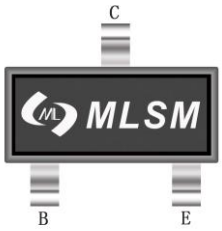
Features

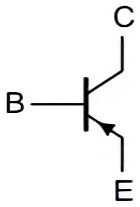
- Switching transistor
- Extremely low saturation voltage
- Complementary NPN type: FMMT619

Application

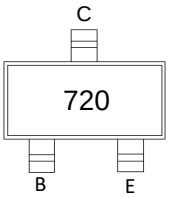
- Gate Driving MOSFETs and IGBTs
- DC-DC converters
- Charging circuit
- Power switches



SOT-23 top view



Schematic diagram



Marking and pin assignment

Pb-Free RoHS Halogen-Free

Maximum Ratings (Ta=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-1.5	A
I_B	Base Current	-0.5	A
I_{CM}	Peak Pulse Current	-4	A
P_c	Collector Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	357	℃/W
T_J , T_{STG}	Operating and Storage Temperature Range	-55~ +150	℃

Ordering Information (Example)

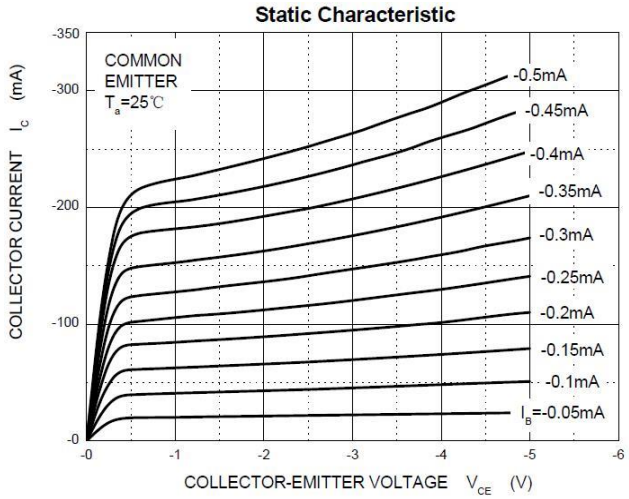
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
FMMT720	SOT-23	720	3,000	45,000	180,000	7"reel

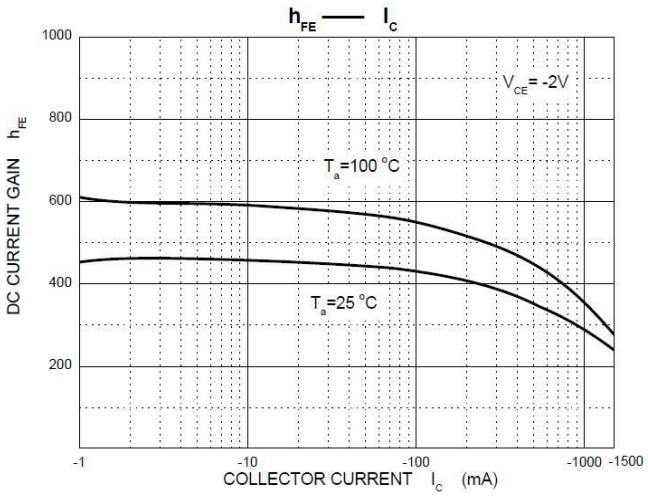
Electrical Characteristics (Ta=25℃ unless otherwise specified)

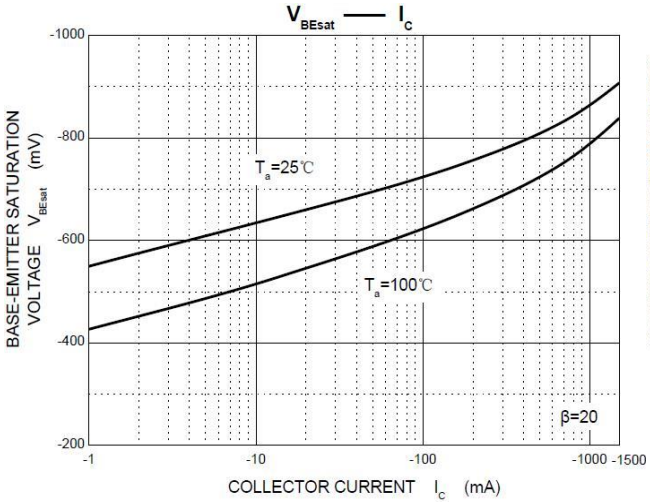
Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=-100μA,I_E=0	-40	--	--	V
$V_{(BR)CEO}$*	Collector-emitter breakdown voltage	I_C=-10mA,I_B=0	-40	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=-100μA,I_C=0	-5	--	--	V
I_{CBO}	Collector cut-off current	V_{CB}=-35V,I_E=0	--	--	-0.1	μA
I_{EBO}	Emitter cut-off current	V_{EB}= -4V,I_C=0	--	--	-0.1	μA
I_{CES}	Collector cut-off current	V_{CES}=-35V,I_E=0	--	--	-0.1	μA
h_{FE1}*	DC current gain	V_{CE}=-2V,I_C=-10mA	300	--	--	
h_{FE2}*		V_{CE}=-2V,I_C=-100mA	300	--	--	
h_{FE3}*		V_{CE}=-2V,I_C=-1A	180	--	--	
h_{FE4}*		V_{CE}=-2V,I_C=-1.5A	60	--	--	
h_{FE5}*		V_{CE}=-2V,I_C=-3A	12			
$V_{CE(sat)1}$*	Collector-emitter saturation voltage	I_C= -0.1A I_B= -10mA	--	--	-40	mV
$V_{CE(sat)2}$*		I_C= -1A I_B= -50mA	--	--	-220	mV
$V_{CE(sat)3}$*		I_C= -1.5A I_B= -100mA	--	--	-330	mV
$V_{BE(sat)}$*	Base -emitter saturation voltage	I_C=-1.5A I_B= -75 mA	--	--	-1	V
$V_{BE(on)}$*	Base-emitter voltage	V_{CE}=-2V,I_C=-1.5A	--	--	-1	V
f_T	Transition frequency	V_{CE}=-10V,I_c=-50mA,f=100MHz	150	--	--	MHz
C_{ob}	Collector output capacitance	V_{CB}=-10V,f=1MHZ	--	--	25	pF
$t_{(on)}$	Turn-on Time	V_{CC}=-15V, I_C=-0.75A, I_{B1}=I_{B2}=-15mA	--	40	--	ns
$t_{(off)}$	Turn-off Time		--	435	--	ns

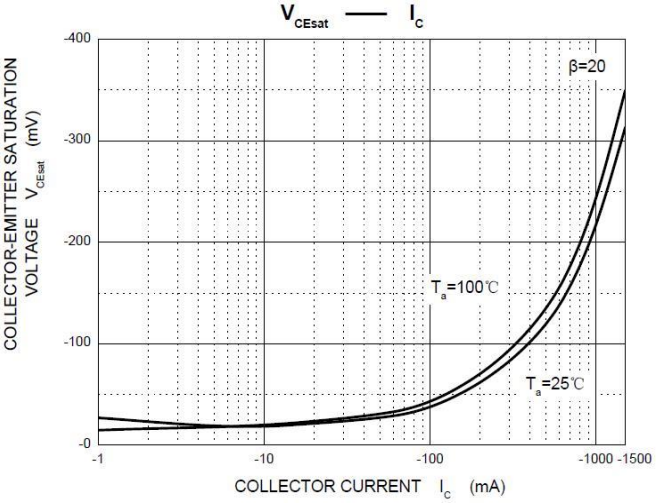
*Measured under pulse conditions . Pulse width =300μs. Duty cycle≤2%.

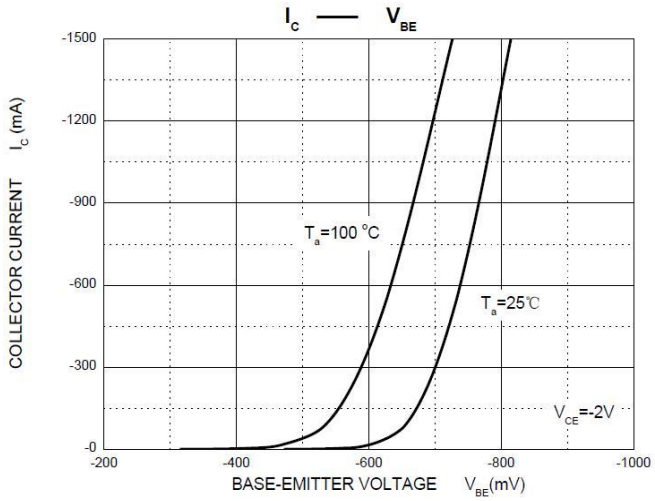
Typical Operating Characteristics

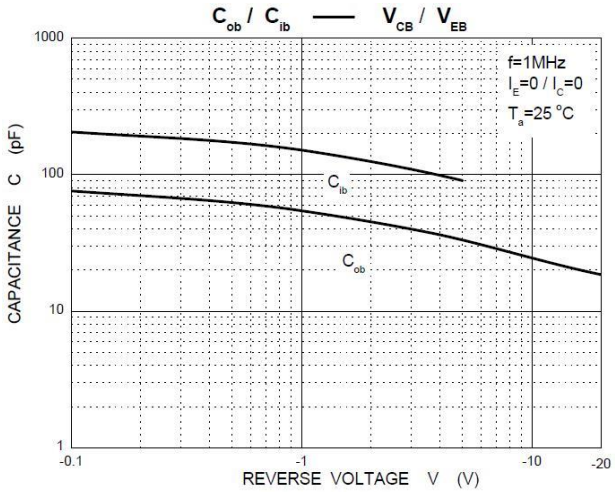


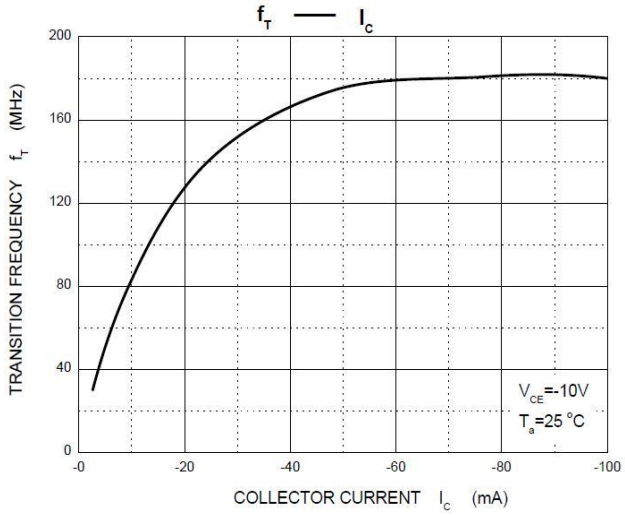


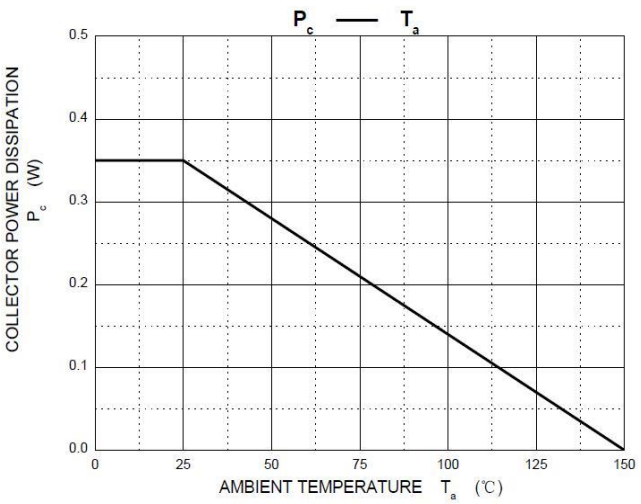




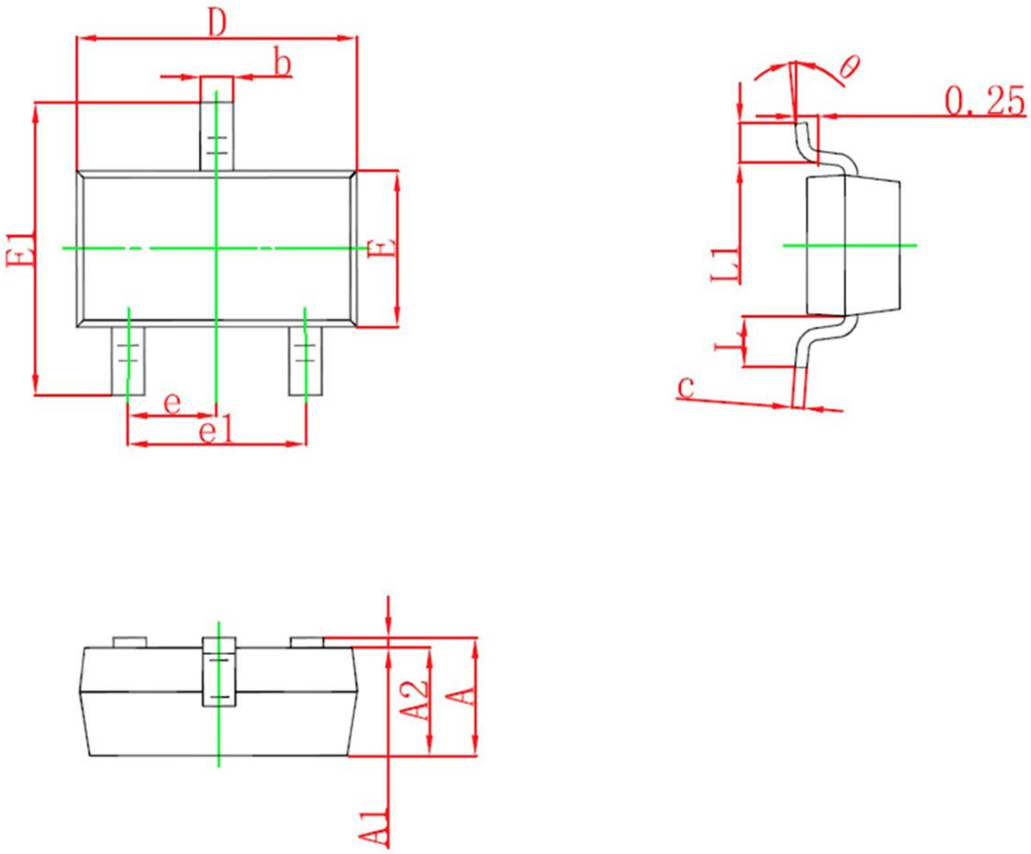





f_T — I_C
TRANSITION FREQUENCY f_T (MHz)
200
160
120
80
40
0
-0
-20
-40
-60
-80
-100
V_{CE}=-10V
T_a=25 °C
COLLECTOR CURRENT I_C (mA)


P_c — T_a
COLLECTOR POWER DISSIPATION P_c (W)
0.5
0.4
0.3
0.2
0.1
0.0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)

SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		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
E1	2.250	2.550	0.088	0.100
E	1.200	1.400	0.047	0.055
e	0.950TYP		0.037TYP	
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°