

FEATURES

- Low current, Low voltage
- Meet AEC-Q101 Requirements



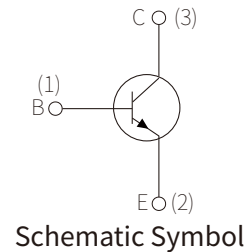
MECHANICAL DATA

- General purpose amplifier and switching
- Meet the stringent requirements of automotive applications



APPROVALS

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



MAXIMUM RATINGS (T_A = 25°C)

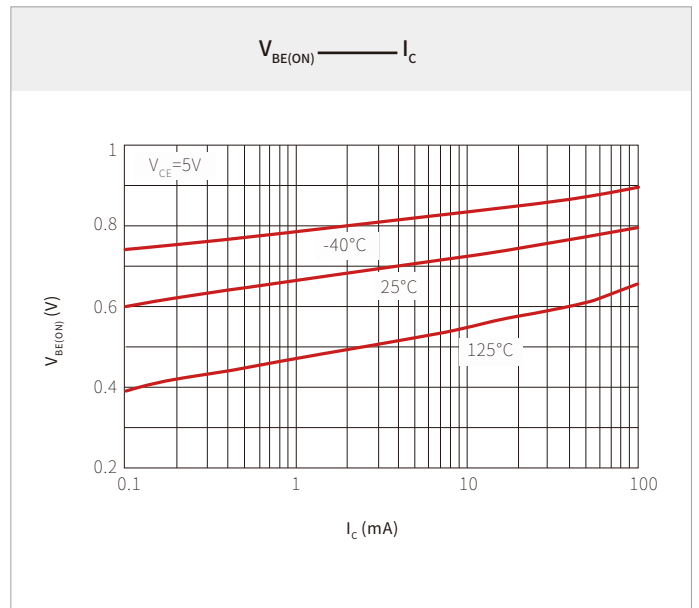
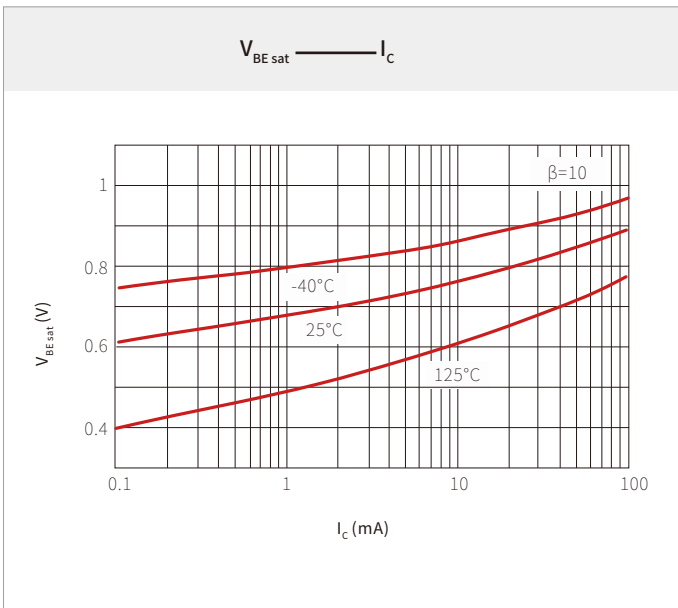
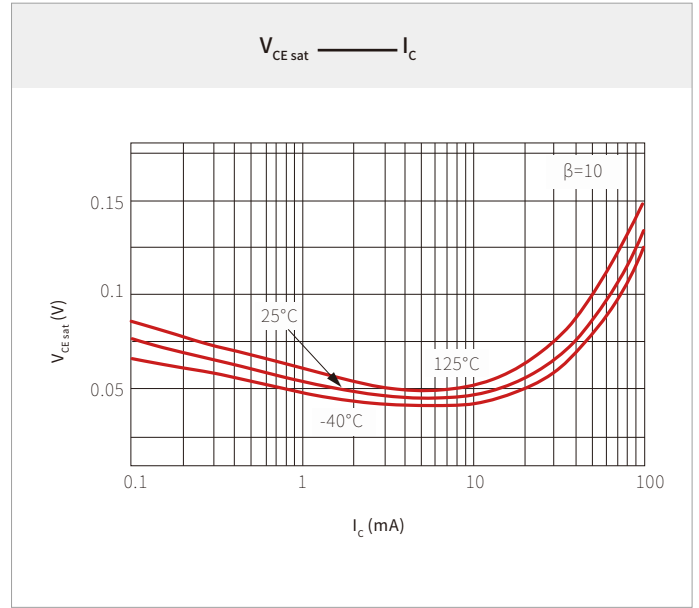
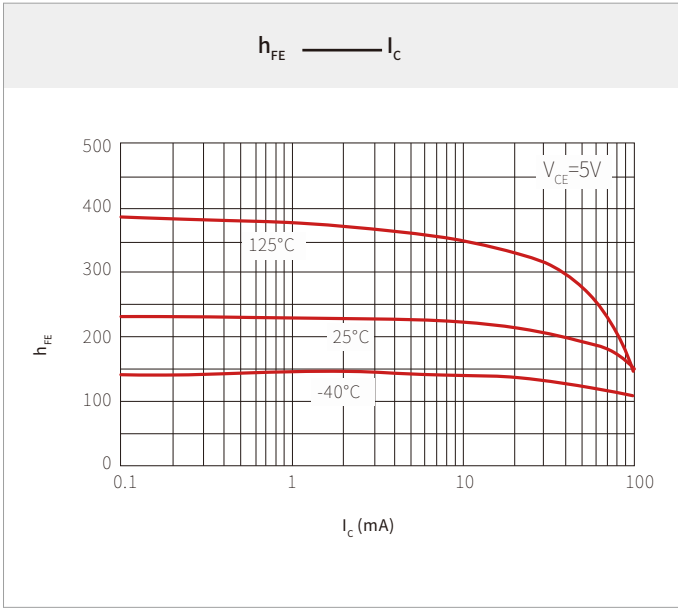
Parameter	Symbol	Value	Unit
Collector to Base Voltage	V _{CBO}	60	V
Collector to Emitter Voltage	V _{CEO}	40	
Emitter to Base Voltage	V _{EBO}	6.0	
Collector Current	I _C	200	mA
Collector Power Dissipation	P _C	200	mW
	*P _C	350	
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55~+150	°C

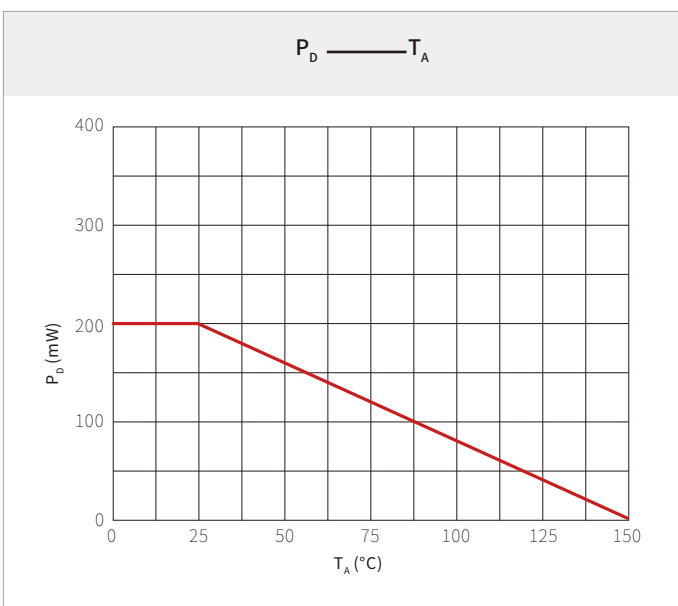
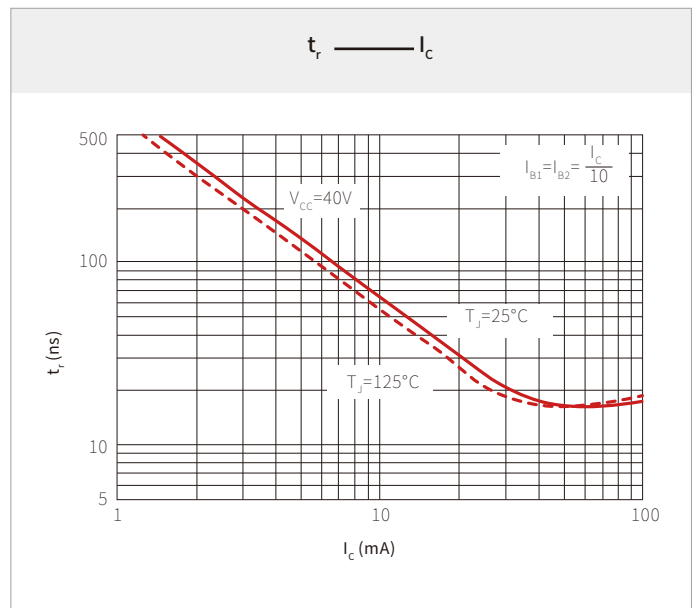
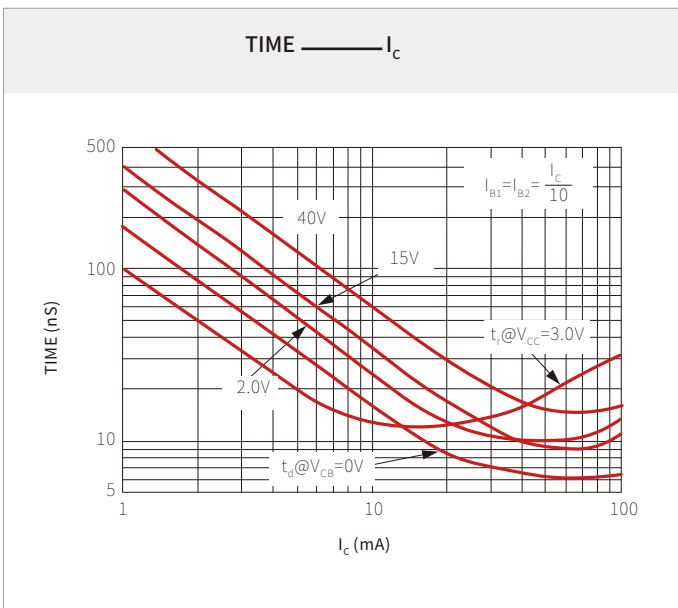
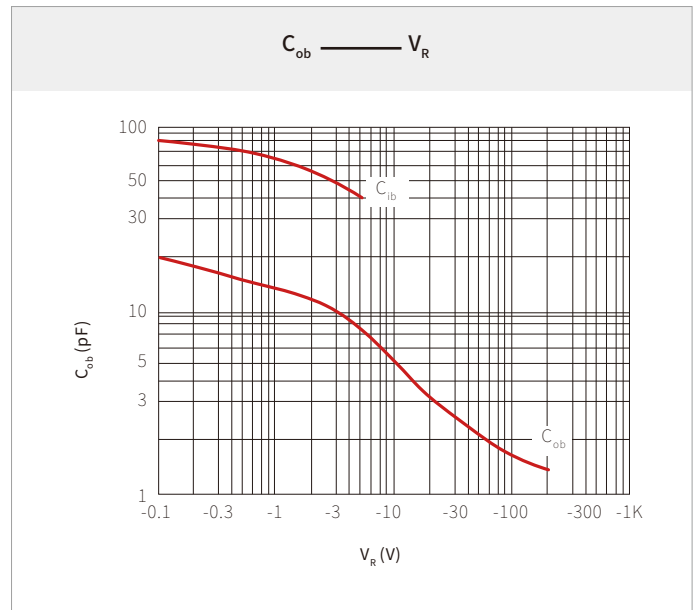
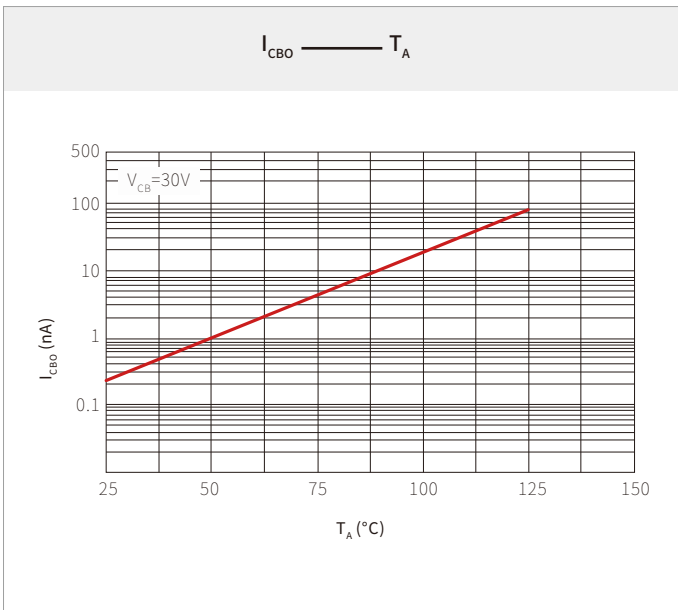
* When mounted on a 7×5×0.6mm ceramic board

ELECTRICAL CHARACTERISTICS (T_A=25°C)

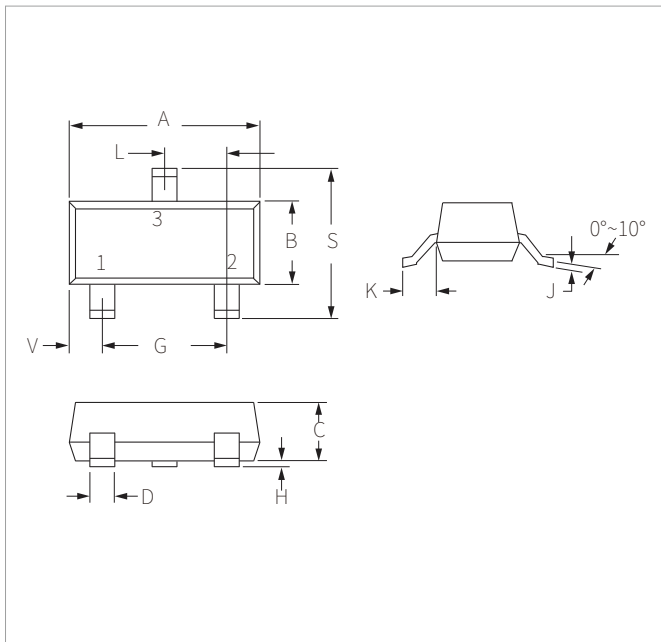
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector to Base Breakdown Voltage	V _{CBO}	I _C =10μA, I _E =0	60			V
Collector to Emitter Breakdown Voltage	V _{CEO}	I _C =1.0mA, I _B =0	40			
Emitter to Base Breakdown Voltage	V _{EBO}	I _E =10μA, I _C =0	6.0			
Collector Cut-Off Current	I _{CBO}	V _{CB} =30V, I _E =0			0.05	μA
Emitter Cut-Off Current	I _{EBO}	V _{EB} =3.0V, I _C =0			0.05	
DC current gain	h _{FE(1)}	V _{CE} =1.0V, I _C =10mA	100		300	
	h _{FE(2)}	V _{CE} =1.0V, I _C =100mA	30			
	h _{FE(3)}	V _{CE} =1.0V, I _C =50mA	60			
	h _{FE(4)}	V _{CE} =1.0V, I _C =1.0mA	70			
	h _{FE(5)}	V _{CE} =1.0V, I _C =0.1mA	40			
Collector-emitter saturation voltage	V _{CE(sat)1}	I _C =10mA, I _B =1.0mA			0.2	V
	V _{CE(sat)2}	I _C =50mA, I _B =5.0mA			0.3	
Base-emitter saturation voltage	V _{BE(sat)1}	I _C =10mA, I _B =1.0mA	0.65		0.85	
	V _{BE(sat)2}	I _C =50mA, I _B =5.0mA			0.95	
Transition frequency	f _T	V _{CE} =20V, I _C =10mA, f=100MHz	300			MHz
Output Capacitance	C _{ob}	V _{CB} =5.0V f=1.0MHz			4.0	pF
Input Capacitance	C _{ib}	V _{EB} =0.5V f=1.0MHz			8.0	pF
Delay time	td	V _{CC} =3.0V, V _{BE} =0.5V I _C =10mA, I _{B1} =1.0mA			35	nS
Rise Time	tr				35	
Storage time	tstg				200	
Fall time	tf	V _{CC} =3.0V, I _C =10mA, I _{B1} =-I _{B2} =1.0mA			50	

TYPICAL CHARACTERISTICS



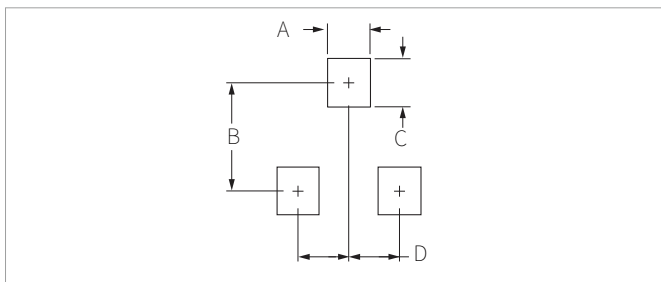


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.04	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.89	1.11	0.035	0.044
D	0.37	0.50	0.015	0.020
G	1.78	2.04	0.070	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	2.64	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
MMBT3904Q	SOT-23	3000PCS	7"

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