

# BRKTD1624Q

Rev.A Apr.-2023

## / Descriptions

SOT-89          NPN                          Silicon NPN transistor in a SOT-89 Plastic Package.

## / Features

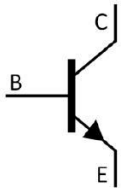
MBIT                          -                          ,  
BRKTB1124Q                  AEC-Q101

Adoption of MBIT processes, low collector-to-emitter saturation voltage, fast Switching Speed, Large current capacity and wide ASO, Complementary to BRKTB1124Q, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

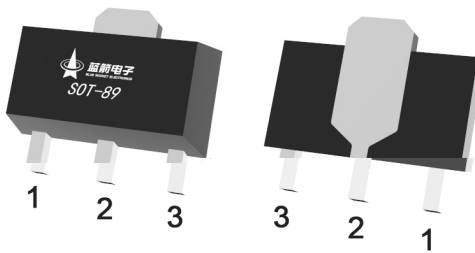
## / Applications

Voltage regulators ,relay drivers lamp drivers, electrical equipment, Meet the stringent requirements of automotive applications.

## / Equivalent Circuit



## / Pinning



PIN1 Base          PIN 2 Collector          PIN 3 Emitter

## / hFE Classifications & Marking

hFE Classifications Symbol	A	B	C
hFE Range	100~200	140~280	200~400
Marking	YQA	YQB	YQC

## / Absolute Maximum Ratings(Ta=25 )

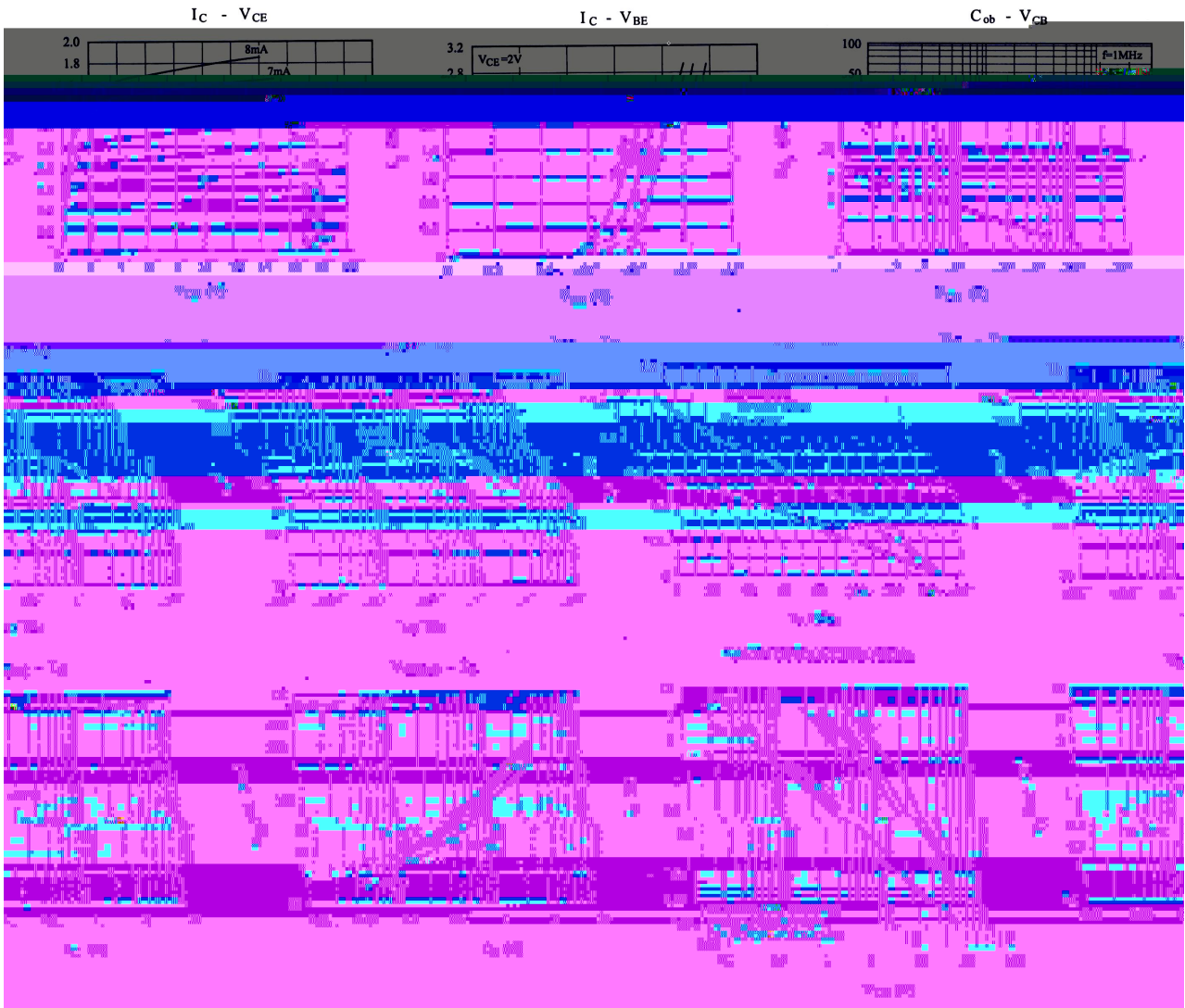
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	50	V
Emitter to Base Voltage	$V_{EBO}$	6.0	V
Collector Current - Continuous	$I_C$	3.0	A
Collector Current – Continuous (Pulse)	$I_{CP}$	6.0	A
Collector Power Dissipation	$P_C$	500	mW
Collector Power Dissipation*	* $P_C$	1.0	W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

\*:Package mounted on ceramic substrate(250mm<sup>2</sup>×0.8t)

## / Electrical Characteristics(Ta=25 )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=10\text{ A}$ $I_E=0$	60			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=1.0\text{mA}$ $I_B=0$	50			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=10\text{ A}$ $I_C=0$	6.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=40\text{V}$ $I_E=0$			1.0	A
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=4.0\text{V}$ $I_C=0$			1.0	A
DC Current Gain	$h_{FE(1)}$	$V_{CE}=2.0\text{V}$ $I_C=100\text{mA}$	100		400	
	$h_{FE(2)}$	$V_{CE}=2.0\text{V}$ $I_C=3.0\text{A}$	35			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2.0\text{A}$ $I_B=100\text{mA}$		0.19	0.5	V
Base to Emitter Voltage	$V_{BE}$	$I_C=2.0\text{A}$ $I_B=100\text{mA}$		0.94	1.2	V
Transition Frequency	$f_T$	$V_{CE}=10\text{V}$ $I_C=50\text{mA}$		150		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$		25		pF
Turn-On Time	$t_{on}$	$10I_{B1}=-10I_{B2}=I_C=1.0\text{A}$		70		nS
Storage Time	$t_{stg}$			650		nS
Fall Time	$t_f$			35		nS

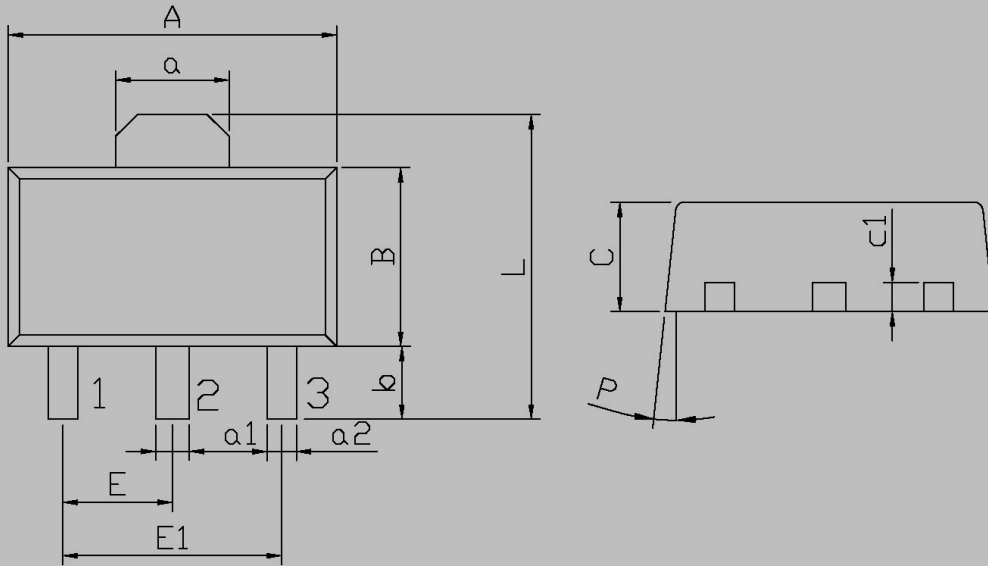
/ Electrical Characteristic Curve



/ Package Dimensions

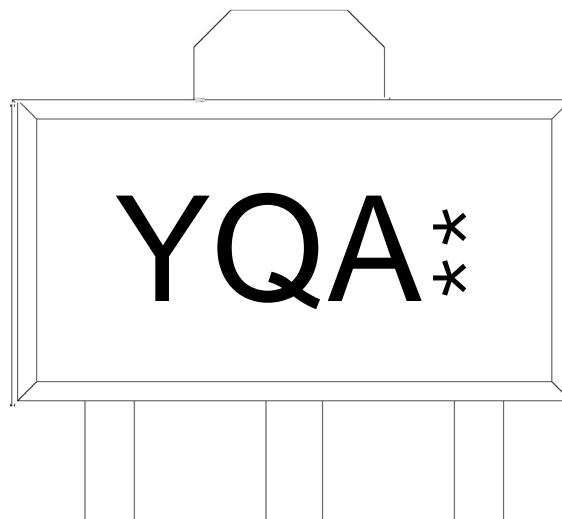
SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.07	4.47	c1	1.41	1.71
a	1.45	1.65	P	6°	
E	1.40	1.60			
E1	2.80	3.20			
b	0.80	1.20			

/ Marking Instructions



Y

Q

A            hFE

\*\*

Note:

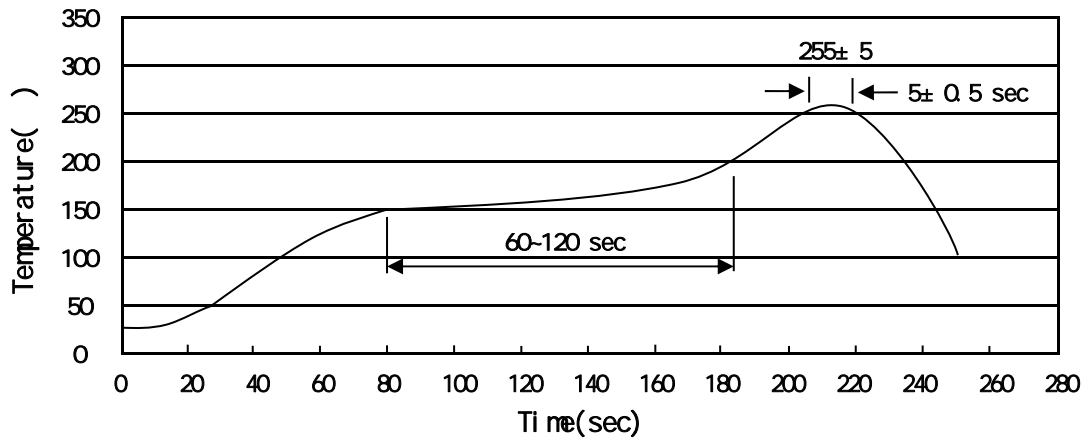
Y:            Product Type.

Q:            Automobile halogen-free product Code

A            hFE Classifications Symbol

\*\* :           Lot No. Code, code change with Lot No

## ( ) / 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°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 <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-89	1,000	7	7,000	6	42,000	7" x12	180x120x180	390x385x205

## / Notices