300mW, NPN Small Signal Transistor

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

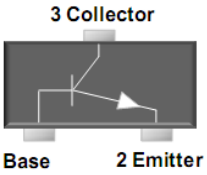
MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 8mg (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{CBO}	50	V
V_{CEO}	45	V
V_{EBO}	5	V
I_C	500	mA
h_{FE}	250-600	
Package	SOT-23	
Configuration	Single Dice	

Pb-Free

RoHS COMPLIANT



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**PART NUMBER**	**UNIT**
Marking code on the device	BC817-16		6A	
	BC817-25		6B	
	BC817-40		6C	
Power dissipation		P_D	300	mW
Collector-base voltage, emitter open	I_C = 10 μA, I_E = 0	V_{CBO}	50	V
Collector-emitter voltage, base open	I_C = 10 mA, I_B = 0	V_{CEO}	45	V
Emitter-base voltage, collector open	I_E = 1 μA, I_C = 0	V_{EBO}	5	V
Collector current, dc		I_C	500	mA
Junction temperature		T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)							
PARAMETER	**CONDITIONS**		**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Collector cutoff current, emitter open	V_{CB} = 45 V, I_E = 0		I_{CBO}	-	-	0.1	μA
Emitter cutoff current, collector open	V_{EB} = 4 V, I_C = 0		I_{EBO}	-	-	0.1	μA
DC current gain	V_{CE} = 1 V, I_C = 100 mA	BC817-16	h_{FE}	100	-	250	
		BC817-25		160	-	400	
		BC817-40		250	-	600	
Collector-emitter saturation voltage	I_C = 500 mA, I_B = 50 mA		$V_{CE(sat)}$	-	-	0.7	V
Base-emitter saturation voltage	I_C = 500 mA, I_B = 50 mA		$V_{BE(sat)}$	-	-	1.2	V
Transition frequency	V_{CE} = 5 V , I_C = 10 mA, f= 100MHz		f_T	100	-	-	MHz

ORDERING INFORMATION				
PART NO.	**PACKING CODE**	**PACKING CODE SUFFIX(*)**	**PACKAGE**	**PACKING**
BC817-XX (Note 1)	RF	G	SOT-23	3K / 7" Reel

Notes:

1. "xx" is Device Code is"16" and "25" and "40"

*: optional available

EXAMPLE				
EXAMPLE P/N	**PART NO.**	**PACKING CODE**	**PACKING CODE SUFFIX**	**DESCRIPTION**
BC817-16 RFG	BC817-16	RF	G	Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Typical Pulsed Current Gain VS. Collector Current

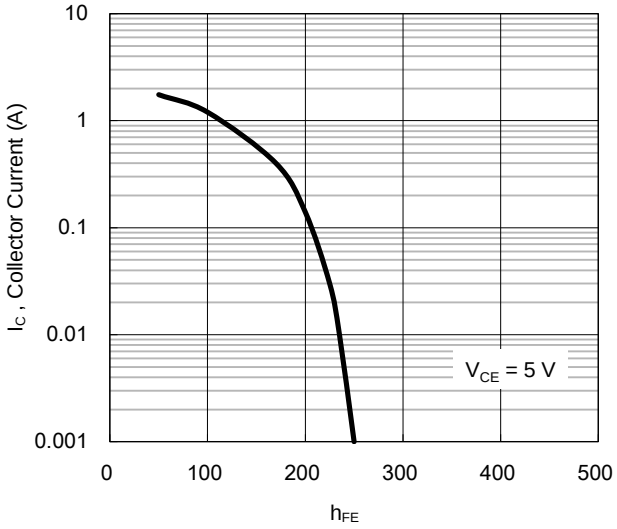


Fig. 2 Collector-Emitter Saturation Voltage VS. Collector Current

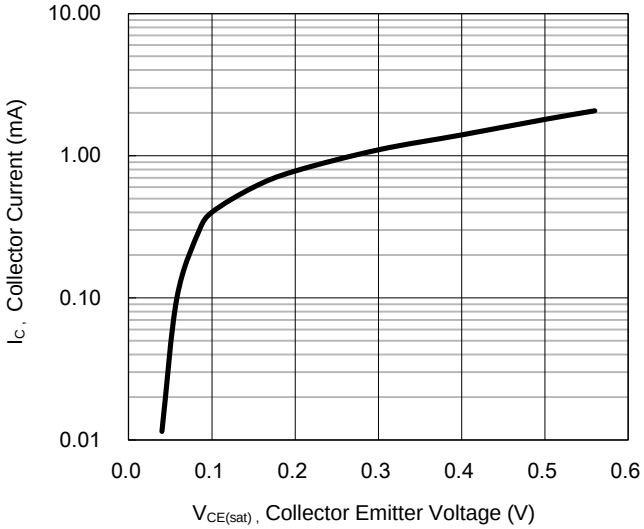


Fig.3 Base-Emitter Saturation Voltage VS. Collector Current

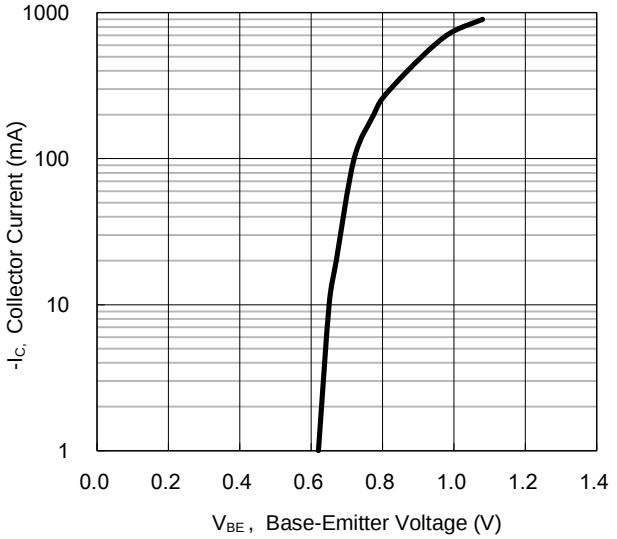
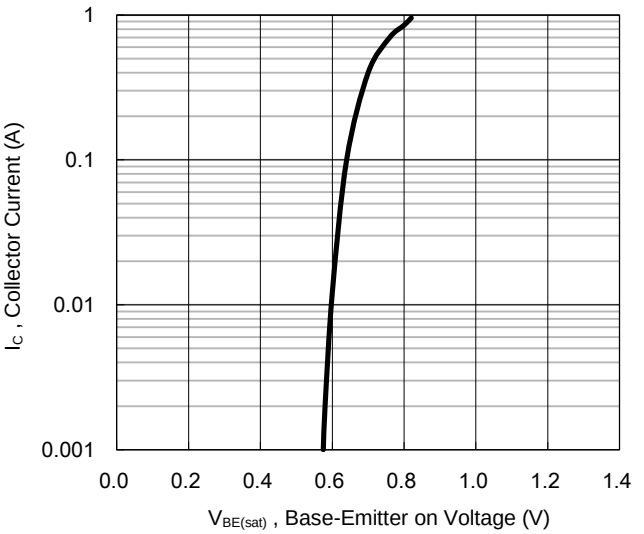


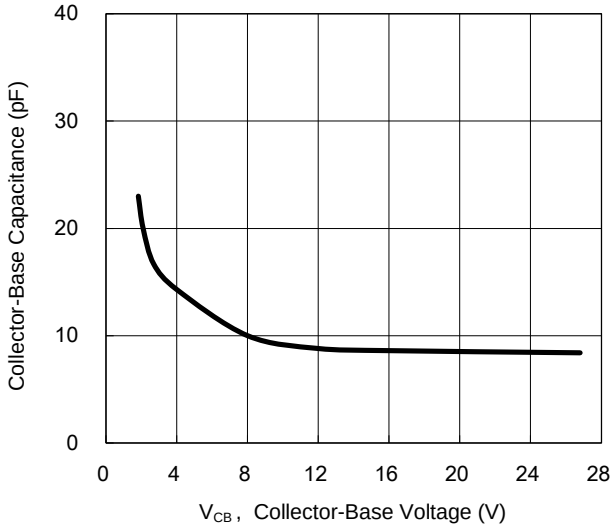
Fig.4 Base-Emitter On Voltage VS. Collector Current



CHARACTERISTICS CURVES

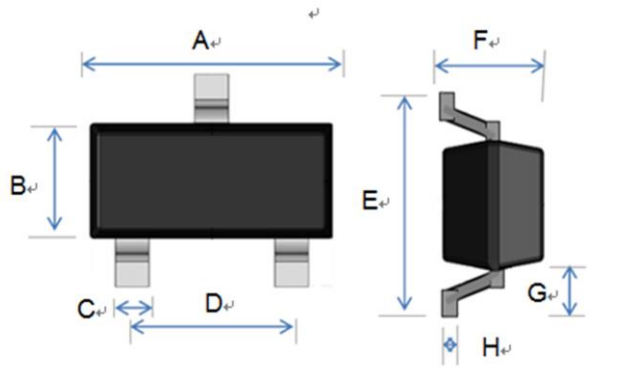
(T_A = 25°C unless otherwise noted)

Fig.5 Collector-Base Capacitance VS. Collector-Base Voltage



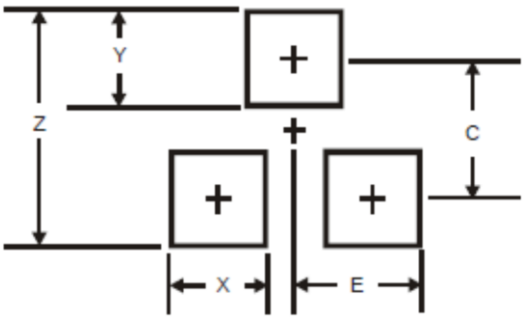
PACKAGE OUTLINE DIMENSION

SOT-23



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.10 REF		0.004 REF	

SUGGEST PAD LAYOUT



DIM.	Unit(mm)	Unit(inch)
	TYP	TYP
Z	2.8	0.11
X	0.7	0.03
Y	0.9	0.04
C	1.9	0.07
E	1.0	0.04

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