FMMT618

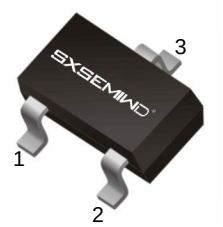
TRANSISTOR (NPN)

FEATURE

Extremely low saturation voltage

Complementary PNP type: FMMT718

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

APPLICATION

Gate Driving MOSFETs and IGBTs

DC-DC converters

Charging circuit

Power switches

MARKING: 618

MAXIMUM RATINGS(T_a=25℃ unless otherwise noted)

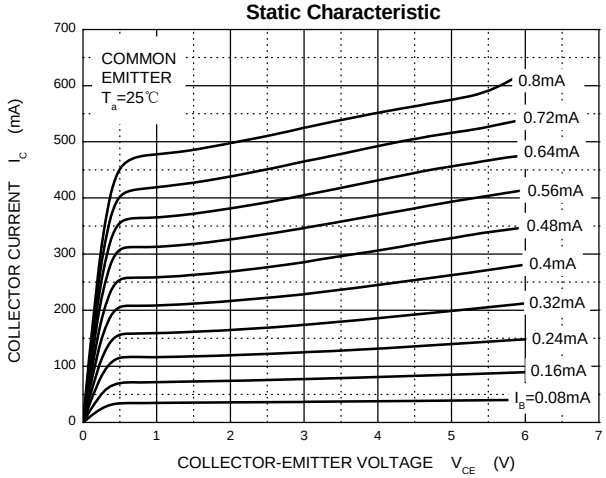
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	5	V
I_B	Base Current	0.5	A
I_C	Collector Current -Continuous	2.5	A
P_C	Total Collector Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

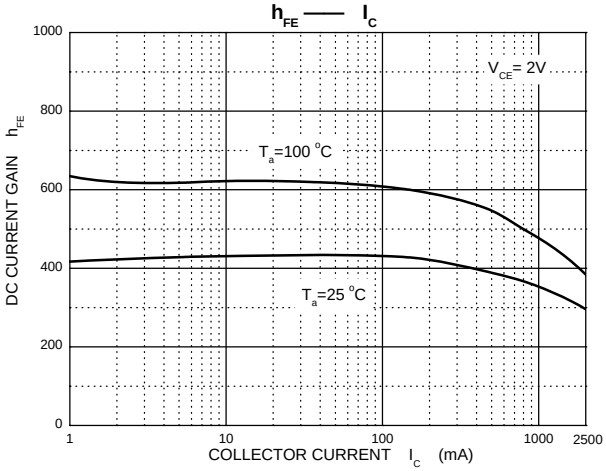
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA,I_E=0	20			V
Collector-emitter breakdown voltage (note 1)	$V_{(BR)CEO}$	I_C=10mA,I_B=0	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA ,I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}=16V,I_E=0			100	nA
Emitter cut-off current	I_{EBO}	V_{EB}=4V,I_C=0			100	nA
DC current gain (note 1)	$h_{FE(1)}$	V_{CE}=2V, I_C=10mA	200			
	$h_{FE(2)}$	V_{CE}=2V, I_C=0.2A	300			
	$h_{FE(3)}$	V_{CE}=2V, I_C=2A	200			
	$h_{FE(4)}$	V_{CE}=2V, I_C=4A	100			
Collector-emitter saturation voltage (note 1)	$V_{CE(sat)1}$	I_C=0.1A,I_B=10mA			15	mV
	$V_{CE(sat)2}$	I_C=1A,I_B=10mA			150	mV
	$V_{CE(sat)3}$	I_C=2.5A,I_B=50mA			200	mV
Base-emitter saturation voltage (note 1)	$V_{BE(sat)}$	I_C=2.5A,I_B=50mA			1	V
Base-emitter on voltage (note 1)	$V_{BE(on)}$	I_C=2.5A, V_{CE}=2V			1	V
Output capacitance	C_{ob}	V_{CB}=10V, f=1MHz			30	pF
Turn-on time	$t_{(on)}$	V_{CC}=10V, I_C=1A, I_{B1}=-I_{B2}=10mA		170		ns
Turn-off time	$t_{(off)}$			400		ns
Transition frequency	f_T	V_{CE}=10V,I_C=50mA, f=100MHz	100			MHz

Typical Characteristics

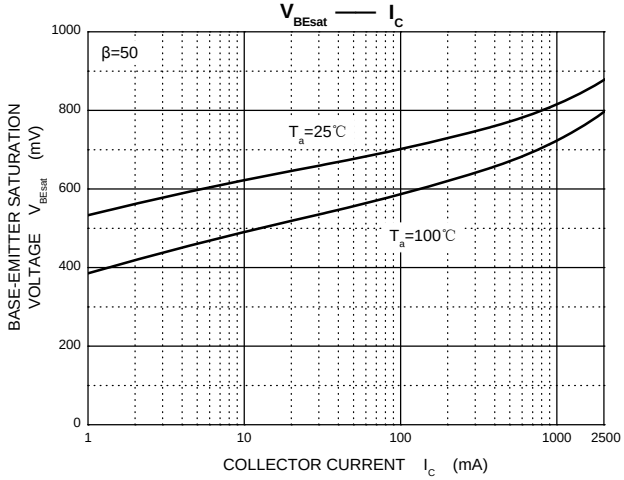
Static Characteristic



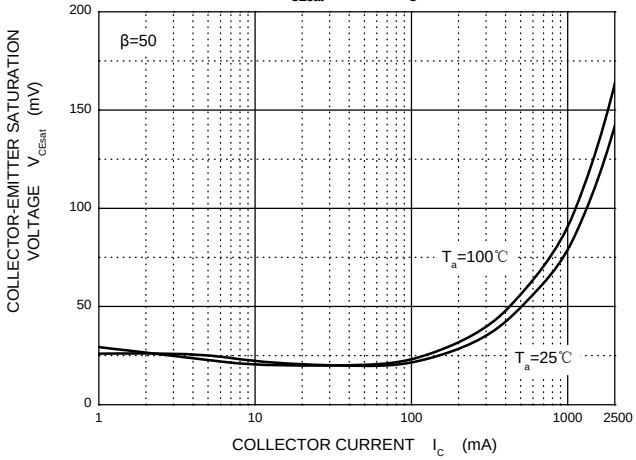
h_{FE} —— I_C



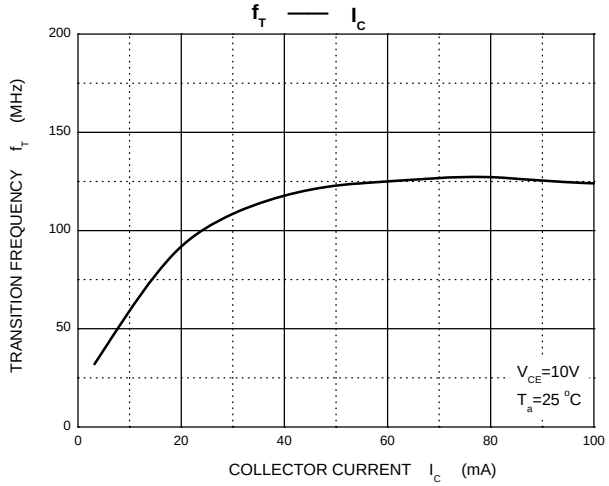
V_{BEsat} —— I_C



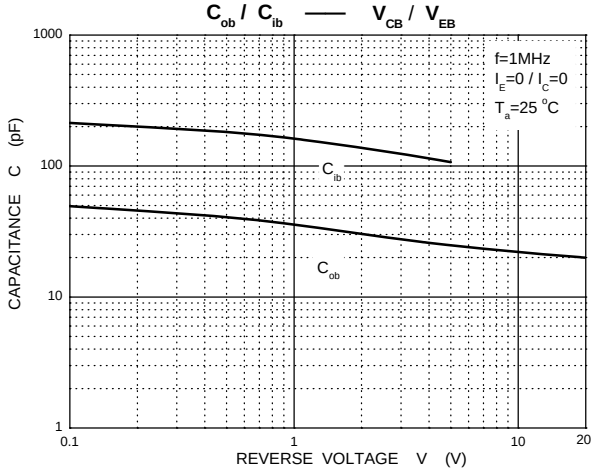
V_{CEsat} —— I_C



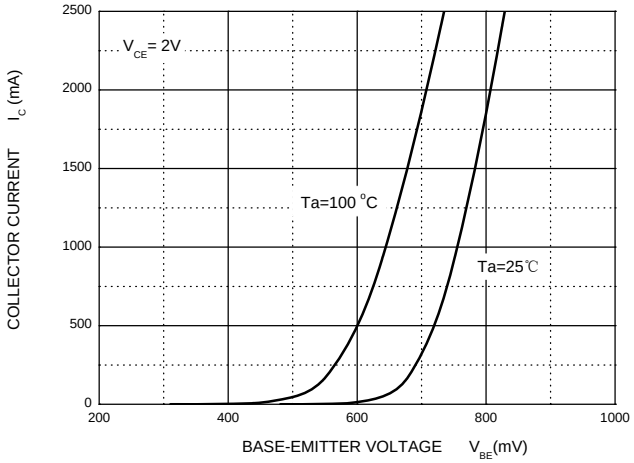
f_T —— I_C



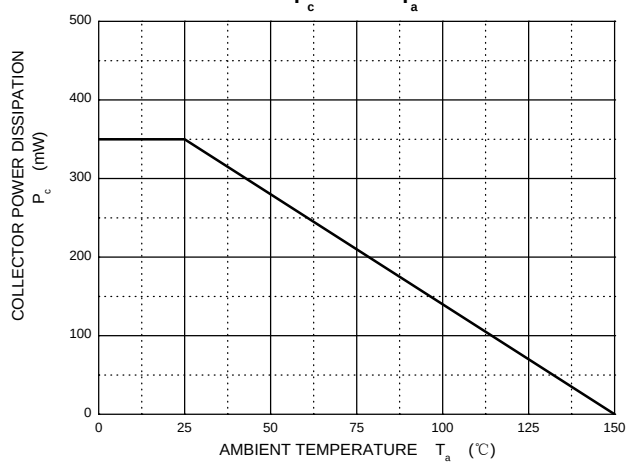
C_{ob} / C_{ib} —— V_{CB} / V_{EB}



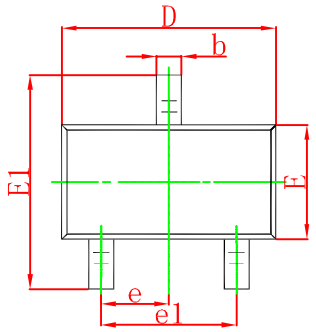
V_{BE} —— I_C

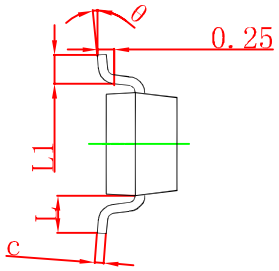


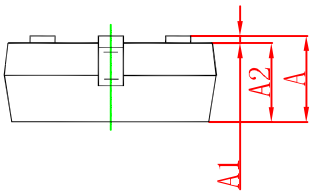
P_c —— T_a



SOT-23 Package Outline Dimensions

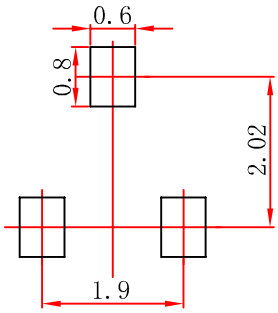






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:In millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.