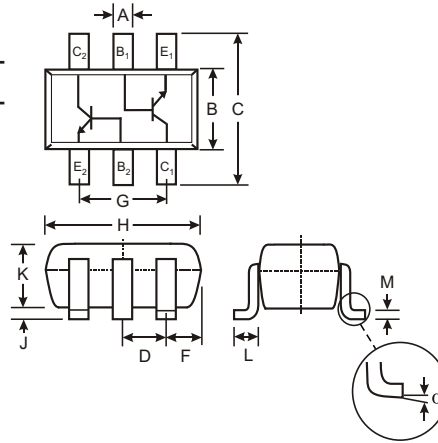


**Features**

- Ideally Suited for Automatic Insertion
- For Switching and AF Amplifier Applications
- Ultra-Small Surface Mount Package
- Lead Free/RoHS Compliant (Note 2)**
- Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking: K1F (See Page 2)
- Ordering & Date Code Information: See Page 2
- 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
	8°	
All Dimensions in mm		

**Maximum Ratings** @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	50	V
Collector-Emitter Voltage	V <sub>CE0</sub>	45	V
Emitter-Base Voltage	V <sub>EB0</sub>	5.0	V
Collector Current	I <sub>C</sub>	100	mA
Peak Collector Current	I <sub>CM</sub>	200	mA
Peak Base Current	I <sub>BM</sub>	200	mA
Power Dissipation (Note 1)	P <sub>d</sub>	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>JA</sub>	500	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-65 to +150	°C

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 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. No purposefully added lead.

## Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain (Note 3)	$h_{FE}$	200	—	450	—	$V_{CE} = 5.0V, I_C = 2.0mA$
Collector-Emitter Saturation Voltage (Note 3)	$V_{CE(SAT)}$	—	—	100 400	mV	$I_C = 10mA, I_B = 0.5mA$ $I_C = 100mA, I_B = 5.0mA$
Base-Emitter Saturation Voltage (Note 3)	$V_{BE(SAT)}$	—	755	—	mV	$I_C = 10mA, I_B = 0.5mA$
Base-Emitter Voltage (Note 3)	$V_{BE}$	580	665	700	mV	$V_{CE} = 5.0V, I_C = 2.0mA$
Collector Cutoff Current (Note 3)	$I_{CBO}$	—	—	15 5.0	nA $\mu A$	$V_{CB} = 30V, I_E = 0$ $V_{CB} = 30V, T_j = 125^\circ C$
Emitter Cutoff Current (Note 3)	$I_{EBO}$	—	—	100	nA	$V_{EB} = 5.0V, I_C = 0$
Gain Bandwidth Product	$f_T$	100	—	—	MHz	$V_{CE} = 5.0V, I_C = 10mA,$ $f = 100MHz$
Collector-Base Capacitance	$C_{CBO}$	—	—	1.5	pF	$V_{CB} = 10V, f = 1.0MHz$
Emitter-Base Capacitance	$C_{EBO}$	—	11	—	pF	$V_{EB} = 0.5V, f = 1.0MHz$

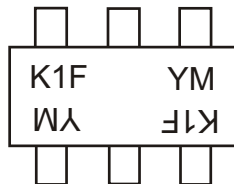
## Ordering Information (Note 4)

Device	Packaging	Shipping
BC847BS-7-F	SOT-363	3000/Tape & Reel

Notes: 3. Short duration pulse test used to minimize self-heating effect.

4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



K1F = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

### Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z

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

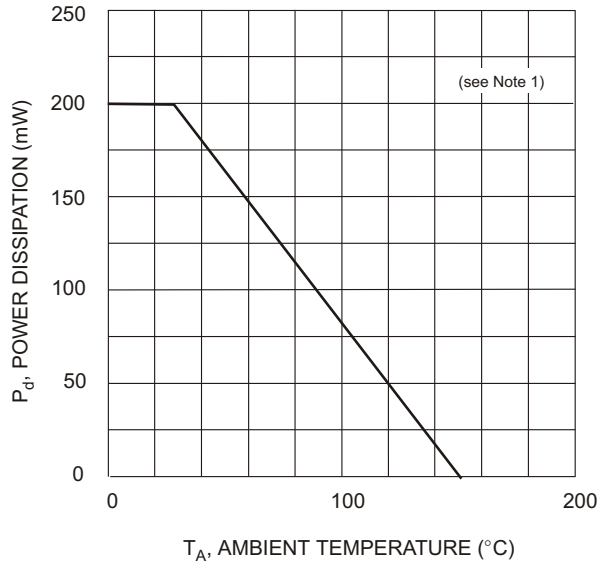


Fig. 1, Power Derating Curve

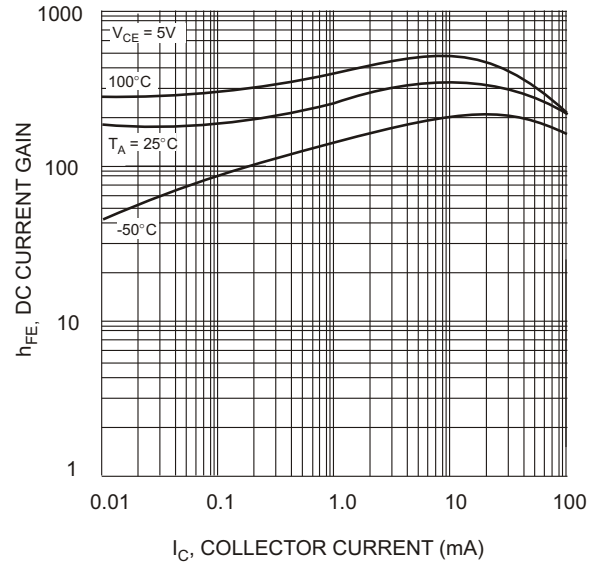


Fig. 2, DC Current Gain vs Collector Current

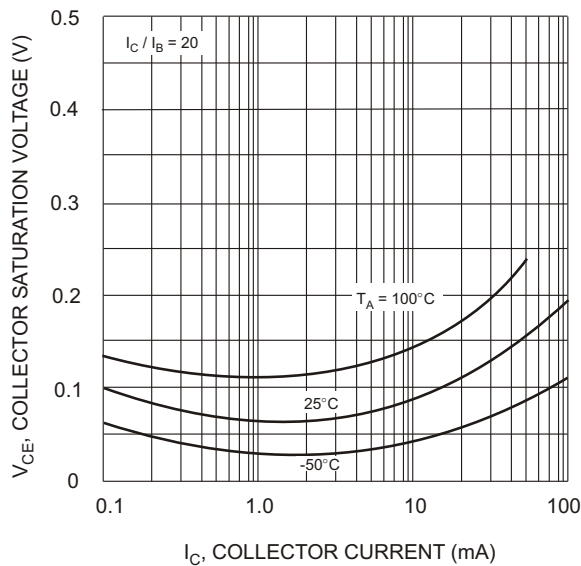


Fig. 3, Collector Saturation Voltage vs Collector Current

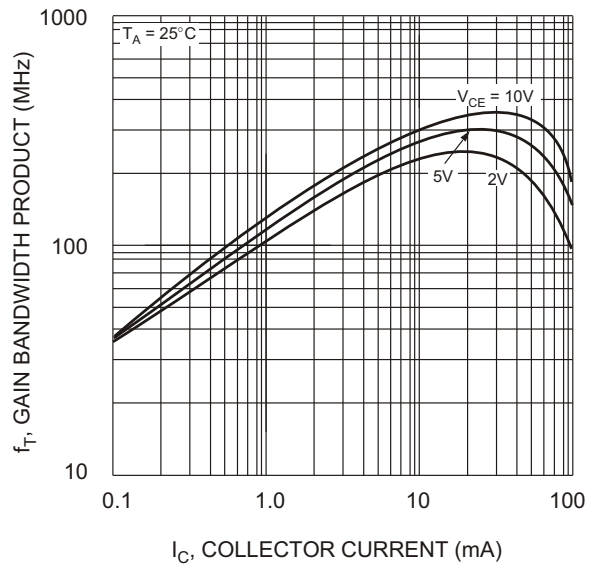


Fig. 4, Gain Bandwidth Product vs Collector Current

Notes: 1. Device mounted on FR4 printed circuit board.

**IMPORTANT NOTICE**

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

**LIFE SUPPORT**

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.