BC847BS

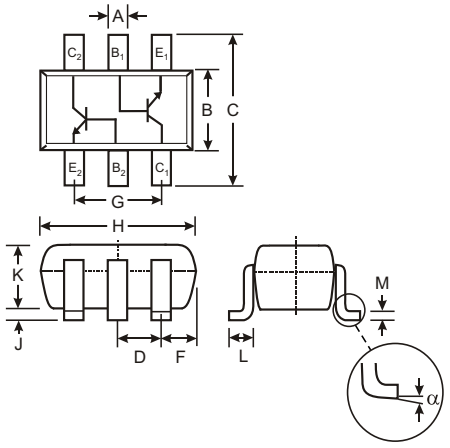
DUAL NPN SURFACE MOUNT SMALL SIGNAL TRANSISTOR

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_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Peak Base Current	I_{BM}	200	mA
Power Dissipation (Note 1)	P_d	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	R_{JA}	500	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-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 @ $T_A = 25°C$ unless otherwise specified

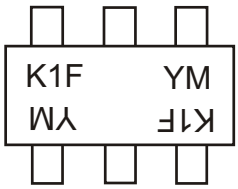
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain (Note 3)	h_{FE}	200	—	450	—	$V_{CE} = 5.0V$, $I_C = 2.0mA$
Collector-Emitter Saturation Voltage (Note 3)	$V_{CE(SAT)}$	—	— —	100 400	mV	$I_C = 10mA$, $I_B = 0.5mA$ $I_C = 100mA$, $I_B = 5.0mA$
Base-Emitter Saturation Voltage (Note 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} I_{CBO}	—	— —	15 5.0	nA µA	$V_{CB} = 30V$, $I_E = 0$ $V_{CB} = 30V$, $T_j = 125°C$
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

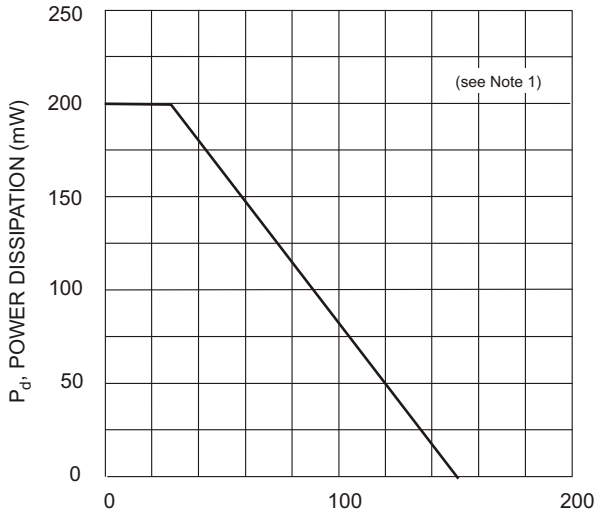


Fig. 1, Power Derating Curve

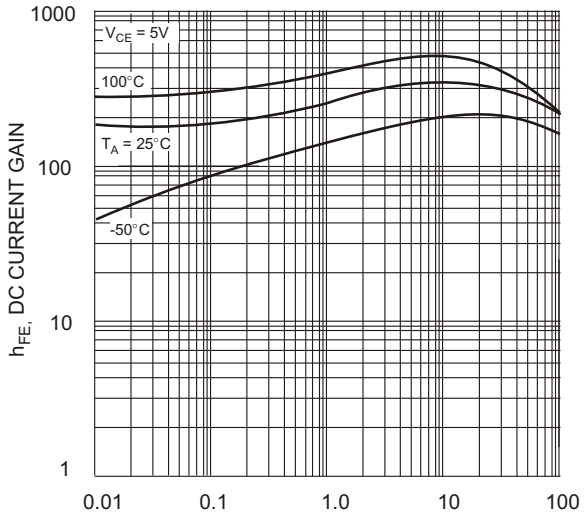


Fig. 2, DC Current Gain vs Collector Current

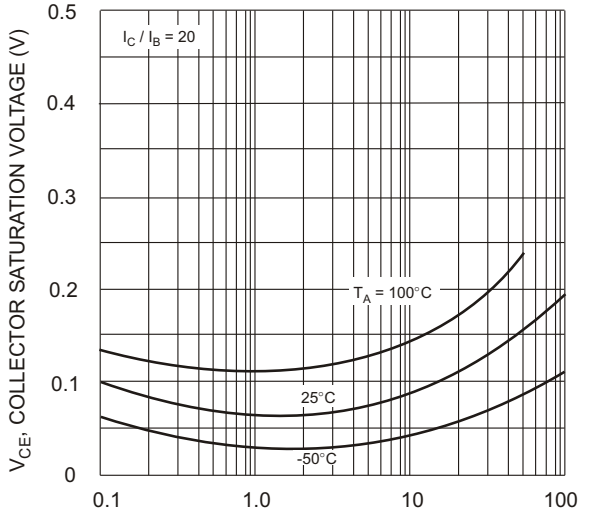


Fig. 3, Collector Saturation Voltage vs Collector Current

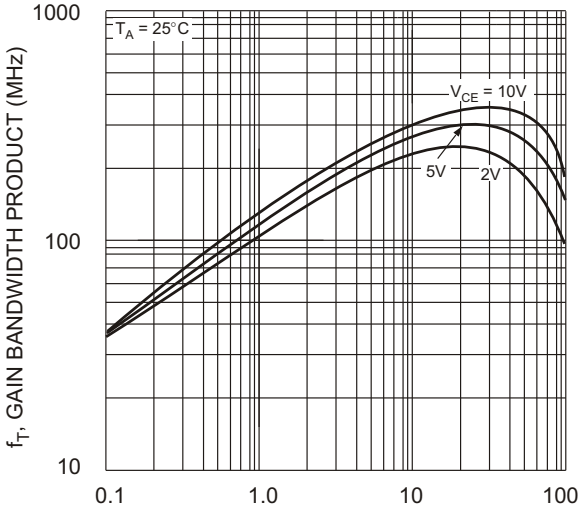


Fig. 4, Gain Bandwidth Product vs Collector Current

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