



修订记录

F	2017-4				
G	2020-5-15	1			
A	2021-12-17	all	BR Q AEC-Q101 H Q 245±5℃ 5±0.5sec 255±5℃ 5±0.5sec		



Rev.A Dec.-2021

描述

SOT-23 NPN Silicon NPN transistor in a SOT-23 Plastic Package.

特征

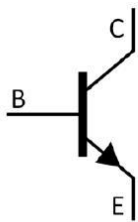
, , , BRMMBTA92Q AEC-Q101

High voltage, Low saturation voltage, low collector capacitance output, complementary pair with BRMMBTA92Q, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途

High voltage control circuit, Meet the stringent requirements of automotive applications.

内部等效电路



引脚排列



PIN1 Base PIN 2 Emitter PIN 3 Collector

印章代码

h_{FE} Range	>40
Marking	Q1D



极限参数

°C

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	300	V
Collector to Emitter Voltage	V_{CEO}	300	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	500	mA
Collector Power Dissipation*	$*P_C$	350	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 150	°C

*: 4.0*4.0*0.15mm³ FR-4 PCB

*:Device mounted on FR-4 PCB 4.0*4.0*0.15mm³

电性能参数

°C

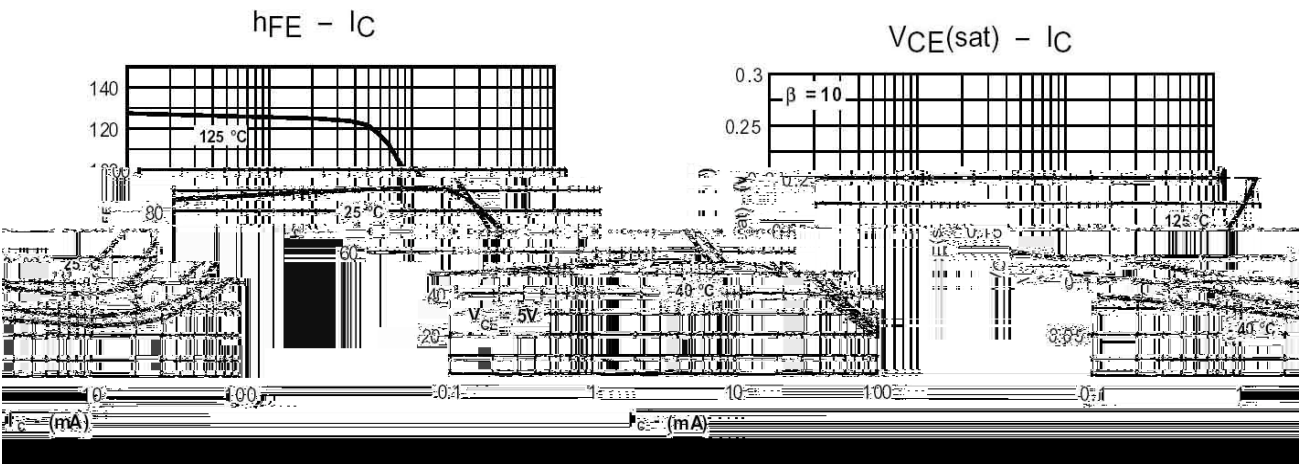
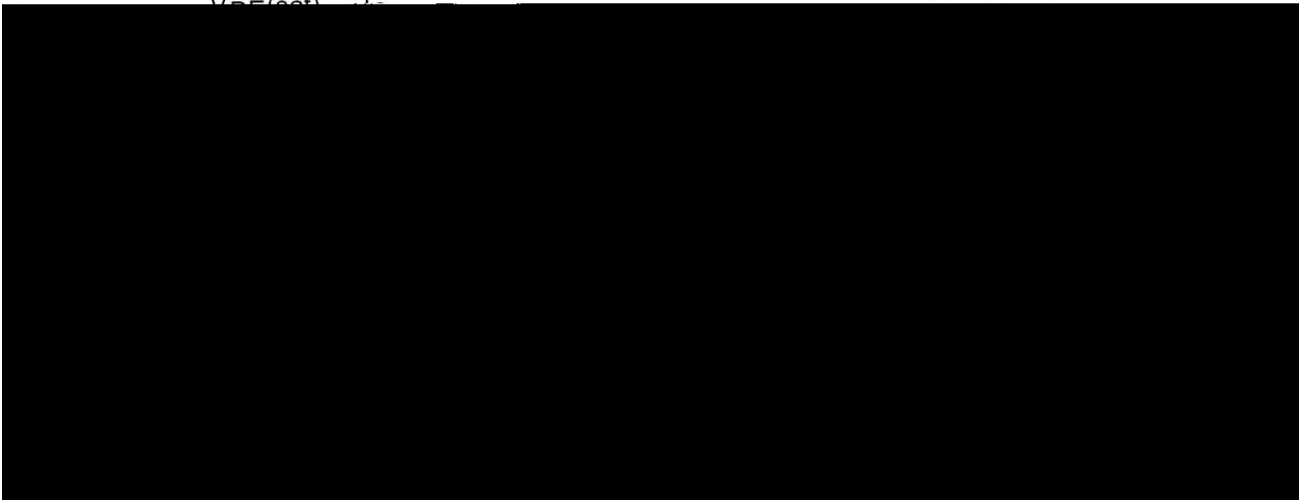
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=100\mu A$ $I_E=0$	300			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	300			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=100\mu A$ $I_C=0$	6.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=200V$ $I_E=0$			0.1	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{BE}=6.0V$ $I_C=0$			0.1	μA
DC Current Gain	$*h_{FE(1)}$	$V_{CE}=10V$ $I_C=10mA$	40			
	$*h_{FE(2)}$	$V_{CE}=10V$ $I_C=30mA$	40			
	$*h_{FE(3)}$	$V_{CE}=10V$ $I_C=1.0mA$	25			
Collector to Emitter Saturation Voltage	$*V_{CE(sat)}$	$I_C=20mA$ $I_B=2.0mA$			0.5	V
Base to Emitter Saturation Voltage	$*V_{BE(sat)}$	$I_C=20mA$ $I_B=2.0mA$			0.9	V
Transition Frequency	f_T	$I_C=10mA$ $V_{CE}=20V$ $f=100MHz$	50			MHz
Collector output capacitance	C_{ob}	$V_{CB}=20V$ $I_E=0$ $f=1.0MHz$			3.0	pF

* 300 μS 2.0%

*pulse test: pulse width $\leq 300\mu S$, duty cycle $\leq 2.0\%$.



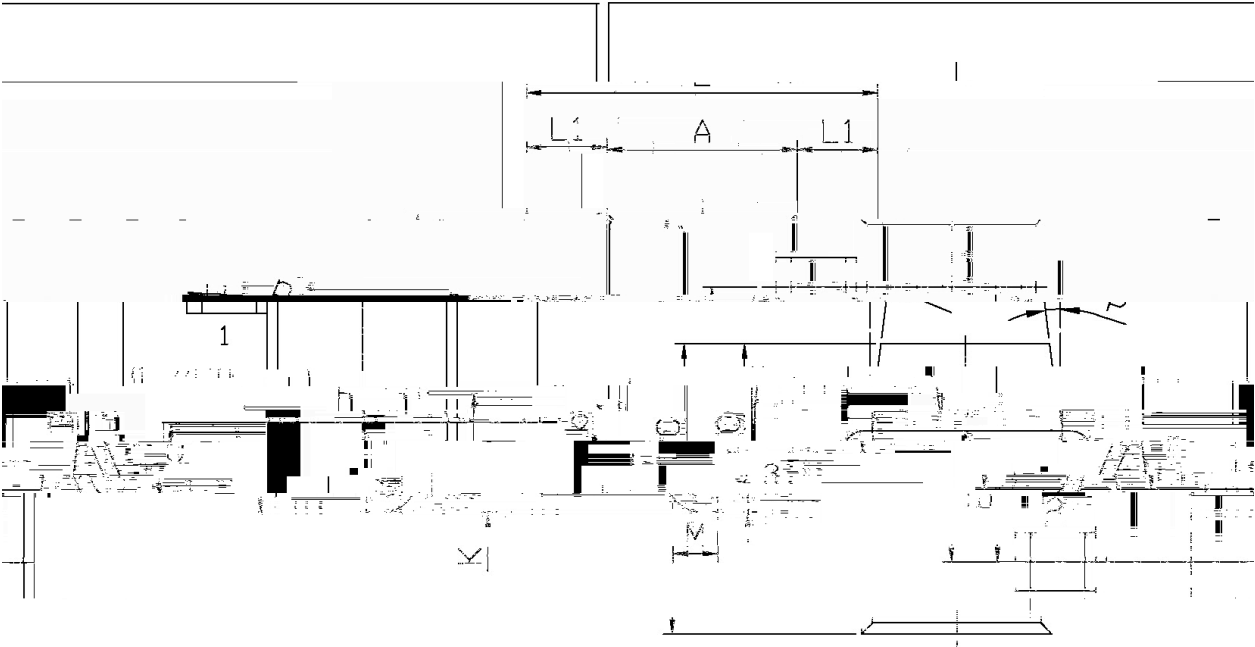
电参数曲线图





外形尺寸图

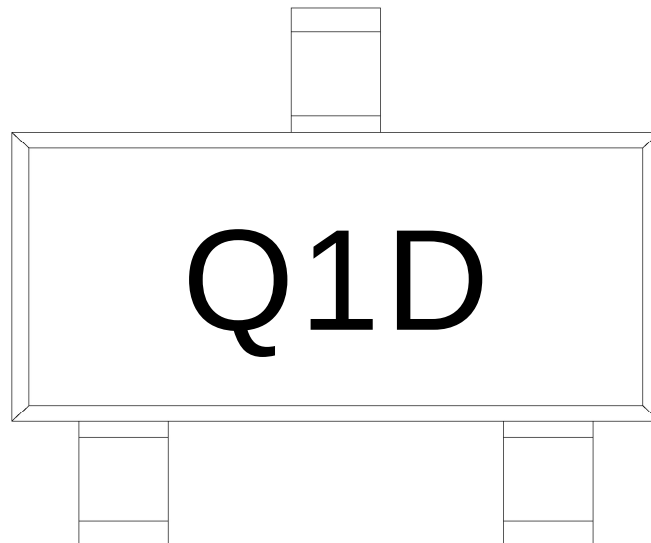
单位: mm



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
1	0.45	0.65	1	0.9	1.2
2	0.5	0.6	2	0.5	0.6
3	0.7	0.8	3	0.7	0.8
4	0.8	0.9	4	0.8	0.9
5	0.9	1.0	5	0.9	1.0
6	1.0	1.1	6	1.0	1.1
7	1.1	1.2	7	1.1	1.2
8	1.2	1.3	8	1.2	1.3
9	1.3	1.4	9	1.3	1.4
10	1.4	1.5	10	1.4	1.5
11	1.5	1.6	11	1.5	1.6
12	1.6	1.7	12	1.6	1.7
13	1.7	1.8	13	1.7	1.8
14	1.8	1.9	14	1.8	1.9
15	1.9	2.0	15	1.9	2.0
16	2.0	2.1	16	2.0	2.1
17	2.1	2.2	17	2.1	2.2
18	2.2	2.3	18	2.2	2.3
19	2.3	2.4	19	2.3	2.4
20	2.4	2.5	20	2.4	2.5
21	2.5	2.6	21	2.5	2.6
22	2.6	2.7	22	2.6	2.7
23	2.7	2.8	23	2.7	2.8
24	2.8	2.9	24	2.8	2.9
25	2.9	3.0	25	2.9	3.0
26	3.0	3.1	26	3.0	3.1
27	3.1	3.2	27	3.1	3.2
28	3.2	3.3	28	3.2	3.3
29	3.3	3.4	29	3.3	3.4
30	3.4	3.5	30	3.4	3.5
31	3.5	3.6	31	3.5	3.6
32	3.6	3.7	32	3.6	3.7
33	3.7	3.8	33	3.7	3.8
34	3.8	3.9	34	3.8	3.9
35	3.9	4.0	35	3.9	4.0
36	4.0	4.1	36	4.0	4.1
37	4.1	4.2	37	4.1	4.2
38	4.2	4.3	38	4.2	4.3
39	4.3	4.4	39	4.3	4.4
40	4.4	4.5	40	4.4	4.5
41	4.5	4.6	41	4.5	4.6
42	4.6	4.7	42	4.6	4.7
43	4.7	4.8	43	4.7	4.8
44	4.8	4.9	44	4.8	4.9
45	4.9	5.0	45	4.9	5.0
46	5.0	5.1	46	5.0	5.1
47	5.1	5.2	47	5.1	5.2
48	5.2	5.3	48	5.2	5.3
49	5.3	5.4	49	5.3	5.4
50	5.4	5.5	50	5.4	5.5
51	5.5	5.6	51	5.5	5.6
52	5.6	5.7	52	5.6	5.7
53	5.7	5.8	53	5.7	5.8
54	5.8	5.9	54	5.8	5.9
55	5.9	6.0	55	5.9	6.0
56	6.0	6.1	56	6.0	6.1
57	6.1	6.2	57	6.1	6.2
58	6.2	6.3	58	6.2	6.3
59	6.3	6.4	59	6.3	6.4
60	6.4	6.5	60	6.4	6.5
61	6.5	6.6	61	6.5	6.6
62	6.6	6.7	62	6.6	6.7
63	6.7	6.8	63	6.7	6.8
64	6.8	6.9	64	6.8	6.9
65	6.9	7.0	65	6.9	7.0
66	7.0	7.1	66	7.0	7.1
67	7.1	7.2	67	7.1	7.2
68	7.2	7.3	68	7.2	7.3
69	7.3	7.4	69	7.3	7.4
70	7.4	7.5	70	7.4	7.5
71	7.5	7.6	71	7.5	7.6
72	7.6	7.7	72	7.6	7.7
73	7.7	7.8	73	7.7	7.8
74	7.8	7.9	74	7.8	7.9
75	7.9	8.0	75	7.9	8.0
76	8.0	8.1	76	8.0	8.1
77	8.1	8.2	77	8.1	8.2
78	8.2	8.3	78	8.2	8.3
79	8.3	8.4	79	8.3	8.4
80	8.4	8.5	80	8.4	8.5
81	8.5	8.6	81	8.5	8.6
82	8.6	8.7	82	8.6	8.7
83	8.7	8.8	83	8.7	8.8
84	8.8	8.9	84	8.8	8.9
85	8.9	9.0	85	8.9	9.0
86	9.0	9.1	86	9.0	9.1
87	9.1	9.2	87	9.1	9.2
88	9.2	9.3	88	9.2	9.3
89	9.3	9.4	89	9.3	9.4
90	9.4	9.5	90	9.4	9.5
91	9.5	9.6	91	9.5	9.6
92	9.6	9.7	92	9.6	9.7
93	9.7	9.8	93	9.7	9.8
94	9.8	9.9	94	9.8	9.9
95	9.9	10.0	95	9.9	10.0
96	10.0	10.1	96	10.0	10.1
97	10.1	10.2	97	10.1	10.2
98	10.2	10.3	98	10.2	10.3
99	10.3	10.4	99	10.3	10.4
100	10.4	10.5	100	10.4	10.5



印章说明



Q

1D

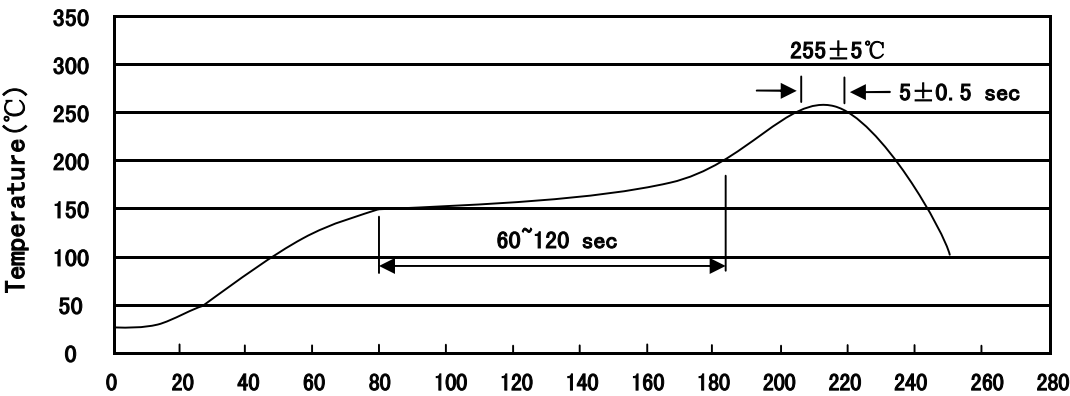
Note:

Q: Automobile halogen-free product Code

1D: Product Type Code.



回流焊温度曲线图 无铅 Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

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

耐焊接热试验条件

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

包装规格

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	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-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明