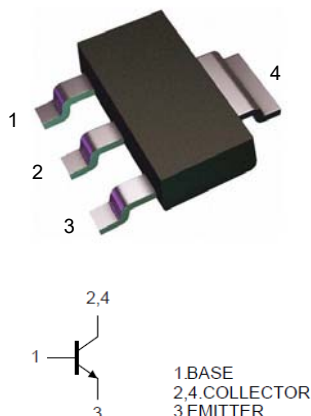


## NPN Plastic-Encapsulate Transistors



### SOT-223

#### Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Halogen Free.
- Part no. with suffix "Q" means AEC-Q101 qualified

#### Applications

- Linear voltage regulators
- Low-side switches
- Battery-driven devices
- MOSFET drivers
- Amplifiers

#### Mechanical Data

- Case: SOT-223
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Marking: BCP56-16.

#### ■ Maximum Ratings (Ta= 25°C unless otherwise noted)

Item	Symbol	Unit	Value
Collector-Base Voltage	$V_{CBO}$	V	100
Collector-Emitter Voltage	$V_{CEO}$	V	80
Emitter-Base Voltage	$V_{EBO}$	V	5
Collector Current -Continuous	$I_C$	A	1
Total Device Dissipation (*)	$P_D$	W	1.5
Thermal Resistance From Junction To Ambient (*)	$R_{\theta JA}$	°C/W	83.3
Thermal Resistance From Junction To Solder Point (*)	$R_{\theta Js}$	°C/W	16
Junction Temperature	$T_j$	°C	-55 to +150
Storage Temperature	$T_{STG}$	°C	-55 to +150

(\*) Device mounted on FR-4 PCB 1.575 x 1.575 x 0.0625 inch; mounting pad for collector =0.93 sq in



# BCP56-16Q

## ■ Electrical Characteristics (Ta= 25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C = 100\mu A, I_E = 0$	100		
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C = 10mA, I_B = 0$	80		
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E = 10\mu A, I_C = 0$	5		
Collector-base cut-off current	$I_{CBO}$	$\mu A$	$V_{CB} = 30V, I_E = 0$			0.1
DC current gain	$h_{FE}$		$V_{CE} = 2V, I_C = 5mA$	25		
	$h_{FE}$		$V_{CE} = 2V, I_C = 150mA$	100		250
	$h_{FE}$		$V_{CE} = 2V, I_C = 500mA$	25		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 500mA, I_B = 50mA$			0.5
Base-emitter voltage	$V_{BE}$	V	$V_{CE} = 2V, I_C = 500mA$			1.0

## ■ Other Characteristics (Ta= 25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	$f_T$	MHz	$V_{CE} = 10V, I_C = 50mA, f = 100MHz$	100		

## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BCP56-16Q	F2	Approximate 0.1	2500	5000	25000	13" reel

## ■ Characteristics(Typical)

Fig.1 - Collector Saturation Region

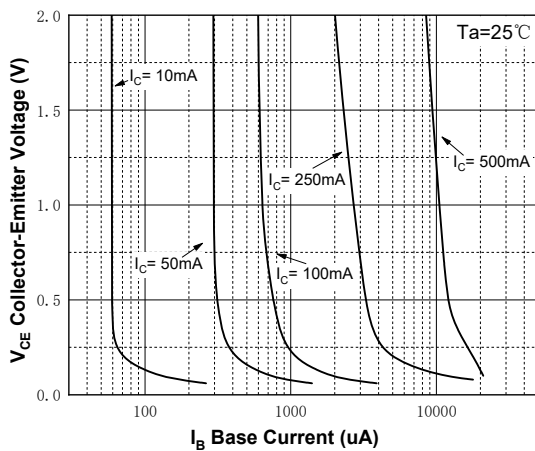


Fig.2 - DC Current Gain

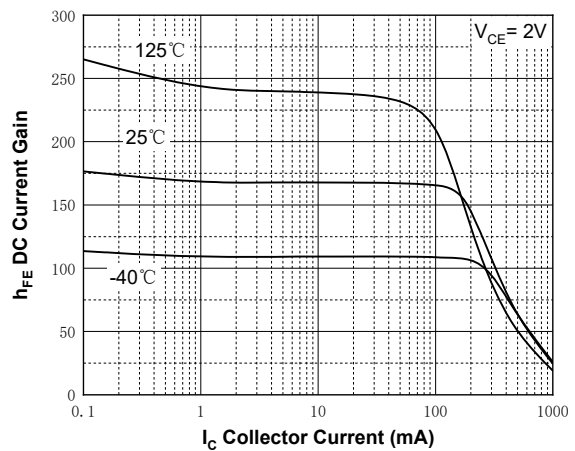




Fig.3 - Collector-Emitter Saturation Voltage vs. Collector Current

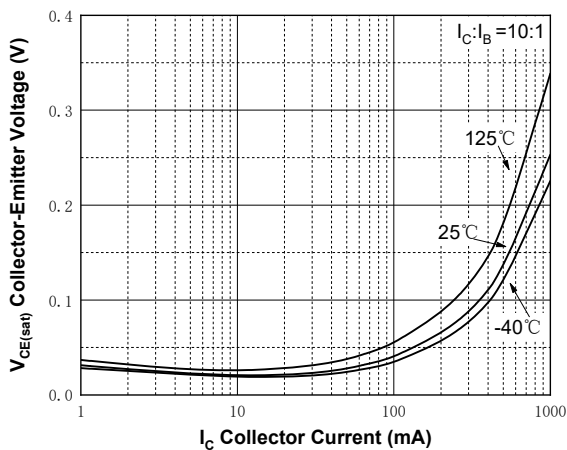


Fig.4 - Base-Emitter Saturation Voltage vs. Collector Current

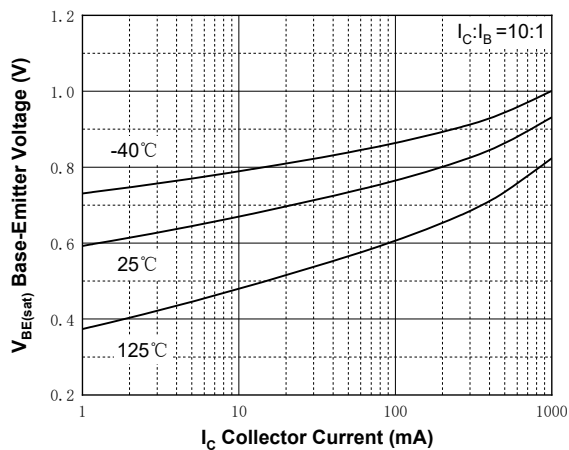


Fig.5 - Capacitance

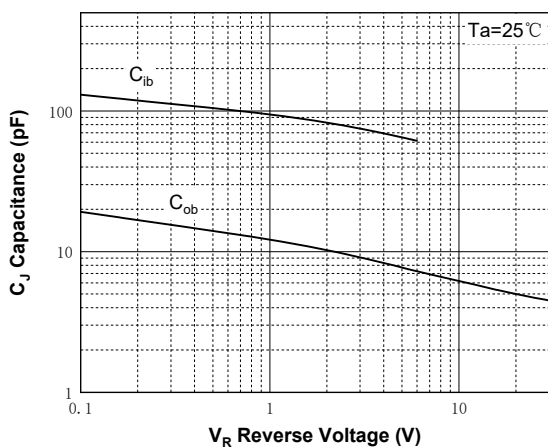
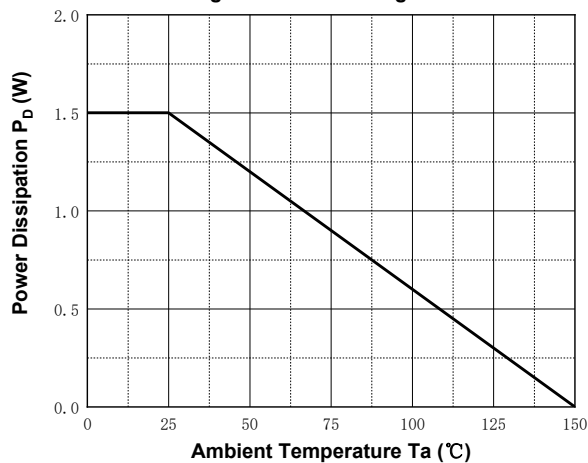


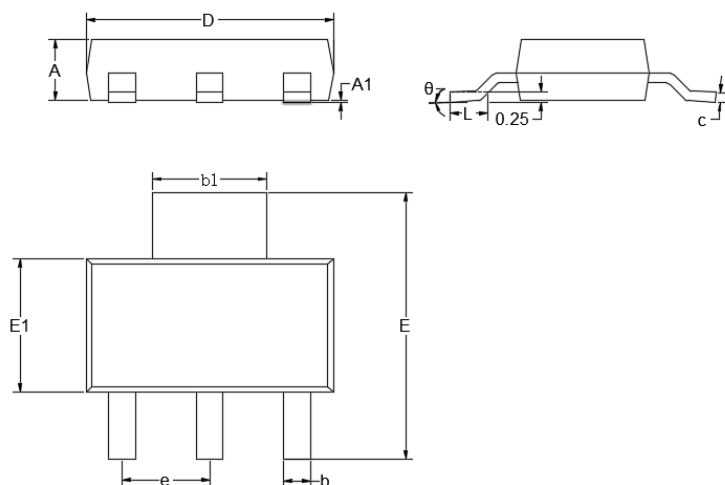
Fig.6 - Power Derating Curve





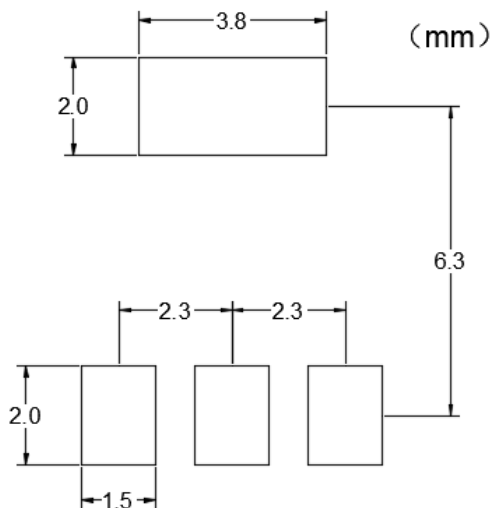
# BCP56-16Q

## ■ SOT-223 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.0591	0.0670	1.5000	1.7000
A1	0.0008	0.0039	0.0200	0.1000
b	0.0259	0.0330	0.6600	0.8400
b1	0.1140	0.1220	2.9000	3.1000
c	0.0090	0.0138	0.2300	0.3500
D	0.2480	0.2640	6.3000	6.7000
E	0.2637	0.2874	6.7000	7.3000
E1	0.1290	0.1460	3.3000	3.7000
e	0.0866	0.0945	2.2000	2.4000
L	0.0295	0.0492	0.7500	1.2500
θ	0°	10°	0°	10°

## ■ SOT-223 Suggested Pad Layout





## BCP56-16Q

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