



# SOT-563 Plastic-Encapsulate Transistors

## BC857BV DUAL TRANSISTOR (PNP+PNP)

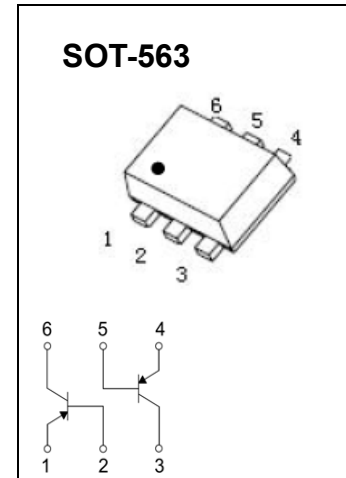
### FEATURES

- Epitaxial Die Construction
- Complementary NPN Types Available (BC847BV)
- Ultra-Small Surface Mount Package

Marking: K5V

### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	-50	V
$V_{CEO}$	Collector-Emitter Voltage	-45	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_c$	Collector Current -Continuous	-0.1	A
$P_C$	Collector Power Dissipation	0.15	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	833	$^{\circ}\text{C}/\text{W}$
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55 ~ +150	$^{\circ}\text{C}$

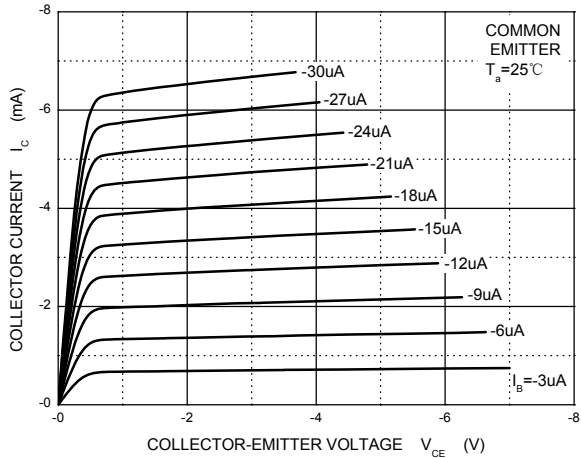


### ELECTRICAL CHARACTERISTICS( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

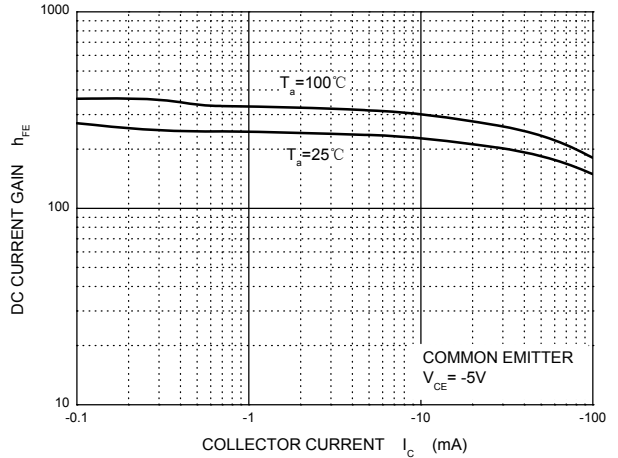
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-1\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-30\text{V}, I_E=0$			-15	nA
DC current gain	$h_{FE}$	$V_{CE}=-5\text{V}, I_C=-2\text{mA}$	220		475	
Collector-emitter saturation voltage	$V_{CE(sat)(1)}$	$I_C=-10\text{mA}, I_B=-0.5\text{mA}$			-0.1	V
	$V_{CE(sat)(2)}$	$I_C=-100\text{mA}, I_B=-5\text{mA}$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)(1)}$	$I_C=-10\text{mA}, I_B=-0.5\text{mA}$		-0.7		V
	$V_{BE(sat)(2)}$	$I_C=-100\text{mA}, I_B=-5\text{mA}$		-0.9		V
Base-emitter voltage	$V_{BE(1)}$	$V_{CE}=-5\text{V}, I_C=-2\text{mA}$	-0.6		-0.75	V
	$V_{BE(2)}$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$			-0.82	V
Transition frequency	$f_T$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	100			MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$			4.5	pF
Noise figure	NF	$V_{CE}=-5\text{V}, I_C=-0.2\text{mA}, f=1\text{kHz}, R_s=2\text{K}\Omega, BW=200\text{Hz}$			10	dB

# Typical Characteristics

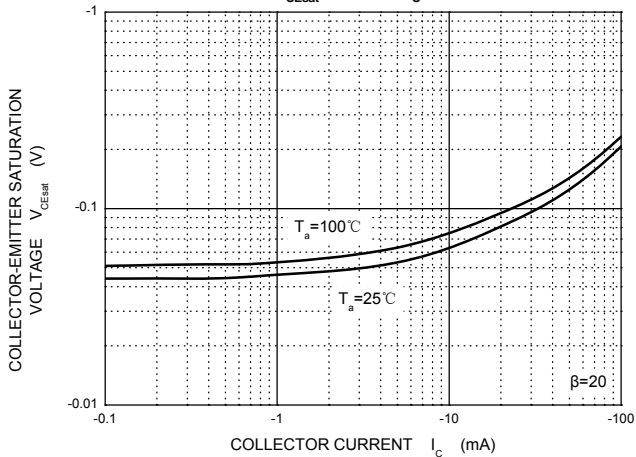
Static Characteristic



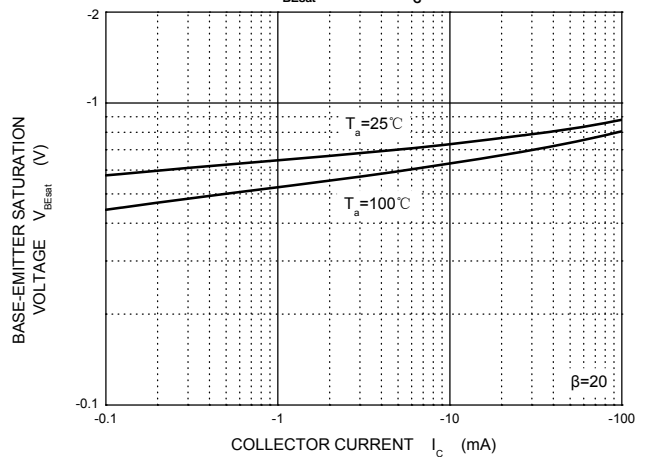
$h_{FE}$  —  $I_c$



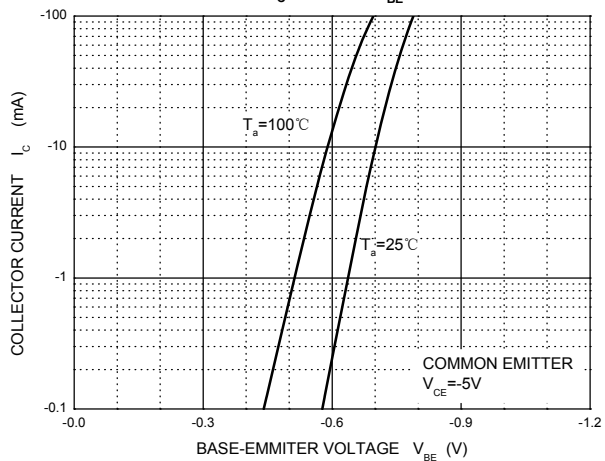
$V_{CEsat}$  —  $I_c$



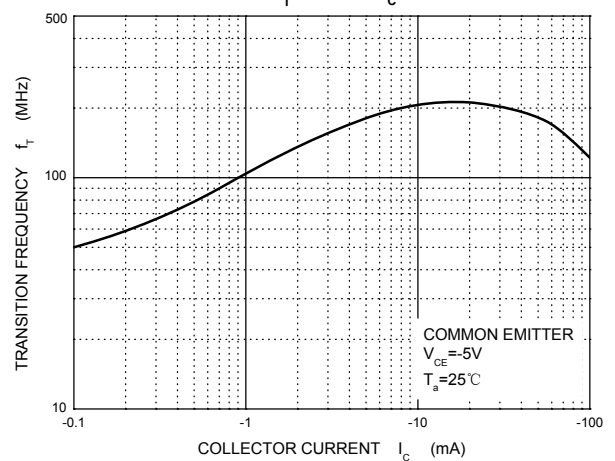
$V_{BEsat}$  —  $I_c$



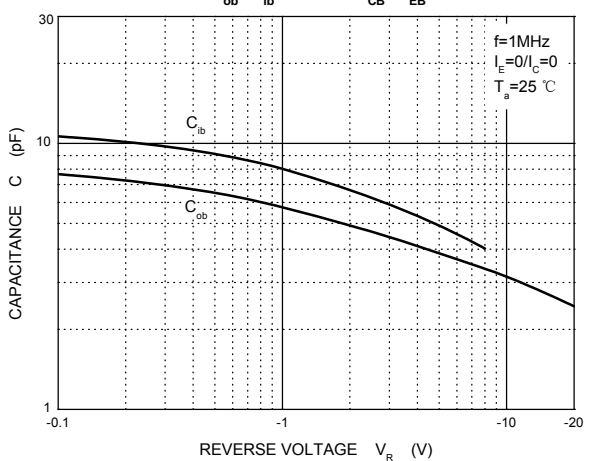
$I_c$  —  $V_{BE}$



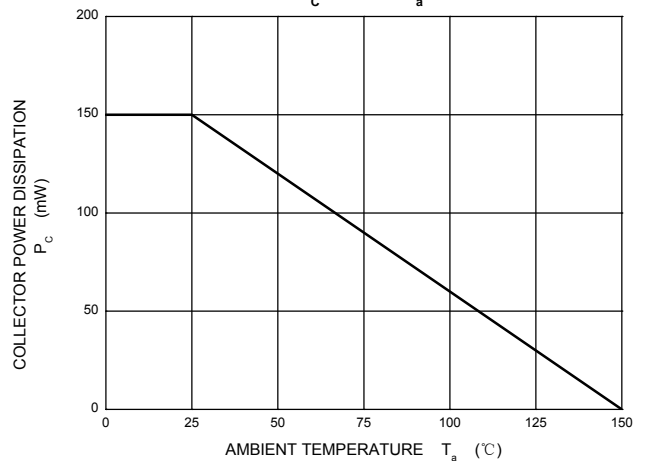
$f_T$  —  $I_c$



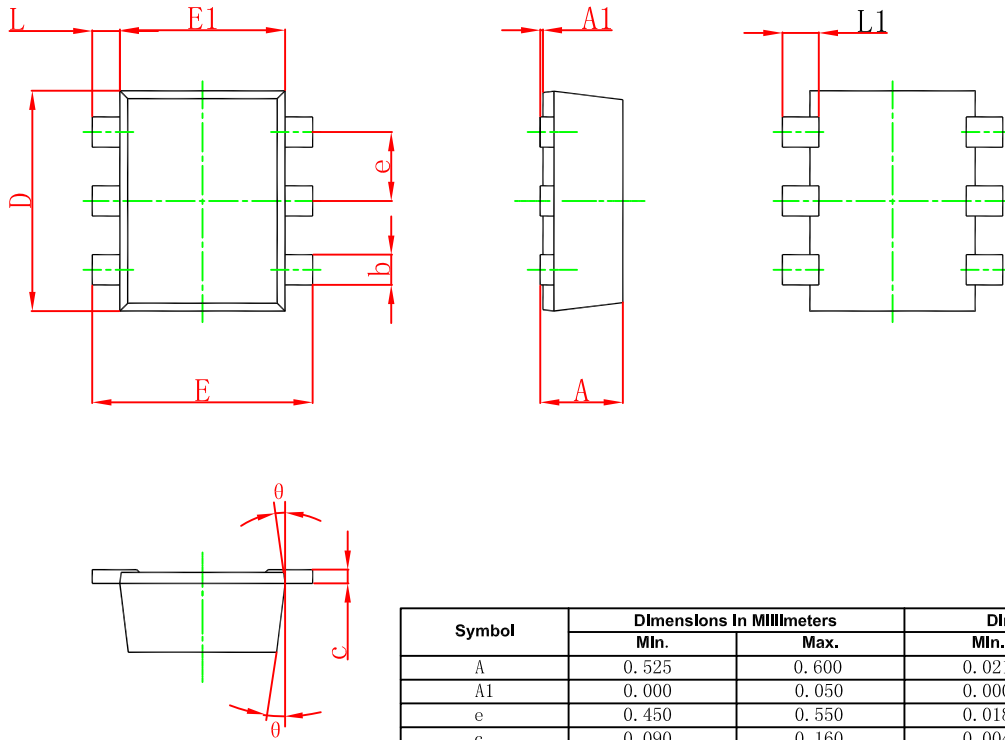
$C_{ob}/C_{ib}$  —  $V_{CB}/V_{EB}$



$P_c$  —  $T_a$

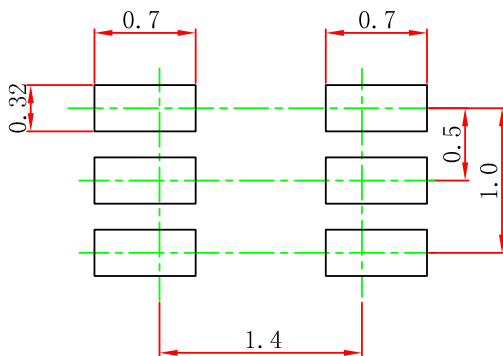


## SOT-563 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
$\theta$	10 <sup>0</sup> REF.		10 <sup>0</sup> REF.	

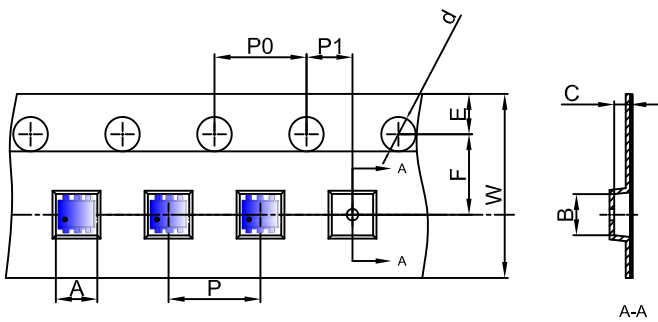
## SOT-563 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.

# SOT-563 Tape and Reel

## SOT-563 Embossed Carrier Tape

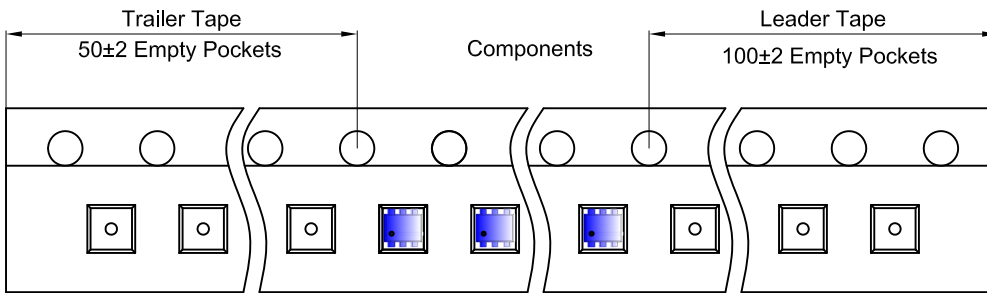


### Packaging Description:

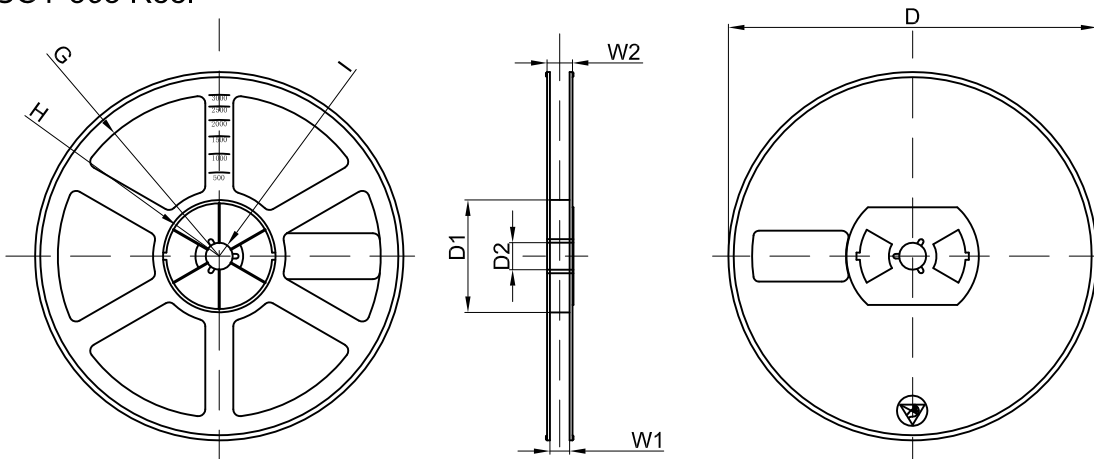
SOT-563 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17,8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-563	1.78	1.78	0.69	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

## SOT-563 Tape Leader and Trailer



## SOT-563 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	