BC857BS

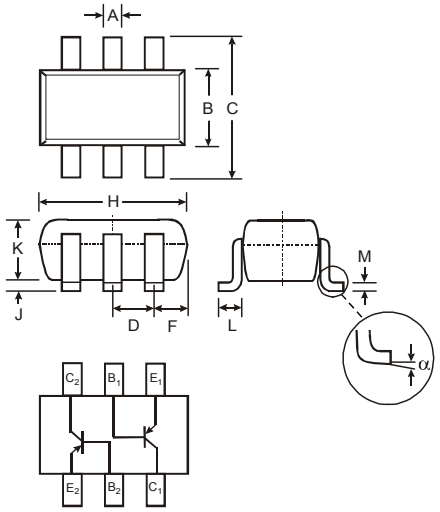
DUAL PNP SURFACE MOUNT SMALL SIGNAL TRANSISTOR

Features

- Ideally Suited for Automated Insertion
- For Switching and AF Amplifier Applications
- Ultra-Small Surface Mount Package
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device (Note 4 and 5)**

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



TOP VIEW

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°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	(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

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain	(Note 3)	h_{FE}	220	—	475	—	V_{CE} = -5.0V, I_C = -2.0mA
Thermal Resistance, Junction to Ambient Air	(Note 1)	$R_{\theta JA}$	—	—	625	°C/W	Note 1
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)	$V_{BE(SAT)}$	—	-700	—	mV	I_C = -10mA, I_B = -0.5mA
Base-Emitter Voltage	(Note 3)	V_{BE}	-580	-665	-750	mV	V_{CE} = -5.0V, I_C = -2.0mA
Collector Cutoff Current		I_{CBO} I_{CBO}	—	— —	-15 -4.0	nA µA	V_{CB} = -30V, I_E = 0 V_{CB} = -30V, T_j = 150°C
Emitter Cutoff Current		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}	—	—	3	pF	V_{CB} = -10V, f = 1.0MHz
Emitter-Base Capacitance		C_{EBO}	—	11	—	pF	V_{EB} = -0.5V, f = 1.0MHz

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 pulse test used to minimize self-heating effect.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
5. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

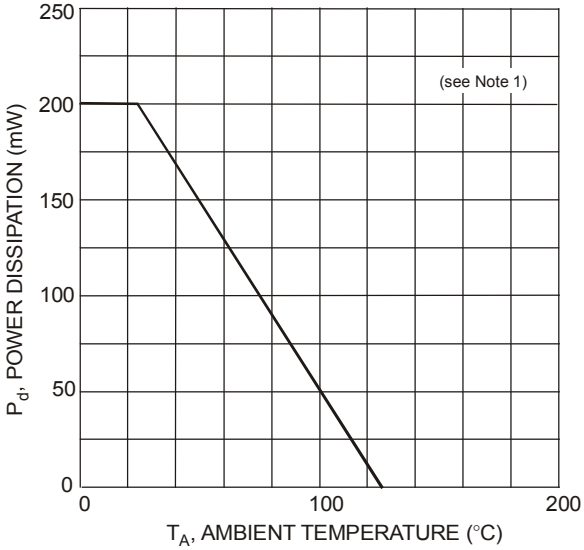


Fig. 1, Power Derating Curve

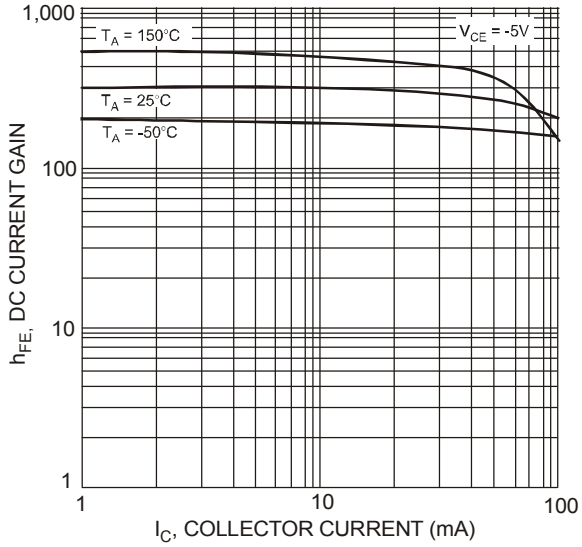


Fig. 2, DC Current Gain vs Collector Current

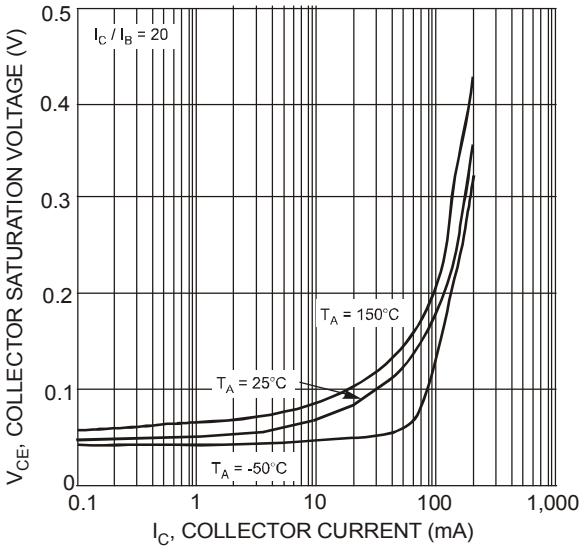


Fig. 3, Collector Saturation Voltage vs Collector Current

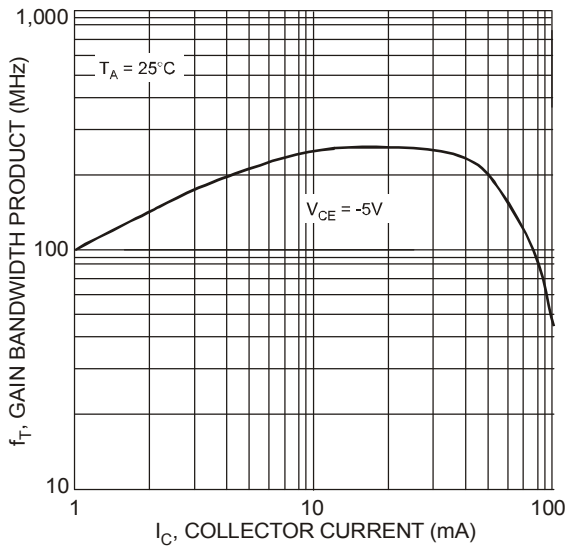


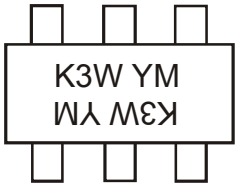
Fig. 4, Gain Bandwidth Product vs Collector Current

Ordering Information (Note 6)

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

Notes: 6. 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

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