

# BRBCP56Q

Rev.A Oct.-2023

## / Descriptions

SOT-223          NPN          Silicon NPN transistor in a SOT-223 Plastic Package.

## / Features

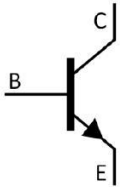
AEC-Q101

High current, Low voltage, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

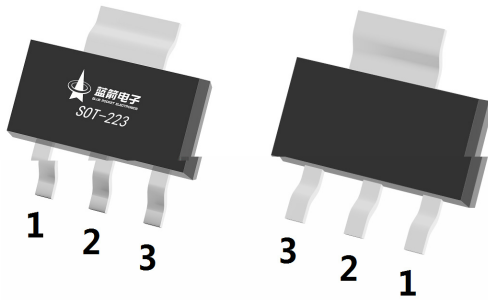
## / Applications

Medium Power switching applications, Meet the stringent requirements of automotive applications.

## / Equivalent Circuit



## / Pinning



PIN1 Base          PIN 2 Collector          PIN 3 Emitter

## / hFE Classifications & Marking

See Marking Instructions.

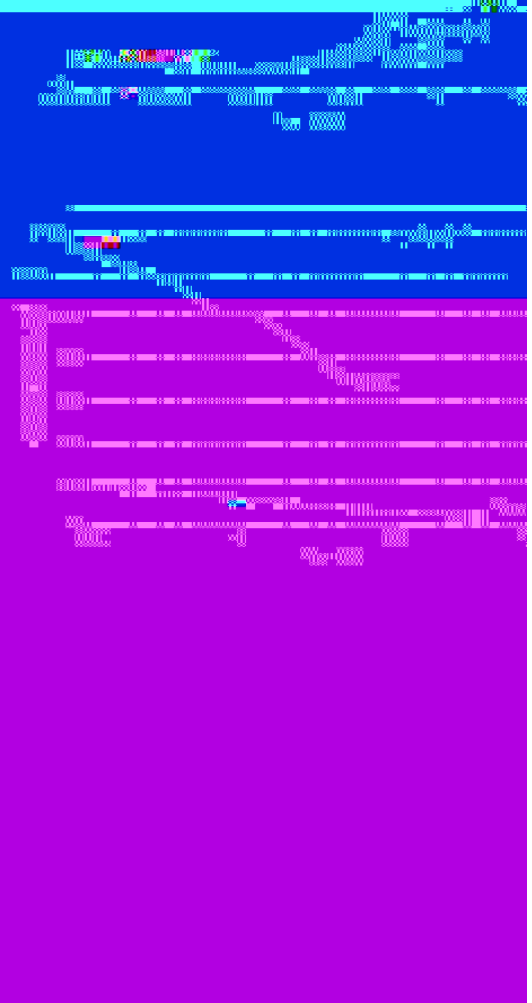
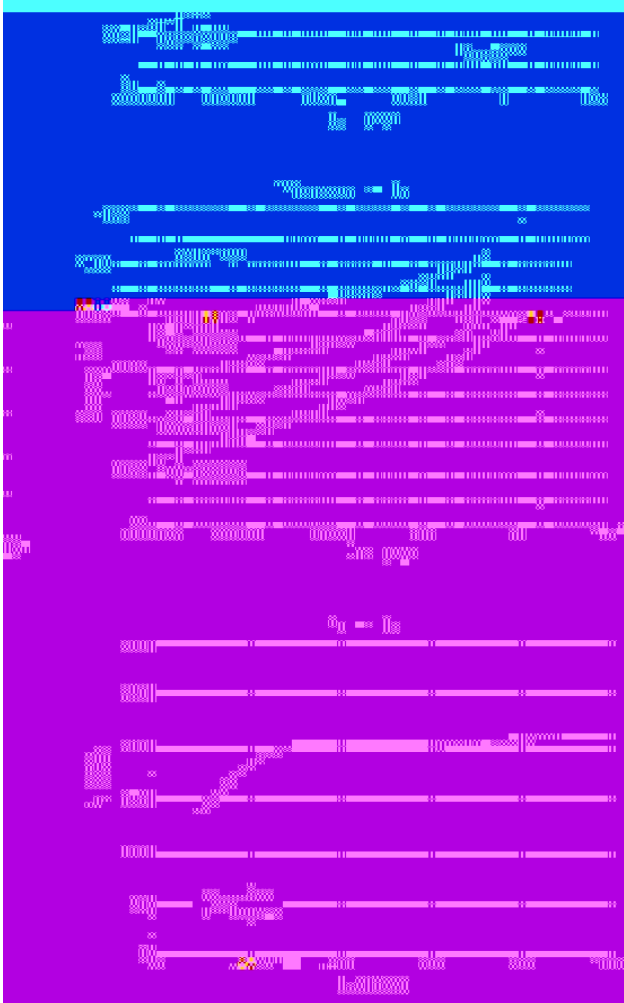
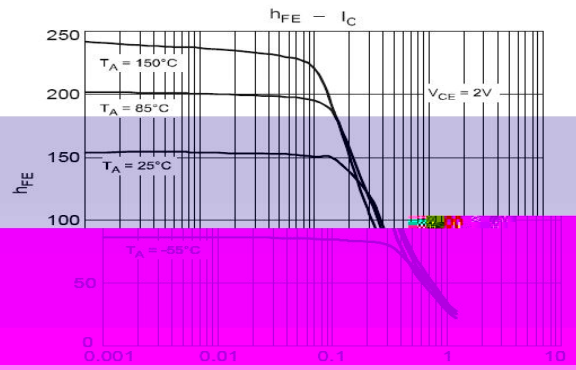
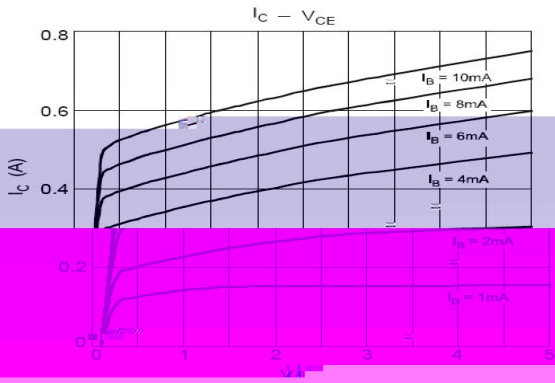
/ Absolute Maximum Ratings( $T_a=25$  )

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	100	V
Collector to Emitter Voltage	$V_{CEO}$	80	V
Emitter to Base Voltage	$V_{EBO}$	5.0	V
Collector Current - Continuous	$I_C$	1.0	A
Peak Pulse Collector Current	$I_{CM}$	1.5	A
Peak Pulse Base Current	$I_{BM}$	200	mA
Power Dissipation	$P_D$	1.2	W
Thermal Resistance, Junction to Ambient	$R_{JA}$	105	K/W
Thermal Resistance, Junction to Leads	$R_{JS}$	13	K/W
Junction Temperature	$T_j$	150	
Operating and Storage Temperature Range	$T_{stg} T_{amb}$	-65 150	

/ Electrical Characteristics( $T_a=25$  )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30V$ $I_E=0$			100	nA
		$V_{CB}=30V$ $I_E=0$ $T_j=125$			10	$\mu A$
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=5.0V$ $I_C=0$			100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=2.0V$ $I_C=5mA$	25			
	$h_{FE(2)}$	$V_{CE}=2.0V$ $I_C=150mA$	100		250	
	$h_{FE(3)}$	$V_{CE}=2.0V$ $I_C=500mA$	25			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500mA$ $I_B=50mA$			0.5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=500mA$ $V_{CE}=2.0V$			1.0	V
Transition Frequency	$f_T$	$V_{CE}=-5V$ $I_C=-10mA$ $f=100MHz$		130		MHz

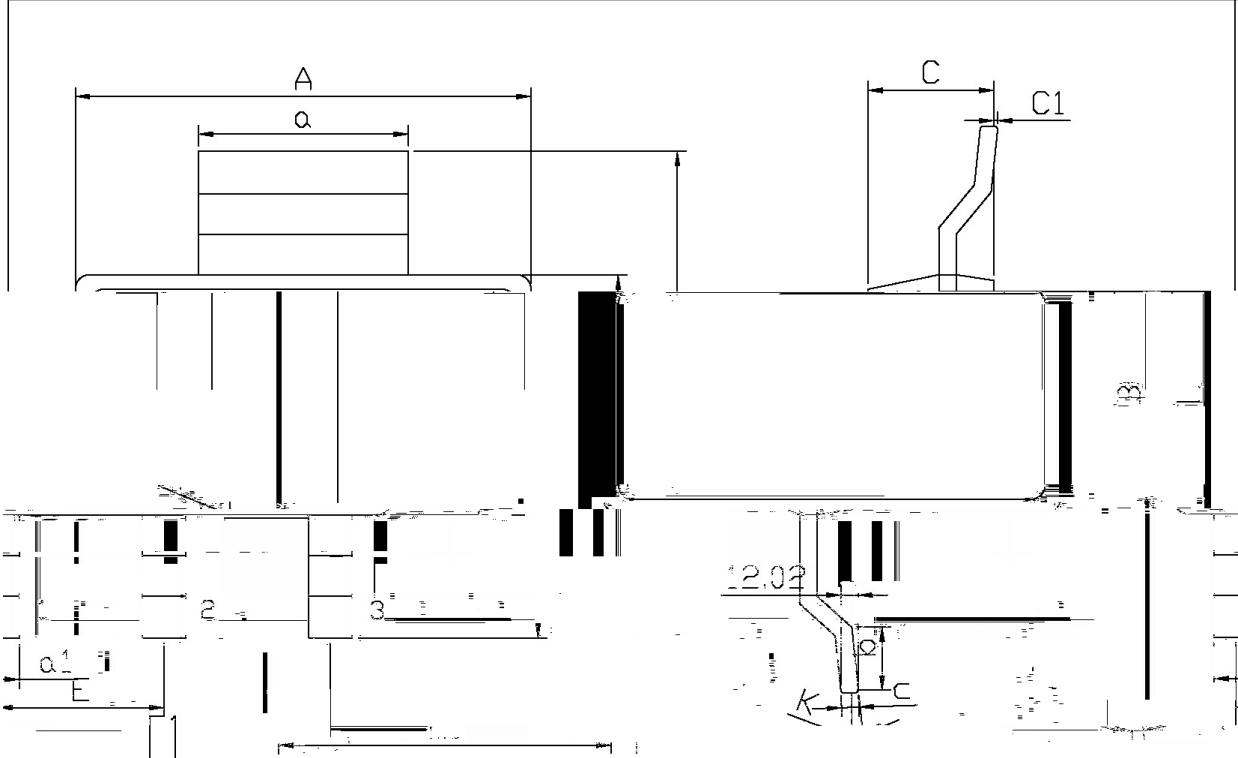
/ Electrical Characteristic Curve



/ Package Dimensions

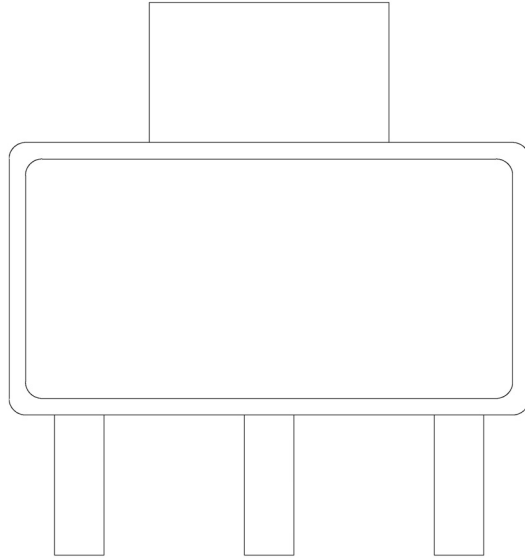
SOT-223

单位; mm



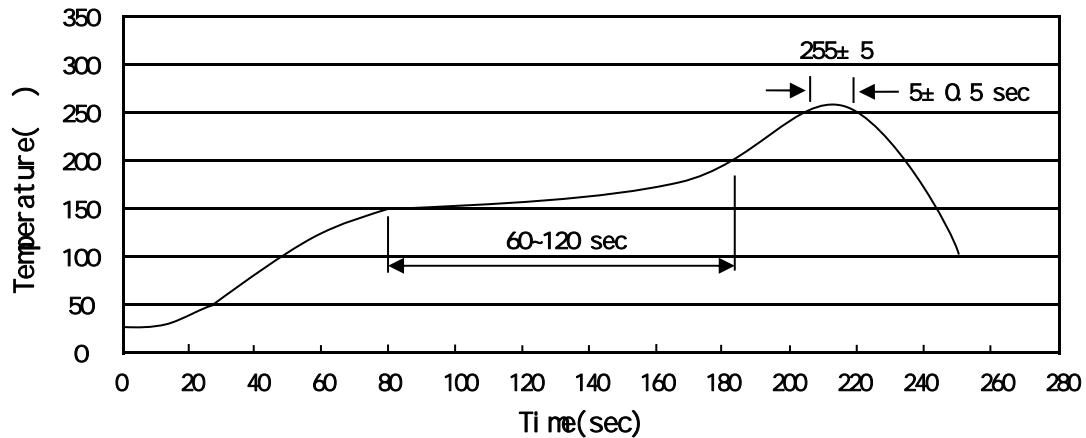
Dimensions In Millimeters			Dimensions In Millimeters		
Symbol	Min	Max	Symbol	Min	Max
A	3.80	5.70	C	4.10	5.10
a	2.90	3.10	b	0.79	0.91
B	3.30	3.70	c	0.24	0.28
E	6.30	7.00	PC	0.02	0.03
a1	0.60	0.80	K	0°	10°
C1	4.10	5.10			
E	2.00	2.60			

**/ Marking Instructions**



BR

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1            150   200            60   120sec;    1.Preheating:150~200 , Time:60~120sec.
- 2            255±5                    5±0.5sec;    2.Peak Temp.:255±5 , Duration:5±0.5sec.
- 3                            2   10 /sec.            3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5                    10±1 sec.                    Temp.:260±5                    Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-223	2,500	2	5,000	6	30,000	13 ×12	360×360×50	380×335×366

/ Notices