

## FEATURES

- | Capable of 250mWatts of Power Dissipation

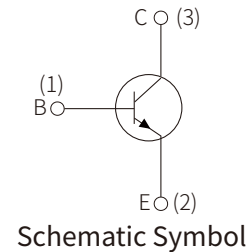
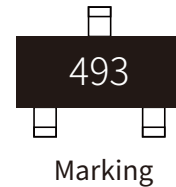
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- | High Stability and High Reliability

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- | Collector current:  $I_C=1.0A$

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## MECHANICAL DATA

- | SOT-23 small outline plastic package

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- | Epoxy UL: 94V-0

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- | Mounting position: Any

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## APPROVALS

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

## MAXIMUM RATINGS ( $T_A=25^{\circ}C$ )

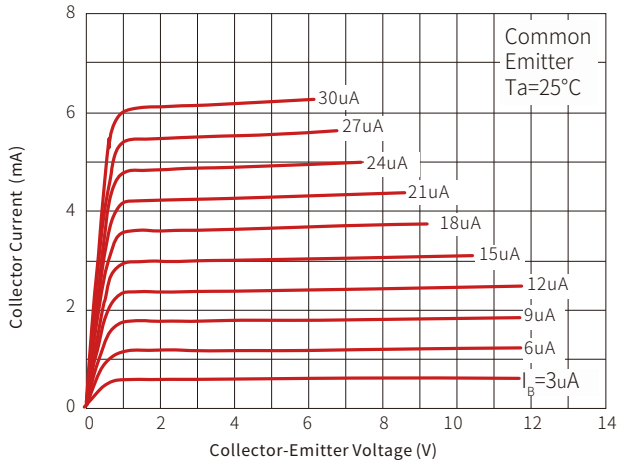
Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	120	V
Collector-Emitter Voltage	$V_{CEO}$	100	
Emitter-Base Voltage	$V_{EBO}$	5	
Collector Current	$I_C$	1.0	A
Collector Power Dissipation	$P_C$	250	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	500	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

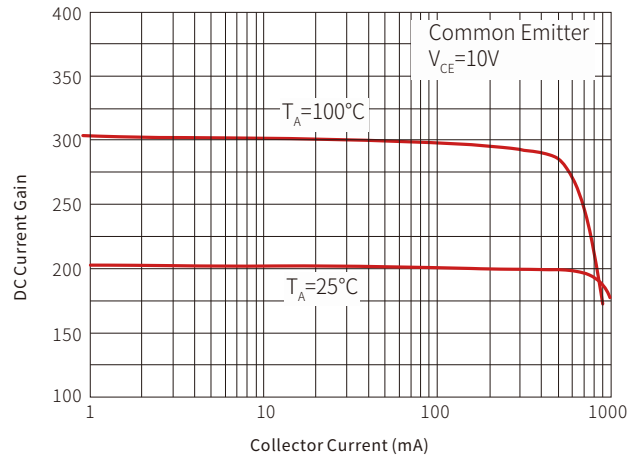
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	V <sub>CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	120			V
Collector-emitter breakdown voltage	V <sub>CEO</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0	100			
Emitter-base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	5.0			
Collector-Base Cut off Current	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0			100	nA
Emitter-Base Cut-Off Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			100	
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA	100			
	h <sub>FE(2)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =250mA	100		300	
	h <sub>FE(3)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	60			
	h <sub>FE(4)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0A	20			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA			0.3	V
		I <sub>C</sub> =1A, I <sub>B</sub> =100mA			0.6	
Base-Emitter Saturation Soltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =100mA			1.15	
Base-Emitter Turn On Voltage	V <sub>BE(on)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1A			1.0	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA, f=100MHz	150			MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10Vdc, f=1.0MHz			10	pF

# TYPICAL CHARACTERISTICS

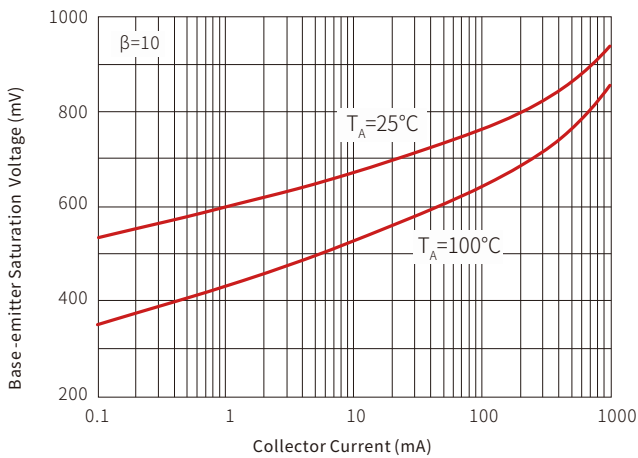
Static Characteristic



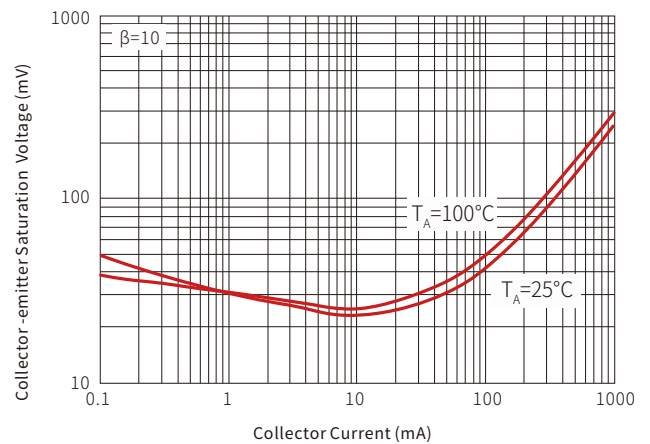
DC Current Gain Characteristics

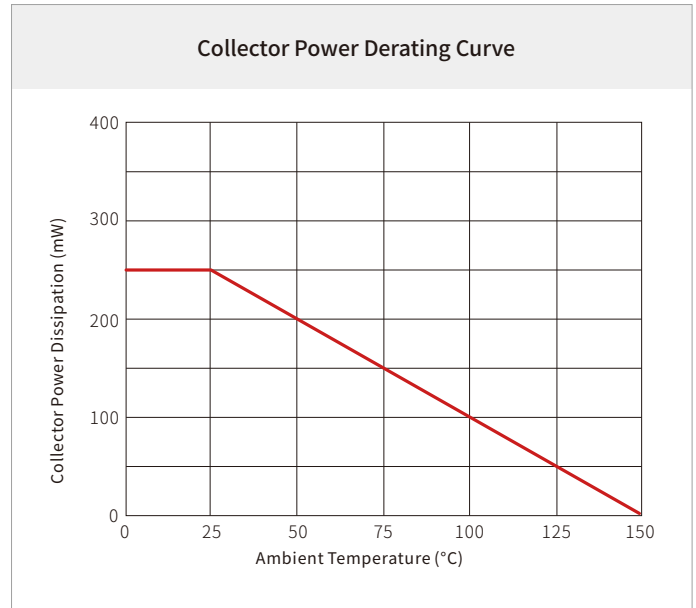
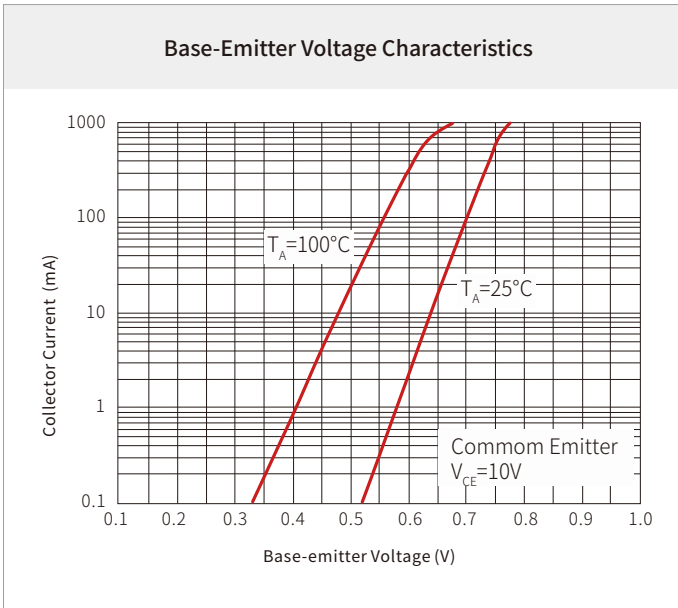


Base-Emitter Saturation Voltage Characteristics



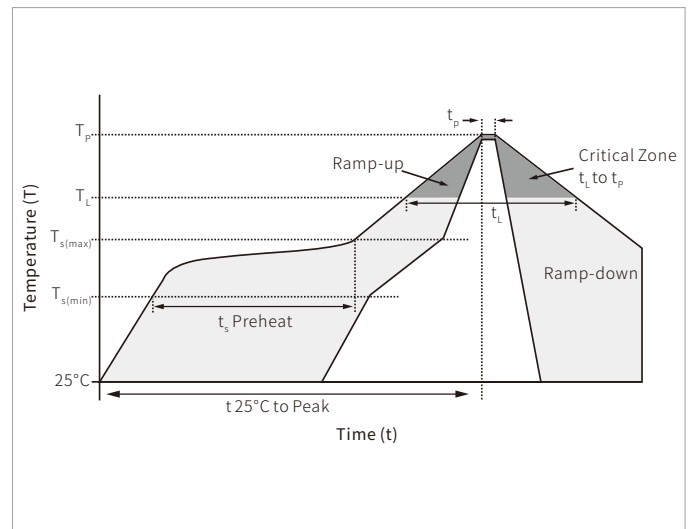
Collector-Emitter Saturation Voltage Characteristics



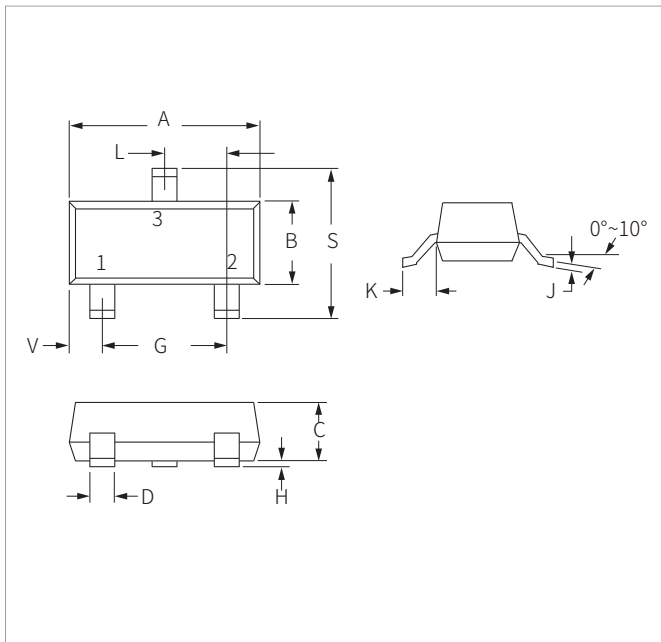


## SOLDERING PARAMETERS

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

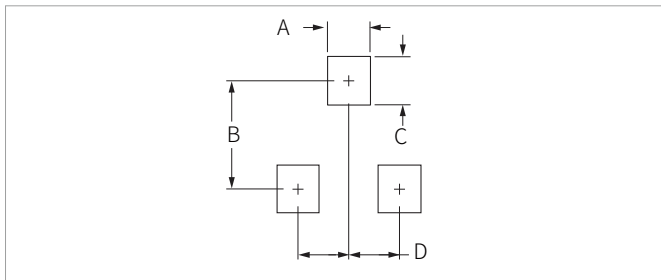


## SOT-23 PACKAGE INFORMATION



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
FMMT493	SOT-23	3000PCS	7"

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