

FEATURES

- | Power dissipation of 200mW

- | High stability and high reliability

MECHANICAL DATA

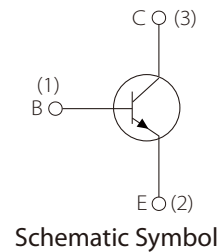
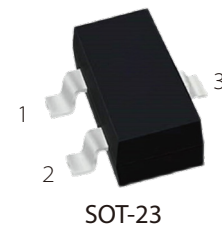
- | SOT-23 small outline plastic package

- | Epoxy UL: 94V-0

- | Mounting position: Any

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-Base Voltage	V _{CBO}	60	V
Collector-Emitter Voltage	V _{CEO}	40	
Emitter-Base Voltage	V _{EBO}	6	
Collector Current	I _C	200	mA
Collector Power Dissipation	P _C	200	mW
Thermal Resistance From Junction To Ambient	R _{θJA}	625	°C/W
Operation Junction and Storage Temperature Range	T _J , T _{STG}	-55~+150	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

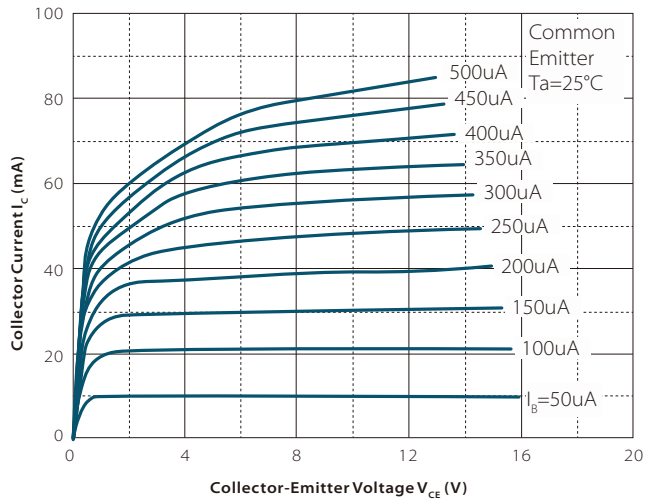
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =10μA, I _E =0	60			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =1mA, I _B =0	40			
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =10μA, I _C =0	6			
Collector cut-off current	I _{CEX}	V _{CE} =30V, V _{EB(off)} =3V			50	nA
Collector cut-off current	I _{CBO}	V _{CB} =60V, I _E =0			100	
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0			100	
DC current gain	h _{FE(1)}	V _{CE} =1V, I _C =10mA		100	300	
	h _{FE(2)}	V _{CE} =1V, I _C =50mA		60		
	h _{FE(3)}	V _{CE} =1V, I _C =100mA		30		
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =50mA, I _B =5mA			0.3	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =50mA, I _B =5mA			0.95	
Transition frequency	f _T	V _{CE} =20V, I _C =10mA, f=100MHz		300		MHz
Delay time	t _d	V _{CC} =3V, V _{BE(off)} =-0.5V, I _C =10mA, I _{B1} =1mA			35	nS
Rise time	t _r	V _{CC} =3V, V _{BE(off)} =-0.5V, I _C =10mA, I _{B1} =1mA			35	
Storage time	t _s	V _{CC} =3V, I _C =10mA, I _{B1} =I _{B2} =1mA			200	
Fall time	t _f	V _{CC} =3V, I _C =10mA, I _{B1} =I _{B2} =1mA			50	

CLASSIFICATION OF H_{FE(1)}

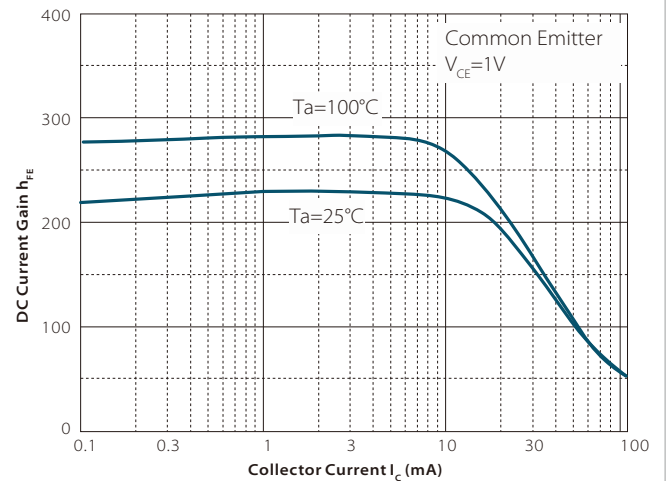
HFE	100-300	
Rank	L	H
Range	100-200	200-300

TYPICAL CHARACTERISTICS

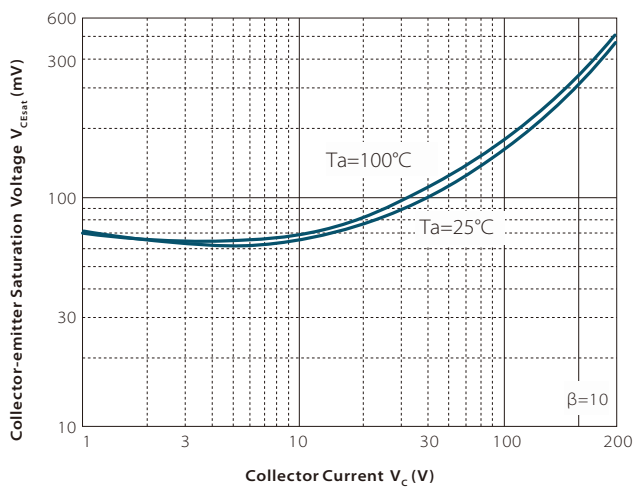
Static Characteristic



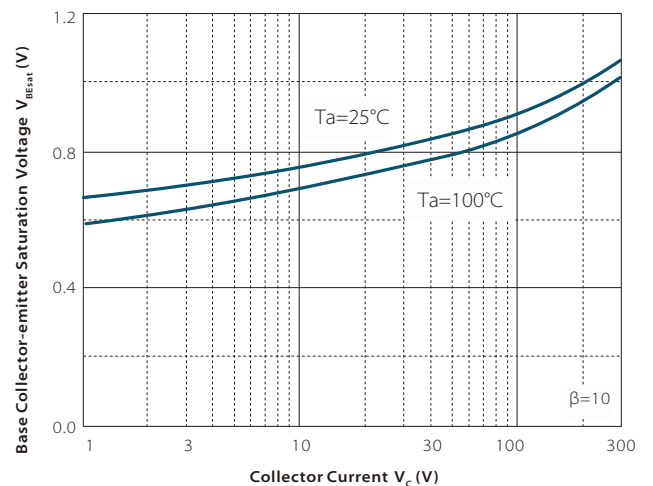
h_{FE} ——— I_C

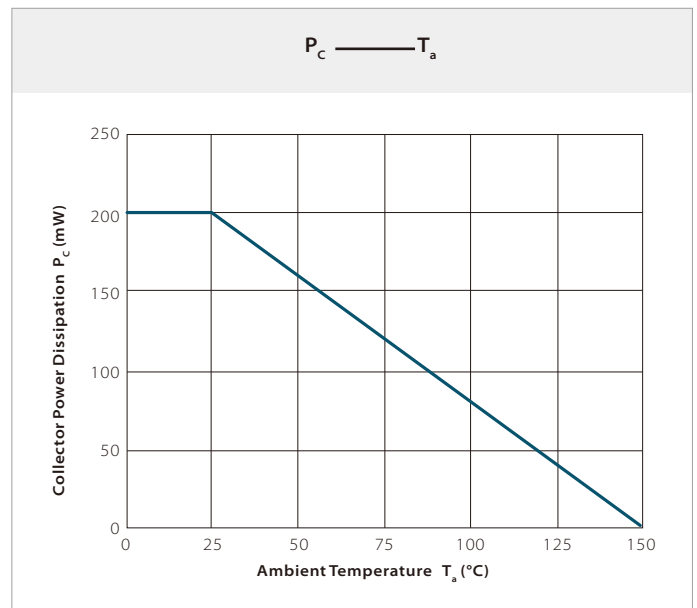
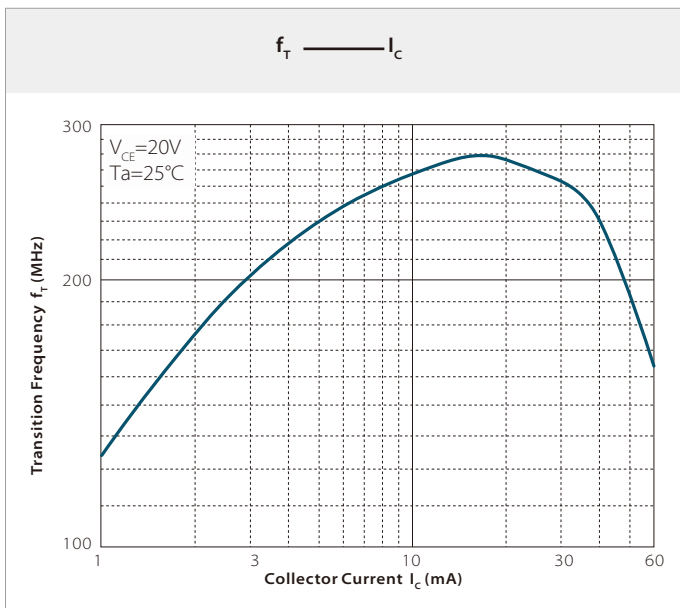
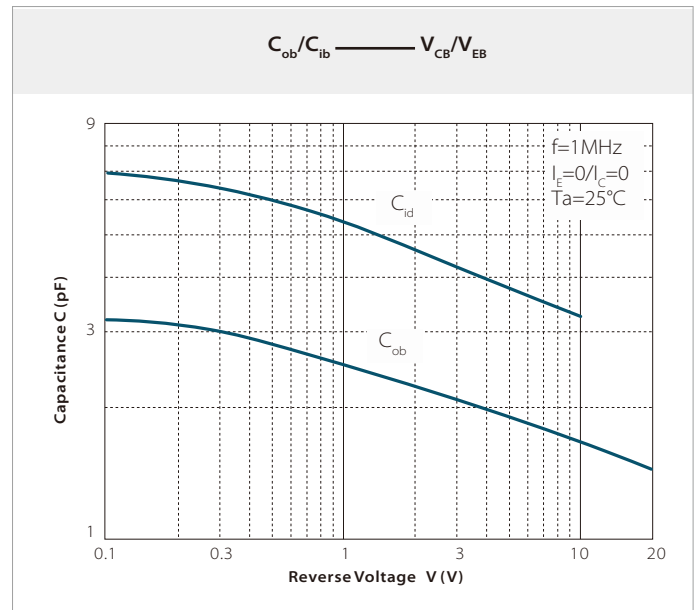
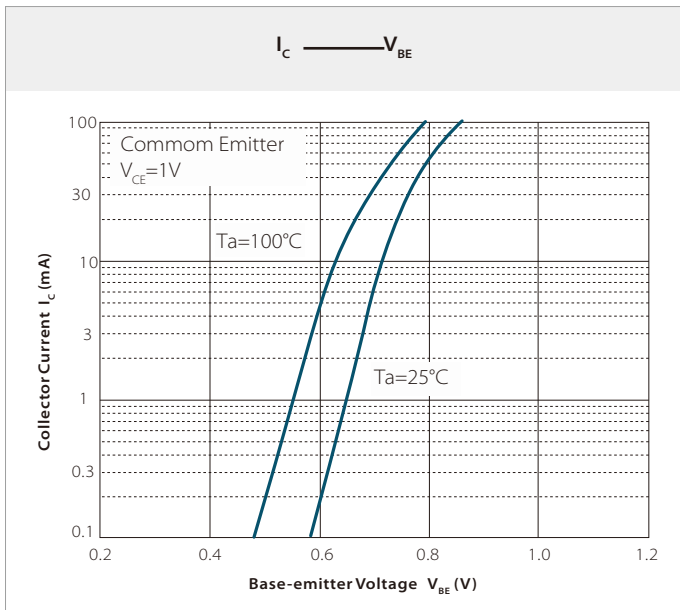


V_{CEsat} ——— I_C

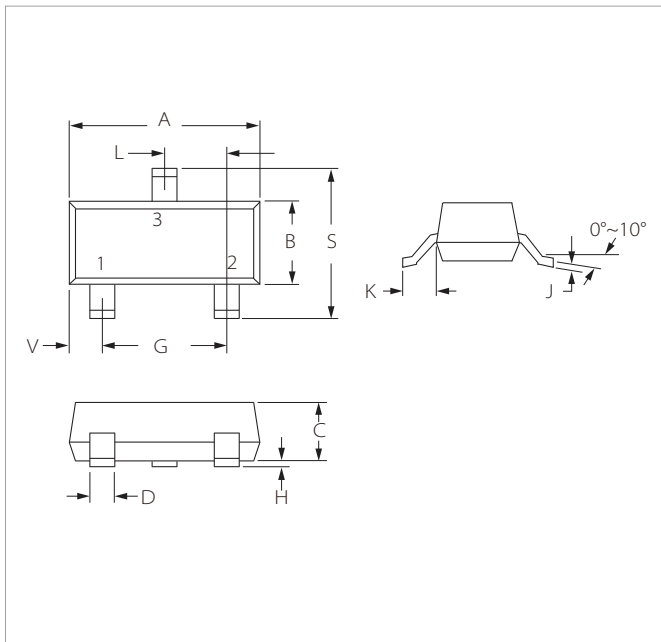


V_{CEsat} ——— I_C



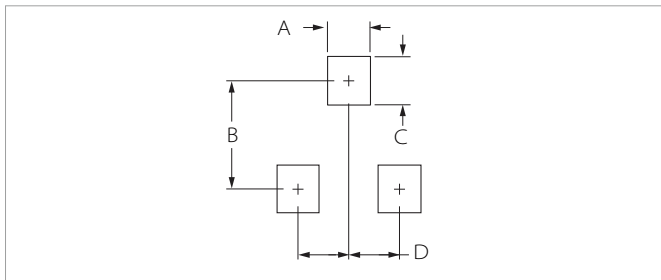


SOT-23 PACKAGE INFORMATION



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
MMBT3904	SOT-23	3000PCS	7"

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