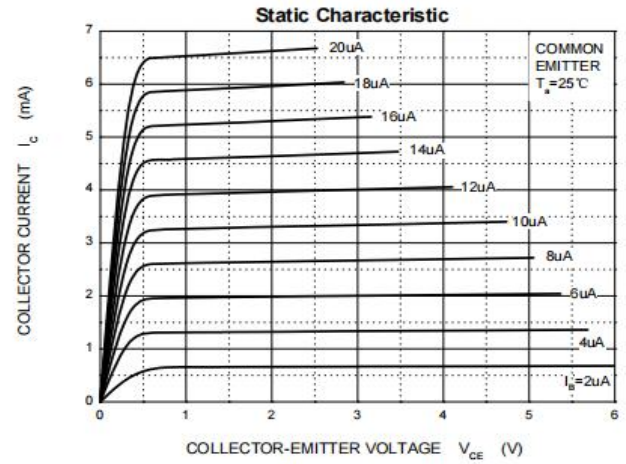
Parameter	Symbol	BC846DW	BC847DW	BC848DW	Unit
Collector-Base Voltage	V_{CBO}	80	50	30	V
Collector-Emitter Voltage	V_{CEO}	65	45	30	V
Emitter-Base Voltage	V_{EBO}	6			V
Collector Current Continuous	I_C	100			mA
Collector Power Dissipation	P_C	200			mW
Junction Temperature	T_J	-55 to +150			℃
Junction and Storage Temperature	T_{STG}	-55 to +150			℃

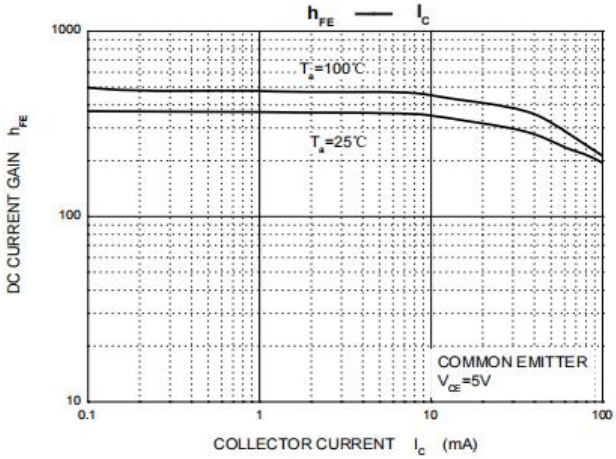
Electrical Specifications (T_A=25℃ unless otherwise noted)

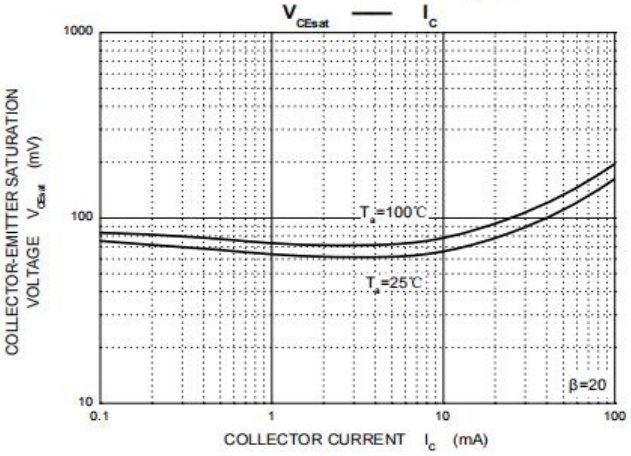
Parameter		Symbol	Test Conditions	Limits			Unit
				Min	Typ	Max	
Collector-basebreakdown voltage	BC846DW	$V_{(BR)CBO}$	I_C=10uA	80			V
	BC847DW			50			V
	BC848DW			30			V
Collector-emitter breakdown voltage	BC846DW	$V_{(BR)CEO}$	I_C=10mA	65			V
	BC847DW			45			V
	BC848DW			30			V
Emitter-base breakdown voltage		$V_{(BR)EBO}$	I_E=10uA, I_C=0	6			V
Collector cut-off current		I_{CBO}	V_{CE}=30V, I_E=0			15	nA
Emitter cut-off current		I_{EBO}	V_{EB}=5V, I_C=0			5	uA
DC current gain	BC846DW-A, BC847DW-A, BC848DW-A	$h_{FE(1)}$	V_{CE}=5V IC=2mA	110		220	
	BC846DW-B BC847DW-B, BC848DW-B	$h_{FE(1)}$		200		450	
	BC847DW-C, BC848DW-C	$h_{FE(1)}$		420		800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=10mA, I_B=0.5mA			0.1	V
			I_C=100mA, I_B=5mA			0.3	V
Base -emitter saturation voltage		$V_{BE(sat)}$	I_C=10mA, I_B=0.5mA		0.77		V
Transition frequency		f_T	V_{CE}=5V, I_C=10mA,f=100MHz	100			MHz
Collector output capacitance		C_{ob}	V_{CB}=10V,f=1MHz, I_E=0			1.5	pF

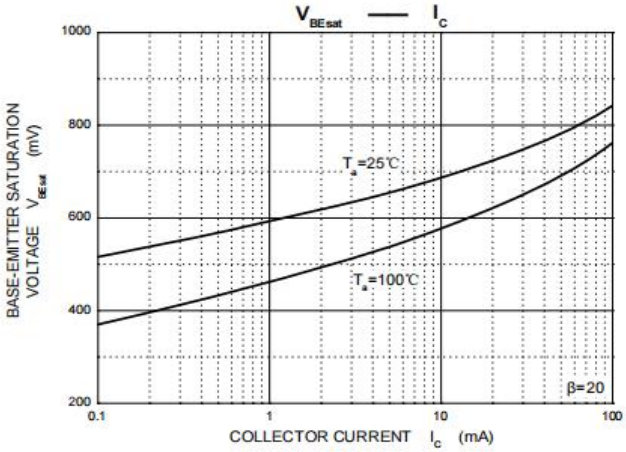
Ratings and Characteristics Curves

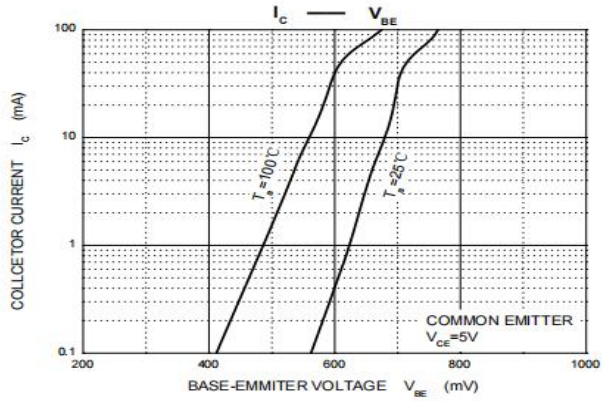
(TA = 25℃ unless otherwise noted)

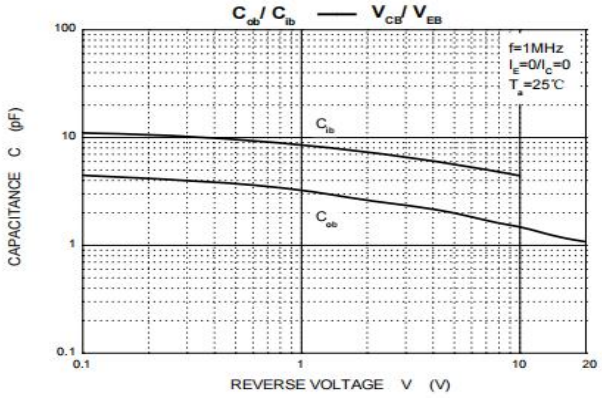


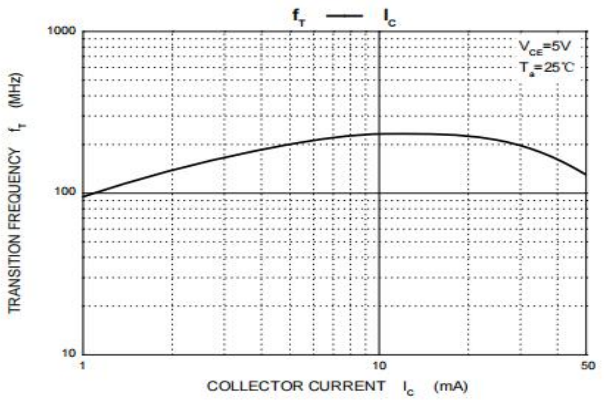


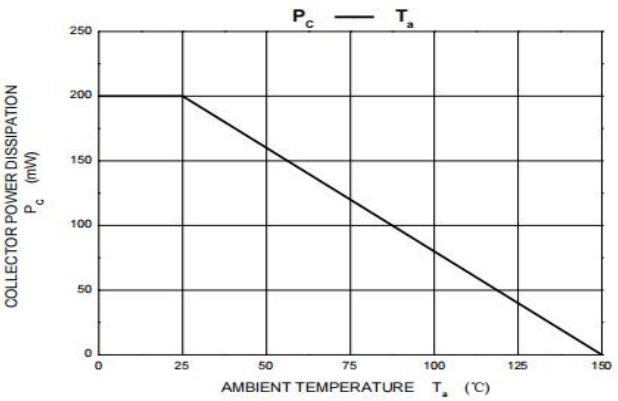






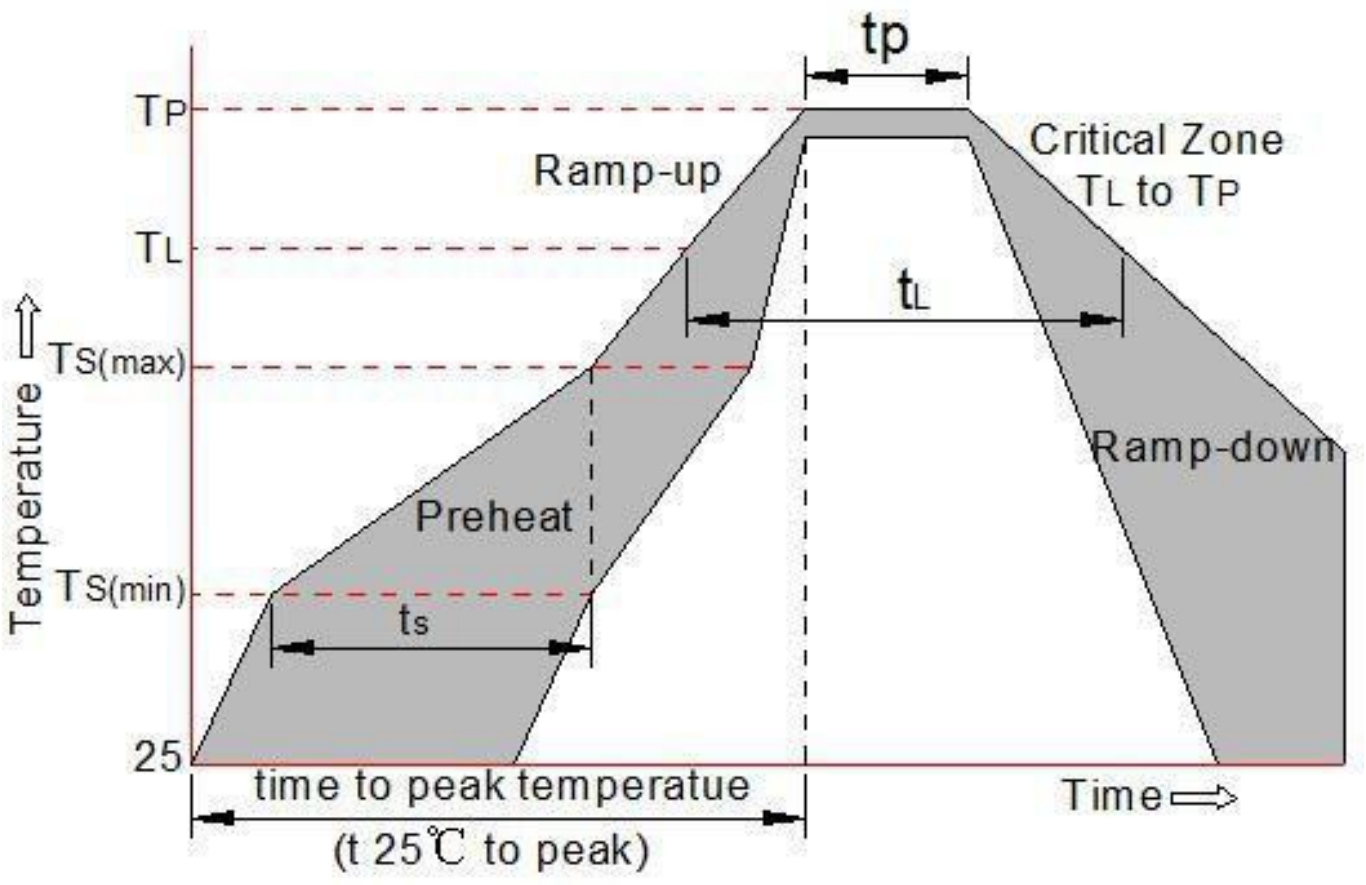






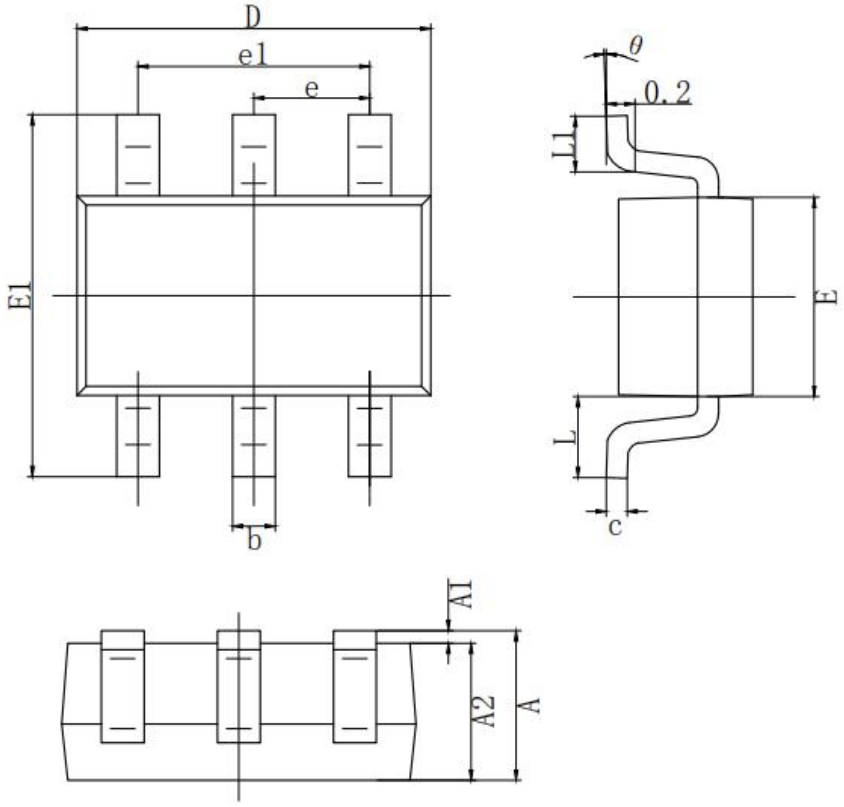
Soldering Parameters

Reflow Condition		Pb -Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 ℃
	-Temperature Max($T_{s(max)}$)	+200 ℃
	-Time (Min to Max) (ts)	60 -180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 ℃ /sec. Max
$T_{s(max)}$ to T_L - Ramp -up Rate		3 ℃ /sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217 ℃
	-Temperature(t_L)	60 -150 secs.
Peak Temp (T_p)		+260(+0/ -5) ℃
Time within 5 ℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp -down Rate		6 ℃ /sec. Max
Time 25 ℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 ℃



Package Outline Dimensions

in inches (millimeters)



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	0°	8°

Revision History

Document Version	Date of release	Description of changes
Rev.A	2017.06.13	First issue

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