

/ Revised record

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F	2017-4				
G	2020-5-15	1	0 1 2 3 4 5 6 7 8 9 : 5 6 ; <	= >	? @ A
A	2021-12-17	all	BC 4 BR 4 Q 9 0 1) DE 3 4 FG ; < H I J K L AEC-Q101 7 M N O P Q R S T U V F G D E % W X R S Y , Z [H \] Q 9 ^ _ ` a 245±5 9 b c d e ] 5±0.5sec f g ] h ^ _ ` a 255±5 9 b c d e] 5±0.5sec i	= >	? @ A

/ Descriptions

SOT-23 j k k l NPN m n o p q r i Silicon NPN transistor in a SOT-23 Plastic Package.

/ Features

s t N,u v t w x,y z q { | z + x , } BRMMBTA92Q ~ j 9 K L AEC-Q101 7 M N O P Q R S 9
5 6 ; < i
High voltage, Low saturation voltage, low collector capacitance output, complementary pair with
BRMMBTA92Q, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

N z t ¢ - z £ 9 U V F G D E % W X R S i
High voltage control circuit, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit

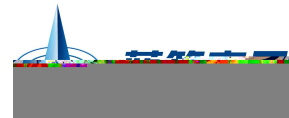
/ Pinning



PIN1 h Base PIN 2 h Emitter PIN 3 h Collector

/ Marking

h _{FE} Range	>40
Marking	Q



/ Absolute Maximum Ratings(Ta=25 °C)

Parameter	K C 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	
Storage Temperature Range	T_{stg}	-55 ~ 150	

: $\varnothing 4.0 \times 4.0 \times 0.15 \text{ mm}^3$ FR-4 PCB: Device mounted on FR-4 PCB $4.0 \times 4.0 \times 0.15 \text{ mm}^3$

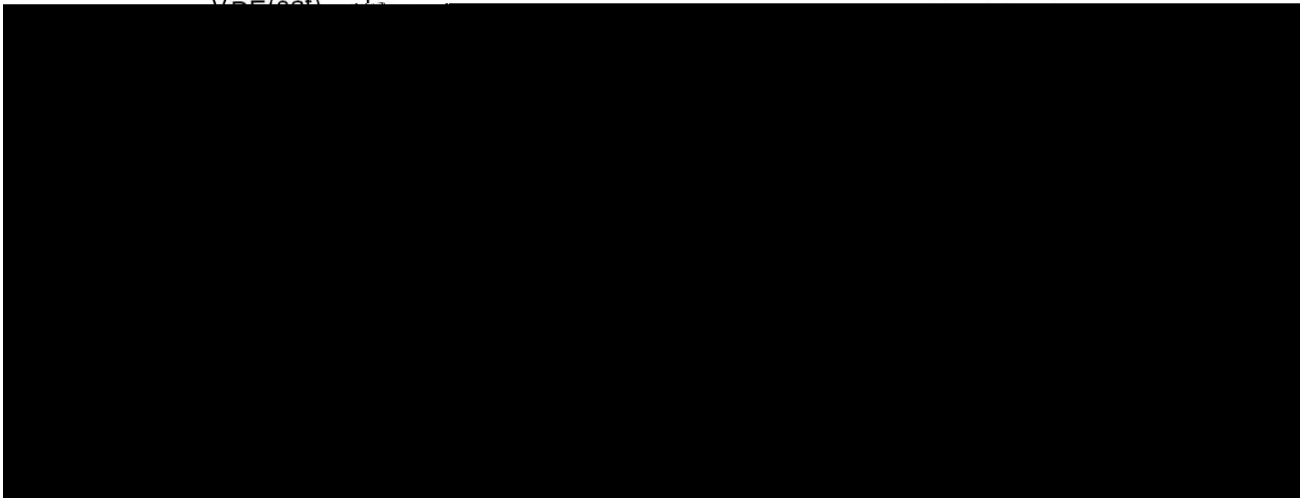
/ Electrical Characteristics(Ta=25 °C)

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

*: $t_{\text{pulse}} \leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$ *pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

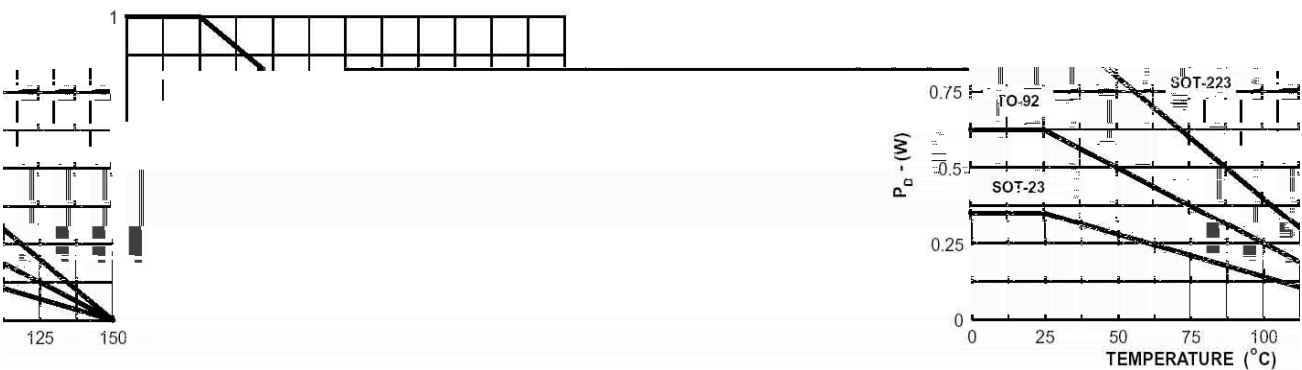
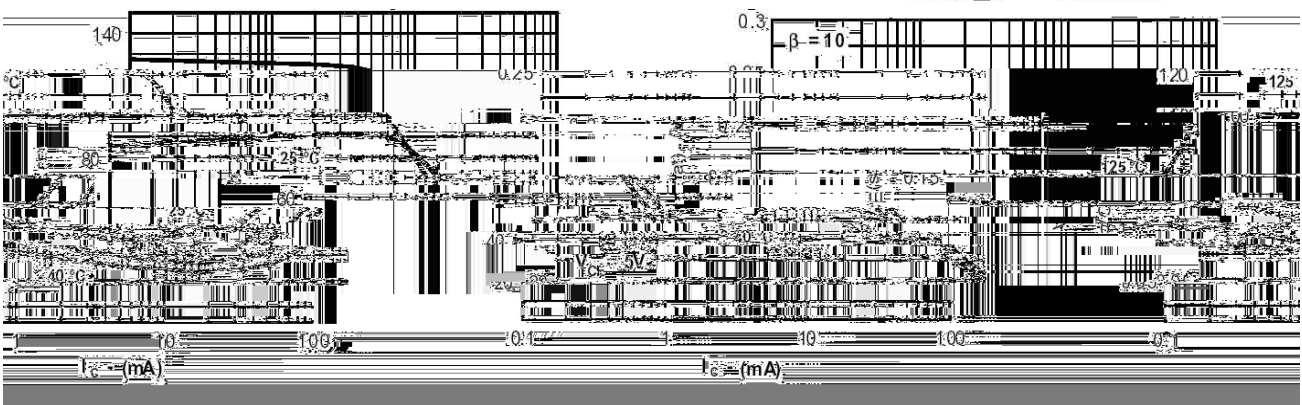
/ Electrical Characteristic Curve

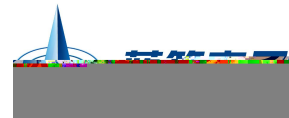
$V_{CE(sat)}$ - I_C



$h_{FE} - I_C$

$V_{CE(sat)} - I_C$





/ Package Dimensions



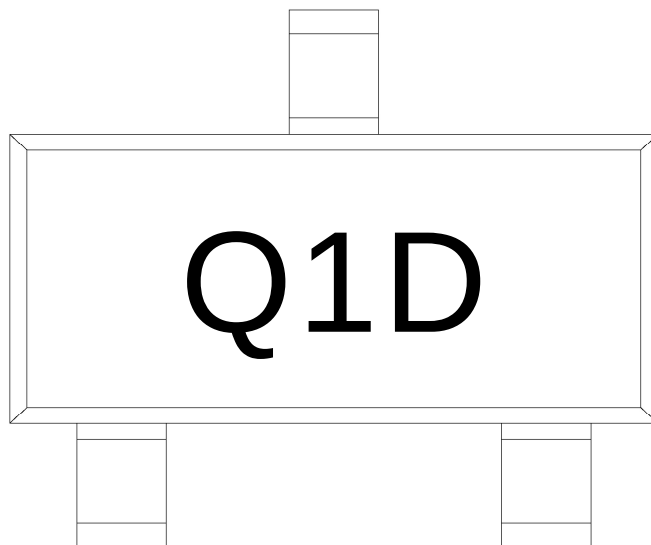
Unit: mm

单位: mm



Symbol	Min	Max	Symbol	Min	Max
A	0.45	0.65	B	2.70	3.00
B	2.70	3.00	C	1.70	2.10
C	1.70	2.10	D	0.35	0.50
D	0.35	0.50	E	0.35	0.50
E	0.35	0.50	F	0.35	0.50
F	0.35	0.50	G	0.35	0.50
G	0.35	0.50	H	0.35	0.50
H	0.35	0.50	I	0.35	0.50
I	0.35	0.50	J	0.35	0.50
J	0.35	0.50	K	0.35	0.50
K	0.35	0.50	L	0.35	0.50
L	0.35	0.50	M	0.35	0.50
M	0.35	0.50	N	0.35	0.50
N	0.35	0.50	O	0.35	0.50
O	0.35	0.50	P	0.35	0.50
P	0.35	0.50	Q	0.35	0.50
Q	0.35	0.50	R	0.35	0.50
R	0.35	0.50	S	0.35	0.50
S	0.35	0.50	T	0.35	0.50
T	0.35	0.50	U	0.35	0.50
U	0.35	0.50	V	0.35	0.50
V	0.35	0.50	W	0.35	0.50
W	0.35	0.50	X	0.35	0.50
X	0.35	0.50	Y	0.35	0.50
Y	0.35	0.50	Z	0.35	0.50
Z	0.35	0.50			

/ Marking Instructions



¿ À h

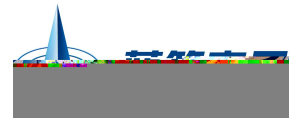
Q h] F G 5 6 ; < 7 8

1D h] B C Á '

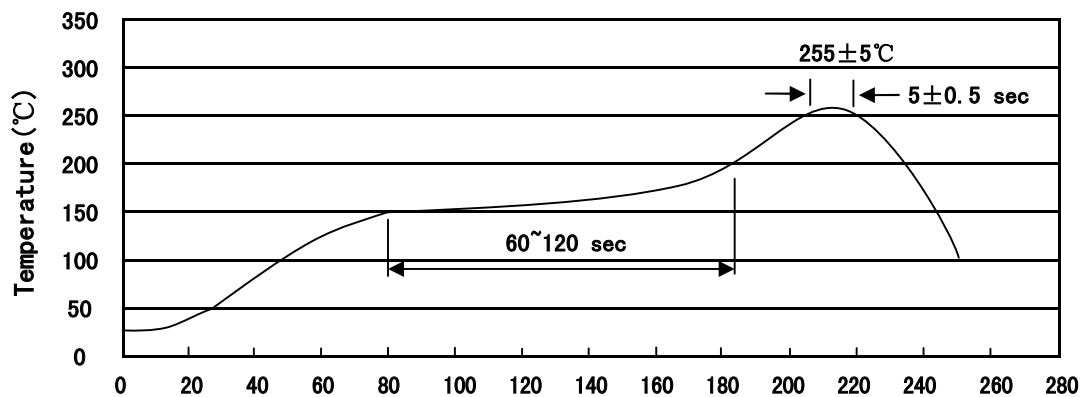
Note:

Q: Automobile halogen-free product Code

1D: Product Type Code.



() / 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.

/ Resistance to Soldering Heat Test Conditions

260±5°C

10±1 sec.

Temp.:260±5°C

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 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

/ Notices