



**CHINA BASE**  
INTERNATIONAL

# SOT-23

## FMMT619



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### Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

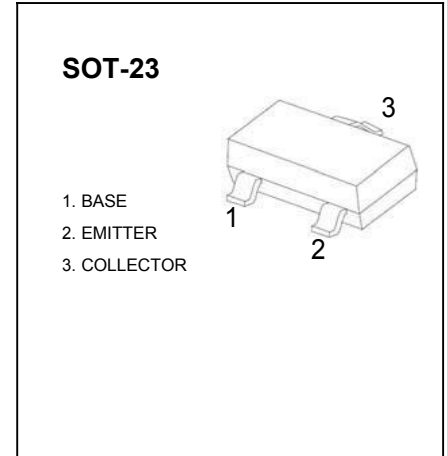
#### FEATURE

Low Saturation Voltage

● MARKING:619

MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	50	V
$V_{CE0}$	Collector-Emitter Voltage	50	V
$V_{EB0}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	2	A
$P_C$	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	$^\circ\text{C}/\text{W}$
$P_{CM}$	Maximum Power Dissipation (note 1)	0.625	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient (note 1)	200	$^\circ\text{C}/\text{W}$
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^\circ\text{C}$



#### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	50			V
Collector-emitter breakdown voltage (note 2)	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=40\text{V}, I_E=0$			100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			100	nA
DC current gain (note 2)	$h_{FE(1)}$	$V_{CE}=2\text{V}, I_C=10\text{mA}$	200			
	$h_{FE(2)}$	$V_{CE}=2\text{V}, I_C=0.2\text{A}$	300			
	$h_{FE(3)}$	$V_{CE}=2\text{V}, I_C=1\text{A}$	200			
	$h_{FE(4)}$	$V_{CE}=2\text{V}, I_C=2\text{A}$	100			
	$h_{FE(5)}$	$V_{CE}=2\text{V}, I_C=6\text{A}$		40		
Collector-emitter saturation voltage (note 2)	$V_{CE(sat)1}$	$I_C=0.1\text{A}, I_B=10\text{mA}$			20	mV
	$V_{CE(sat)2}$	$I_C=1\text{A}, I_B=10\text{mA}$			200	mV
	$V_{CE(sat)3}$	$I_C=2\text{A}, I_B=100\text{mA}$			240	mV
Base-emitter saturation voltage (note 2)	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=50\text{mA}$			1	V
Base-emitter on voltage (note 2)	$V_{BE(on)}$	$I_C=2\text{A}, V_{CE}=2\text{V}$			1	V
Output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$			20	pF
Turn-on time	$t_{(on)}$	$V_{CC}=10\text{V}, I_C=1\text{A}, I_{B1}=-I_{B2}=10\text{mA}$		170		ns
Turn-off time	$t_{(off)}$			750		ns
Transition frequency	$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	100			MHz

#### Notes :

- Maximum power dissipation is calculated assuming that the device is mounted on a ceramic substrate measuring 15x15x0.6mm.
- Pulse test: Pulse width $\leq 300\mu\text{s}$ , duty cycle $\leq 2.0\%$ .



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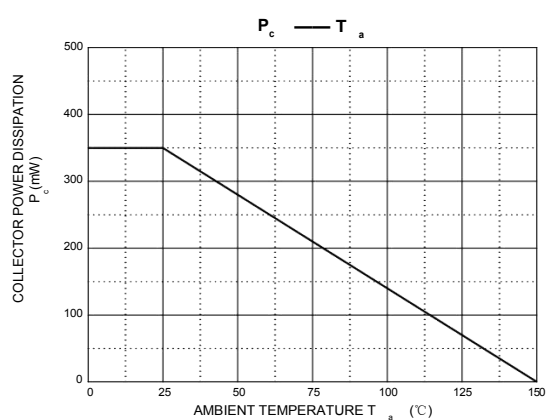
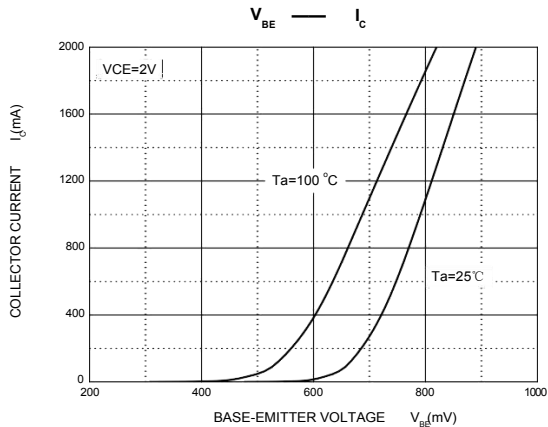
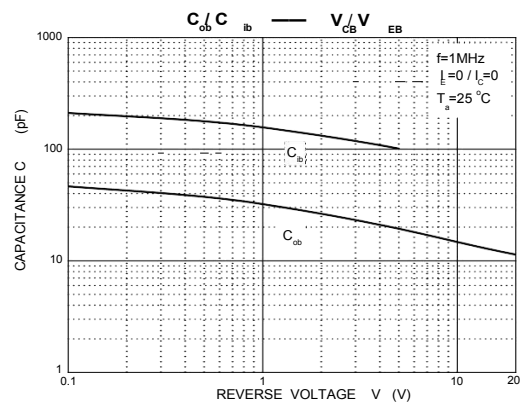
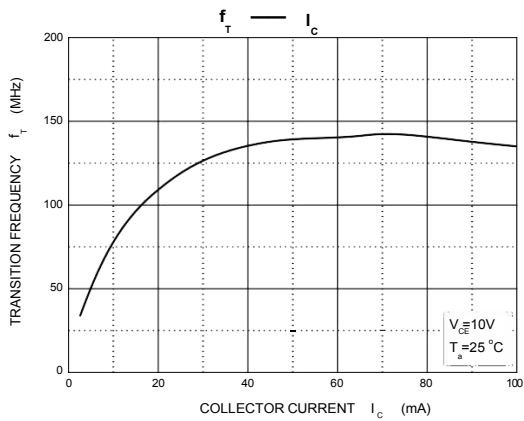
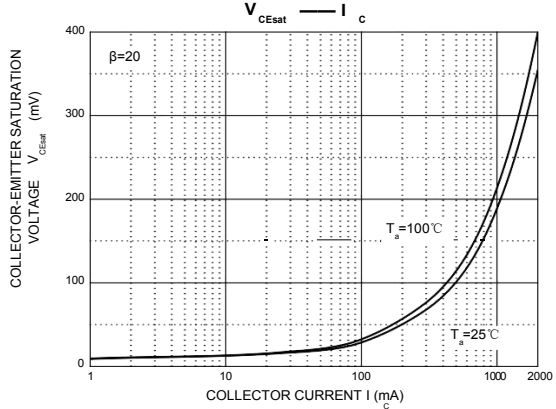
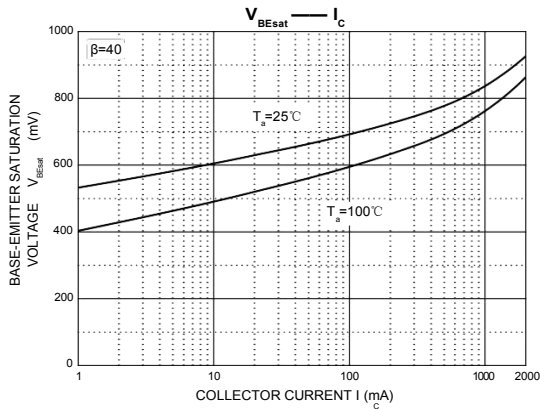
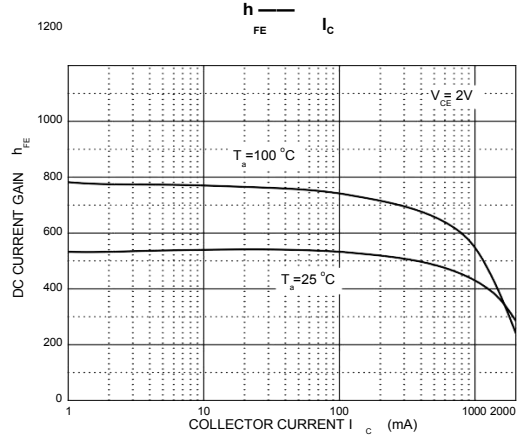
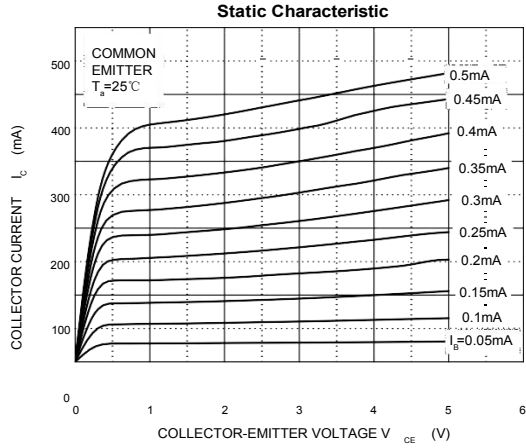
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## Typical Characteristics

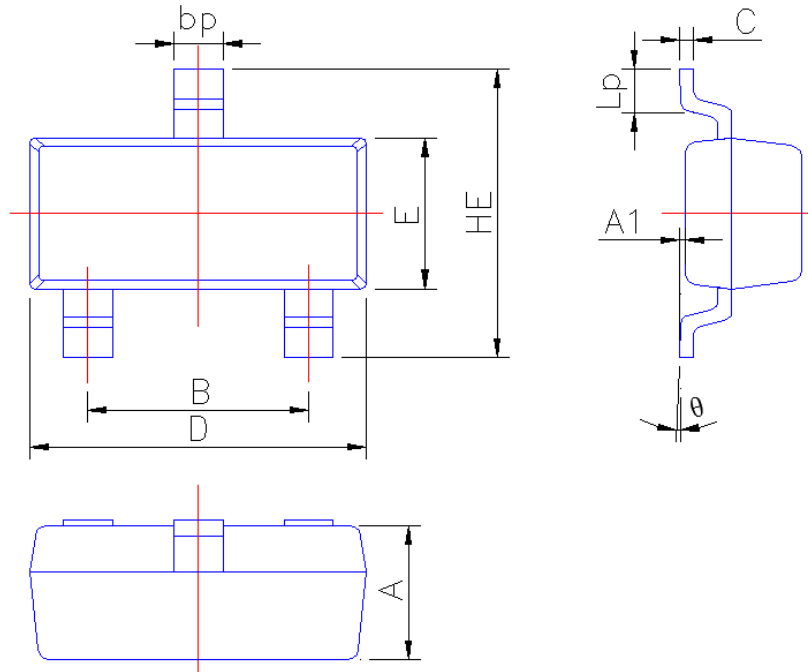




## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.10
A1	0.013	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.150
D	2.80	3.00
E	1.20	1.40
HE	2.20	2.80
Lp	0.20	0.50
$\theta$	0°	5°