

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

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

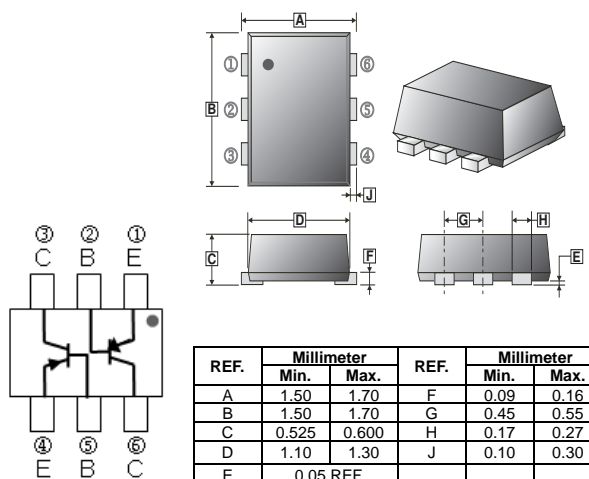
## MARKING

K5V

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-563	3K	7 inch

## SOT-563



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.50	1.70	F	0.09	0.16
B	1.50	1.70	G	0.45	0.55
C	0.525	0.600	H	0.17	0.27
D	1.10	1.30	J	0.10	0.30
E	0.05 REF.				

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

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-45	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current – Continuous	$I_C$	-100	mA
Collector Power Dissipation	$P_C$	0.15	W
Thermal Resistance. Junction to Ambient Air	$R_{\theta JA}$	833	$^\circ\text{C} / \text{W}$
Junction & Storage temperature	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50	-	-	V	$I_C = -10\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-45	-	-	V	$I_C = -10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-	-	V	$I_E = -1\mu\text{A}, I_C = 0$
Collector Cut-Off Current	$I_{CBO}$	-	-	-15	nA	$V_{CB} = -30\text{V}, I_E = 0$
DC Current Gain	$h_{FE}$	220	-	475		$V_{CE} = -5\text{V}, I_C = -2\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	-	-	-0.1	V	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$
	$V_{CE(sat)2}$	-	-	-0.4	V	$I_C = -100\text{mA}, I_B = -5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$	-	-0.7	-	V	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$
	$V_{BE(sat)2}$	-	-0.9	-	V	$I_C = -100\text{mA}, I_B = -5\text{mA}$
Base-Emitter Voltage	$V_{BE(1)}$	-0.6	-	-0.75	V	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$
	$V_{BE(2)}$	-	-	-0.82	V	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$
Transition Frequency	$f_T$	100	-	-	MHz	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$
Collector Output Capacitance	$C_{ob}$	-	-	4.5	pF	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$
Noise figure	NF	-	-	10	dB	$V_{CE} = -5\text{V}, I_C = -0.2\text{mA}, f = 1\text{kHz}, R_S = 2\text{k}\Omega, BW = 200\text{Hz}$

**TYPICAL CHARACTERISTICS**

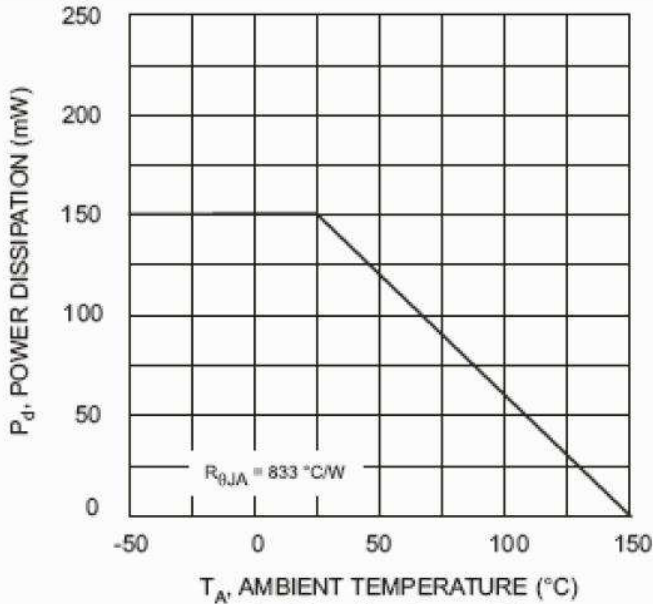


Fig. 1 Derating Curve - Total

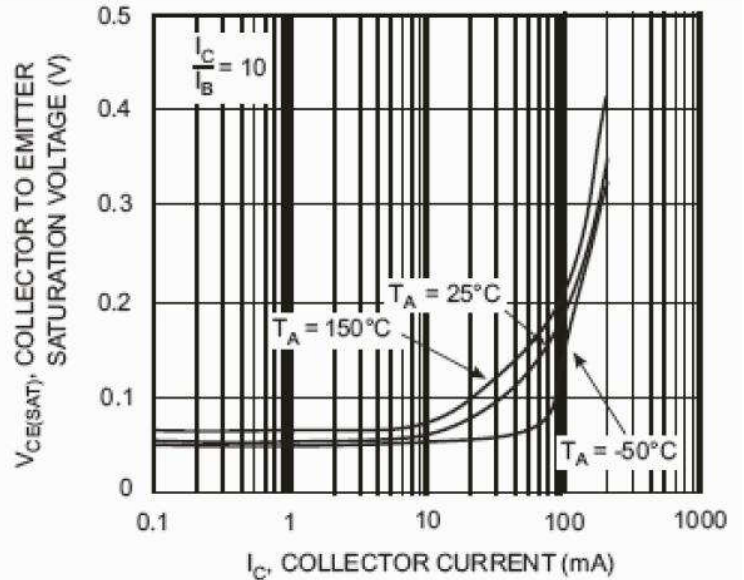


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

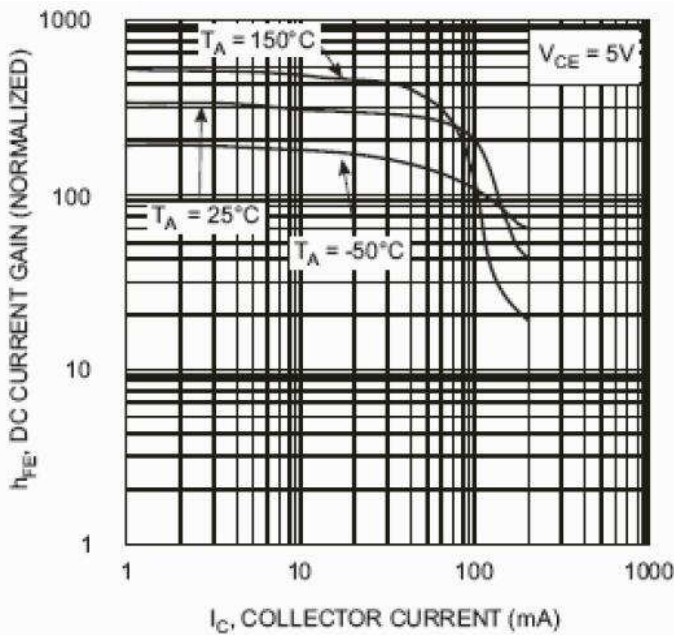


Fig. 3, DC Current Gain vs. Collector Current

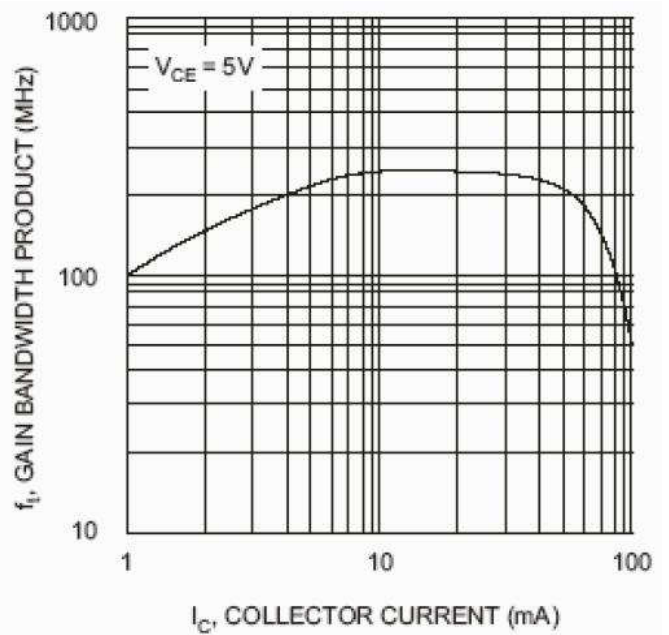


Fig. 4, Gain Bandwidth Product vs Collector Current