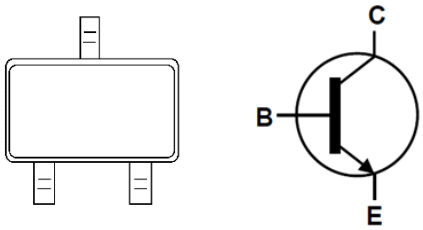
BC850AW
Surface-Mount NPN Transistor

FEATURES AND BENEFITS

Product Summary		
I_C	100mA	@25 °C
BV_{CBO}	50V	@I_C=10μA
BV_{CEO}	45V	@I_C=10mA
BV_{EBO}	5V	@I_E=1μA

SOT-323



- For General Purpose NPN Amplifier
- Low Current Leakage
- RoHS Compliant / Green EMC UL Flammability Classification Rating 94V-0
- Matte Tin (Sn) Lead finish Solderable per MIL-STD-202, Method 208
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.006 grams (Approximate)

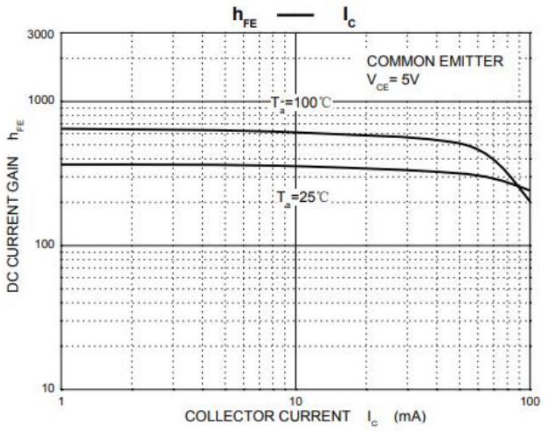
Maximum Ratings (TA = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	100	mA
Collector Power Dissipation	P_T	150	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

THERMAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Thermal Resistance from Junction to Ambient*	$R_{\theta JA}$	833	°C/W

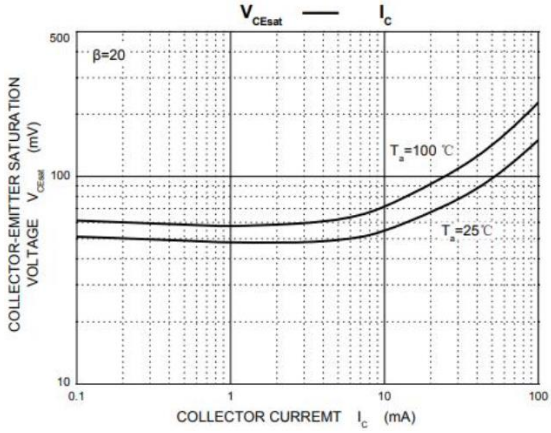
* Device mounted on 1"x1" FR4 PCB

ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	CONDITION	MIN	MAX	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B=0	45		V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E=0	50		V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 1μA, I_C=0	5		V
Collector Cutoff Current	I_{CBO}	V_{CB}=30V, I_E=0		15	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V, I_C=0		0.1	uA
DC Current Gain	h_{FE}	V_{CE}=5V,I_C=2mA	110	220	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=10mA, I_B=0.5mA		0.25	V
		I_C=100mA, I_B=5mA		0.60	
Base-Emitter Voltage	$V_{BE(on)}$	V_{CE}=5V, I_C=2mA	0.58	0.7	V
		V_{CE}=5V, I_C=10mA		0.77	
Transition Frequency	f_T	V_{CE} =5V, I_C=10mA, f=100MHz	100		MHz
Output Capacitance	C_{obo}	V_{CB}=10V, f=1MHz		4.5	pF

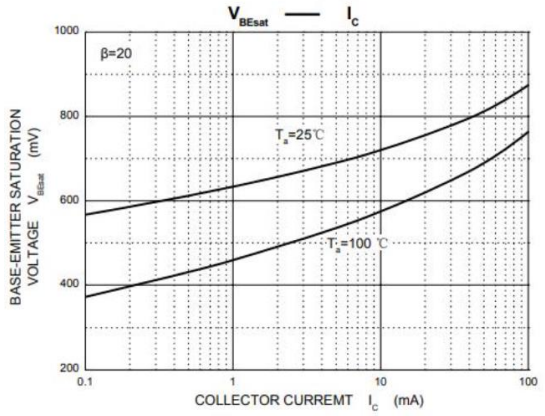
RATING AND CHARACTERISTICS CURVES



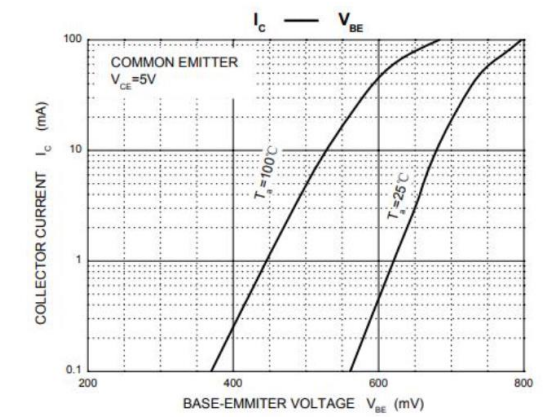
DC Current Gain (h_{FE}) vs Collector Current (I_C)



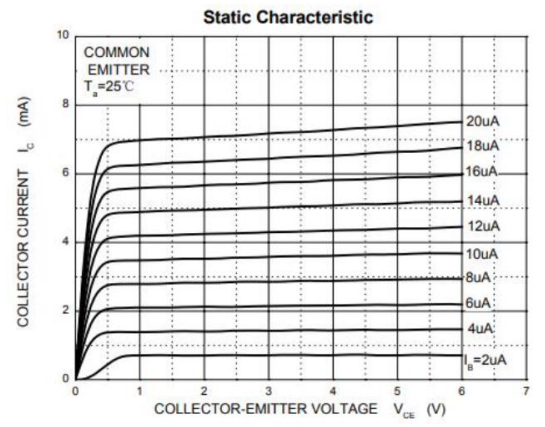
Collector-Emitter Saturation Voltage vs. Collector Current (I_C)



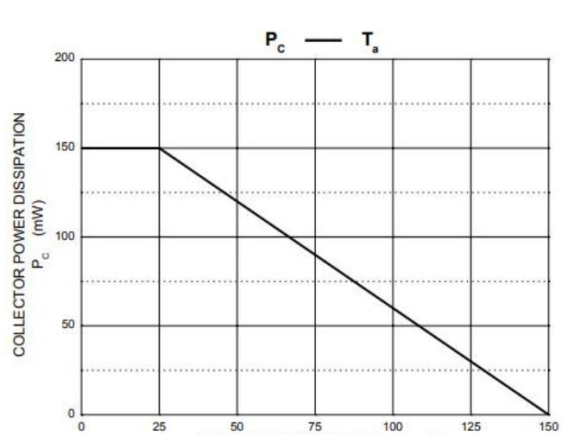
Base-Emitter Saturation Voltage vs. Collector Current (I_C)



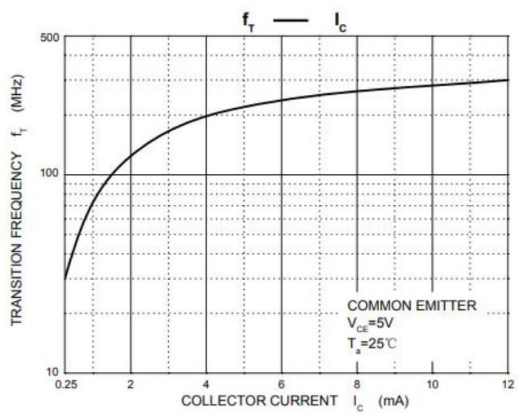
Base-Emitter Voltage Characteristics



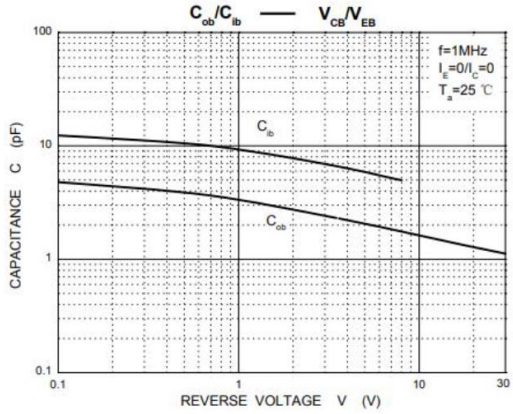
Static Characteristics



Power Derating Curve



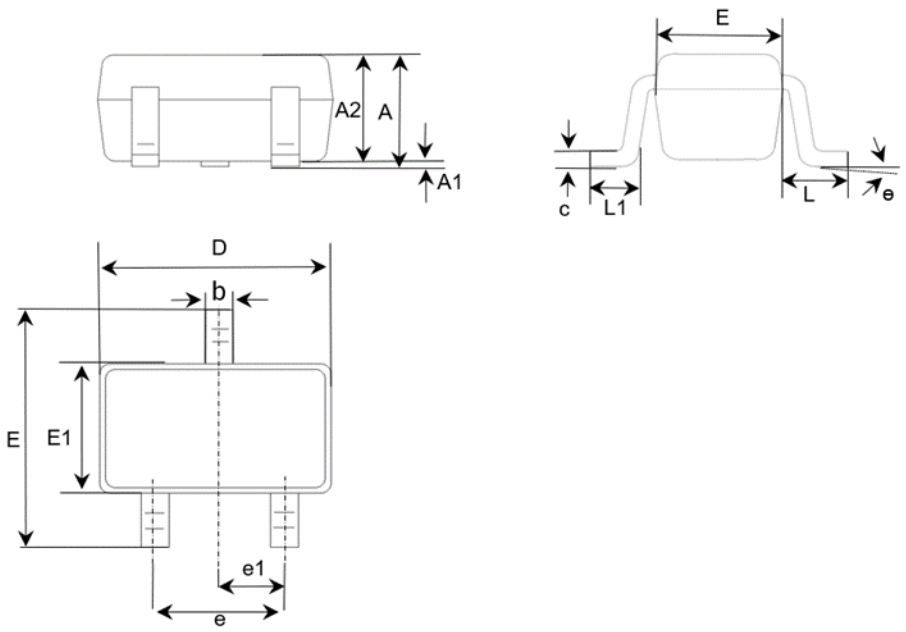
Transition Frequency (f_T) vs Collector Current (I_C)



Capacitance vs. Reverse Voltage

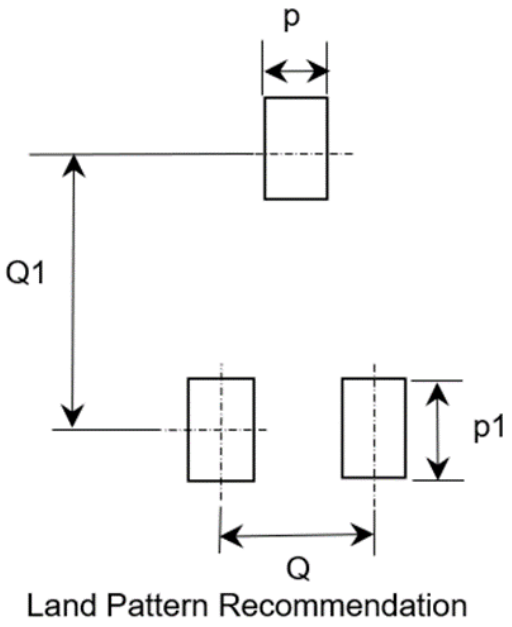
PACKAGE OUTLINE DIMENSIONS

SOT-323



Symbol	MIN	MAX
A	0.90	1.00
A1	0.00	0.10
A2	0.90	1.00
b	0.20	0.40
c	0.08	0.15
D	2.00	2.20
E	1.15	1.35
E1	2.15	2.45
e	0.65TYP	
e1	1.20	1.40
L	0.525REF	
L1	0.26	0.46
e	0°	8°
Unit: mm		

SUGGESTED PAD LAYOUT

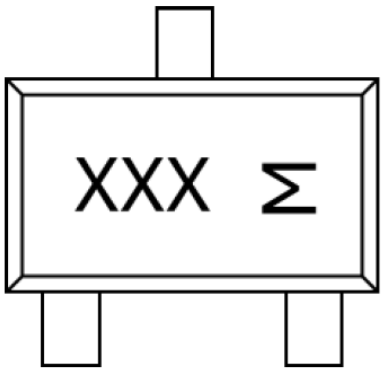


Land Pattern Recommendation

Symbol	Type
Q1	2.2
Q	1.3
p	0.5
p1	0.8
Unit: mm	

DEVICE MARKING CODE AND ORDERING INFORMATION

DEVICE	Marking	Quantity	Packing
BC850AW	1E	3000/7"Reel	Tape & Reel



XXX: Product Marking Code

Σ : Date Code (Rotate 90° counterclockwise)

Odd Year	Even Year
1	E
2	F
3	H
4	J
5	K
6	L
7	N
8	P
9	U
T	X
V	Y
C	Z