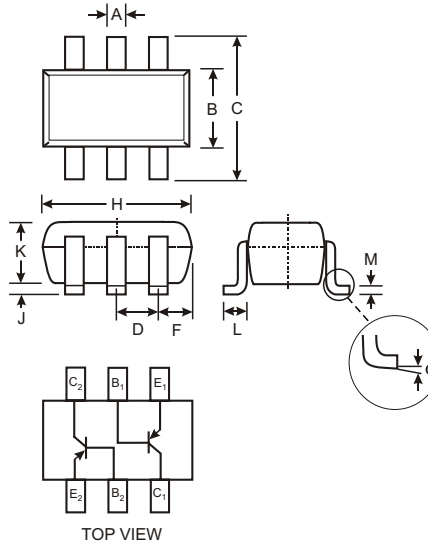


Features

- Ideally Suited for Automatic Insertion
- For Switching and AF Amplifier Applications
- Ultra-Small Surface Mount Package
- Also Available in Lead Free Version

Mechanical Data

- Case: SOT-363, Molded Plastic
- Case Material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 4, on Page 3
- Terminal Connections: See Diagram
- Marking: K3W (See Page 3)
- Weight: 0.006 grams



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-50	V
Collector-Emitter Voltage	V_{CE0}	-45	V
Emitter-Base Voltage	V_{EB0}	-5.0	V
Collector Current (Note 1)	I_C	-100	mA
Peak Collector Current (Note 1)	I_{CM}	-200	mA
Peak Base Current (Note 1)	I_{BM}	-200	mA
Power Dissipation at $T_{SB} = 50^\circ\text{C}$ (Note 1)	P_d	200	mW
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +125	$^\circ\text{C}$

Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain (Note 2)	h_{FE}	220	—	475	—	$V_{CE} = -5.0\text{V}$, $I_C = -2.0\text{mA}$
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{\theta JA}$	—	—	625	$^\circ\text{C/W}$	Note 1
Collector-Emitter Saturation Voltage (Note 2)	$V_{CE(SAT)}$	—	—	-100 -400	mV	$I_C = -10\text{mA}$, $I_B = -0.5\text{mA}$ $I_C = -100\text{mA}$, $I_B = -5.0\text{mA}$
Base-Emitter Saturation Voltage (Note 2)	$V_{BE(SAT)}$	—	-700	—	mV	$I_C = -10\text{mA}$, $I_B = -0.5\text{mA}$
Base-Emitter Voltage (Note 2)	V_{BE}	-580	-665	-750	mV	$V_{CE} = -5.0\text{V}$, $I_C = -2.0\text{mA}$
Collector Cutoff Current	I_{CBO}	—	—	-15	nA	$V_{CB} = -30\text{V}$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}	—	—	-100	nA	$V_{EB} = -5.0\text{V}$, $I_C = 0$
Gain Bandwidth Product	f_T	100	—	—	MHz	$V_{CE} = -5.0\text{V}$, $I_C = -10\text{mA}$, $f = 100\text{MHz}$
Collector-Base Capacitance	C_{CBO}	—	—	3	pF	$V_{CB} = -10\text{V}$, $f = 1.0\text{MHz}$
Emitter-Base Capacitance	C_{EBO}	—	11	—	pF	$V_{EB} = -0.5\text{V}$, $f = 1.0\text{MHz}$

- Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
2. Short duration test pulse used to minimize self-heating effect.

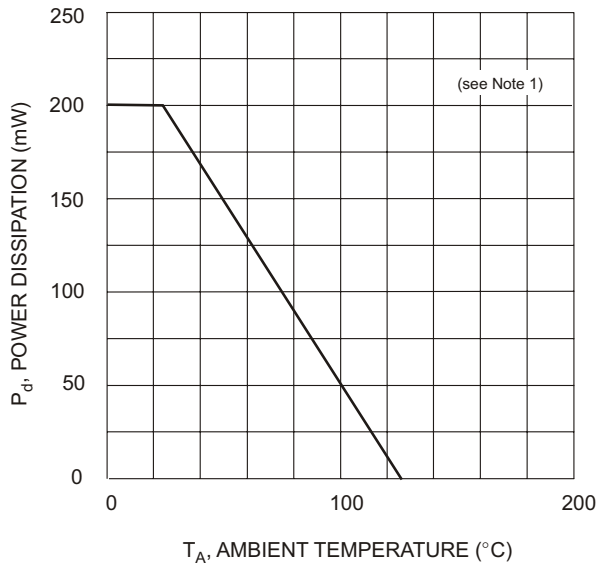


Fig. 1, Power Derating Curve

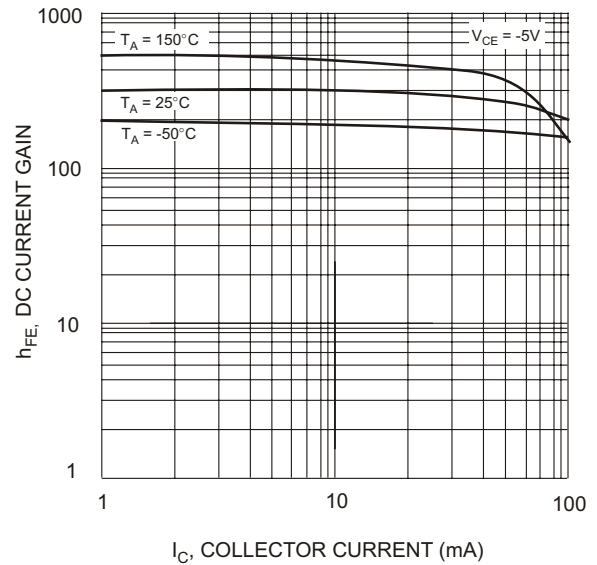


Fig. 2, DC Current Gain vs Collector Current

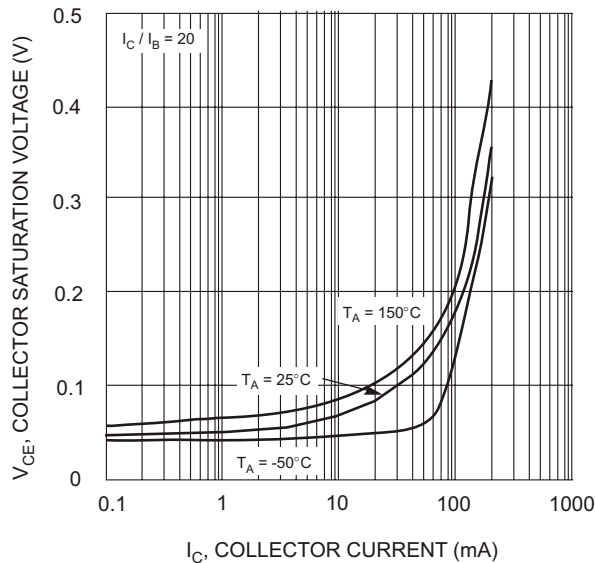


Fig. 3, Collector Saturation Voltage vs Collector Current

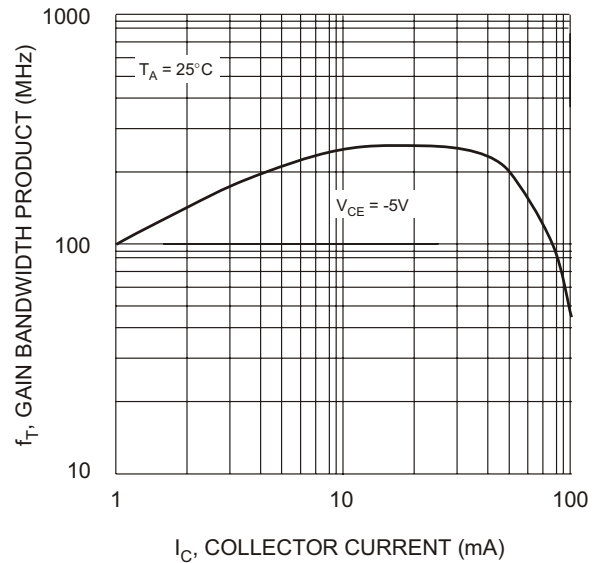


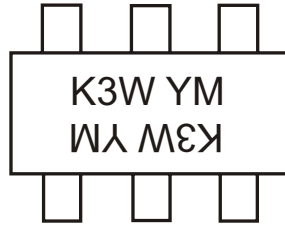
Fig. 4, Gain Bandwidth Product vs Collector Current

Ordering Information (Note 3)

Device	Packaging	Shipping
BC857BS-7	SOT-363	3000/Tape & Reel

- Notes:
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 - For Lead Free version (with Lead Free terminal finish) part number, please add "-F" suffix to part number above.
Example: BC857BS-7-F.

Marking Information



K3W = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: N = 2002
 M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009
Code	N	P	R	S	T	U	V	W

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D