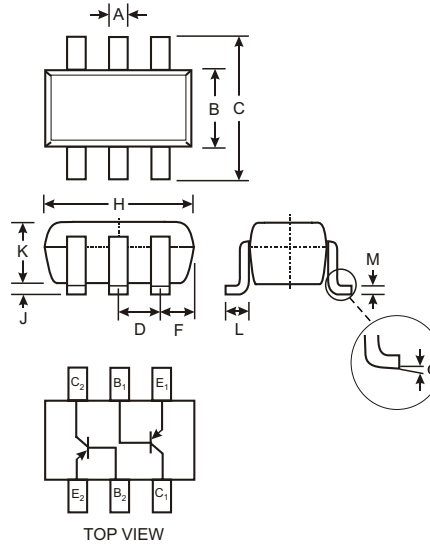


Features

- 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

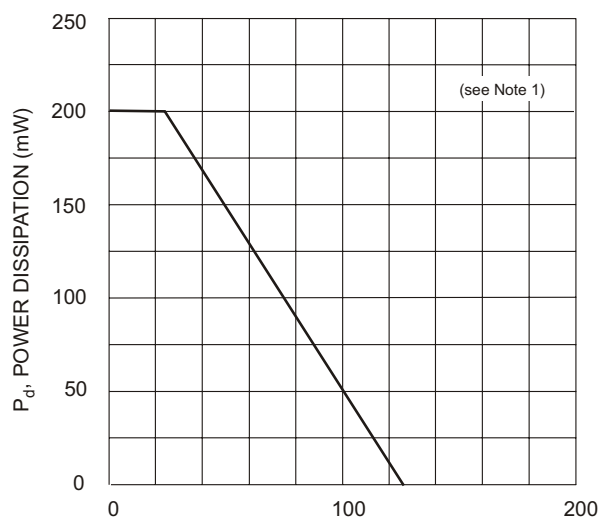
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-50	V
Collector-Emitter Voltage	V_{CE0}	-45	V
Emitter-Base Voltage	V_{EB0}	-5.0	V
Collector Current (Note 1)	I_C	-100	mA
Peak Collector Current (Note 1)	I_{CM}	-200	mA
Peak Base Current (Note 1)	I_{BM}	-200	mA
Power Dissipation at $T_{SB} = 50^\circ\text{C}$ (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>.

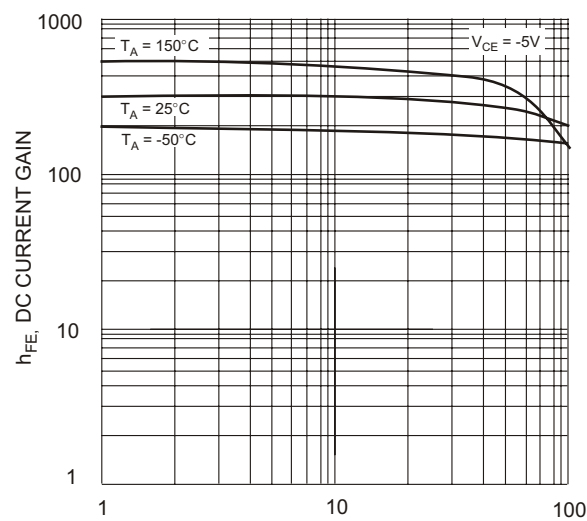
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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}	—	—	-4.0	μA	$V_{CB} = -30\text{V}$, $T_J = 150^\circ\text{C}$
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	$V_{EB} = -0.5\text{V}$, $f = 1.0\text{MHz}$

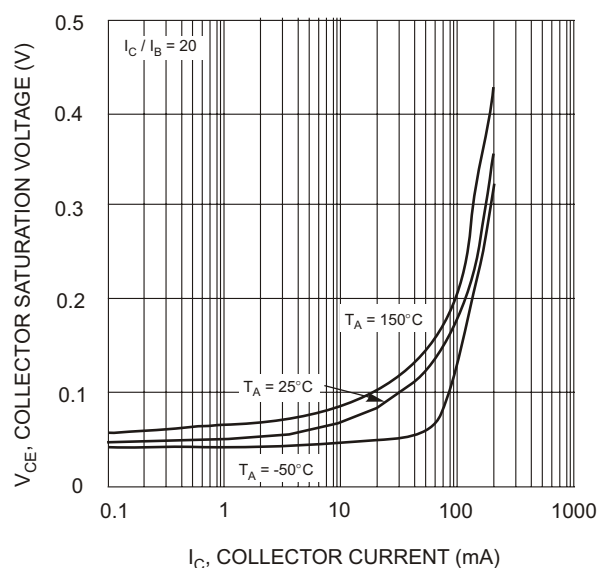
Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. Short duration test pulse used to minimize self-heating effect.



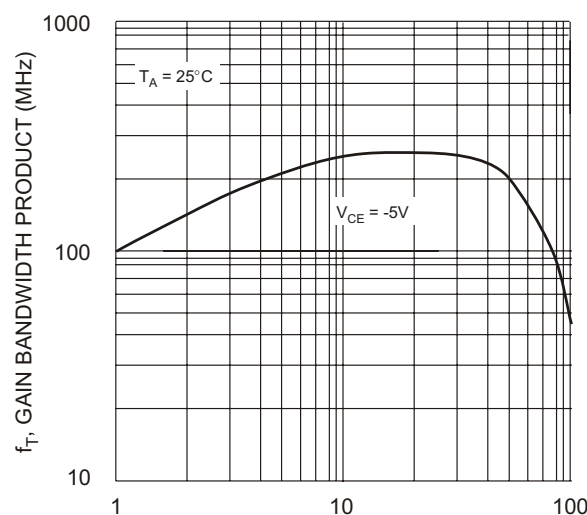
T_A , AMBIENT TEMPERATURE ($^\circ\text{C}$)
 Fig. 1, Power Derating Curve



I_C , COLLECTOR CURRENT (mA)
 Fig. 2, DC Current Gain vs Collector Current



I_C , COLLECTOR CURRENT (mA)
 Fig. 3, Collector Saturation Voltage vs Collector Current



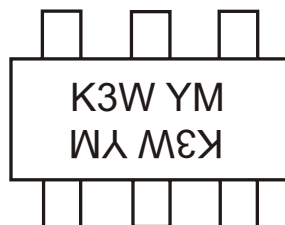
I_C , COLLECTOR CURRENT (mA)
 Fig. 4, Gain Bandwidth Product vs Collector Current

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