BC857BDV

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BC857BDV

-100mA -45V General Purpose Transistor
Dual PNP Silicon

Features

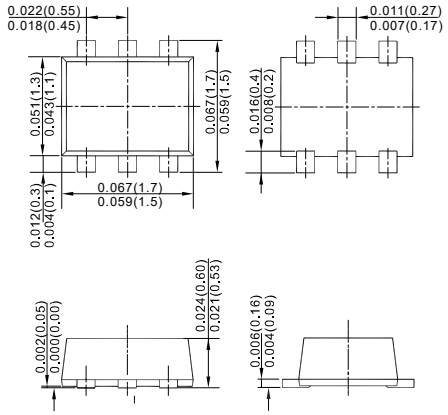
- Epitaxial die construction.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex.BC857BDV-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-563.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline

SOT-563



Dimensions in inches and (millimeters)

Maximum ratings (At T_A=25°C unless otherwise noted)

Parameter	Symbol	Ratings	Units
Collector-base voltage	$-V_{CBO}$	50	V
Collector-emitter voltage	$-V_{CEO}$	45	V
Emitter-base voltage	$-V_{EBO}$	5	V
Collector current - continuous	$-I_C$	0.1	A
Collector power dissipation	P_C	0.15	W
Thermal resistance, junction to ambient	$R_{\theta JA}$	833	°C/W
Operating junction temperature	T_J	+150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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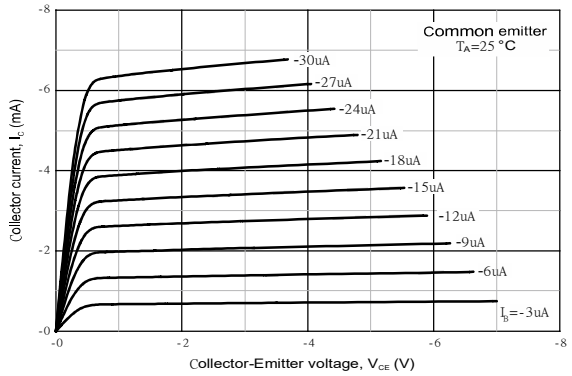
Electrical characteristics (At T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Off characteristics						
Collector-base voltage	$-I_C$=10μA, I_E=0	$-V_{(BR)CBO}$	50			V
Collector-emitter voltage	$-I_C$=10mA, I_B=0	$-V_{(BR)CEO}$	45			V
Emitter-base voltage	$-I_E$=1μA, I_C=0	$-V_{(BR)EBO}$	5			V
Collector cut-off current	$-V_{CB}$=30V, I_E=0	$-I_{CBO}$			15	nA
On characteristics						
DC current gain	$-I_C$=2mA, $-V_{CE}$=5V	h_{FE}	220		475	
Collector-emitter saturation voltage	$-I_C$=10mA, $-I_B$= 0.5mA	$-V_{CE(SAT)}$			0.1	V
	$-I_C$=100mA, $-I_B$= 5mA				0.4	
Base-emitter saturation voltage	$-I_C$=10mA, $-I_B$= 0.5mA	$-V_{BE(SAT)}$		0.7		V
	$-I_C$=100mA, $-I_B$= 5mA			0.9		
Base-emitter voltage	$-V_{CE}$=5V, $-I_C$=2mA	$-V_{BE}$	0.6		0.75	V
	$-V_{CE}$=5V, $-I_C$=10mA				0.82	
Small-signal characteristics						
Transition frequency	$-V_{CE}$=5V, $-I_C$=10mA, f=100MHz	f_T	100			MHz
Output capacitance	$-V_{CB}$=10V, I_E=0, f=1.0MHz	C_{ob}			4.5	pF
Noise figure	$-V_{CE}$=5V, $-I_C$=0.2mA, f=1KHz, R_s=2KΩ, B_W=200Hz	NF			10	dB

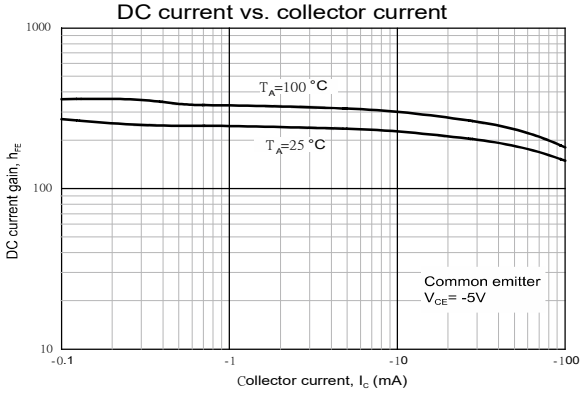
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Rating and characteristic curves

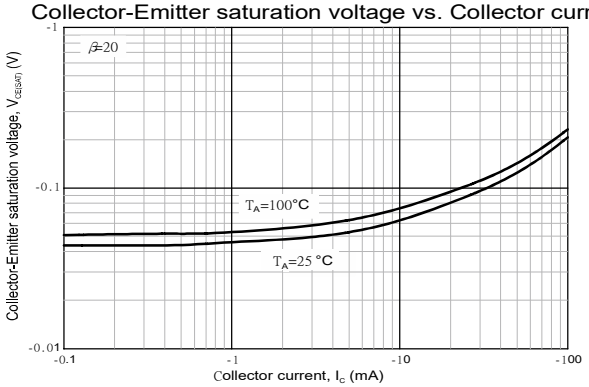
Static characteristics



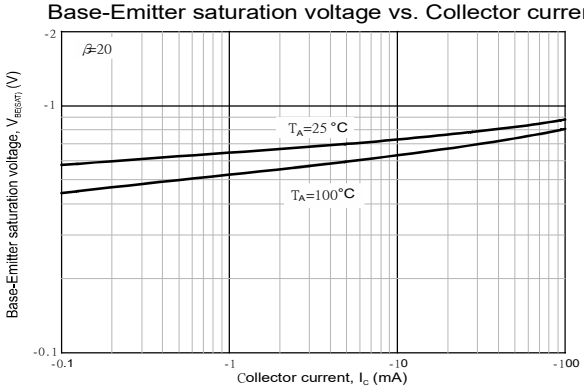
DC current vs. collector current



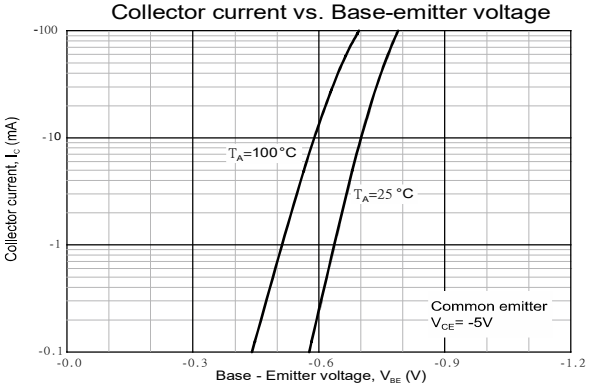
Collector-Emitter saturation voltage vs. Collector current



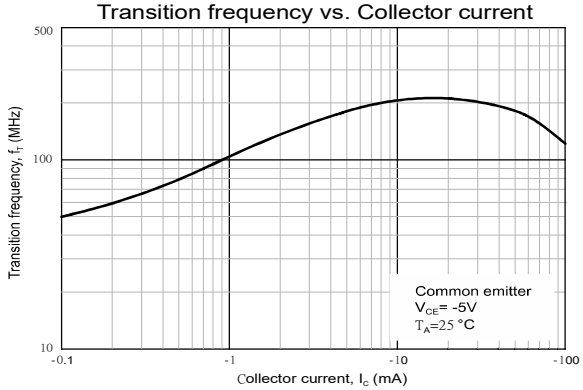
Base-Emitter saturation voltage vs. Collector current



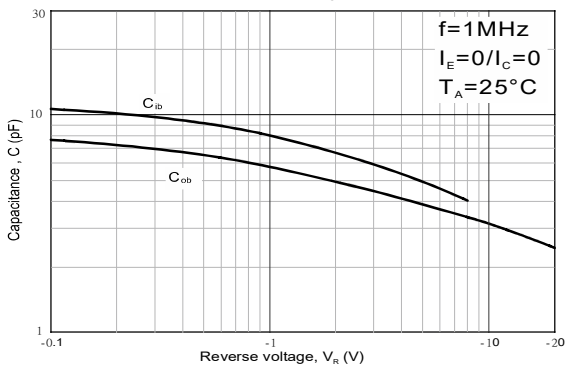
Collector current vs. Base-emitter voltage



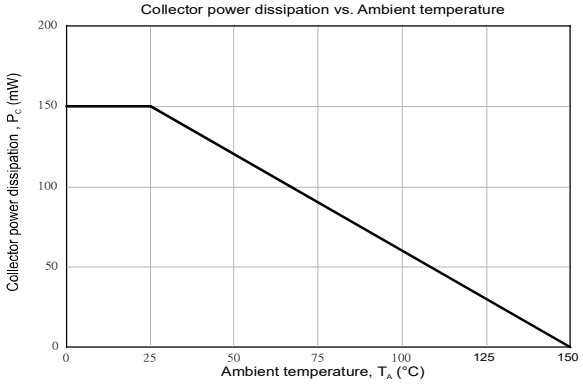
Transition frequency vs. Collector current



C_{ob}/C_{ib} vs. V_{CB}/ V_{EB}

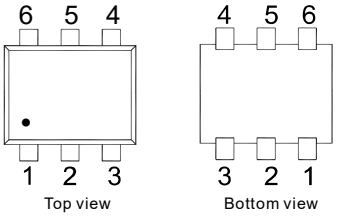
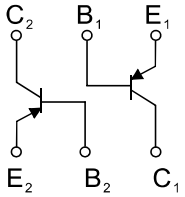


Collector power dissipation vs. Ambient temperature



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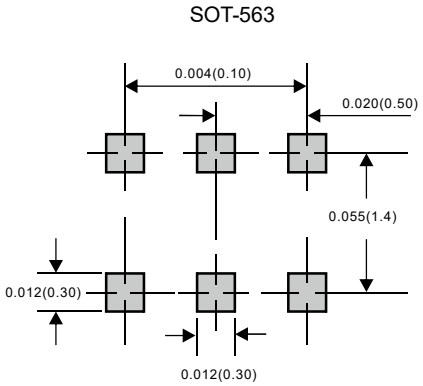
Pinning information

Pin	Simplified outline	Symbol
Pin 1 Emitter2 Pin 2 Base2 Pin 3 Collector1 Pin 4 Emitter1 Pin 5 Base1 Pin 6 Collector2		

Marking

Type number	Marking code
BC857BDV	K5V

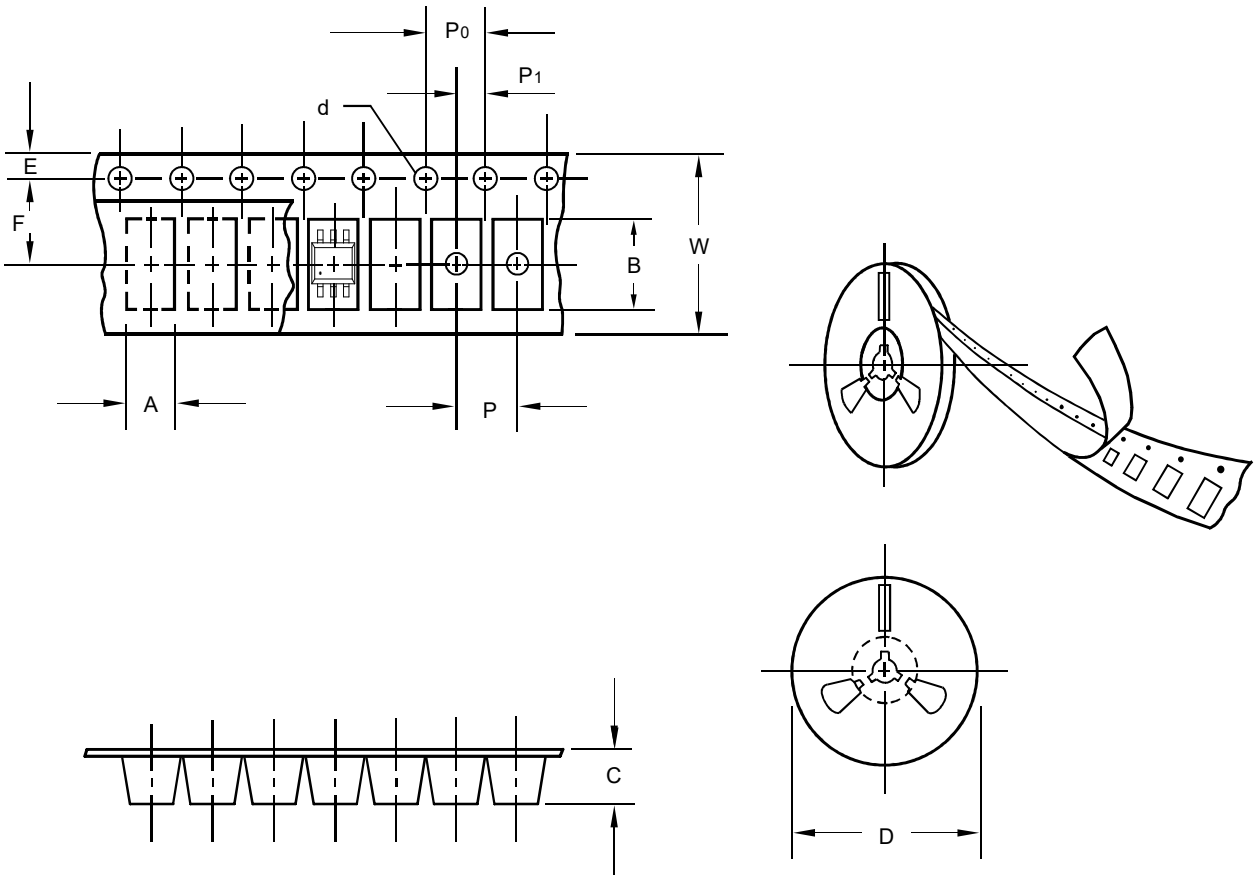
Suggested solder pad layout



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-563
Carrier width	A	0.1	1.78
Carrier length	B	0.1	1.78
Carrier depth	C	0.1	0.69
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
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
Tape width	W	0.3	8.00

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

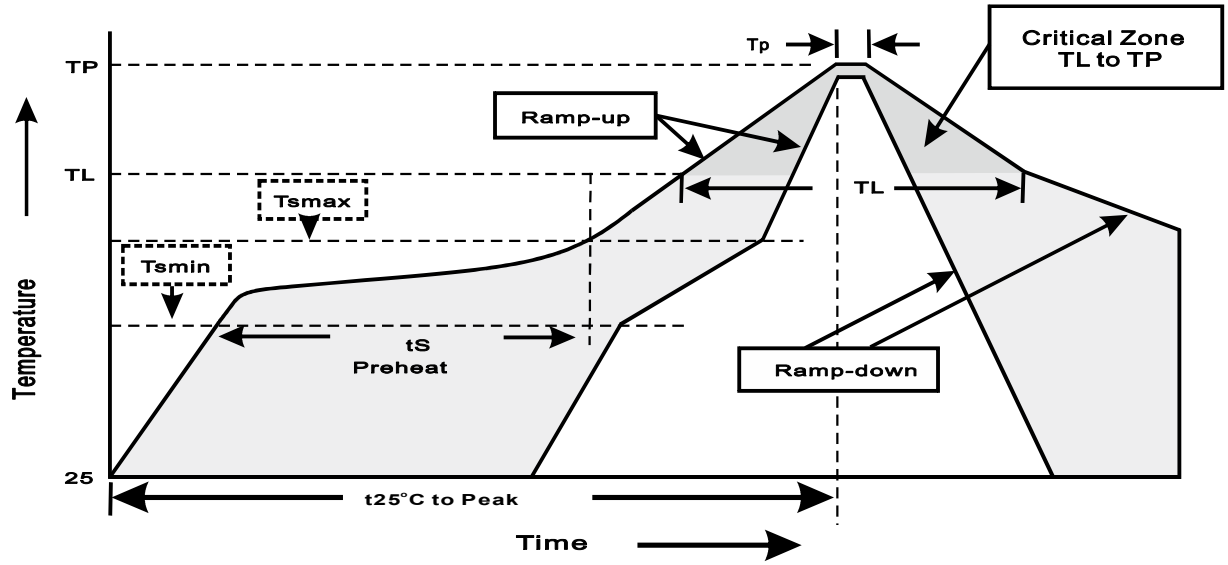
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	REEL DIA, (m/m)	CARTON (pcs)
SOT-563	7"	3,000	4.0	30,000	178	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(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax 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