

FEATURES

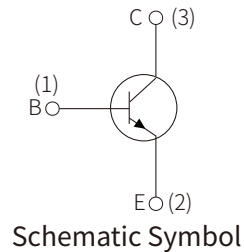
- Low Current, Low Voltage
- Meet AEC-Q101 Requirements

MECHANICAL DATA

- Medium power amplifier and switch requiring collector currents up to 500 mA

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



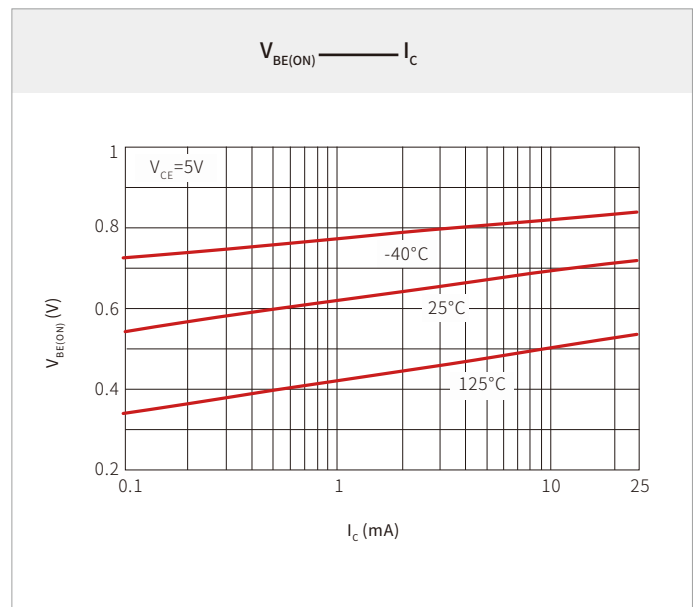
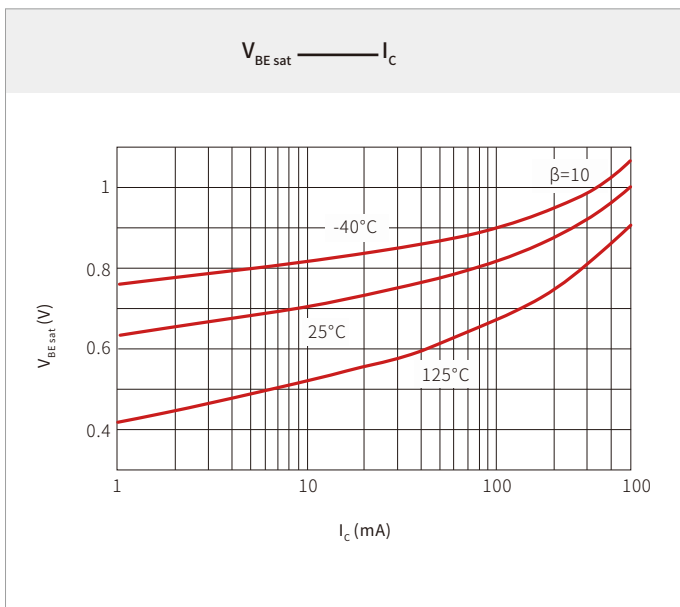
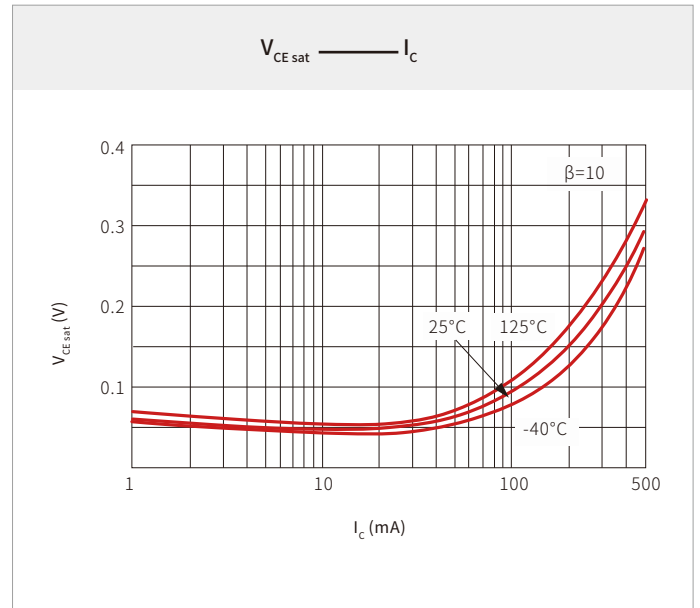
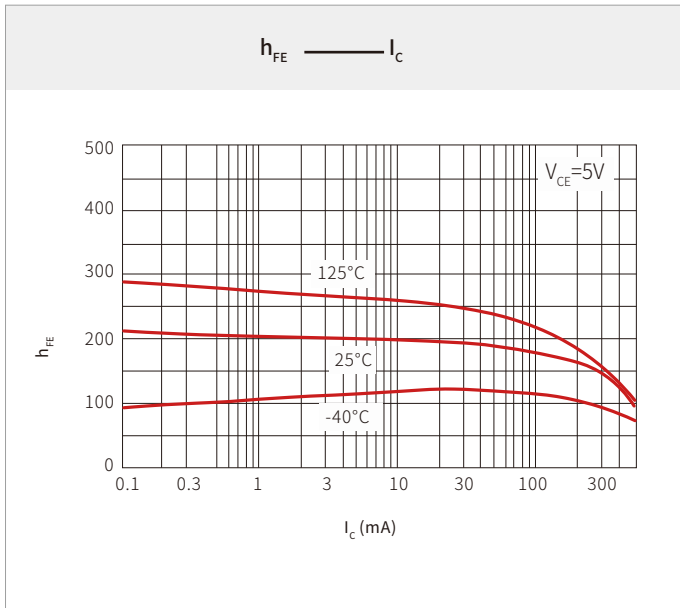
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

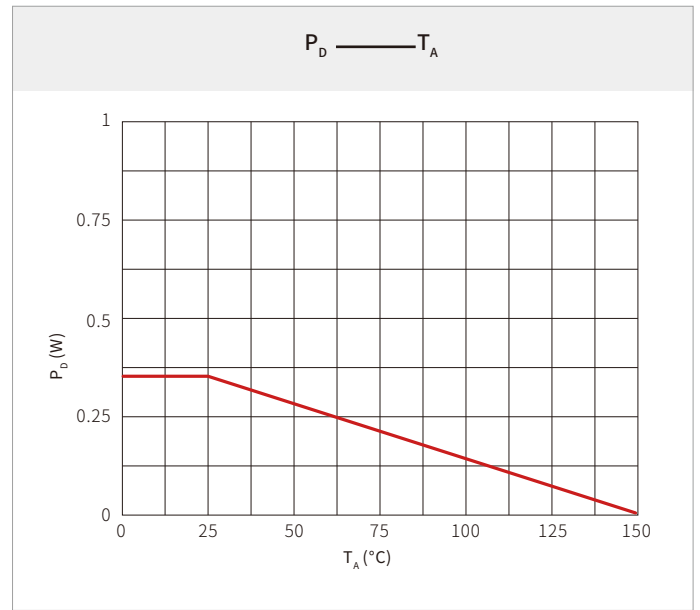
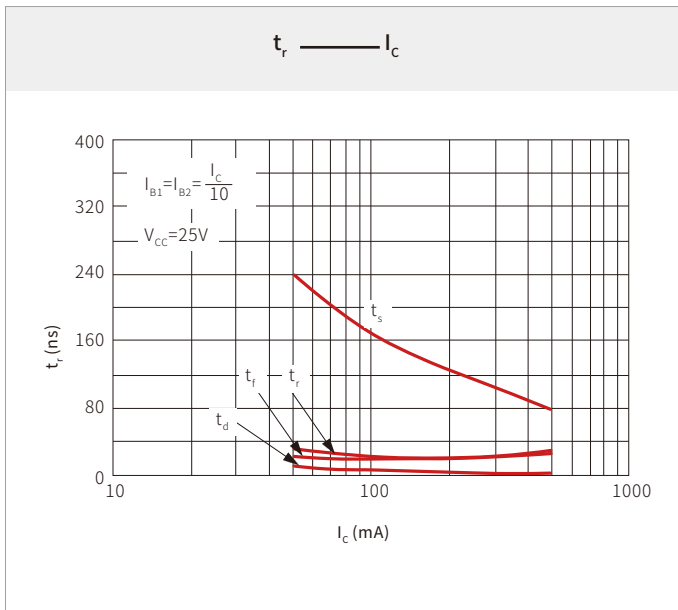
Parameter	Symbol	Value	Unit
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	40	
Emitter to Base Voltage	V_{EBO}	6.0	
Collector Current	I_C	600	mA
Collector Power Dissipation	P_C	350	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector to Base Breakdown Voltage	V _{CBO}	I _C =0.1mA, I _E =0	60			V
Collector to Emitter Breakdown Voltage	V _{CEO}	I _C =1.0mA, I _B =0	40			
Emitter to Base Breakdown Voltage	V _{EBO}	I _E =0.1mA, I _C =0	6.0			
Collector Cut-Off Current	I _{CBO}	V _{CB} =60V, I _E =0			50	nA
Emitter Cut-Off Current	I _{EBO}	V _{EB} =6.0V, I _C =0			50	
DC current gain	h _{FE(1)}	V _{CE} =1.0V, I _C =150mA	100		300	
	h _{FE(2)}	V _{CE} =2.0V, I _C =500mA	40			
	h _{FE(3)}	V _{CE} =1.0V, I _C =10mA	80			
	h _{FE(4)}	V _{CE} =1.0V, I _C =1.0mA	40			
	h _{FE(5)}	V _{CE} =1.0V, I _C =0.1mA	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	
Base-emitter saturation voltage	V _{BE(sat)1}	I _C =150mA, I _B =15mA	0.75		0.95	
	V _{BE(sat)2}	I _C =500mA, I _B =50mA			1.2	
Transition frequency	f _T	V _{CE} =10V, I _C =20mA, f=100MHz	250			MHz
Delay time	t _d	V _{CC} =30V I _C =150mA, I _{B1} =15mA			15	nS
Rise Time	t _r				20	
Storage time	t _s	V _{CC} =30V, I _C =150mA, I _{B1} =-I _{B2} =15mA			225	
Fall time	t _f				30	

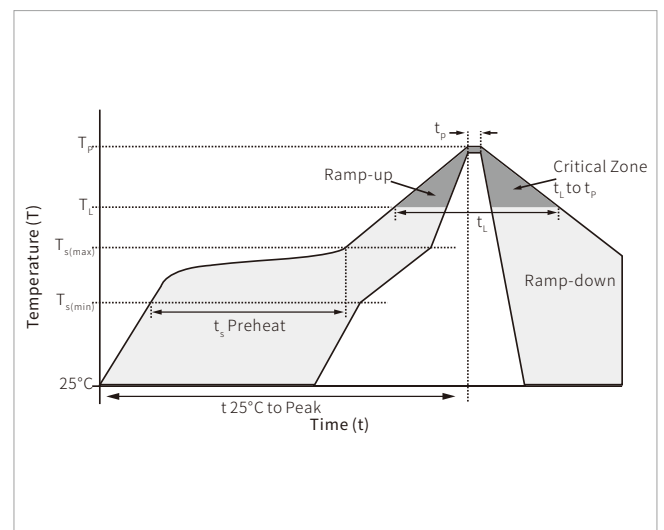
TYPICAL CHARACTERISTICS



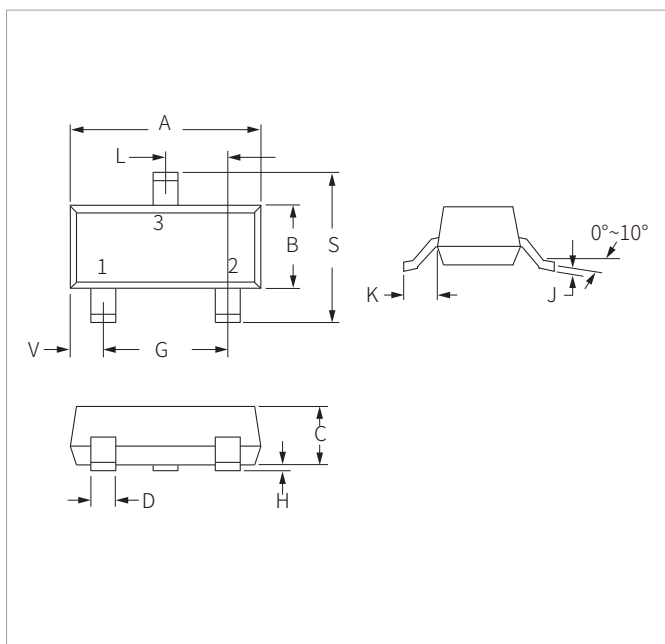


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

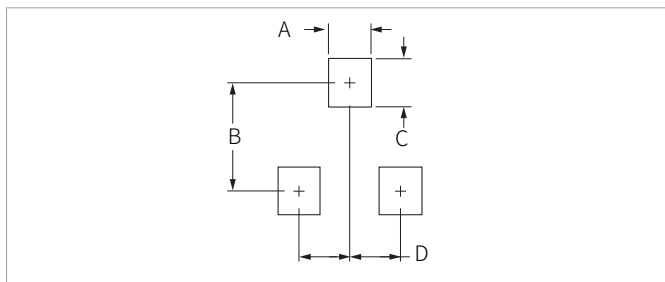


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
MMBT4401Q	SOT-23	3000PCS	7"

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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Website



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