HFMMT720QTA

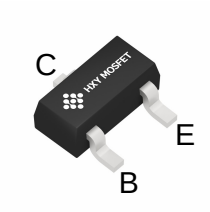
PNP Plastic-Encapsulate Transistors

Features

Switching transistor

Extremely low saturation voltage

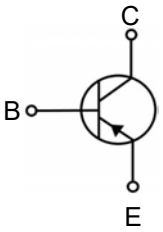
Complementary NPN type: FMMT619.



SOT-23

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HFMMT720QTA	SOT-23	720	3000



Maximum Ratings (Ta=25°C unless otherwise noted)

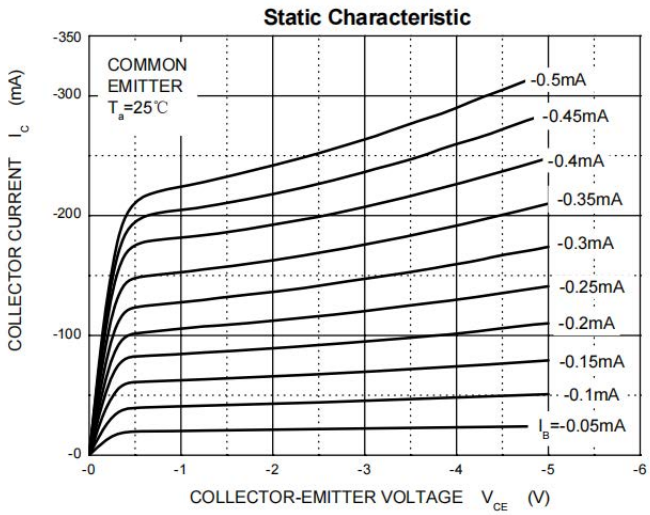
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-0.5	A
I_{CM}	Peak Pulse Current	-4	A
P_C	Collector Power Dissipation	350	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	500	℃/W
T_J ,T_{stg}	Operation Junction And Storage Temperature Range	-55～+150	℃

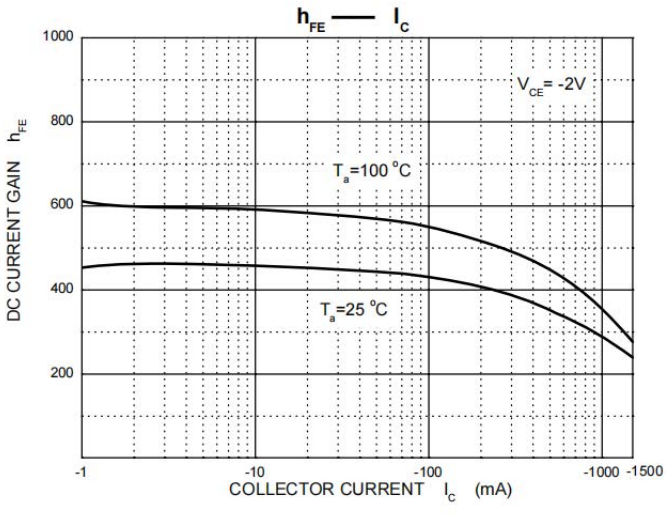
Electrical Characteristics (Ta=25°C unless otherwise noted)

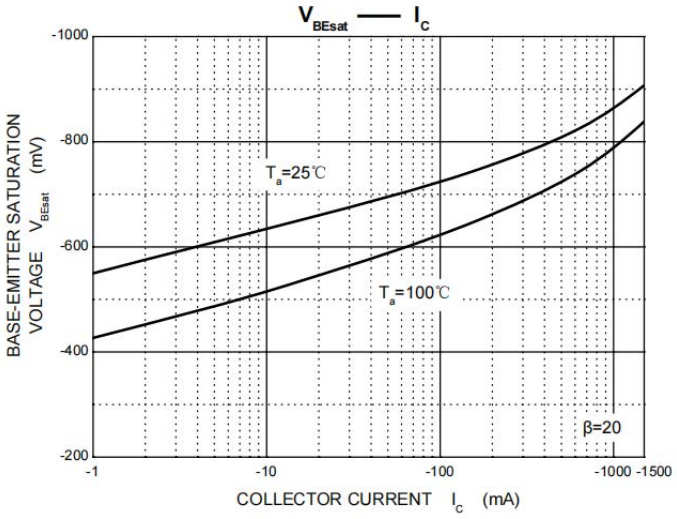
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-100μA, I_E=0	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$*	I_C= -10mA, I_B=0	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= -100μA, I_C=0	-5			V
Collector cut-off current	I_{CBO}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

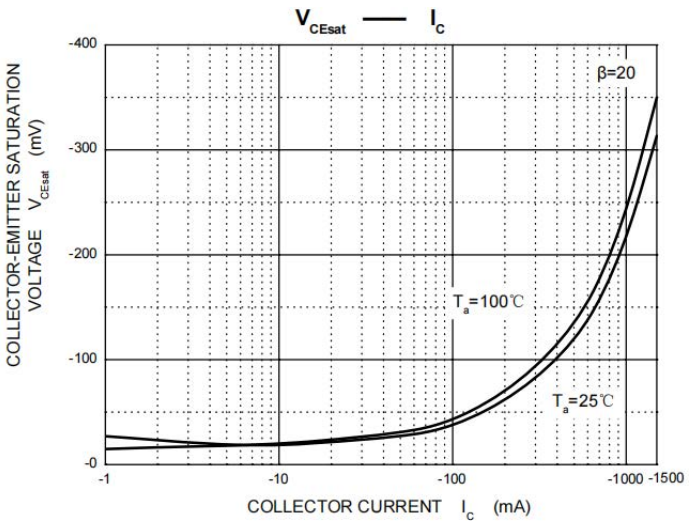
*Measured under pulse conditions . Pulse width =300μs. Duty cycle≤2%.

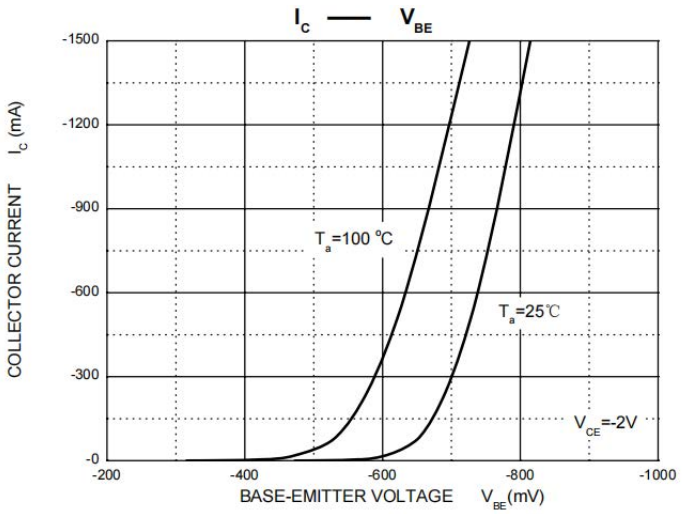
Typical Characteristics

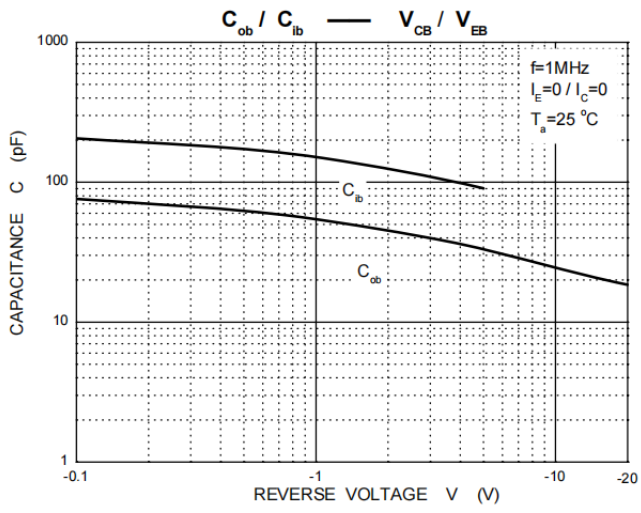


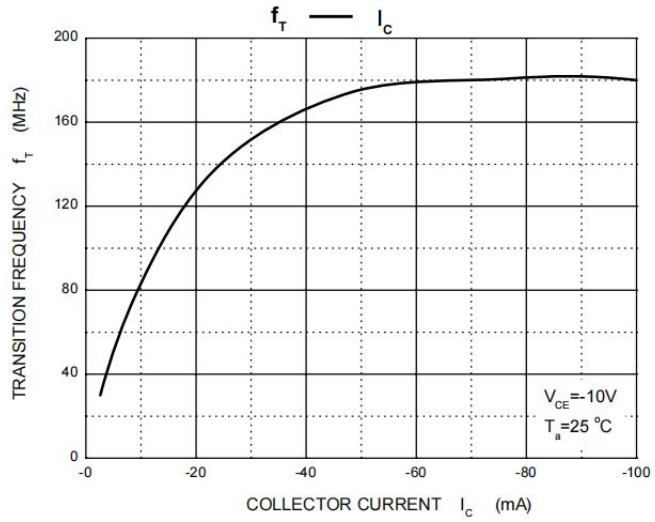


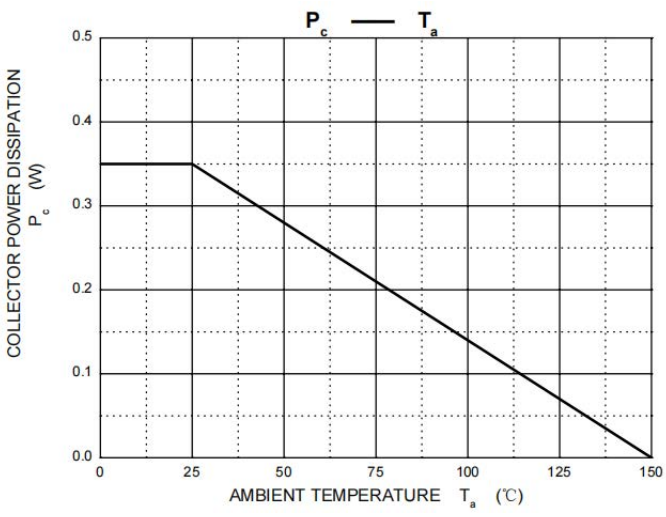

V_{BEsat} — I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
-1000
-800
-600
-400
-200
T_a=25℃
T_a=100℃
β=20
-1
-10
-100
-1000 -1500
COLLECTOR CURRENT I_C (mA)


V_{CEsat} — I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
-400
-300
-200
-100
-0
β=20
T_a=100℃
T_a=25℃
-1
-10
-100
-1000 -1500
COLLECTOR CURRENT I_C (mA)

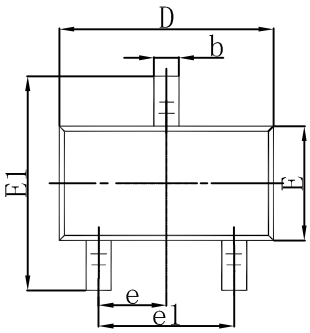

I_C — V_{BE}
COLLECTOR CURRENT I_C (mA)
-1500
-1200
-900
-600
-300
-0
T_a=100 °C
T_a=25℃
V_{CE}=-2V
-200
-400
-600
-800
-1000
BASE-EMITTER VOLTAGE V_{BE}(mV)

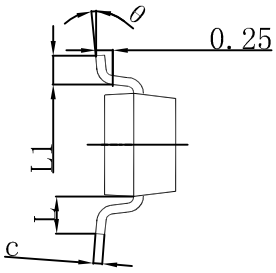

C_{ob} / C_{ib} — V_{CB} / V_{EB}
CAPACITANCE C (pF)
1000
100
10
1
f=1MHz
I_E=0 / I_C=0
T_a=25 °C
C_{ib}
C_{ob}
-0.1
-1
-10
-20
REVERSE VOLTAGE V (V)

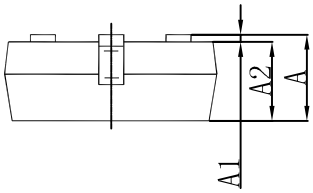

f_T — I_C
TRANSITION FREQUENCY f_T (MHz)
200
160
120
80
40
0
V_{CE}=-10V
T_a=25 °C
-0
-20
-40
-60
-80
-100
COLLECTOR CURRENT I_C (mA)


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 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°

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