

SOT-323

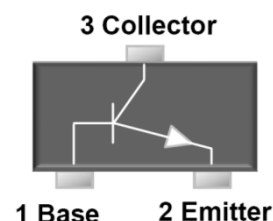


Features

- ◇ Epitaxial planar die construction
- ◇ Surface device type mounting
- ◇ Moisture sensitivity level 1
- ◇ Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ◇ Pb free version and RoHS compliant
- ◇ Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

Mechanical Data

- ◇ Case : SOT- 323 small outline plastic package
- ◇ Terminal : Matte tin plated, lead free, solderable per MIL-STD-202, method 208 guaranteed
- ◇ High Temperature Soldering Guaranteed: 260°C/10s
- ◇ Weight : 0.005 grams (approximately)



Ordering Information (example)

Part No.	Package	Packing	Packing code	Packing code (Green)	Manufacture code
BC817-16W	SOT-323	3K / 7 " Reel	RF	RFG	B0

Note : Detail please see "Ordering Information(detail, example)" below.

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Parameter	Symbol	Value	Units
Power Dissipation	P_D	200	mW
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	0.5	A
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	K/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	°C

Notes : 1. Transistor mounted on a FR4 printed-circuit board

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Min	Max	Units
Collector-Base Breakdown Voltage at $I_C = 10 \mu\text{A}$	$V_{(BR)CBO}$	50	-	V
Collector-Emitter Breakdown Voltage at $I_C = 10 \text{mA}$	$V_{(BR)CEO}$	45	-	V
Emitter-Base Breakdown Voltage at $I_E = 10 \mu\text{A}$	$V_{(BR)EBO}$	5	-	V
Collector Cut-off Current at $V_{CB} = 20 \text{V}$ at $V_{CB} = 20 \text{V}$, $T_J = 150^\circ\text{C}$	I_{CBO}	-	100	nA
		-	5	μA
Emitter Cut-off Current at $V_{EB} = 5 \text{V}$	I_{EBO}	-	100	nA
DC current gain at $V_{CE} = 20 \text{V}$, $I_C = 100 \text{mA}$ -16W -25W -40W at $V_{CE} = 1 \text{V}$, $I_C = 500 \text{mA}$	h_{FE}	100	250	-
		160	400	-
		250	600	-
		40		
Collector-Emitter Saturation Voltage at $I_C = 500 \text{mA}$ $I_B = 50 \text{mA}$	$V_{CE(sat)}$	-	0.7	V
Transition Frequency $V_{CE} = 5 \text{V}$ $I_C = 10 \text{mA}$ $f = 100 \text{MHz}$	f_T	100	-	MHz

RATINGS AND CHARACTERISTIC CURVES

Fig.1 Total Power Dissipation $P_{tot} = f(T_s)$

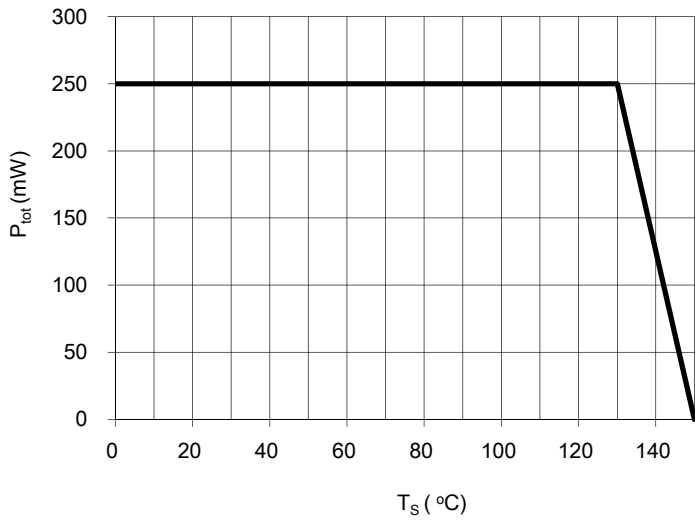


Fig.2 Permissible Pulse Load $R_{\theta JA} = f(tp)$

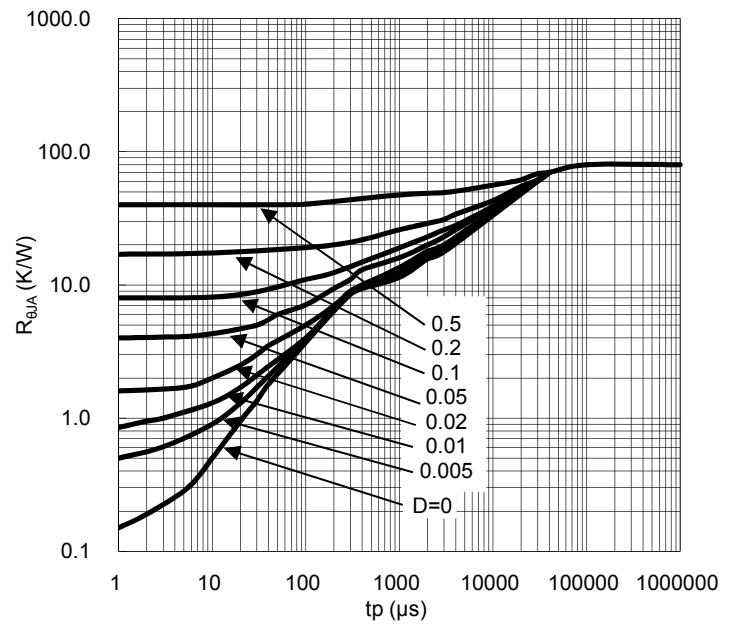


Fig.3 Permissible Pulse Load $P_{totmax} / P_{totDC} = f(tp)$

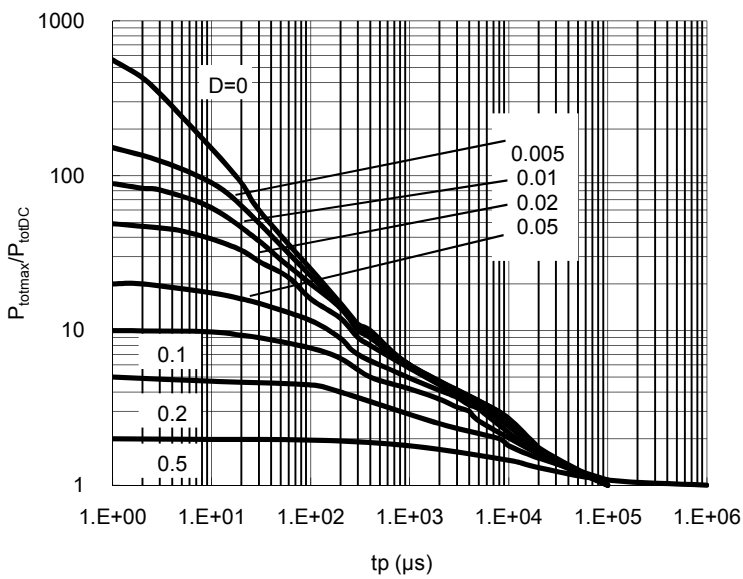
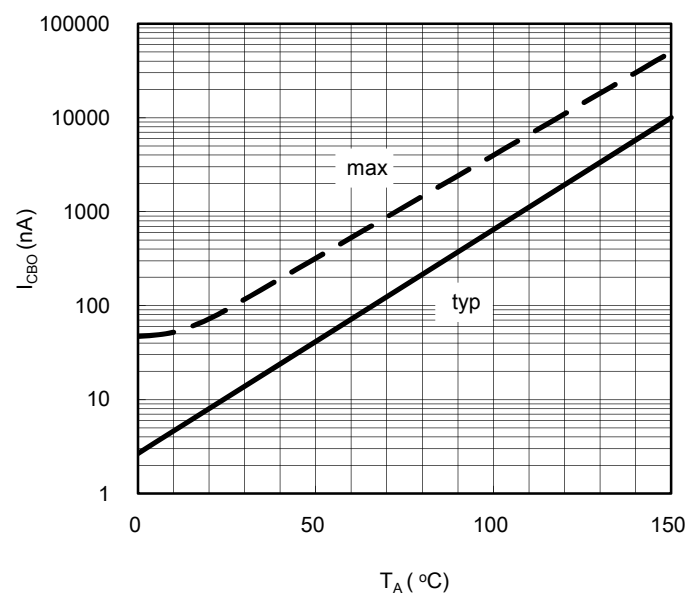


Fig. 4 Collector Cutoff Current $I_{CBO} = f(T_A)$
 $V_{CB}=25V$



RATINGS AND CHARACTERISTIC CURVES

Fig.5 DC Current Gain $h_{FE} = f(I_C)$
 $V_{CE} = 1V$

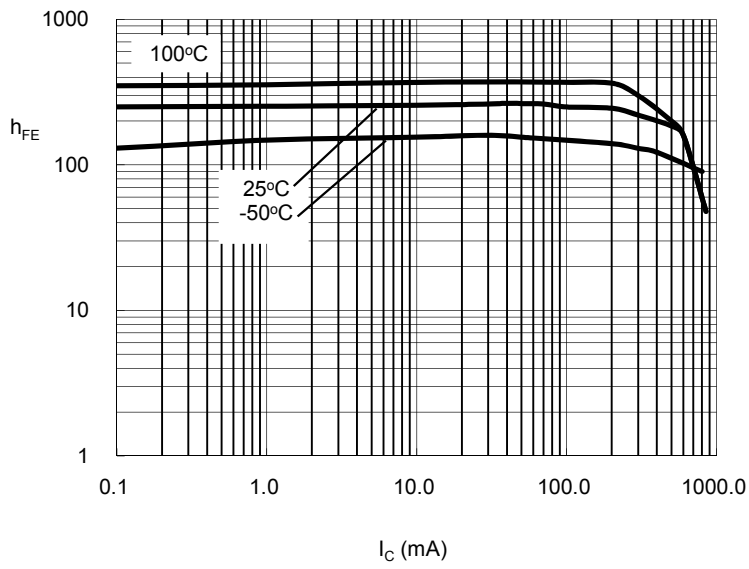


Fig. 6 Transition Frequency $f_T = f(I_C)$
 $V_{CE} = 5V$

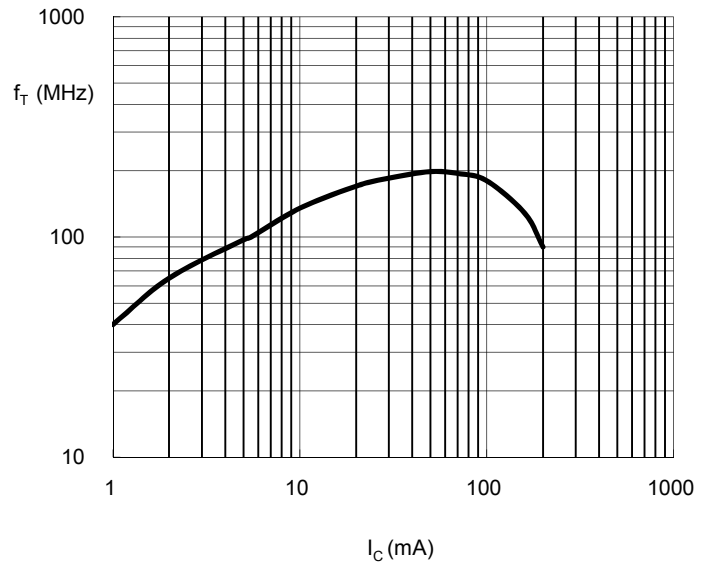


Fig. 7 Base-Emitter Saturation Voltage
 $I_C = f(V_{BEsat}), h_{FE} = 10$

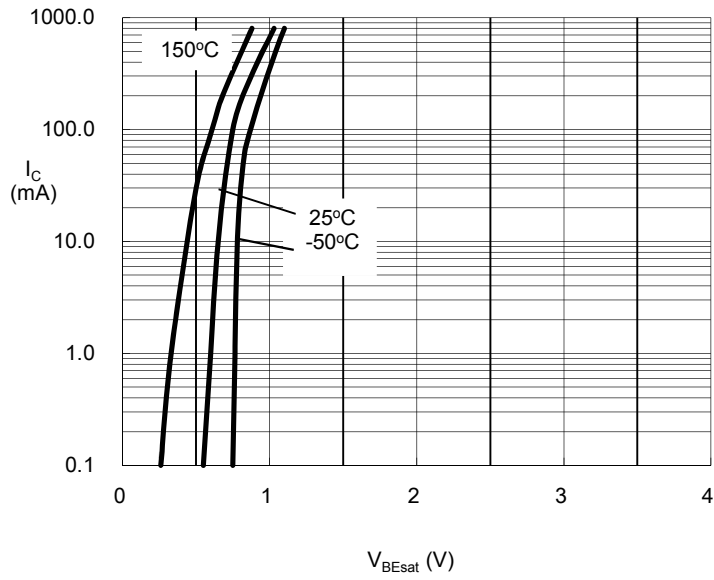
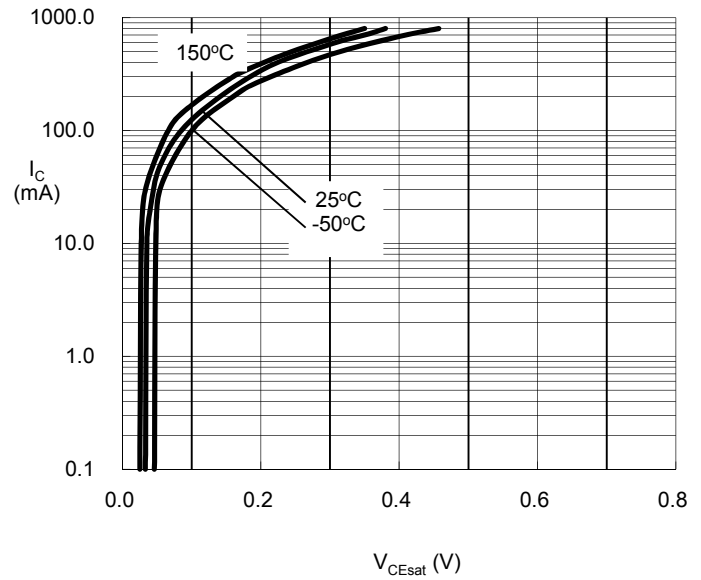


Fig. 8 Collector-Emitter Saturation Voltage



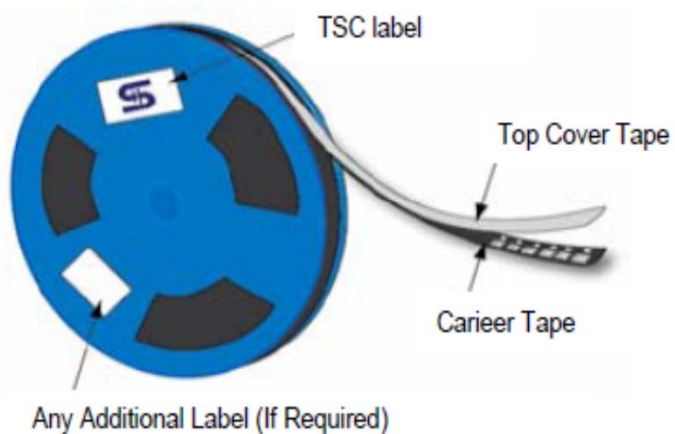
Ordering information (Detail, example)

Part No.	Package	Packing	Packing code	Packing code (Green)	Manufacture code
BC817-xxW (Note 1)	SOT-323	3K / 7" Reel	RF	RFG	(Note 2)
BC817-16W	SOT-323	3K / 7" Reel	RF	RFG	
BC817-16W	SOT-323	3K / 7" Reel	RF	RFG	B0

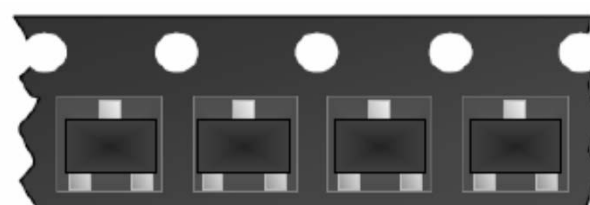
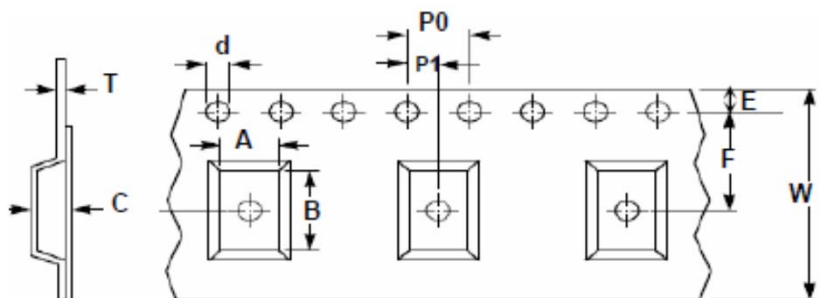
Note 1 : "xx" is Device Code "16", "25", "40".

Note 2 : Manufacture special control, if empty means no special control requirement.

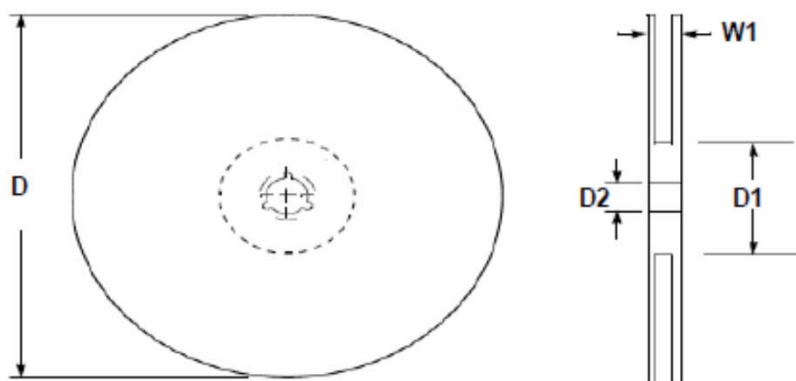
Tape & Reel specification



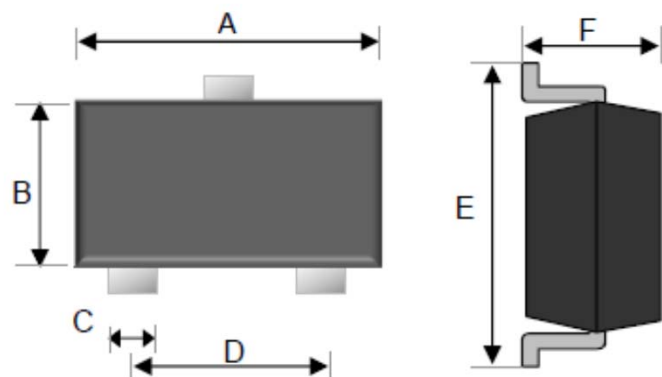
Item	Symbol	Dimension
Carrier width	A	3.15 ±0.10
Carrier length	B	2.77 ±0.10
Carrier depth	C	1.22 ±0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	55 Min
Feed hole width	D2	13.0 ± 0.20
Sprocket hole position	E	1.75 ±0.10
Punch hole position	F	3.50 ±0.05
Sprocket hole pitch	P0	4.00 ±0.10
Embossment center	P1	2.00 ±0.05
Overall tape thickness	T	0.229 ±0.013
Tape width	W	8.10 ±0.20
Reel width	W1	12.30 ±0.20



Direction of Feed

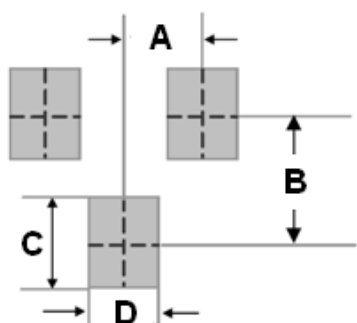


Dimensions



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	1.90	2.10	0.075	0.083
B	1.15	1.35	0.045	0.053
C	0.25	0.35	0.010	0.014
D	1.20	1.40	0.047	0.055
E	2.00	2.20	0.079	0.087
F	0.80	1.00	0.031	0.039

Suggested PAD Layout



DIM.	Unit(mm)	Unit(inch)
	Typ.	Typ.
A	0.65	0.026
B	1.6	0.063
C	0.8	0.031
D	0.8	0.031

Marking

Part No.	Marking
BC817-16W	6CR
BC817-25W	6CS
BC817-40W	6CT