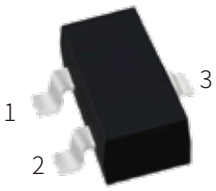
FEATURES

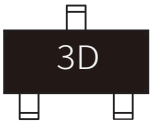
- High Collector-Emitter Voltage
- Complement to MMBTA94



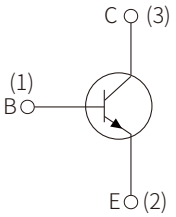
SOT-23

MECHANICAL DATA

- SOT-23 Small outline Plastic Package
- Epoxy UL: 94V-0
- Mounting position: Any



Marking



Schematic Symbol

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}	400	V
Collector-Emitter Voltage	V_{CEO}	400	
Emitter-Base Voltage	V_{EBO}	6	
Collector Current-Continuous	I_C	200	mA
Collector Current -Pulsed	I_{CM}	300	mA
Collector Power Dissipation	P_C	350	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	357	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~+150	°C

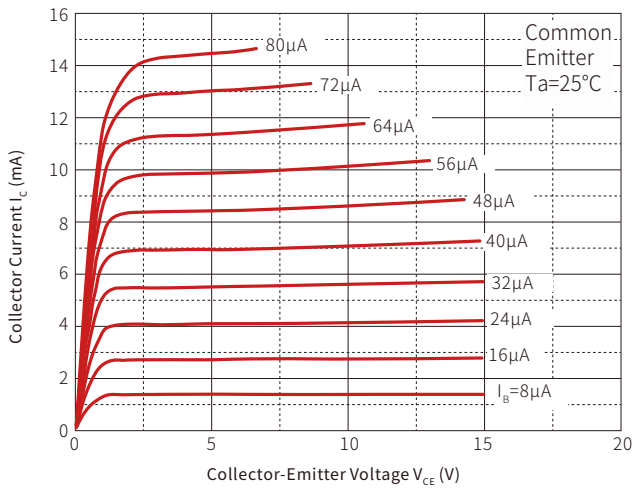
ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA,I_E=0	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$*	I_C=1mA,I_B=0	400			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	6			
Collector cut-off current	I_{CBO}	V_{CB}=400V, I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	
DC current gain	$h_{FE(1)}$*	V_{CE}=10V, I_C=1mA	40			
	$h_{FE(2)}$*	V_{CE}=10V, I_C=10mA	50		200	
	$h_{FE(3)}$*	V_{CE}=10V, I_C=50mA	45			
	$h_{FE(4)}$*	V_{CE}=10V, I_C=100mA	40			
Collector-emitter saturation voltage	$V_{CE(sat)1}$*	I_C=1mA, I_B=0.1mA			0.4	V
	$V_{CE(sat)2}$*	I_C=10mA, I_B=1mA			0.5	
	$V_{CE(sat)3}$*	I_C=50mA, I_B=5mA			0.75	
Base-emitter saturation voltage	$V_{BE(sat)}$*	I_B=1mA, I_C=10mA			0.75	V
Collector output capacitance	C_{ob}	V_{CB}=20V, I_E=0 ,f=1MHz			7	pF
Emitter input capacitance	C_{ib}	V_{EB}=0.5V, I_C=0 ,f=1MHz			130	

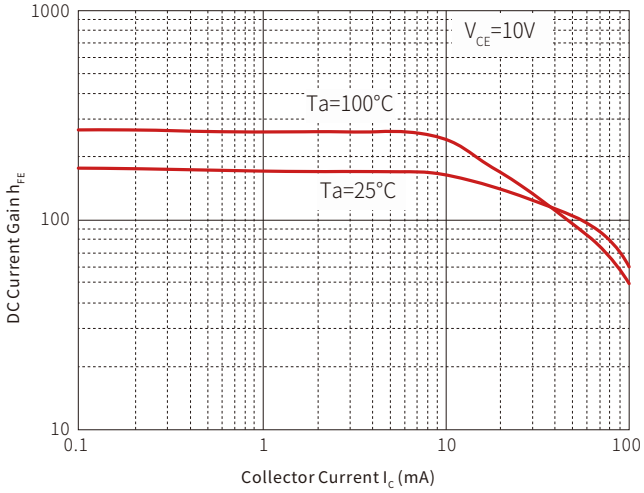
*Pulse test: pulse width ⩽300μs, duty cycle⩽ 2.0%.

TYPICAL CHARACTERISTICS

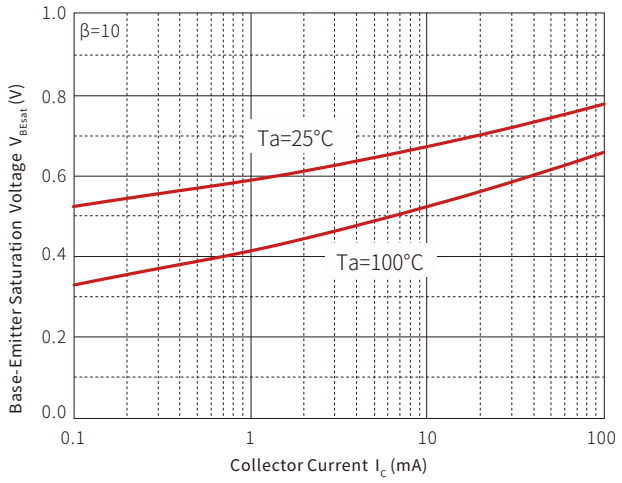
Static Characteristic



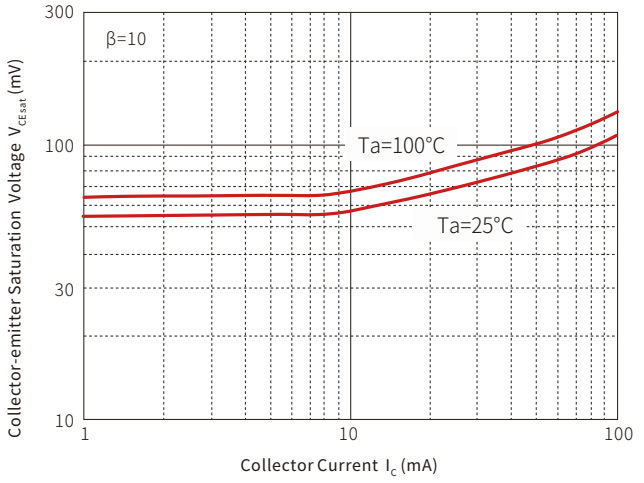
h_{FE} ——— I_C

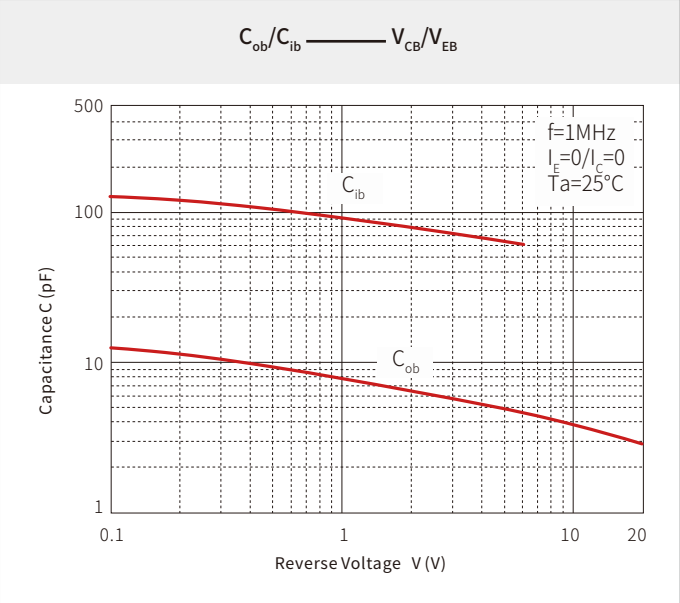


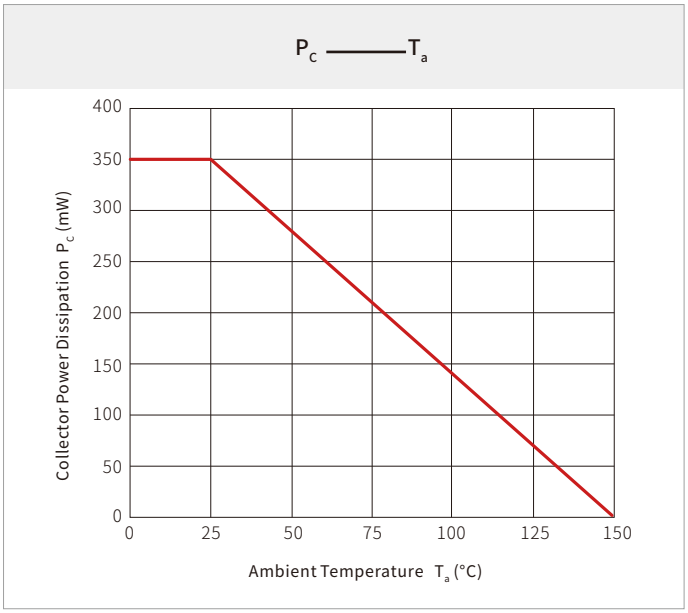
$V_{BE\ sat}$ ——— I_C



$V_{CE\ sat}$ ——— I_C

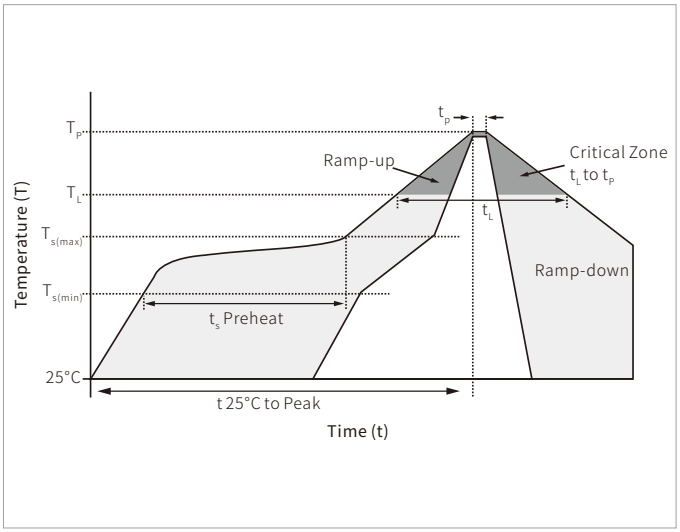




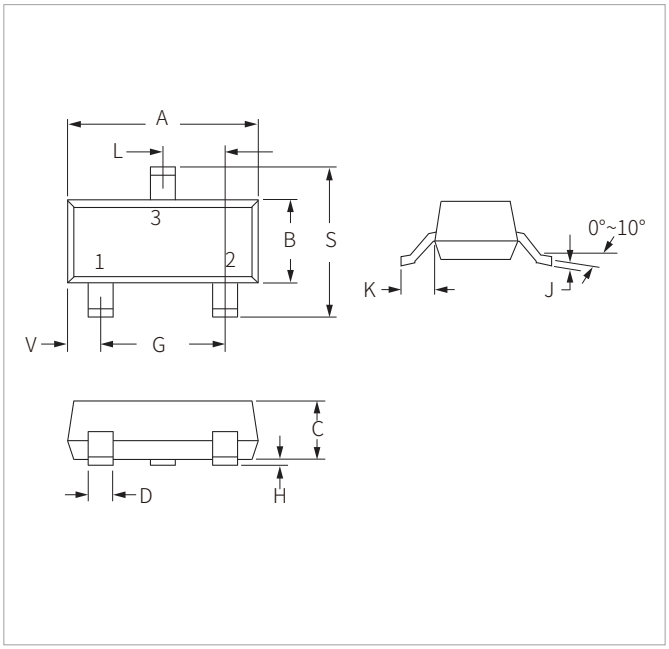


SOLDERING PARAMETERS

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

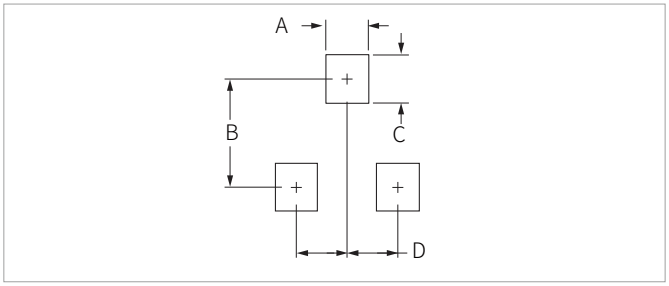


SOT-23 PACKAGE INFORMATION



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
MMBTA44	SOT-23	3000PCS	7”

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