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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## Small Signal Product

**200mW, NPN Small Signal Transistor**
**FEATURES**

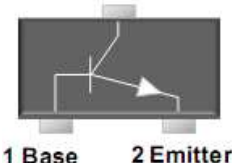
- Epitaxial planar die construction
- Surface mount device type
- Moisture sensitivity level 1
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- Pb free and RoHS complian
- Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

**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)


**SOT-323**

3 Collector



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P <sub>D</sub>	200	mW
Collector-Base Voltage	V <sub>CB0</sub>	50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	45	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	0.5	A
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	625	K/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

PARAMETER	SYMBOL	MIN	MAX	UNIT
Collector-Base Breakdown Voltage at I <sub>C</sub> = 10 μA	V <sub>(BR)CBO</sub>	50	-	V
Collector-Emitter Breakdown Voltage at I <sub>C</sub> = 10 mA	V <sub>(BR)CEO</sub>	45	-	V
Emitter-Base Breakdown Voltage at I <sub>E</sub> = 10 μA	V <sub>(BR)EBO</sub>	5	-	V
Collector Cut-off Current at V <sub>CB</sub> = 20 V	I <sub>CBO</sub>	-	100	nA
Emitter Cut-off Current at V <sub>EB</sub> = 5 V	I <sub>EBO</sub>	-	100	nA
Collector-Emitter Saturation Voltage at I <sub>C</sub> = 500mA I <sub>B</sub> = 50 mA	V <sub>CE(sat)</sub>	-	0.7	V
Transition Frequency V <sub>CE</sub> = 5 V I <sub>C</sub> = 10 mA f = 100MHz	f <sub>T</sub>	100	-	MHz
DC Current Gain at V <sub>CE</sub> = 1 V, I <sub>C</sub> = 100 mA	h <sub>FE</sub>	100	250	
-16W		160	400	
-25W		250	600	
-40W		40		
at V <sub>CE</sub> = 1 V, I <sub>C</sub> = 500 mA				

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**RATINGS AND CHARACTERISTICS CURVES**

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

Fig.1 Total Power Dissipation  $P_{\text{tot}} = f(T_S)$

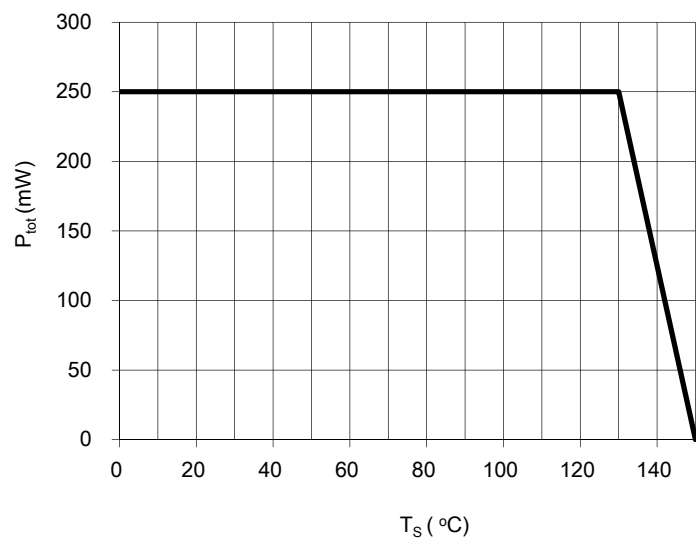


Fig.2 Permissible Pulse Load  $R_{\theta JA} = f(tp)$

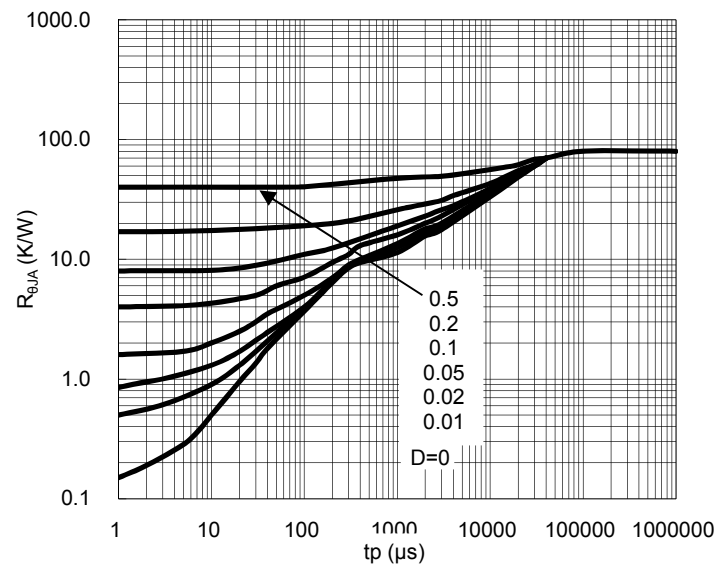


Fig.3 Permissible Pulse Load  
 $P_{\text{totmax}} / P_{\text{totDC}} = f(tp)$

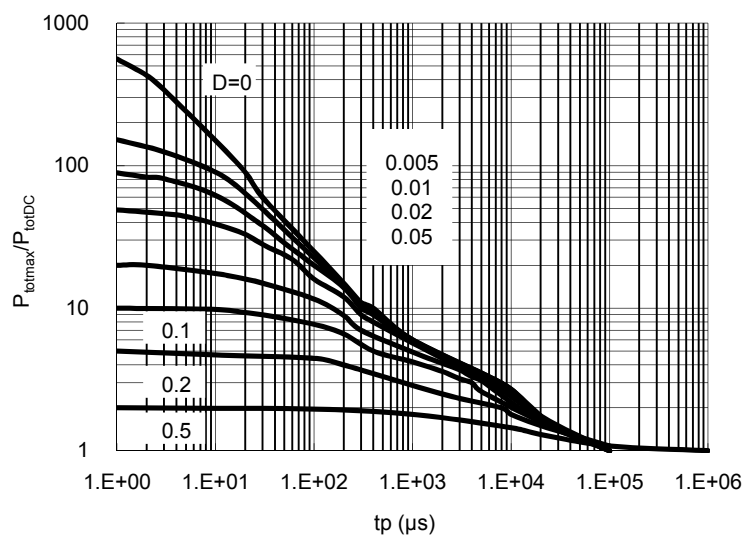
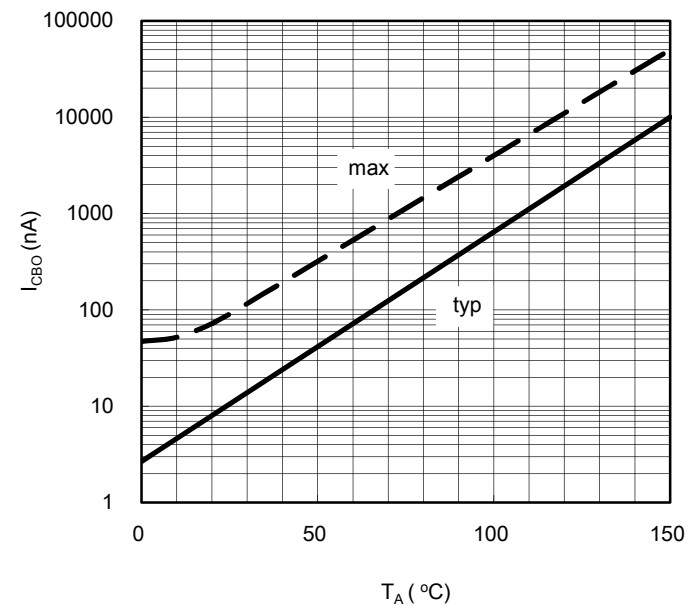


Fig. 4 Collector Cutoff Current  $I_{\text{CBO}} = f(T_A)$   
 $V_{\text{CB}}=25\text{V}$





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**RATINGS AND CHARACTERISTICS CURVES**

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

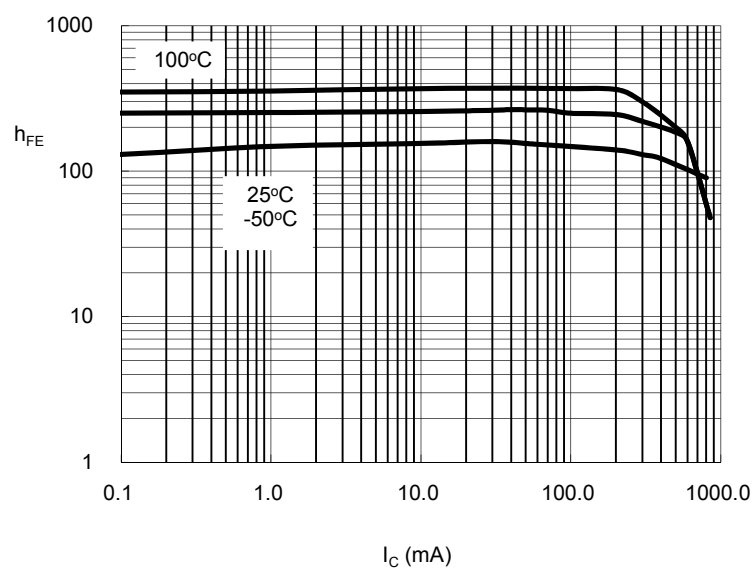


Fig. 6 Transition Frequency  $f_T = f(I_C)$   
 $V_{CE} = 5\text{V}$

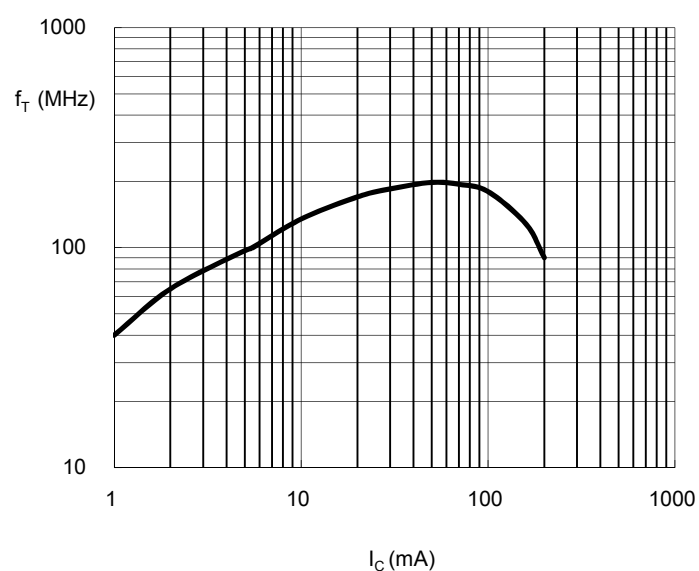


Fig. 7 Base-Emitter Saturation Voltage  
 $I_C = f(V_{BEsat}), h_{FE} = 10$

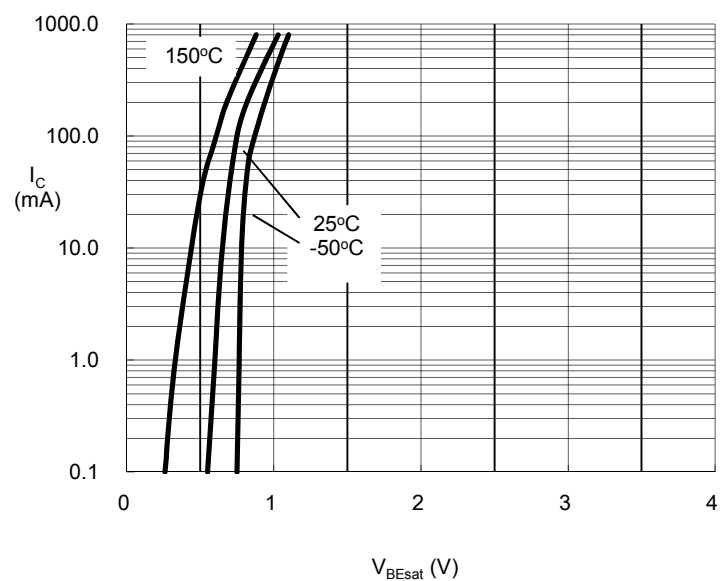
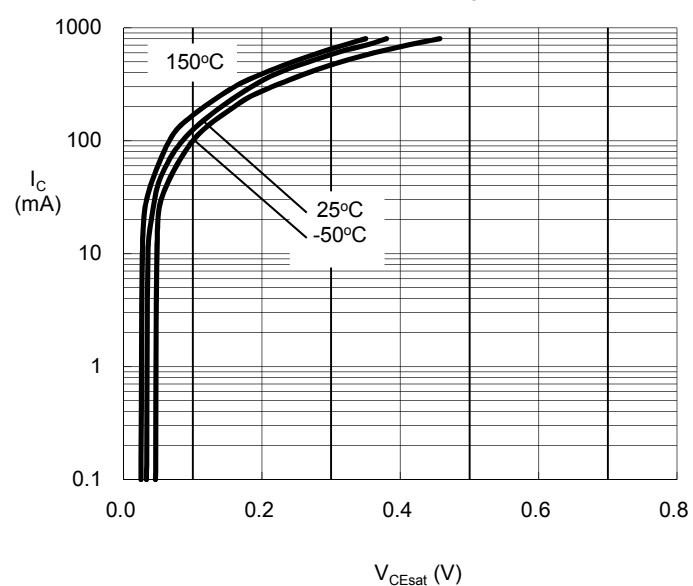


Fig. 8 Collector-Emitter Saturation Voltage



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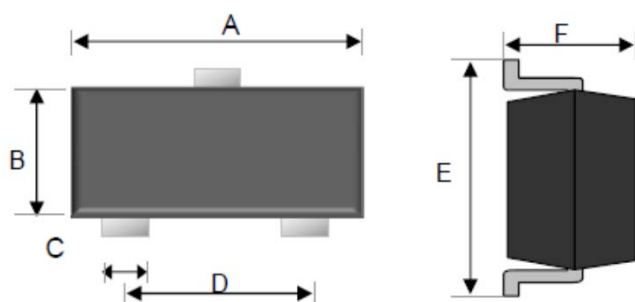
ORDERING INFORMATION					
PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING	MARKING
BC817-16W	RF	G	SOT-323	3K / 7" Reel	6CR
BC817-25W	RF	G	SOT-323	3K / 7" Reel	6CS
BC817-40W	RF	G	SOT-323	3K / 7" Reel	6CT

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

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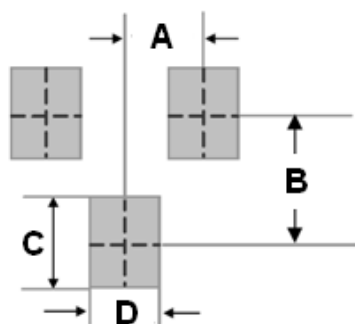
## DIMENSIONS

SOT-323



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.80	2.20	0.07	0.09
B	1.15	1.35	0.05	0.05
C	0.15	0.40	0.01	0.02
D	1.20	1.40	0.05	0.06
E	2.00	2.45	0.08	0.10
F	0.80	1.10	0.03	0.04

## SUGGEST 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

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