



BC857BS

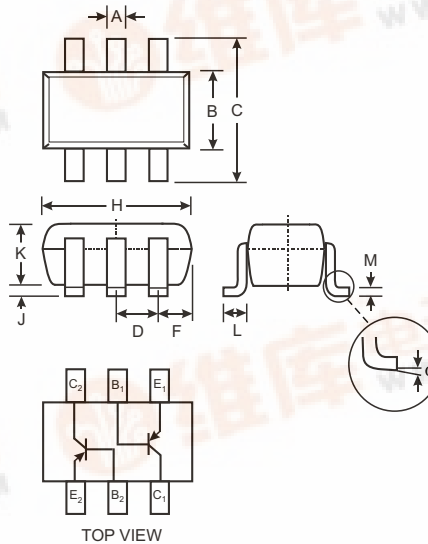
DUAL PNP SURFACE MOUNT SMALL SIGNAL TRANSISTOR

Features

- Ideally Suited for Automatic Insertion
- For Switching and AF Amplifier Applications
- Ultra-Small Surface Mount Package
- Lead Free/RoHS Compliant (Note 2)

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: K3W (See Page 3)
- Ordering Information (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
	0	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	-50	V
Collector-Emitter Voltage	V _{CEO}	-45	V
Emitter-Base Voltage	V _{EBO}	-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°C (Note 1)	P _d	200	mW
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +125	°C

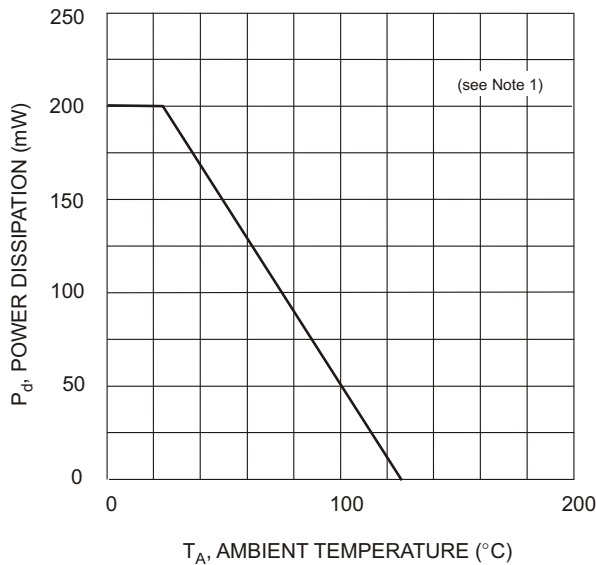
- Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. No purposefully added lead.



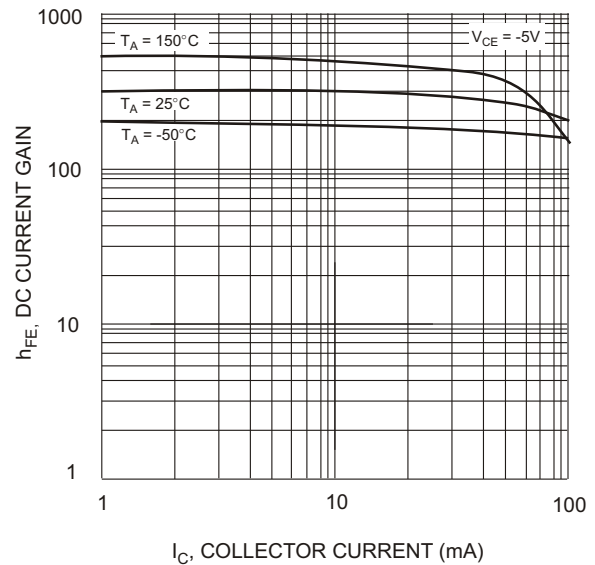
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain (Note 3)	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_{JA}	—	—	625	$^\circ\text{C/W}$	Note 1
Collector-Emitter Saturation Voltage (Note 3)	$V_{CE(SAT)}$	—	—	-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 3)	$V_{BE(SAT)}$	—	-700	—	mV	$I_C = -10\text{mA}$, $I_B = -0.5\text{mA}$
Base-Emitter Voltage (Note 3)	V_{BE}	-580	-665	-750	mV	$V_{CE} = -5.0\text{V}$, $I_C = -2.0\text{mA}$
Collector Cutoff Current	I_{CBO} I_{CBO}	—	—	-15 -4.0	nA μA	$V_{CB} = -30\text{V}$, $I_E = 0$ $V_{CB} = -30\text{V}$, $T_J = 150^\circ\text{C}$
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	$V_{EB} = -0.5\text{V}$, $f = 1.0\text{MHz}$

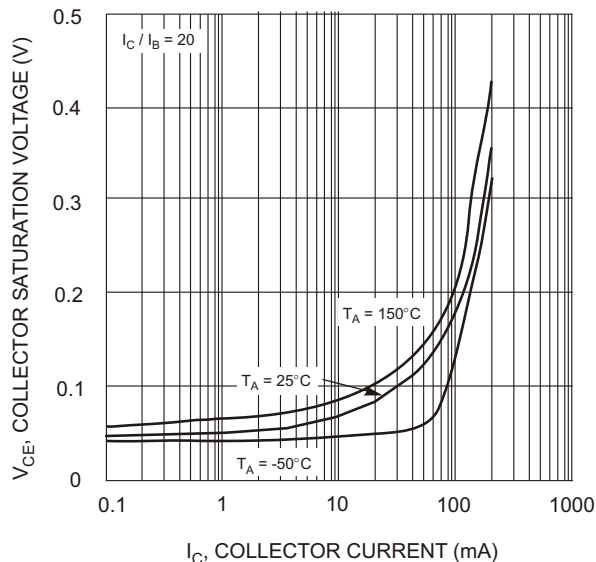
- Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. No purposefully added lead.
 3. Short duration test pulse used to minimize self-heating effect.



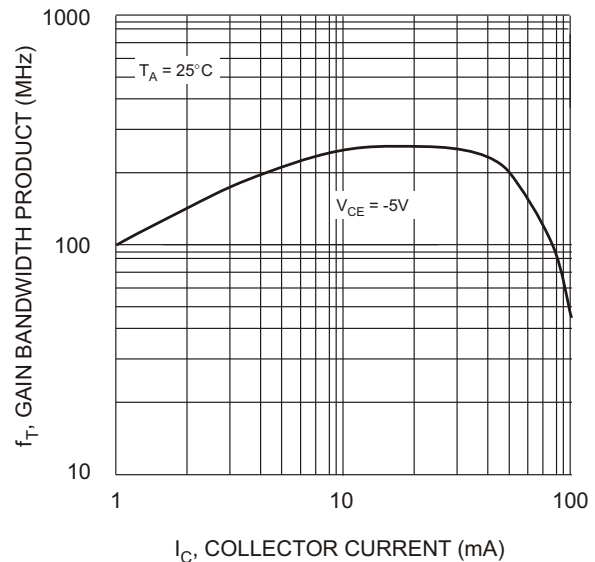
T_A , AMBIENT TEMPERATURE ($^\circ\text{C}$)
Fig. 1, Power Derating Curve



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



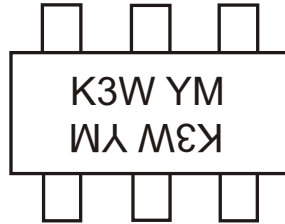
I_C , COLLECTOR CURRENT (mA)
Fig. 4, Gain Bandwidth Product vs Collector Current

Ordering Information (Note 4)

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

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

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	2010	2011	2012
Code	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

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