# BC869U

## **PNP Silicon Epitaxial Planar Power Transistor**

The transistor is subdivided into two groups, -16 and - 25, according to its DC current gain



1.Base 2.Collector 3.Emitter SOT-89 Plastic Package

#### Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	-V <sub>CBO</sub>	32	V
Collector Emitter Voltage	-V <sub>CEO</sub>	20	V
Emitter Base Voltage	-V <sub>EBO</sub>	5	V
Collector Current	-lc	1	Α
Peak Collector Current	-Ісм	2	Α
Peak Base Current	-I <sub>BM</sub>	200	mA
Total Power Dissipation	ion P <sub>tot</sub>		W
Junction Temperature	Tj	150	°C
Storage Temperature Range	$T_{stg}$	- 65 to + 150	°C

#### **Thermal Characteristics**

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient	Reja	250 <sup>1)</sup> 104 <sup>2)</sup>	°C/W

<sup>&</sup>lt;sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



<sup>&</sup>lt;sup>2)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

## **BC869U**

## Characteristics at $T_a = 25$ °C

Parameter	Symbol	Min.	Тур.	Max.	Unit
DC Current Gain     at -V <sub>CE</sub> = 10 V, -I <sub>C</sub> = 5 mA     at -V <sub>CE</sub> = 1 V, -I <sub>C</sub> = 1 A     at -V <sub>CE</sub> = 1 V, -I <sub>C</sub> = 500 mA     Current Gain Group -16     -25		50 60 100 160	- - -	- - 250 375	- - -
Collector Base Cutoff Current at -V <sub>CB</sub> = 25 V	-Ісво	-	-	100	nA
Emitter Base Cutoff Current at -V <sub>EB</sub> = 5 V	-I <sub>EBO</sub>	-	-	100	nA
Collector Base Breakdown Voltage at $-I_C = 100 \mu A$	-V <sub>(BR)CBO</sub>	32	-	-	V
Collector Emitter Breakdown Voltage at -I <sub>C</sub> = 2 mA	-V <sub>(BR)CEO</sub>	20	-	-	V
Emitter Base Breakdown Voltage at $-I_E = 100 \mu A$	-V <sub>(BR)EBO</sub>	5	-	-	V
Collector Emitter Saturation Voltage at $-I_C = 1 \text{ A}$ , $-I_B = 100 \text{ mA}$	-V <sub>CE(sat)</sub>	-	-	500	mV
Base Emitter On Voltage at -V <sub>CE</sub> = 10 V, -I <sub>C</sub> = 5 mA at -V <sub>CE</sub> = 1 V, -I <sub>C</sub> = 1 A	-V <sub>BE(on)</sub>	-	-	0.7 1	V
Transition Frequency at -V <sub>CE</sub> = 5 V, -I <sub>C</sub> = 50 mA, f = 100 MHz	f⊤	40	-	-	MHz
Collector Output Capacitance at -V <sub>CB</sub> = 10 V, f = 1 MHz	Cob	-	12	-	pF



#### **Electrical Characteristics Curves**

Fig. 1 Output Characteristics Curve

0.3

TOP
-IB=1.1mA
-IB=1.0mA
-IB=0.8mA
-IB=0.8mA
-IB=0.8mA
-IB=0.8mA
-IB=0.4mA
-IB=0.4mA
-IB=0.2mA
-IB=0.1mA
-IB=0.1mA

Fig. 2 Collector Current vs. Base to Emitter Voltage

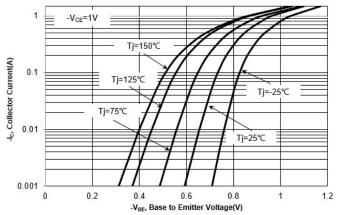


Fig. 3 DC Current Gain vs. Collector Current

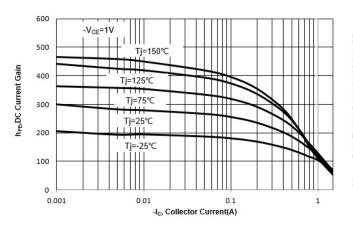
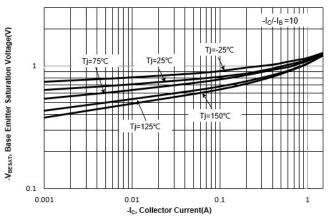


Fig. 4 V<sub>BESAT</sub> vs. Collector Current



#### **Electrical Characteristics Curves**

Fig. 5 V<sub>CESAT</sub> vs. Collector Current

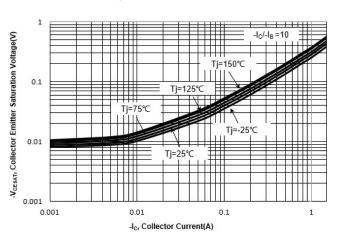


Fig. 6 Output Capacitance

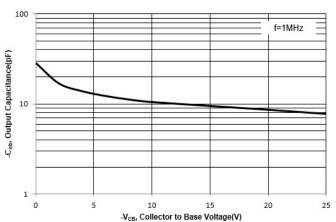
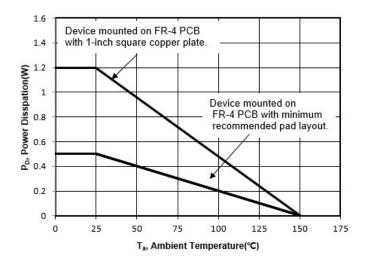


Fig. 7 Power Derating Curve

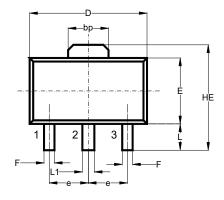


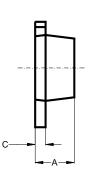


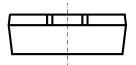
#### **BC869U**

#### Package Outline (Dimensions in mm)

#### **SOT-89**

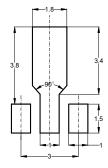






Unit	Α	bp	С	D	E	F	HE	е	L	L1
mm	1.6	1.60	0.5	4.6	2.6	0.45	4.25	1.5	1.05	0.51
	1.4	1.50	0.3	4.4	2.4	0.35	3.75	typ.	0.95	0.41

#### **Recommended Soldering Footprint**



**Packing information** 

· working in ordination								
Package		Tape Width (mm)	Pitch		Ree	el Size		
			mm	inch	mm	inch	Per Reel Packing Quantity	
000	T 00	40	0.04	0.045 + 0.004	178	7	1,000	
SO	T-89	12	8 ± 0.1	0.315 ± 0.004	330	13	4,000	

#### **Marking information**

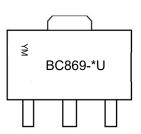
" BC869-\*U " = Part No. (" \* " = HFE grouping Code)

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial



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