

FEATURES

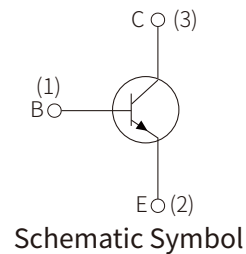
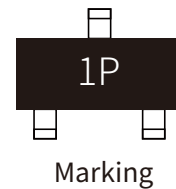
- Complementary to MMBT2907A
- Power Dissipation of 300mW
- High Stability and High Reliability

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}	75	V
Collector-Emitter Voltage	V _{CEO}	40	
Emitter-Base Voltage	V _{EBO}	6	
Collector Current	I _C	600	mA
Collector Power Dissipation	P _C	300	mW
Thermal Resistance From Junction To Ambient	R _{θJA}	417	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	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	75			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =10mA, 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			10	nA
Collector cut-off current	I _{CBO}	V _{CB} =60V, I _E =0			10	
Emitter cut-off current	I _{EBO}	V _{EB} =3V, I _C =0			100	
DC current gain	h _{FE(1)}	V _{CE} =10V, I _C =150mA	100		300	
	h _{FE(2)}	V _{CE} =10V, I _C =0.1mA	40			
	h _{FE(3)}	V _{CE} =10V, I _C =500mA	42			
Collector-emitter saturation voltage	V _{CE(sat)1*}	I _C =500mA, I _B =50mA			1.00	V
	V _{CE(sat)2*}	I _C =150mA, I _B =15mA			0.30	
Base-emitter saturation voltage	V _{BE(sat)1*}	I _C =500mA, I _B =50mA			2.00	
	V _{BE(sat)2*}	I _C =150mA, I _B =15mA			1.20	
Transition frequency	f _T	V _{CE} =20V, I _C =20mA, f=100MHz	300			MHz
Delay time	td	V _{CC} =30V, V _{BE(off)} =-0.5V I _C =150mA, I _{B1} =15mA			10	nS
Rise time	tr				25	
Storage time	ts	V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA			225	
Fall time	tf				60	

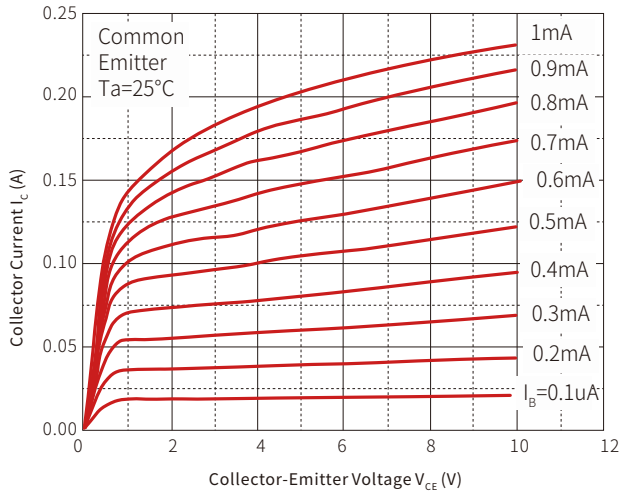
*Pulse test: pulse width ≤300μs, duty cycle ≤2.0%.

CLASSIFICATION OF H_{FE(1)}

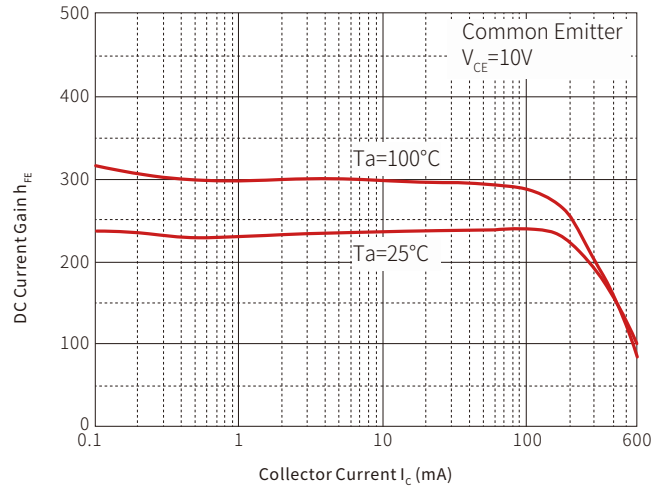
Rank	L	H
Range	100-200	200-300

TYPICAL CHARACTERISTICS

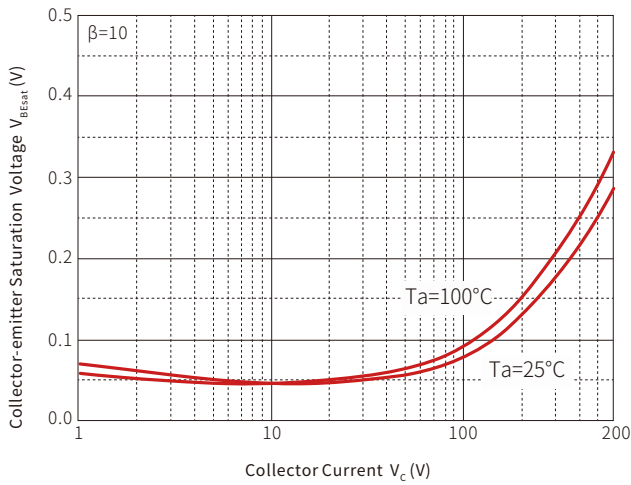
Static Characteristic



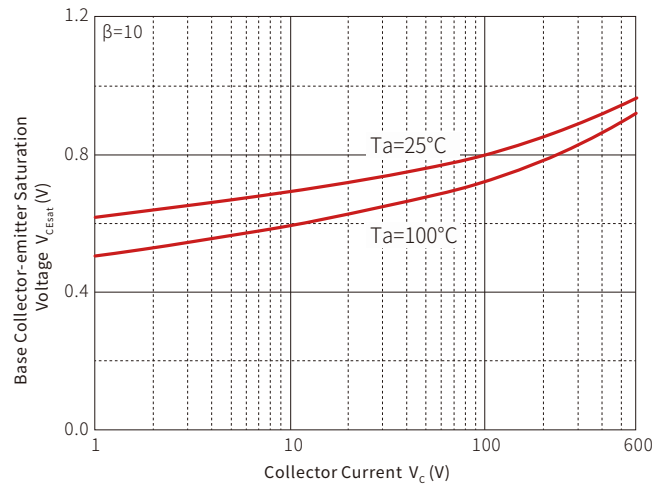
h_{FE} — I_C

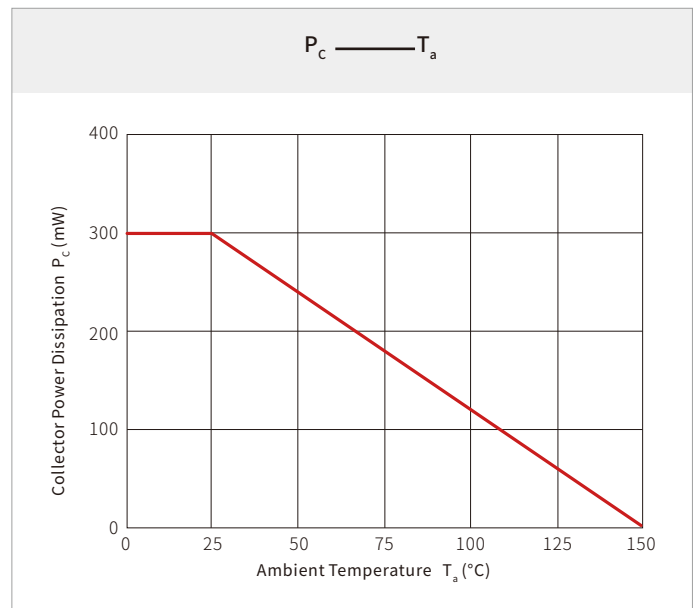
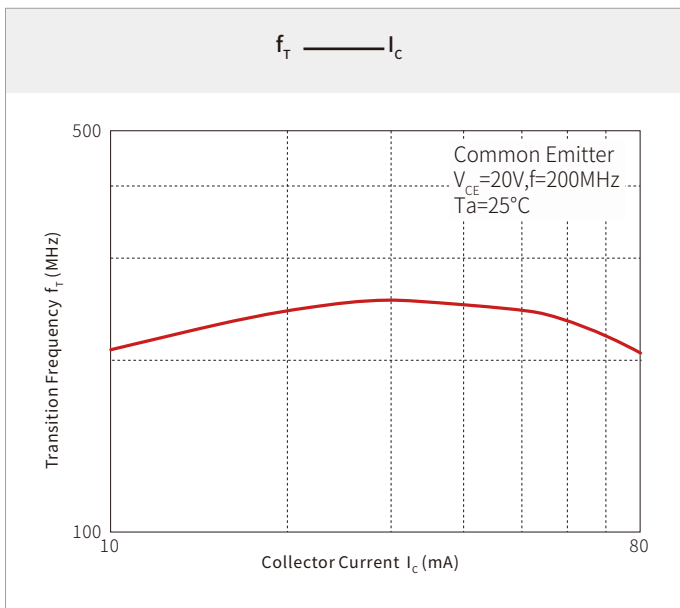
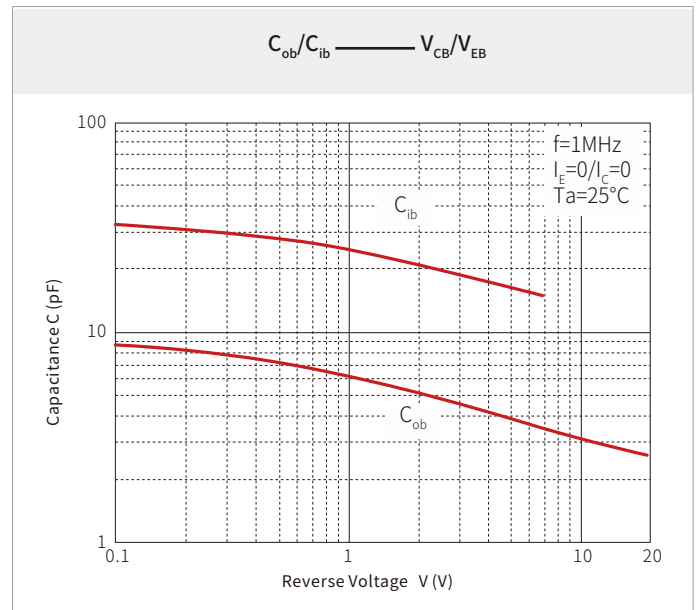
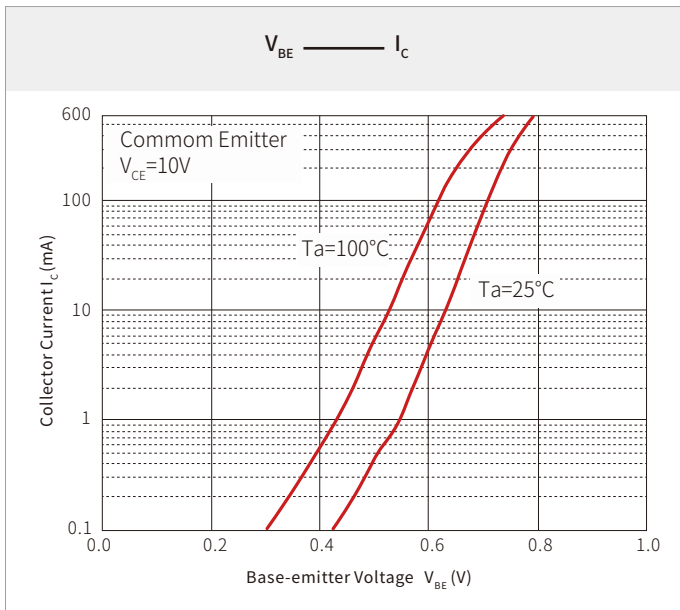


$V_{BE sat}$ — I_C



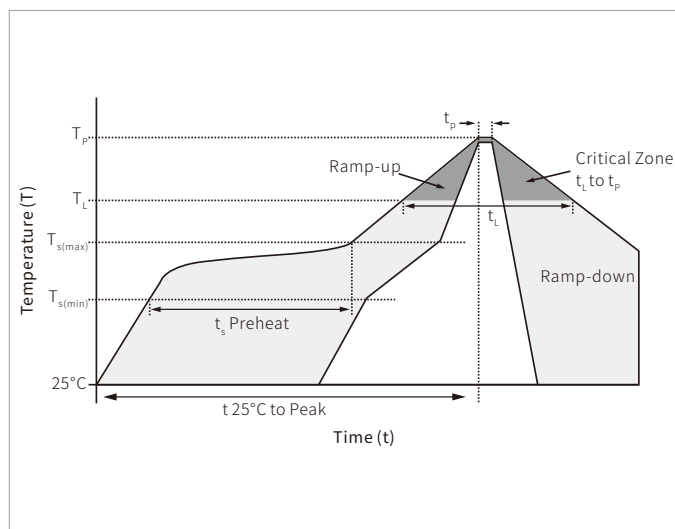
$V_{CE sat}$ — I_C



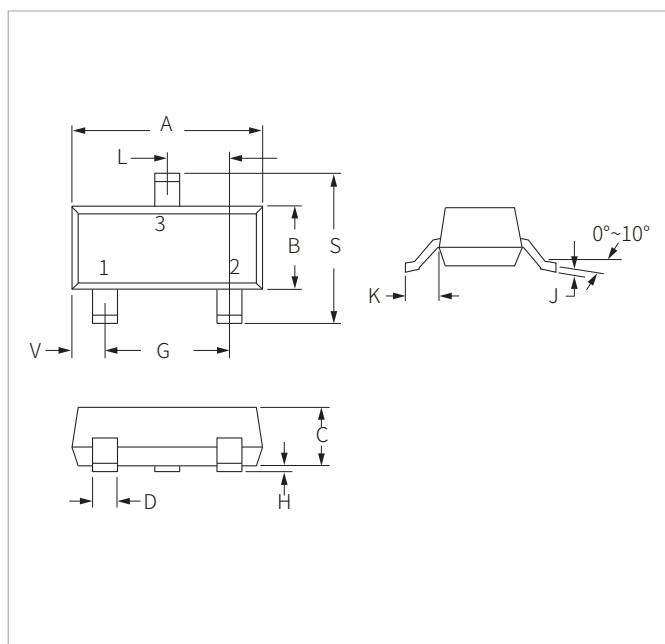


SOLDERING PARAMETERS

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

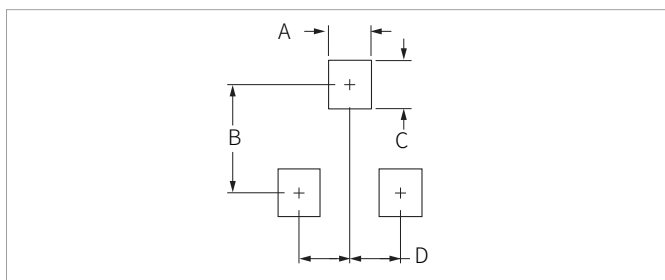


SOT-23 PACKAGE INFORMATION



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
MMBT2222A	SOT-23	3000PCS	7"

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Website



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