

BRMMBT4403Q

Rev.B May.-2023

/ Descriptions

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

/ Features

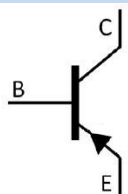
500mA AEC-Q101

Collector currents up to 500 mA, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

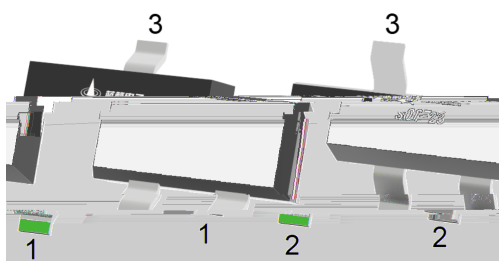
/ Applications

General purpose amplifier and switch requiring, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN 1 Base PIN 2 Emitter PIN 3 Collector

/ h_{FE} Classifications & Marking

h_{FE} Range	100 300
Marking	2TQ

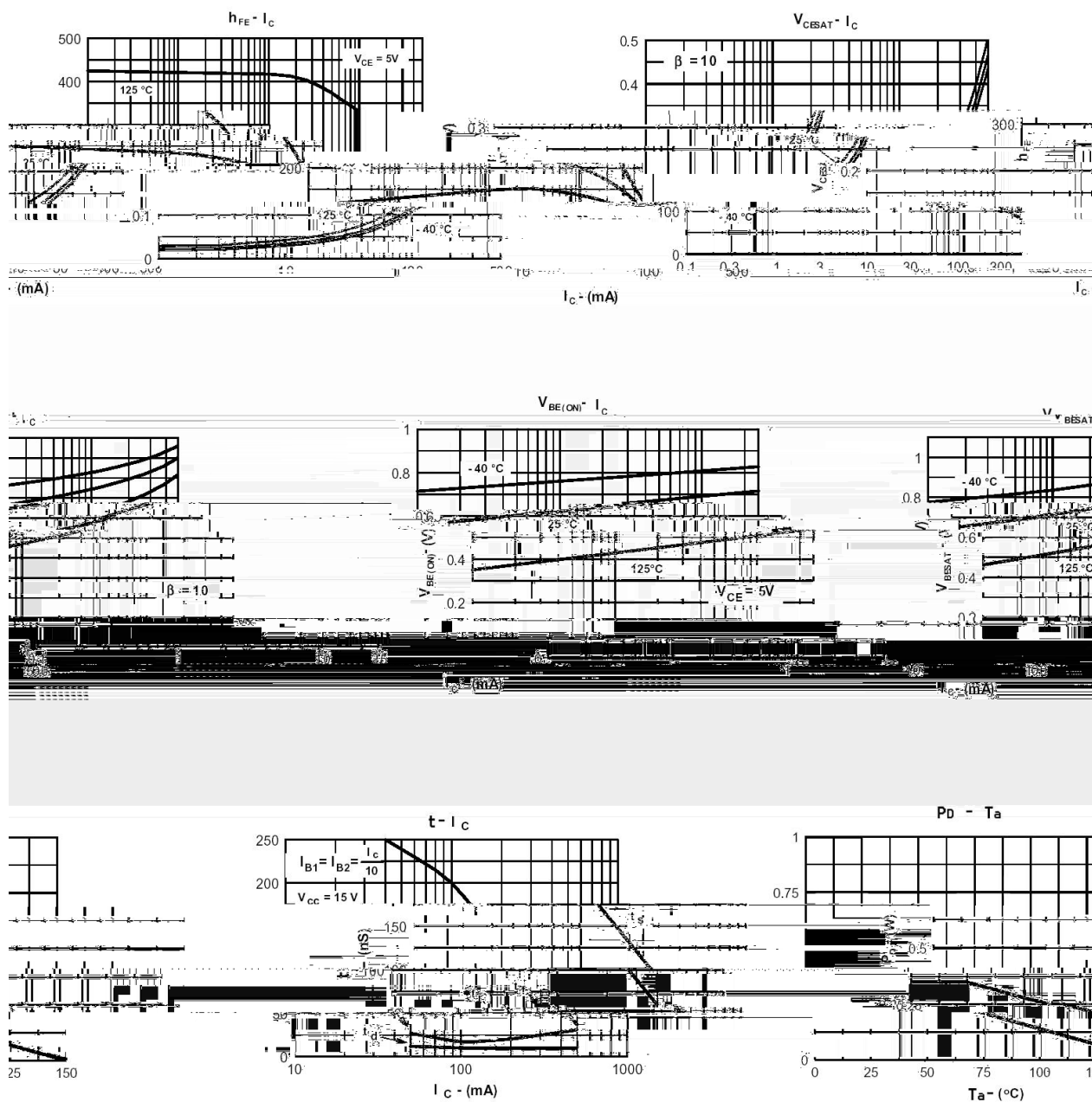
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-40	V
Collector to Emitter Voltage	V_{CEO}	-40	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-600	mA
Collector Power Dissipation	P_C	350	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 150	°C

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C = -0.1mA$ $I_E = 0$	-40			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C = -1.0mA$ $I_B = 0$	-40			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E = -0.1mA$ $I_C = 0$	-5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = -40V$ $I_E = 0$			-50	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = -5.0V$ $I_C = 0$			-50	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -2.0V$ $I_C = -150mA$	100		300	
	$h_{FE(2)}$	$V_{CE} = -1.0V$ $I_C = -0.1mA$	30			
	$h_{FE(3)}$	$V_{CE} = -1.0V$ $I_C = -1.0mA$	60			
	$h_{FE(4)}$	$V_{CE} = -1.0V$ $I_C = -10mA$	100			
	$h_{FE(5)}$	$V_{CE} = -2.0V$ $I_C = -500mA$	20			
Collector-Emitter Saturation voltage	$V_{CE(sat) (1)}$	$I_C = -150mA$ $I_B = -15mA$			-0.4	V
	$V_{CE(sat) (2)}$	$I_C = -500mA$ $I_B = -50mA$			-0.75	V
Base-Emitter Saturation Voltage	$V_{BE(sat) (1)}$	$I_C = -150mA$ $I_B = -15mA$	-0.75		-0.95	V
	$V_{BE(sat) (2)}$	$I_C = -500mA$ $I_B = -50mA$			-1.3	V
Transition Frequency	f_T	$V_{CE} = -10V$ $I_C = -20mA$ $f = 100MHz$	200			MHz
Delay Time	t_d	$V_{CC} = -30V$ $I_C = -150mA$ $I_{B1} = -15mA$			15	ns
Rise Time	t_r				20	ns
Storage Time	t_s	$V_{CC} = -30V$ $I_C = -150mA$ $I_{B1} = I_{B2} = -15mA$			225	ns
Fall Time	t_f				30	ns

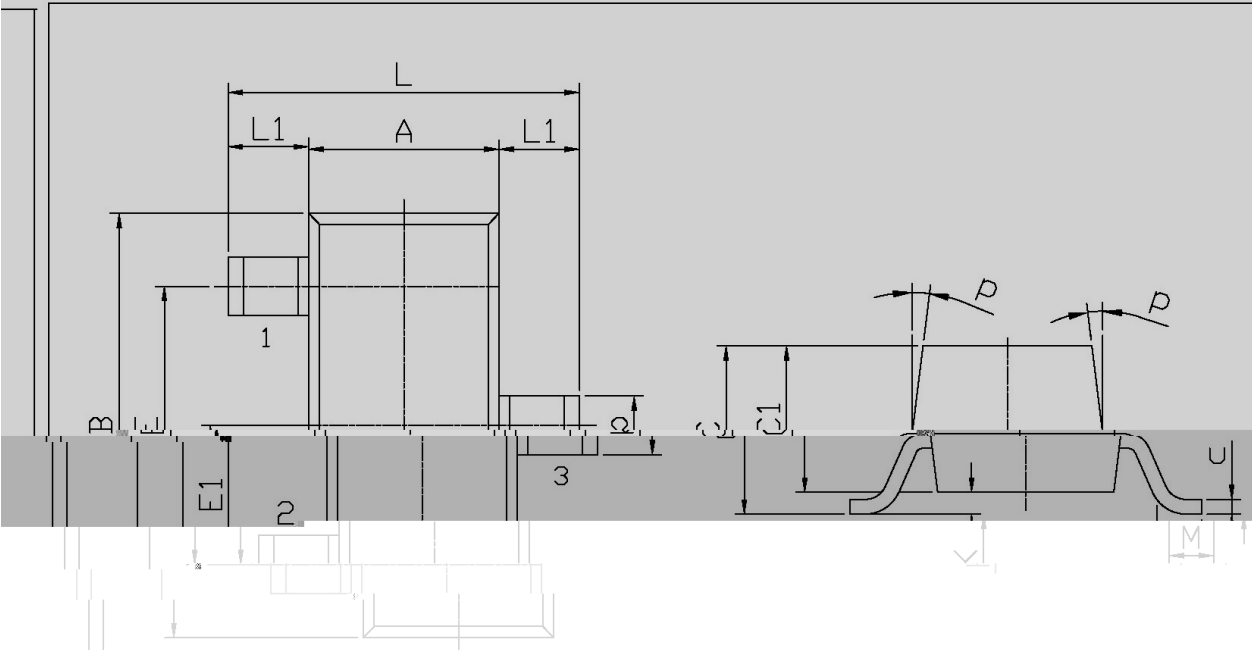
/ Electrical Characteristic Curve



/ Package Dimensions

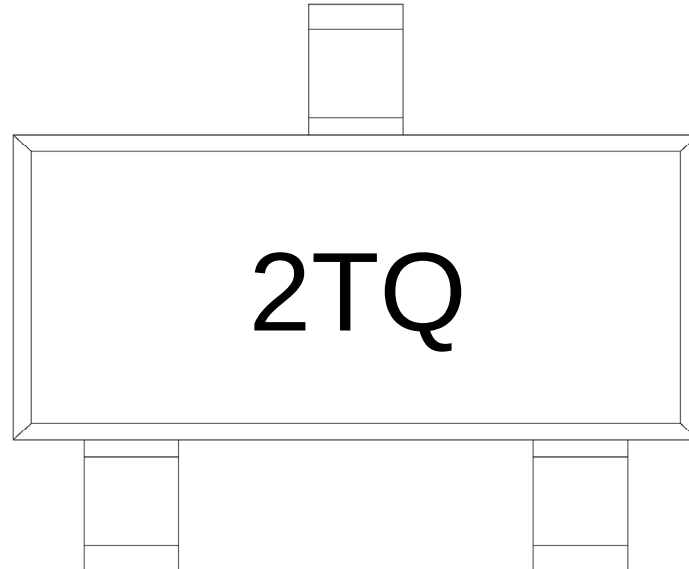
SOT-23

单位: mm



Dimensions in millimeters			Dimensions in millimeters		
Symbol	Min	Max	Symbol	Min	Max
L	2.2	2.7	C1	1.30	Max
L1	0.45	0.65	c	0.05	0.20
A	1.15	1.50	K	0	0.10
B	2.70	3.10	M	0.20	MIN
E	1.70	2.10	P	7°	
E1	0.85	1.05			

/ Marking Instructions



2T

Q

Note:

2T Product Type Code

Q: Automobile halogen-free product Code

() / 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.

4.66 18 reTf7 .852 0 1 Tf10.4958 0 Tf7 .477.66 462.4403 Tm0 g.0004 Tc09c24400072f43e30a700baf07bb0)TjTj/TT2 1 Tf8.0032

PROJ: 4.66 18 reTf7 .852 0 1 Tf10.4958 0 Tf7 .477.66 462.4403 Tm0 g.0004 Tc09c24400072f43e30a700baf07bb0)TjTj/TT2 1 Tf8.0032

REV: 4.66 18 reTf7 .852 0 1 Tf10.4958 0 Tf7 .477.66 462.4403 Tm0 g.0004 Tc09c24400072f43e30a700baf07bb0)TjTj/TT2 1 Tf8.0032