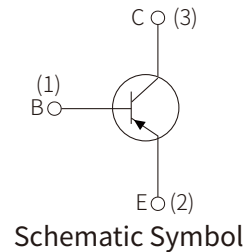


FEATURES

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

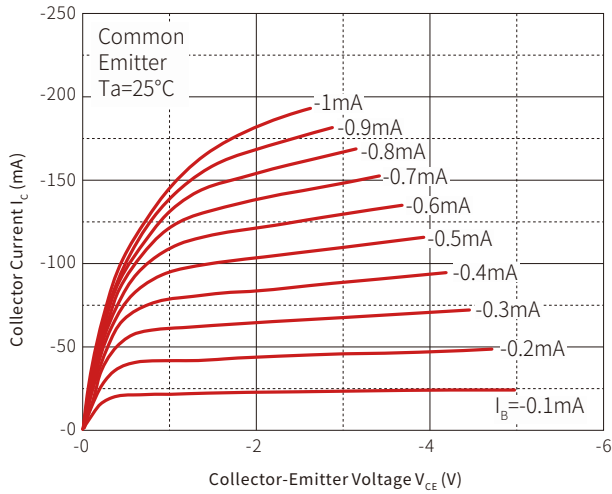
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	
Emitter-Base Voltage	V_{EBO}	-5	
Collector Current	I_C	-600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	417	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

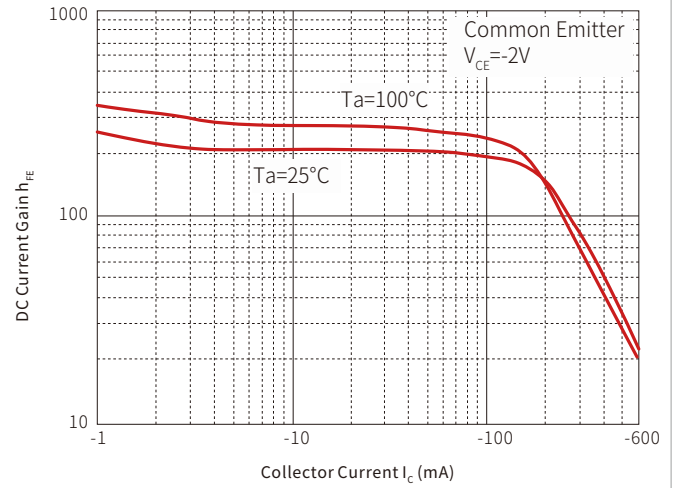
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-40			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu A, I_C = 0$	-5			
Collector cut-off current	I_{CEX}	$V_{CE} = -35V, V_{EB(off)} = -0.4V$			-100	nA
Collector cut-off current	I_{CBO}	$V_{CB} = -35V, I_E = 0$			-100	
Emitter cut-off current	I_{EBO}	$V_{EB} = -4V, I_C = 0$			-100	
DC current gain	$h_{FE(1)}$	$V_{CE} = -1V, I_C = -0.1mA$	30			
	$h_{FE(2)}$	$V_{CE} = -1V, I_C = -1mA$	60			
	$h_{FE(3)}$	$V_{CE} = -1V, I_C = -10mA$	100			
	$h_{FE(4)}$	$V_{CE} = -2V, I_C = -150mA$	100		300	
	$h_{FE(5)}$	$V_{CE} = -2V, I_C = -500mA$	20			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -150mA, I_B = -15mA$			-0.40	V
	$V_{CE(sat)}$	$I_C = -500mA, I_B = -50mA$			-0.75	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -150mA, I_B = -15mA$			-0.95	
	$V_{BE(sat)}$	$I_C = -500mA, I_B = -50mA$			-1.30	
Transition frequency	f_T	$V_{CE} = -10V, I_C = -20mA, f = 100MHz$	200			MHz
Delay time	td	$V_{CC} = -30V, V_{BE(off)} = -0.5V$ $I_C = -150mA, I_{B1} = -15mA$			15	nS
Rise time	tr				20	
Storage time	ts	$V_{CC} = -30V, I_C = -150mA,$ $I_{B1} = I_{B2} = -15mA$			225	
Fall time	tf				60	

TYPICAL CHARACTERISTICS

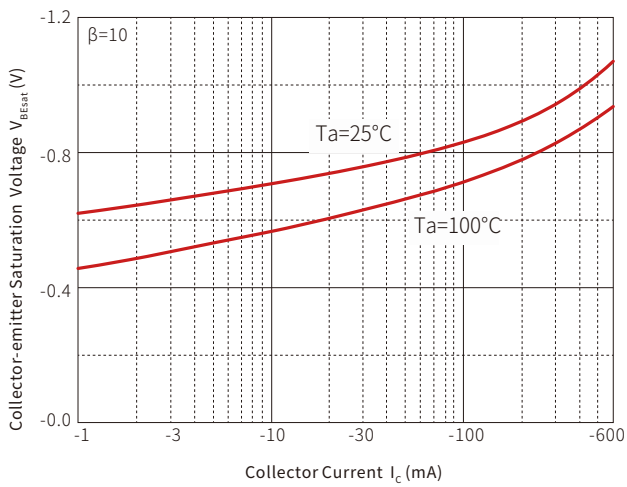
Static Characteristic



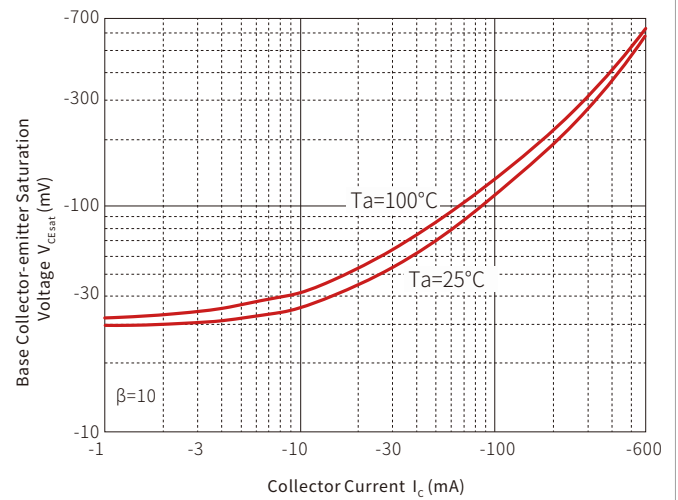
h_{FE} — I_C

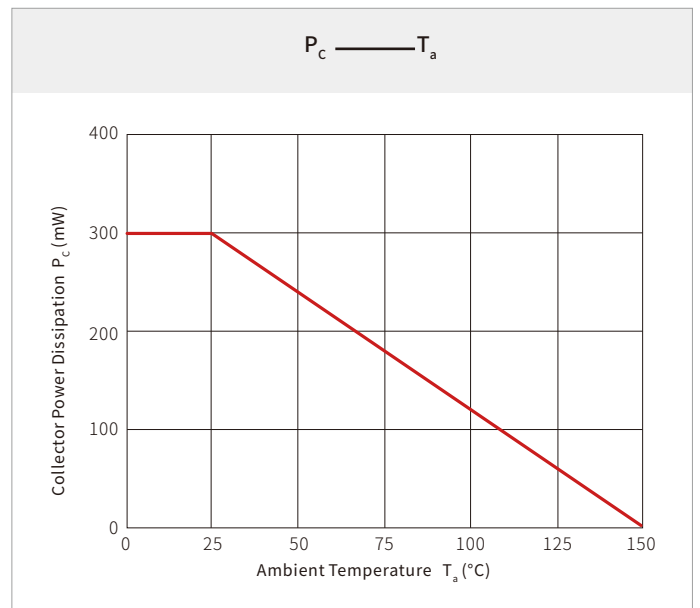
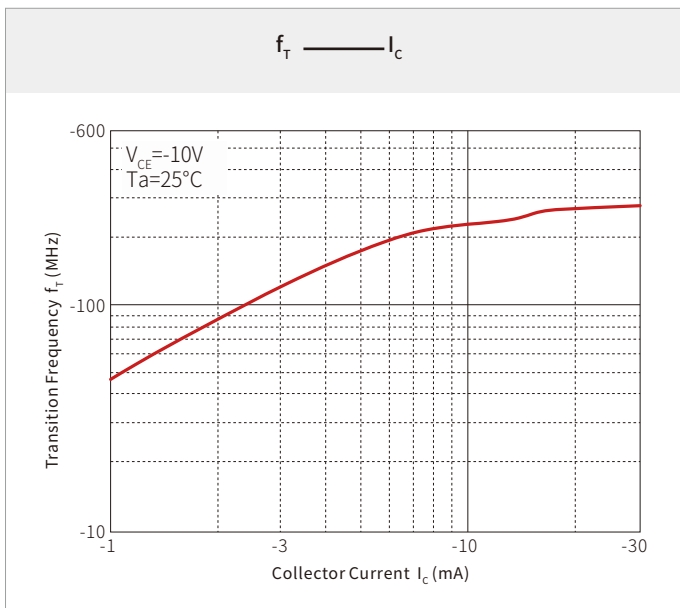
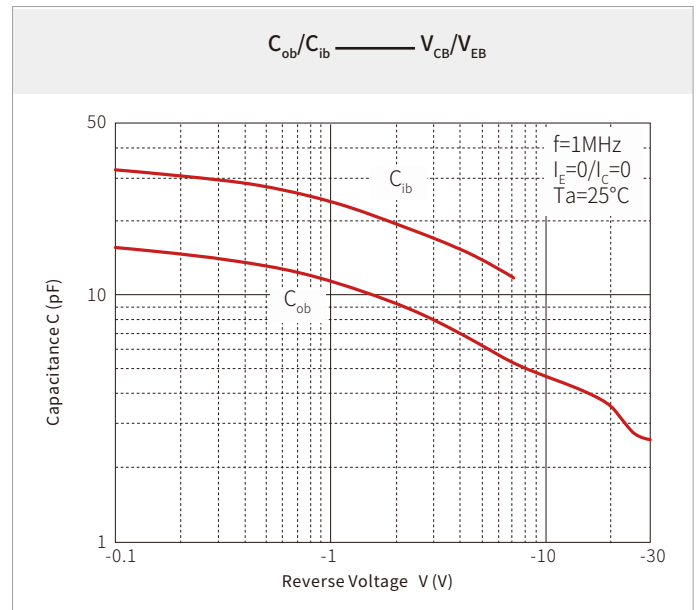
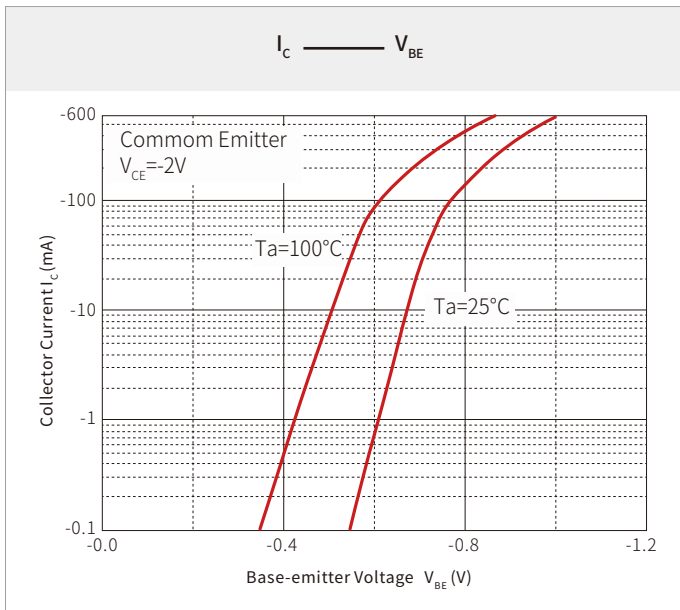


$V_{BE sat}$ — I_C



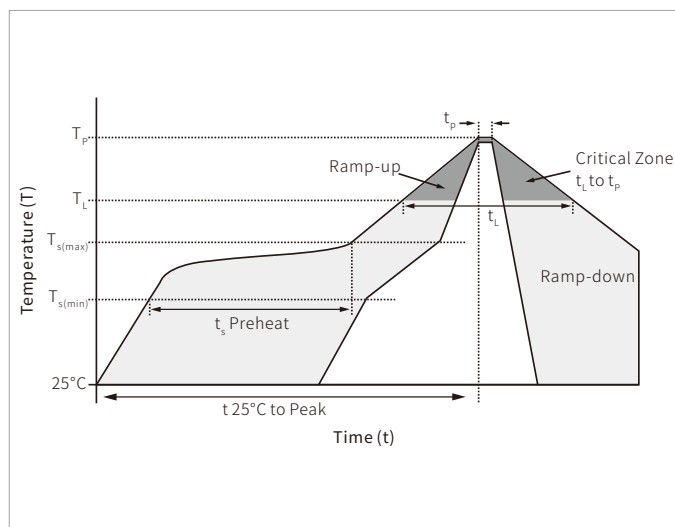
$V_{CE sat}$ — I_C



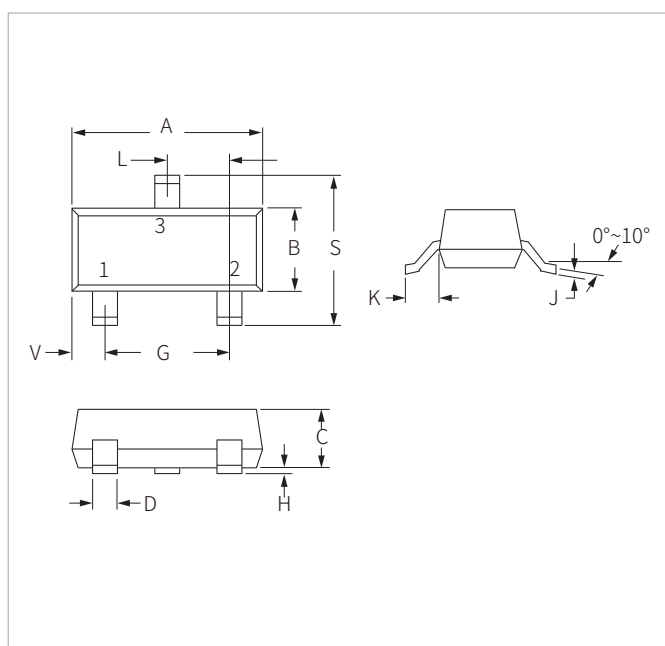


SOLDERING PARAMETERS

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

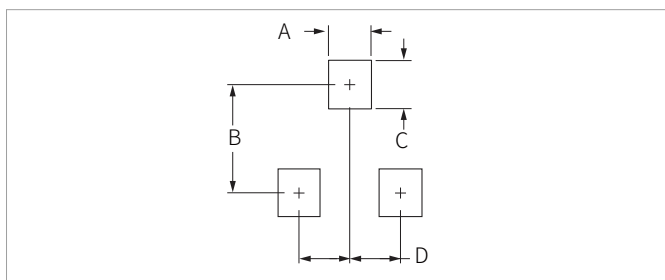


SOT-23 PACKAGE INFORMATION



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
MMBT4403	SOT-23	3000PCS	7"

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Website



Wechat

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