



BC817-16W / -25W / -40W

NPN SURFACE MOUNT SMALL SIGNAL TRANSISTOR

Features

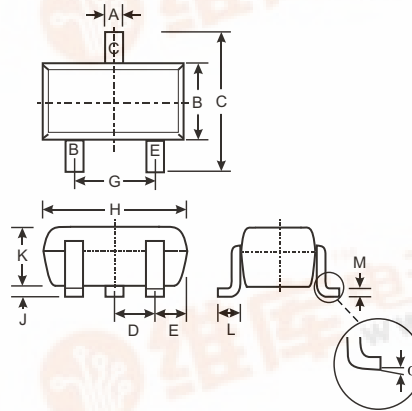
Ideally Suited for Automatic Insertion
Epitaxial Planar Die Construction
For Switching, AF Driver and Amplifier Applications
Complementary PNP Types Available (BC807-xxW)
Lead Free By Design/RoHS Compliant (Note 1)
"Green" Device (Note 2)

Mechanical Data

Case: SOT-323
Case Material: Molded Plastic. "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
Moisture Sensitivity: Level 1 per J-STD-020C
Terminals: Finish – Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
Pin Connections: See Diagram

Marking:

P/N	Marking
BC817-16W	K6A
BC817-25W	K6B
BC817-40W	K6C



SOT-323		
Dim	Min	Max
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
	0	8
All Dimensions in mm		

Ordering & Date Code Information: See Page 3
Approximate Weight: 0.006 grams

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	45	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	500	mA
Peak Collector Current	I _{CM}	1000	mA
Peak Emitter Current	I _{EM}	1000	mA
Power Dissipation at T _{SB} = 50°C (Note 3)	P _d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 3)	R _{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 (Note 4)	Symbol	Min	Max	Unit	Test Condition
DC Current Gain	h _{FE}	100	250	—	V _{CE} = 1.0V, I _C = 100mA
		160	400		
		250	600		
		60	—		V _{CE} = 1.0V, I _C = 300mA
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	0.7	V	I _C = 500mA, I _B = 50mA
		—	1.2		V _{CE} = 1.0V, I _C = 300mA
		—	100		V _{CE} = 45V
		—	5.0		V _{CE} = 25V, T _J = 150°C
Base-Emitter Voltage	V _{BE}	—	100	nA	V _{EB} = 4.0V
Collector-Emitter Cutoff Current	I _{CES}	—	100	nA	V _{CE} = 5.0V, I _C = 10mA, f = 50MHz
Emitter-Base Cutoff Current	I _{EBO}	—	100	nA	V _{CB} = 10V, f = 1.0MHz
Gain Bandwidth Product	f _T	100	—	MHz	
Collector-Base Capacitance	C _{CB0}	—	12	pF	

Notes:

- No purposefully added lead.
- Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 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>.
- Short duration pulse test used to minimize self-heating effect.



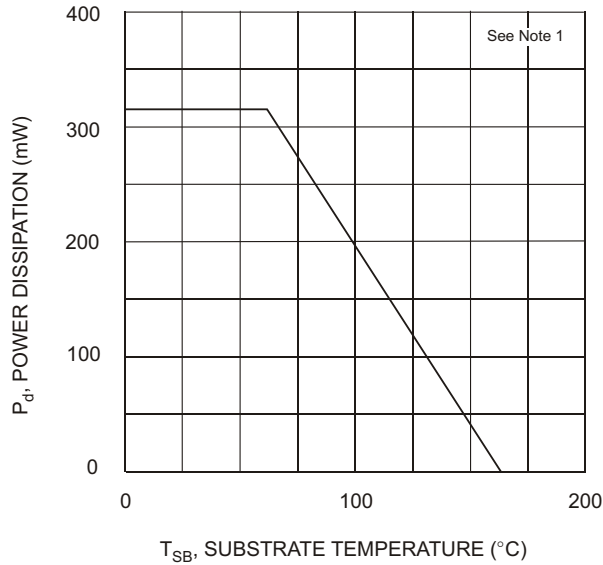


Fig. 1, Power Derating Curve

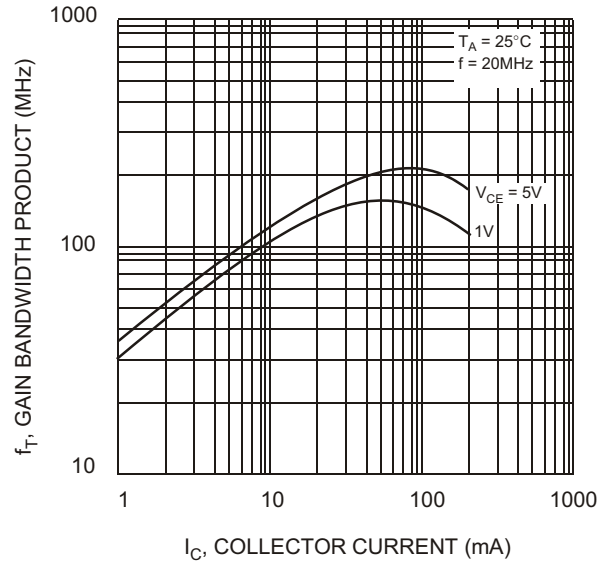


Fig. 2, Gain-Bandwidth Product vs Collector Current

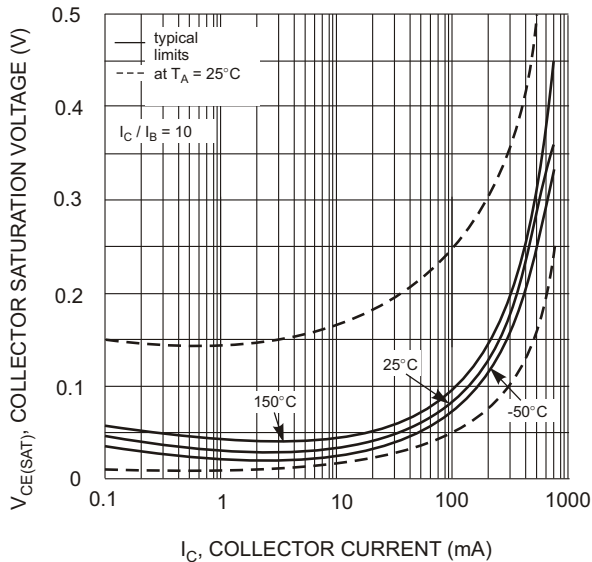


Fig. 3, Collector Sat. Voltage vs Collector Current

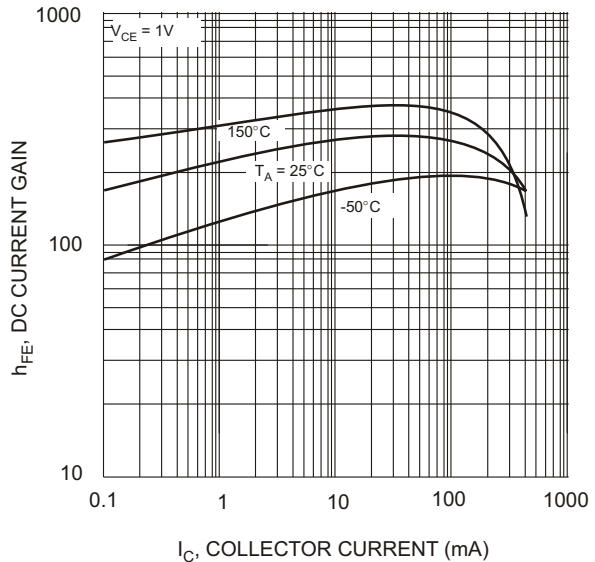


Fig. 4, DC Current Gain vs Collector Current

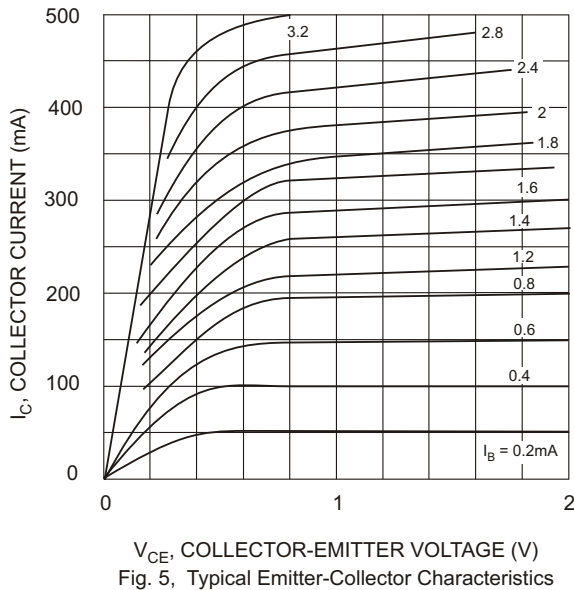


Fig. 5, Typical Emitter-Collector Characteristics

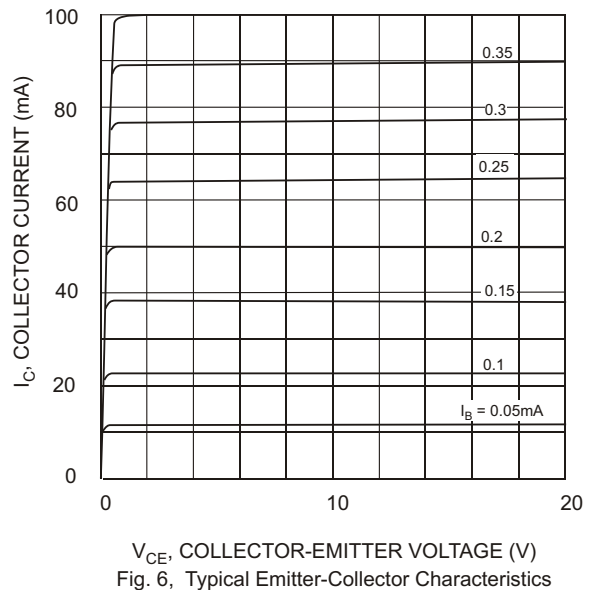


Fig. 6, Typical Emitter-Collector Characteristics

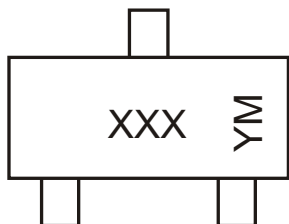
Ordering Information (Note 5)

Device*	Packaging	Shipping
BC817-xxW-7	SOT-323	3000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

* xx = gain group, e.g. BC817-16W-7.

Marking Information



XXX = Product Type Marking Code (See Page 1), e.g. K6A = BC817-16

YM = Date Code Marking

Y = Year ex: S = 2005

M = Month ex: 9 = September

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	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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