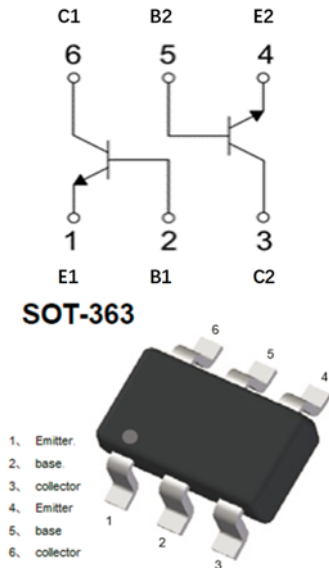


## Dual NPN Small Signal Transistor



### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

### Application

- Signal amplification
- Switching circuit

### Mechanical data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				1G
Collector-base voltage	$V_{CB0}$	V	$I_C = 10\mu\text{A}, I_E = 0$	50
Collector-emitter voltage	$V_{CE0}$	V	$I_C = 10\text{mA}, I_B = 0$	45
Emitter-base voltage	$V_{EB0}$	V	$I_E = 10\mu\text{A}, I_C = 0$	6
Collector current	$I_C$	mA		100
Power dissipation	$P_D$	mW		200
Junction temperature	$T_J$	$^\circ\text{C}$		-55 to +150
Storage temperature	$T_{STG}$	$^\circ\text{C}$		-55 to +150



# BC847CS

RoHS  
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## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	V	I <sub>C</sub> =10μA, I <sub>E</sub> =0	50		
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	V	I <sub>C</sub> =10mA, I <sub>B</sub> =0	45		
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	V	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6		
Collector cut-off current	I <sub>CBO</sub>	nA	V <sub>CB</sub> =30V, I <sub>B</sub> =0			15
Emitter-base cutoff current	I <sub>EBO</sub>	nA	V <sub>EB</sub> =5V, I <sub>C</sub> =0			100
DC current gain	h <sub>FE</sub>		V <sub>CE</sub> =5V, I <sub>C</sub> =2mA	420		800
Collector-emitter saturation voltage	V <sub>CE(sat)1</sub>	V	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA			0.25
	V <sub>CE(sat)2</sub>	V	I <sub>C</sub> =100mA, I <sub>B</sub> =5mA			0.65
Base-emitter saturation voltage	V <sub>BE(sat)1</sub>	V	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA		0.7	
	V <sub>BE(sat)2</sub>	V	I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		0.9	
Base-emitter voltage	V <sub>BE</sub>	V	V <sub>CE</sub> =5V, I <sub>C</sub> =2mA	0.58	0.665	0.7
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =5V, I <sub>C</sub> =10mA, f=100MHz		200	

## ■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	625
Thermal resistance, junction-to-case	R <sub>θJ-C</sub> <sup>(1)</sup>	°C/W	500

### Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint



■ Characteristics

Fig 1: Static Characteristics

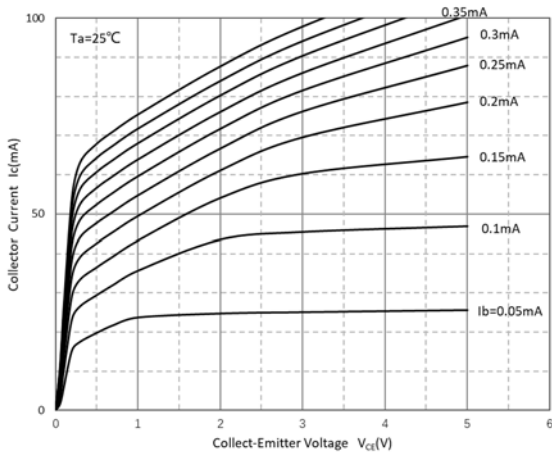


Fig 2: DC Current Gain Characteristics

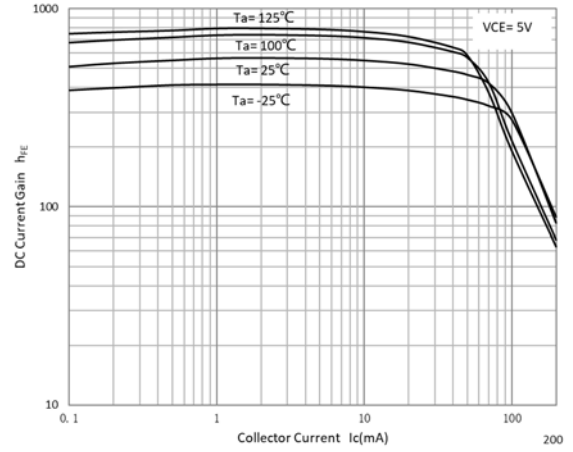


Fig 3: Collector-Emittor Saturation Voltage

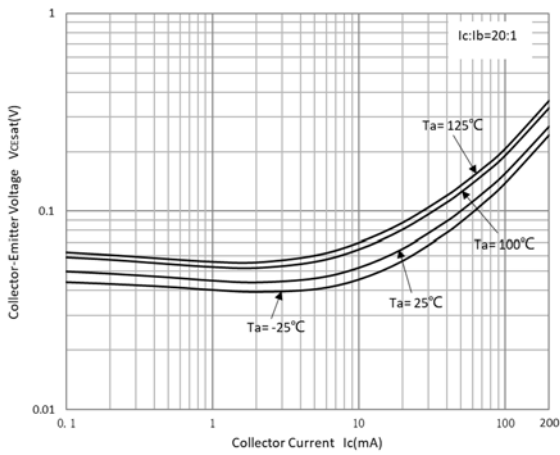


Fig 4: Base-Emittor Saturation Voltage

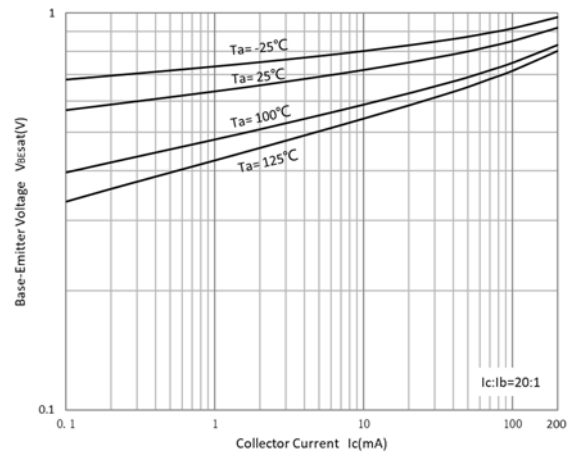


Fig 5: Base-emittor on voltage

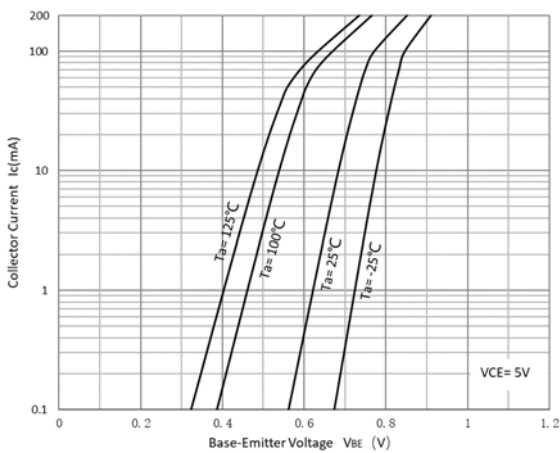


Fig 6: Cob/Cib-V<sub>CB</sub>/V<sub>EB</sub>

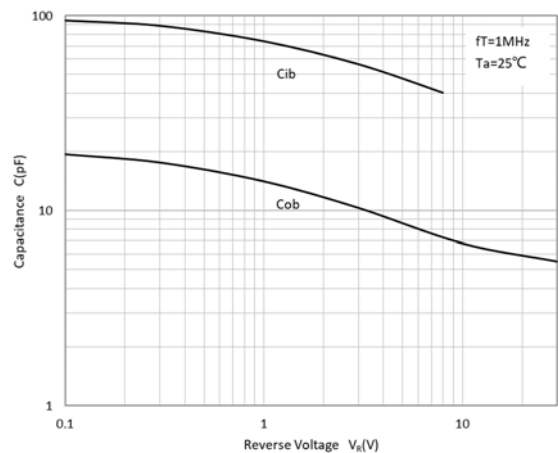
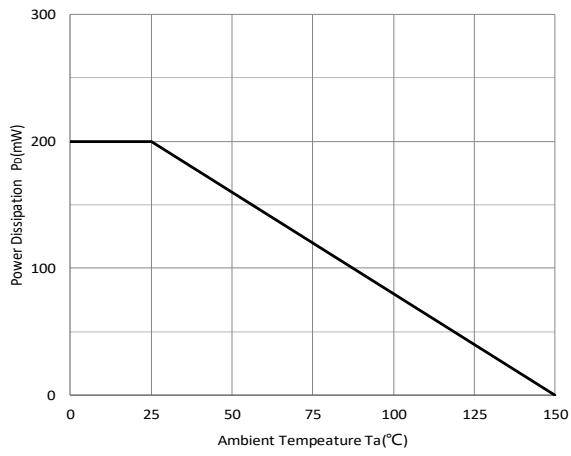




Fig 7:  $P_D$ - $T_a$  Curve





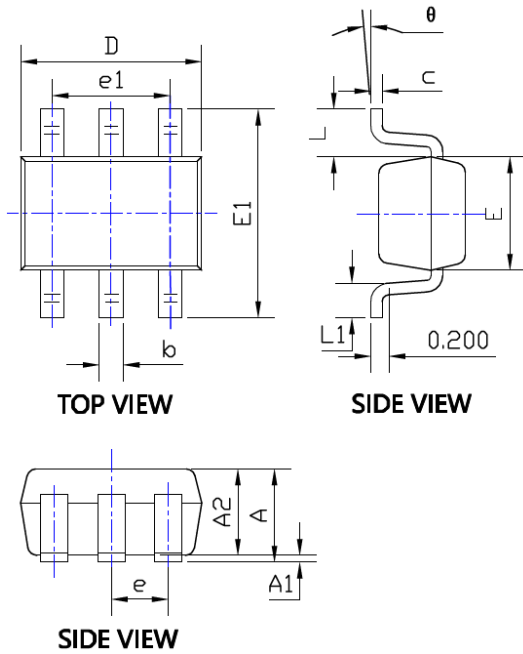
# BC847CS

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## Ordering Information

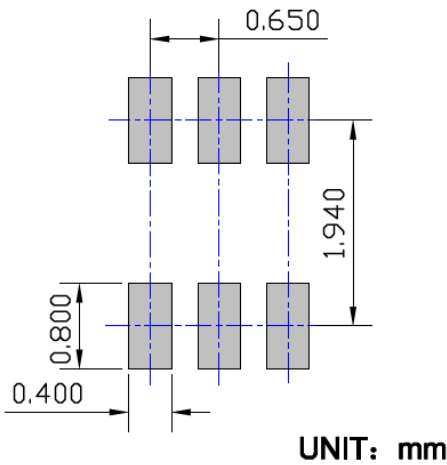
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC847CS	F2	Approximate 0.009	3000	30000	120000	7" reel
BC847CS	F3	Approximate 0.009	10000	/	210000	7" reel

## Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
$\theta$	0°	8°	0°	8°

## Suggested Pad Layout





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