NPN Dual Small Signal Surface Mount Transistor

TBC847BV

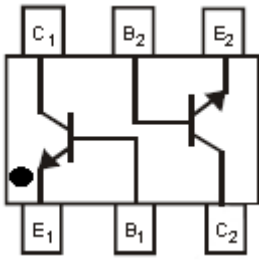
Features

HF

- Epitaxial die construction
- Complementary PNP Type Available (TBC857BV)
- Ultra-small surface mount package
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

Mechanical Data

- Case: SOT-563
- Molding compound: UL flammability classification rating 94V-0
- Terminal s: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-563

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBC847BV	SOT-563	3000 pcs / Tape Reel	K4V

Maximum Ratings (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current (Continuous)	I_C	100	mA
Collector Current (Peak)	I_{CM}	200	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation *1	P_C	150	mW
Thermal Resistance (Junction-to-Ambient) *1	$R_{\theta JA}$	833	°C/W
Operating junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_B = 0	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 1μA, I_C = 0	6	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 30V, I_E = 0	-	-	15	nA
Emitter-base Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0	-	-	100	nA
Collector-emitter Cut-off Current	I_{CEO}	V_{CE}= 30V, I_B = 0	-	-	1	mA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 2mA	200	-	450	-
Collector-Emitter Saturation Voltage (Note 2)	$V_{CE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	-	0.25	V
		I_C = 100mA, I_B = 5mA	-	-	0.60	V
Base-Emitter Saturation Voltage (Note 2)	$V_{BE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	0.7	0.90	V
		I_C = 100mA, I_B = 5mA	-	0.9	1.10	V
Base-Emitter Voltage (Note 2)	$V_{BE(ON)}$	V_{CE} = 5V, I_C= 2mA	0.58	0.66	0.70	V
		V_{CE} = 5V, I_C= 10mA	-	-	0.77	V
Transition Frequency	f_T	V_{CE} = 5V, I_C= 10mA f = 100MHz	100	-	-	-
Emitter Input Capacitance	Cib	V_{CB} = 0.5V, I_C = 0 f = 1MHz	-	13.28	-	pF
Collector Output Capacitance	Cob	V_{CB} = -10V, I_E = 0 f = 1MHz	-	1.52	-	pF

Note 1: Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)

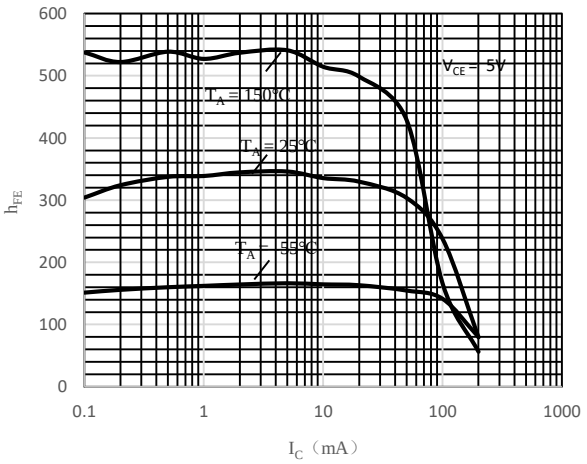


Fig 1 h_{FE} vs. I_C

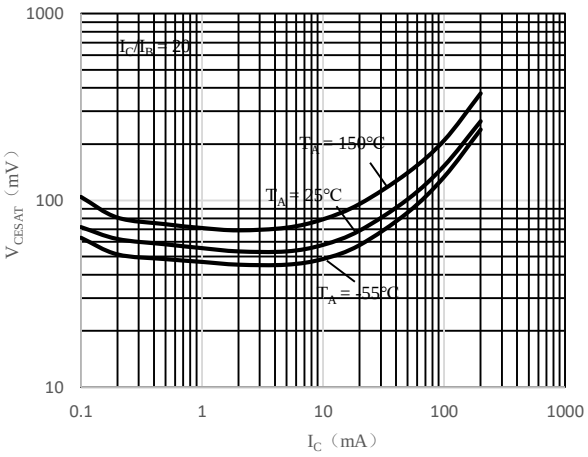


Fig 2 $V_{CE(sat)}$ vs. I_C

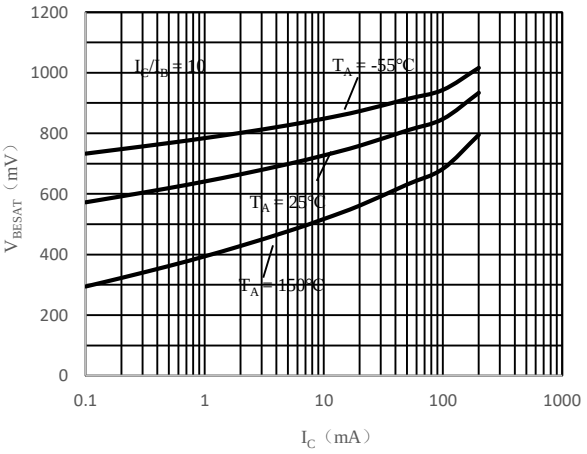


Fig 3 $V_{BE(sat)}$ vs. I_C

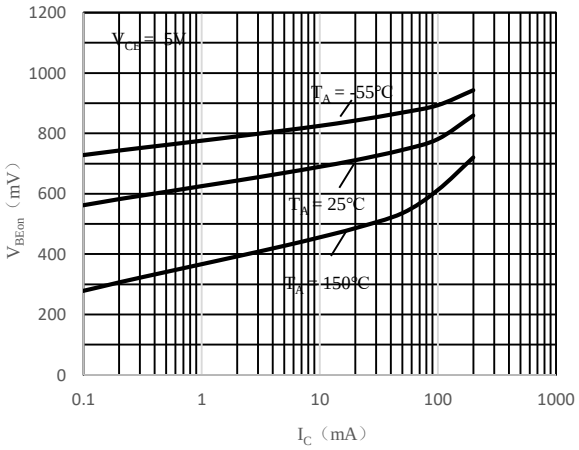
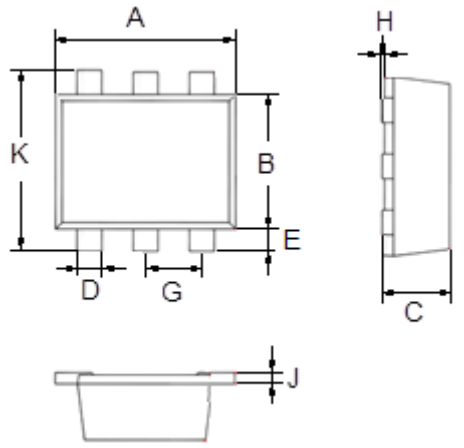


Fig 4 $V_{BE(ON)}$ vs. I_C

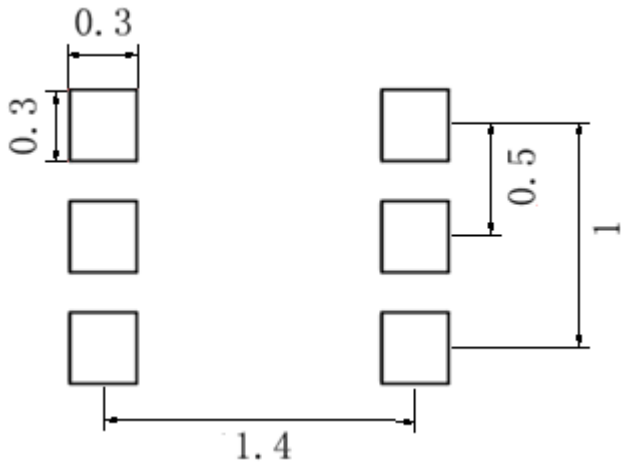
Package Outline Dimensions (Unit: mm)



SOT-563		
Dimension	**Min.**	**Max.**
A	1.500	1.700
B	1.100	1.300
C	0.525	0.600
D	0.170	0.270
E	0.100	0.300
G	0.450	0.550
H	0.000	0.050
J	0.090	0.160
K	1.500	1.700

Package Outline Dimensions (Unit: mm)

SOT-563



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