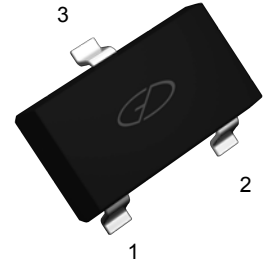


## Features

- Low saturation voltage

## Absolute Maximum Ratings ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

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



**SOT-23**

1. BASE
2. EMITTER
3. COLLECTOR

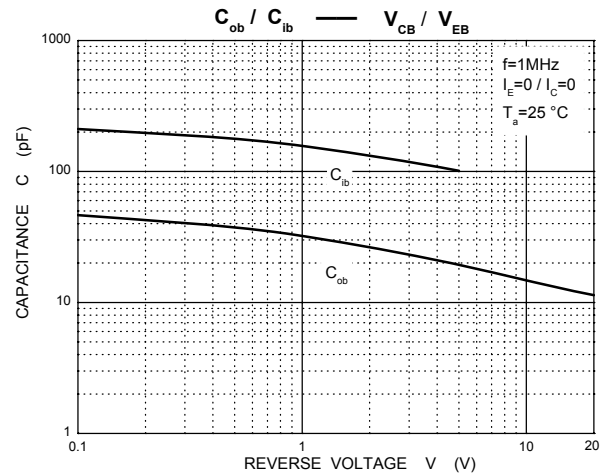
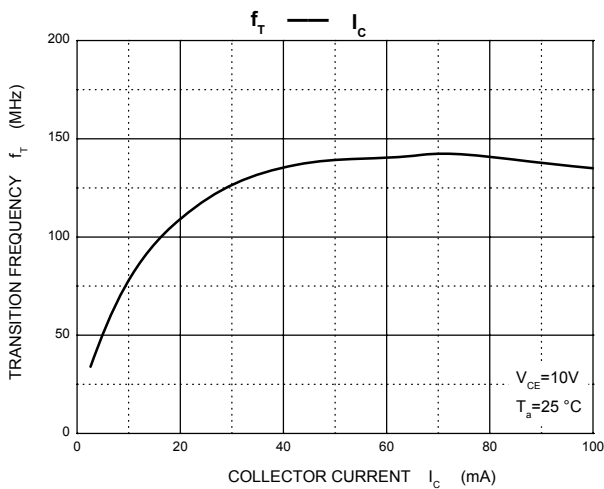
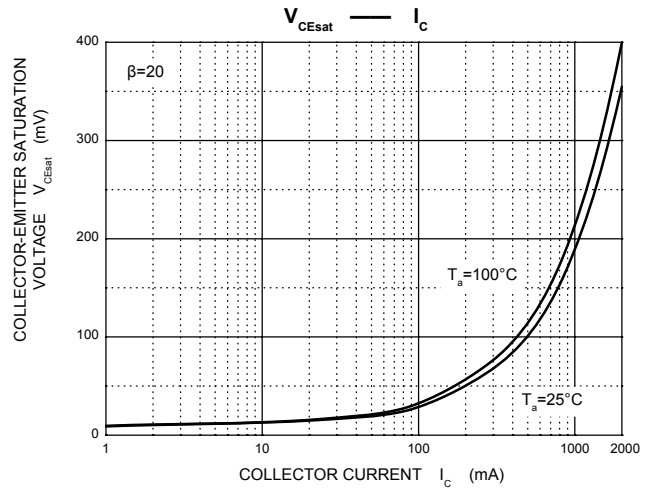
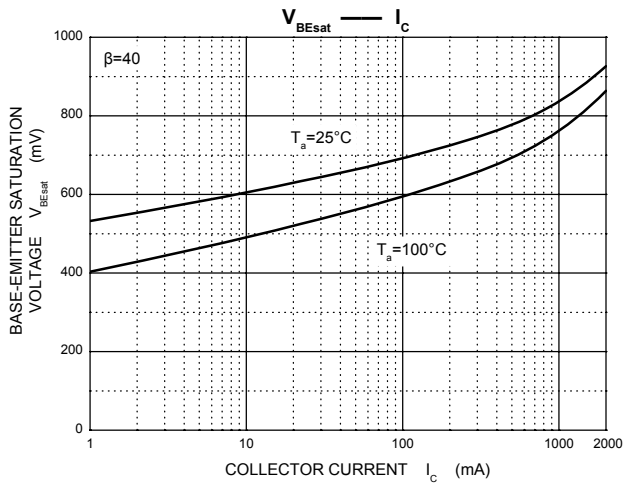
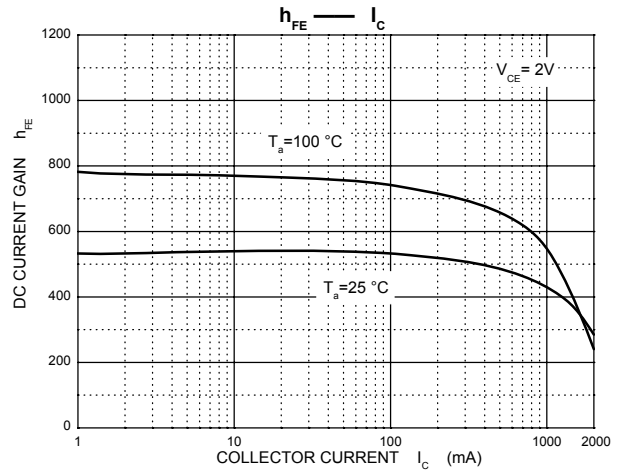
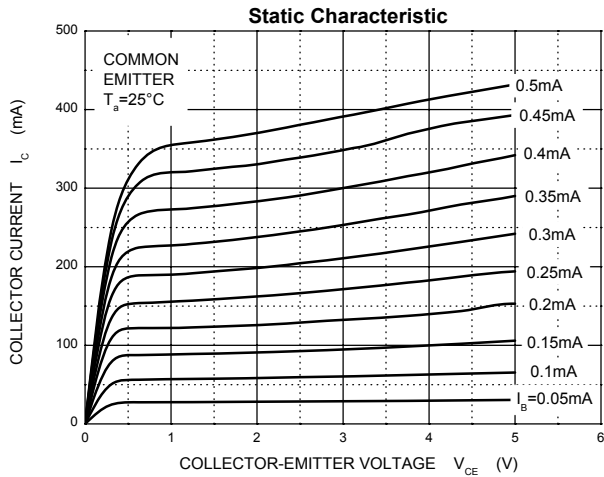
## Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

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 <sup>2</sup>	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	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 <sup>2</sup>	$h_{FE(1)}$	$V_{CE}=2\text{V}, I_C=10\text{mA}$	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 <sup>2</sup>	$V_{CE(sat)1}$	$I_C=0.1\text{A}, I_B=10\text{mA}$	-	-	20	mV
	$V_{CE(sat)2}$	$I_C=1\text{A}, I_B=10\text{mA}$	-	-	200	mV
	$V_{CE(sat)3}$	$I_C=2\text{A}, I_B=100\text{mA}$	-	-	220	mV
Base-Emitter Saturation Voltage <sup>2</sup>	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=50\text{mA}$	-	-	1	V
Base-Emitter On Voltage <sup>2</sup>	$V_{BE(on)}$	$I_C=2\text{A}, V_{CE}=2\text{V}$	-	-	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

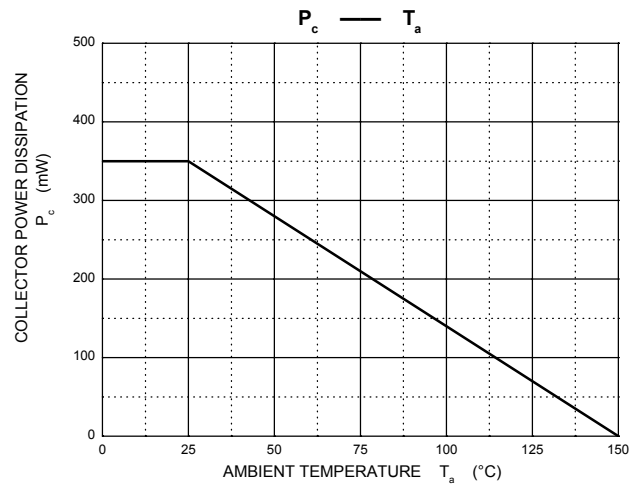
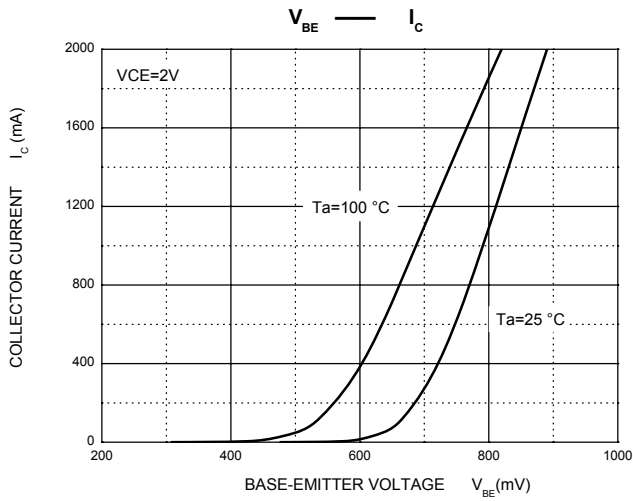
### Notes:

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

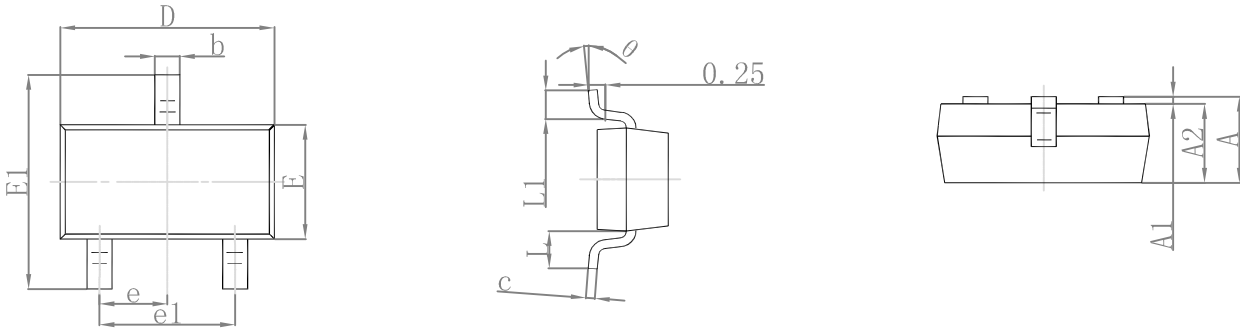
**Typical Characteristic Curves**



**Typical Characteristic Curves**

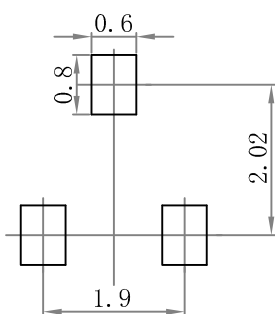


**Package Outline Dimensions SOT-23**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**Suggested Pad Layout**



Note:  
 1. Controlling dimension: in millimeters.  
 2. General tolerance:  $\pm 0.05\text{mm}$ .  
 3. The pad layout is for reference purposes only.

**Marking and Ordering Information**

Device	Package	Marking	Quantity	HSF Status
MMT619	SOT-23	619	3000pcs / Reel	RoHS Compliant