Taiwan Semiconductor

## 0.3W, PNP Plastic-Encapsulate Transistor

#### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

#### APPLICATIONS

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

#### **MECHANICAL DATA**

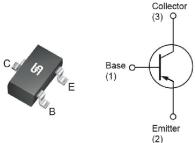
- Case: SOT-23
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test

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• Weight: 0.008grams (approximately)

KEY PARAMETERS				
PARAMETER	VALUE	UNIT		
V <sub>CBO</sub>	-50	V		
V <sub>CEO</sub>	-45	V		
V <sub>EBO</sub>	-5	V		
Ι <sub>C</sub>	-0.5	А		
h <sub>FE</sub>	250-600			
Package	SOT-23			
Configuration	Single die			





PARAMETER	SYMBOL	VALUE	UNIT	
	BC807-16		5A	
Marking code on the device	BC807-25		5B	
	BC807-40		5C	
Power dissipation	·	P <sub>D</sub>	0.3	W
Collector-base voltage, emitter open	I <sub>C</sub> = -10 μA, I <sub>E</sub> = 0	V <sub>CBO</sub>	-50	V
Collector-emitter voltage, base open	$I_{\rm C}$ = -10 mA, $I_{\rm B}$ = 0	V <sub>CEO</sub>	-45	V
Emitter-base voltage, collector open	I <sub>E</sub> = -1 μA, I <sub>C</sub> = 0	V <sub>EBO</sub>	-5	V
Collector current, dc		I <sub>C</sub>	-0.5	А
Junction temperature		TJ	-55 to +150	°C
Storage temperature		T <sub>STG</sub>	-55 to +150	°C





# BC807-16/-25/-40 Taiwan Semiconductor



ELECTRICAL SPECIFICATIONS (T <sub>A</sub> = 25°C unless otherwise noted)							
PARAMETER	CONDITIONS		SYMBOL	MIN	ТҮР	MAX	UNIT
Collector cutoff current, emitter open	V <sub>CB</sub> = -45 V, I <sub>E</sub> = 0		I <sub>CBO</sub>	-	-	-0.1	μA
Emitter cutoff current, collector open	$V_{EB} = -4 V, I_{C} = 0$		I <sub>EBO</sub>	-	-	-0.1	μA
DC current gain		BC807-16	h <sub>FE</sub>	100	-	250	
	V <sub>CE</sub> = -1 V, I <sub>C</sub> = -100 mA	BC807-25		160	-	400	
		BC807-40		250	-	600	
Collector-emitter saturation voltage	I <sub>C</sub> = -500 mA, I <sub>B</sub> = -50 mA		V <sub>CE(sat)</sub>	-	-	-0.7	V
Base-emitter saturation voltage	I <sub>C</sub> = -500 mA, I <sub>B</sub> = -50 mA		$V_{BE(sat)}$	-	-	-1.2	V
Transition frequency	$V_{CE}$ = -5 V , I <sub>C</sub> = -10 mA, f= 50MHz		f <sub>T</sub>	100	-	-	MHz

ORDERING INFORMATION			
ORDERING CODE (Note1, 2)	PACKAGE	PACKING	
BC807-XX RF	SOT-23	3K / 7" Reel	
BC807-XX RFG	SOT-23	3K / 7" Reel	

Note:

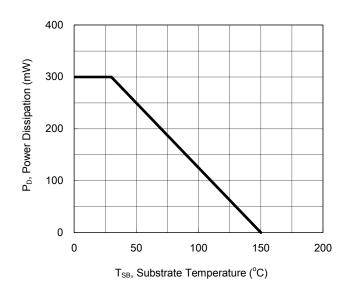
1. "xx" is Device Code is"16" and "25" and "40"

2. "G" means green compound (halogen free)



#### **CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)



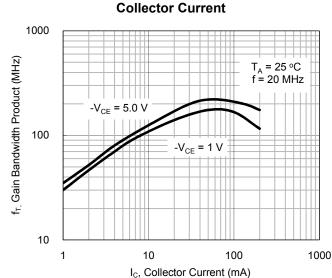


Fig.1 Power Derating Curve

## Fig. 2 Gain Bandwidth Product VS.

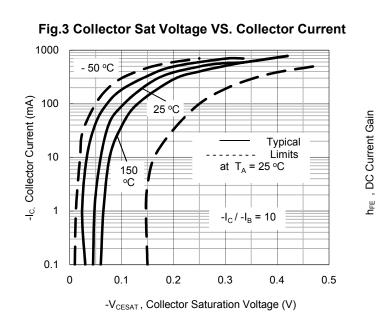


Fig.4 DC Current Gain VS. Collector Current

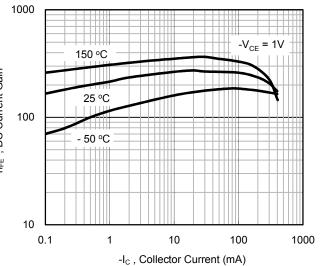
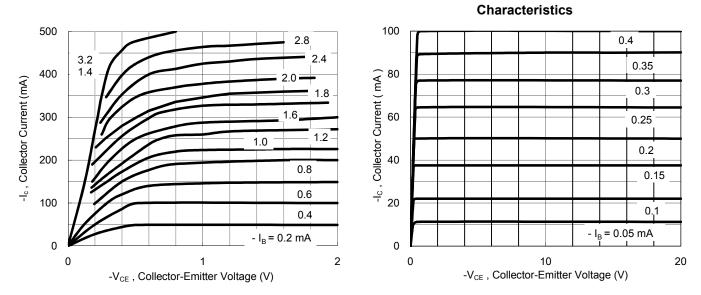




Fig. 6 Typical Transient Thermal

#### **CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)

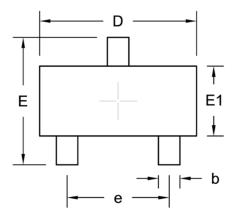


## Fig.5 Typical Emitter-Collector Characteristics

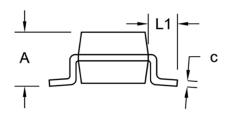
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#### PACKAGE OUTLINE DIMENSION

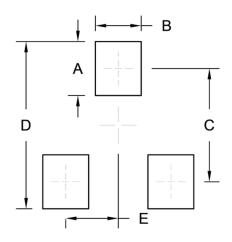
SOT-23



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.89	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
с	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
е	1.90 BSC		0.07	5 BSC
L1	0.54 REF.		0.021	I REF.



## SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.00	0.039
В	0.85	0.033
С	2.10	0.083
D	3.10	0.122
E	0.98	0.039



## BC807-16/-25/-40

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