NEW PRODUCT

BC846AS

DUAL NPN SURFACE MOUNT SMALL SIGNAL TRANSISTOR

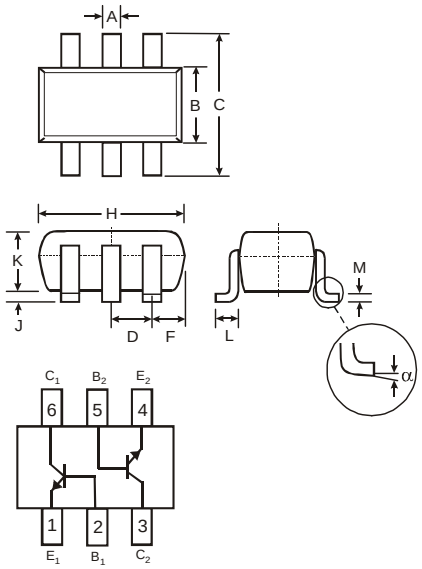
Please click here to visit our online spice models database.

Features

- Ideally Suited for Automatic Insertion
- For Switching and AF Amplifier Applications
- Complementary PNP Type Available (BC856AS)
- **Lead Free/RoHS Compliant (Note 1)**
- **"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 Information: See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.006 grams (approximate)



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}	80	V
Collector-Emitter Voltage		V_{CEO}	65	V
Emitter-Base Voltage		V_{EBO}	6.0	V
Collector Current		I_C	100	mA
Peak Collector Current		I_{CM}	200	mA
Peak Emitter Current		I_{EM}	200	mA
Power Dissipation	(Note 2)	P_d	200	mW
Thermal Resistance, Junction to Ambient	(Note 2)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range		T_j, T_{stg}	-65 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	(Note 3)	$V_{(BR)CBO}$	80	—	—	V	I_C = 10μA, I_B = 0
Collector-Emitter Breakdown Voltage	(Note 3)	$V_{(BR)CEO}$	65	—	—	V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage	(Note 3)	$V_{(BR)EBO}$	6	—	—	V	I_E = 1μA, I_C = 0
DC Current Gain	(Note 3)	h_{FE}	110	—	220	—	V_{CE} = 5.0V, I_C = 2.0mA
Collector-Emitter Saturation Voltage	(Note 3)	$V_{CE(SAT)}$	—	90 200	250 600	mV	I_C = 10mA, I_B = 0.5mA I_C = 100mA, I_B = 5.0mA
Base-Emitter Saturation Voltage	(Note 3)	$V_{BE(SAT)}$	—	700 900	—	mV	I_C = 10mA, I_B = 0.5mA I_C = 100mA, I_B = 5.0mA
Base-Emitter Voltage	(Note 3)	$V_{BE(ON)}$	580 —	660 —	700 770	mV	V_{CE} = 5.0V, I_C = 2.0mA V_{CE} = 5.0V, I_C = 10mA
Collector-Cutoff Current	(Note 3)	I_{CES} I_{CBO} I_{CBO}	— — —	— — —	15 15 5.0	nA nA μA	V_{CE} = 80V V_{CB} = 40V V_{CB} = 30V, T_A = 150°C
Gain Bandwidth Product		f_T	100	—	—	MHz	V_{CE} = 5.0V, I_C = 10mA, f = 100MHz
Collector-Base Capacitance		C_{CB}	—	2.0	—	pF	V_{CB} = 10V, f = 1.0MHz

Notes:
1. No purposefully added lead.
2. Device mounted on FR-4 PCB, pad layout as shown on page 3 or on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
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.

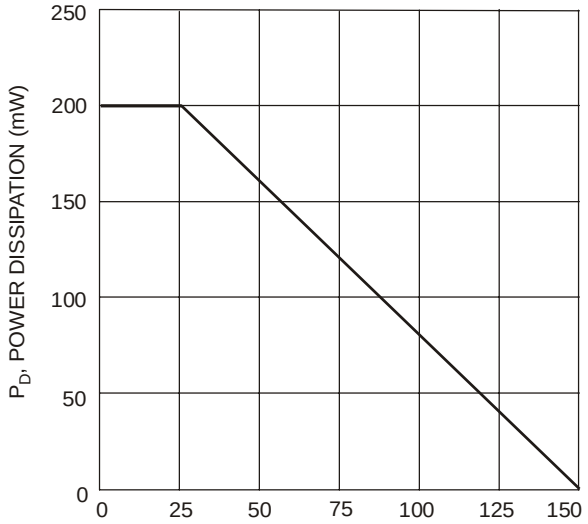


Fig. 1 Power Derating Curve (Note 2)

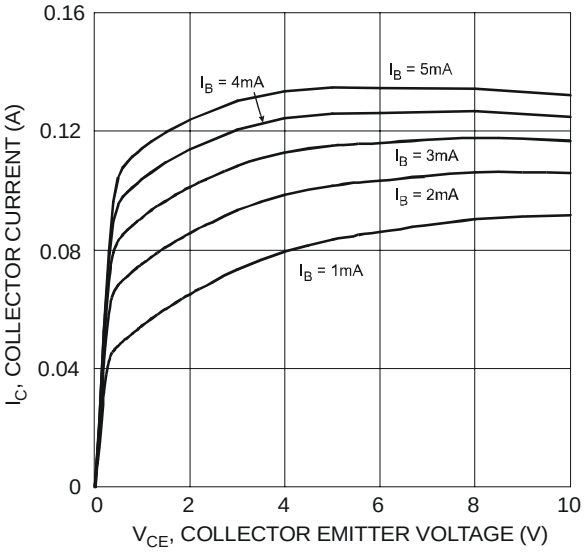


Fig. 2 Typical Collector Current vs. Collector Emitter Voltage

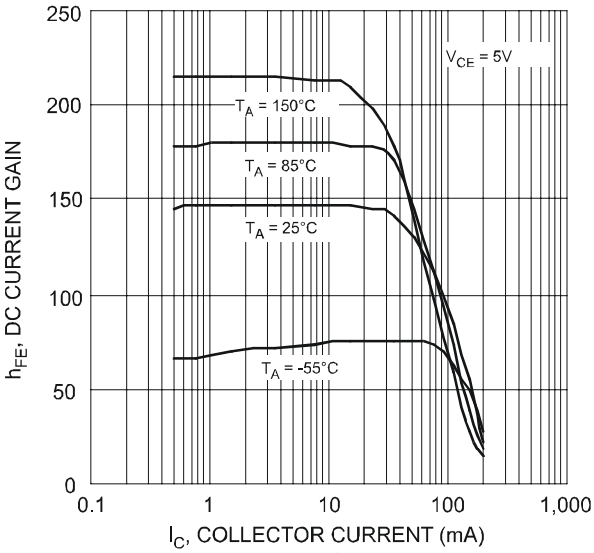


Fig. 3 Typical DC Current Gain vs. Collector Current

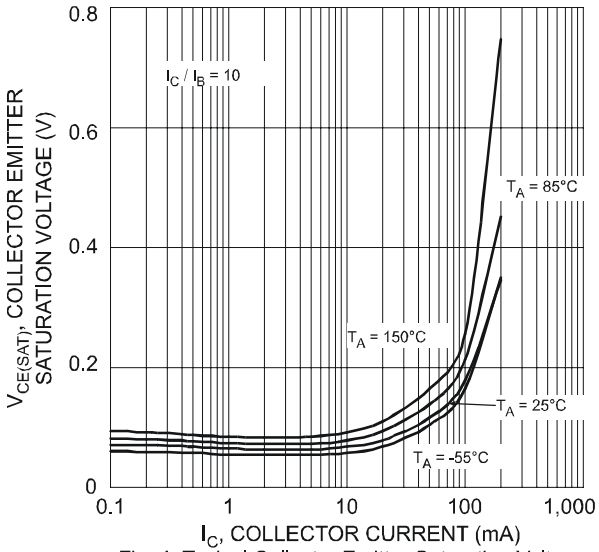


Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

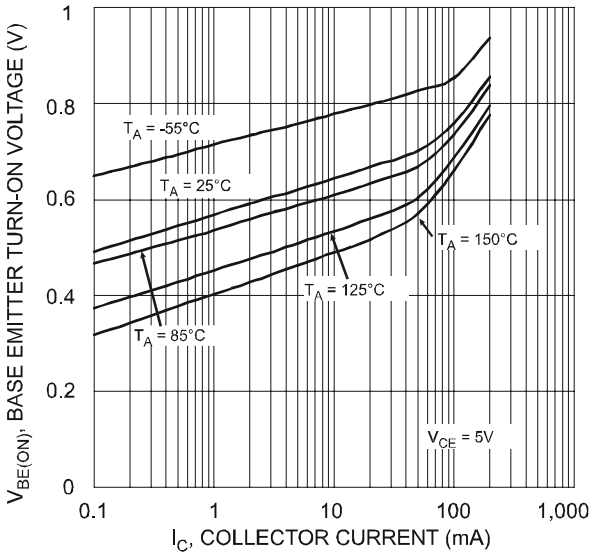


Fig. 5 Typical Base Emitter Turn-On Voltage vs. Collector Current

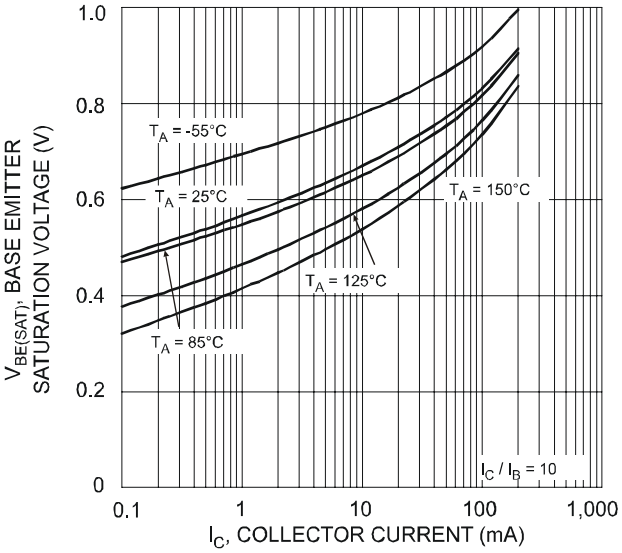


Fig. 6 Typical Base Emitter Saturation Voltage vs. Collector Current

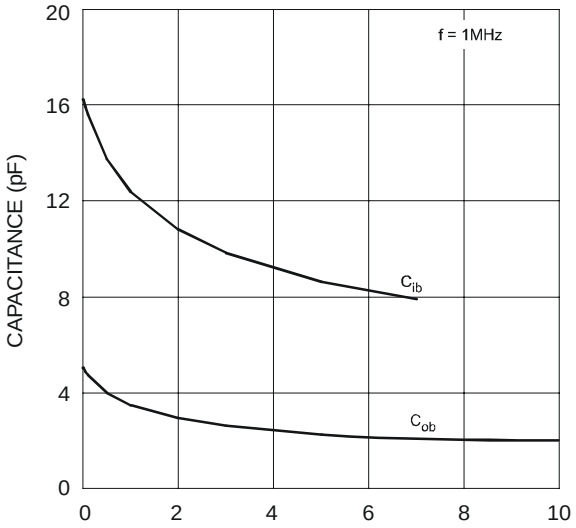


Fig. 7 Typical Capacitance Characteristics

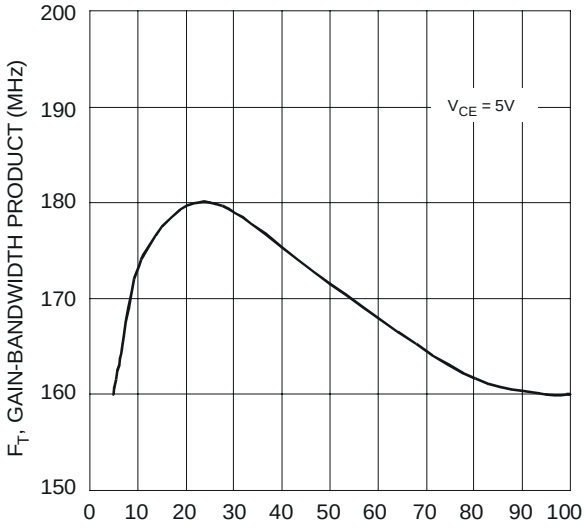


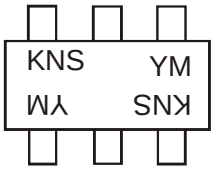
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 6)

Device	Packaging	Shipping
BC846AS-7	SOT-363	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



KNS = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: U = 2007
M = Month ex: 9 = September

Data Code Key

Year	2007	2008	2009	2010	2011	2012
Code	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