

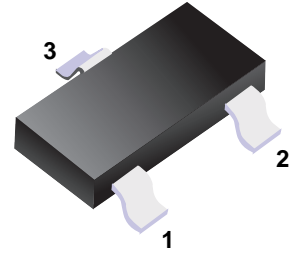
NPN Transistor

Features

- ◆ Low equivalent on-resistance



Marking



■ Simplified outline(SOT-23)

Marking Code	
FMMT591	591

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

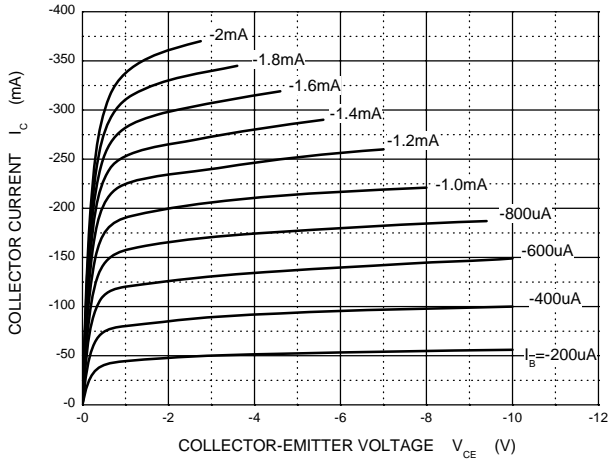
Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	-80	V
V _{CE0}	Collector-Emitter Voltage	-60	V
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current	-1	A
I _{CM}	Peak Pulse Current	-2	A
P _C	Collector Power Dissipation	250	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	500	°C/W
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

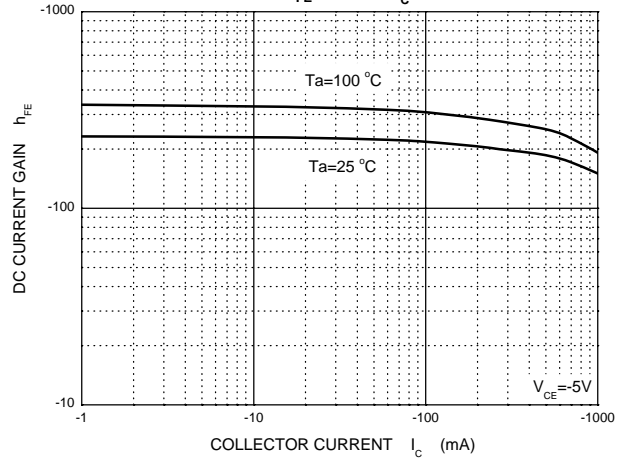
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =-100μA, I _E =0	-80			V
Collector-emitter breakdown voltage	V _{(BR)CEO} ¹	I _C =-10mA, I _B =0	-60			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =-100μA, I _C =0	-5			V
Collector cut-off current	I _{CBO}	V _{CB} =-60V, I _E =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} =-5V, I _C =-1mA	100			
	h _{FE(2)} ¹	V _{CE} =-5V, I _C =-500mA	100		300	
	h _{FE(3)} ¹	V _{CE} =-5V, I _C =-1A	80			
	h _{FE(4)} ¹	V _{CE} =-5V, I _C =-2A	15			
Collector-emitter saturation voltage	V _{CE(sat)1} ¹	I _C =-500mA, I _B =-50mA			-0.3	V
	V _{CE(sat)2} ¹	I _C =-1A, I _B =-100mA			-0.6	V
Base-emitter saturation voltage	V _{BE(sat)} ¹	I _C =-1A, I _B =-100mA			-1.2	V
Base-emitter voltage	V _{BE} ¹	V _{CE} =-5V, I _C =-1A			-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			10	pF

¹Measured under pulsed conditions, Pulse width=300μs, Duty cycle≤2%.

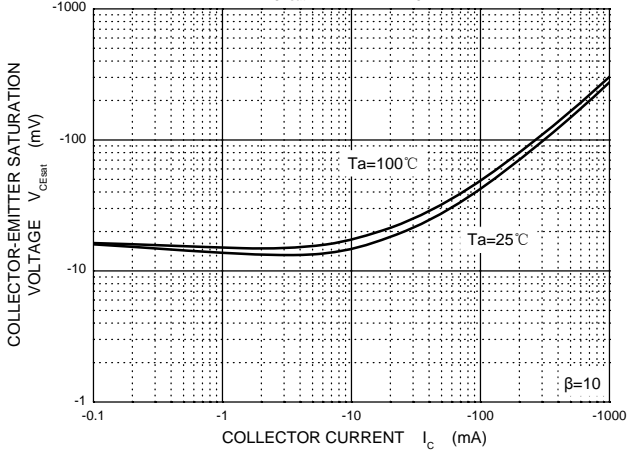
Static Characteristic



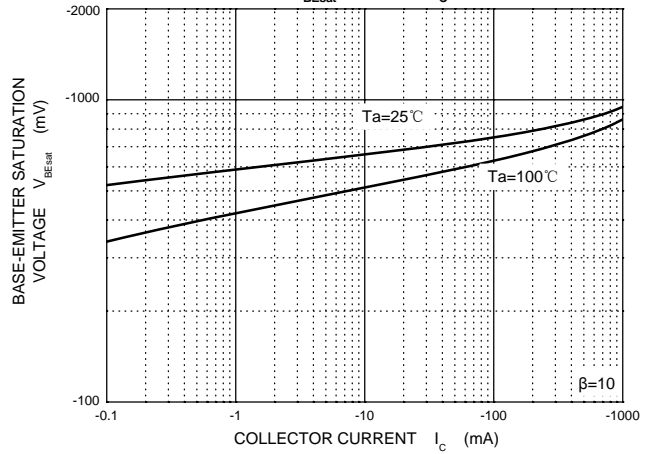
h_{FE} — I_c



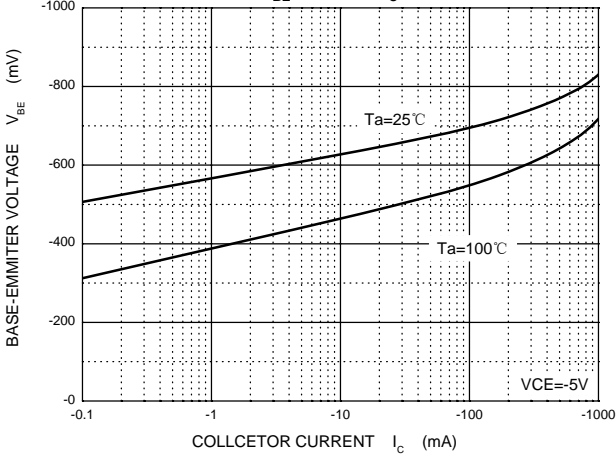
V_{CEsat} — I_c



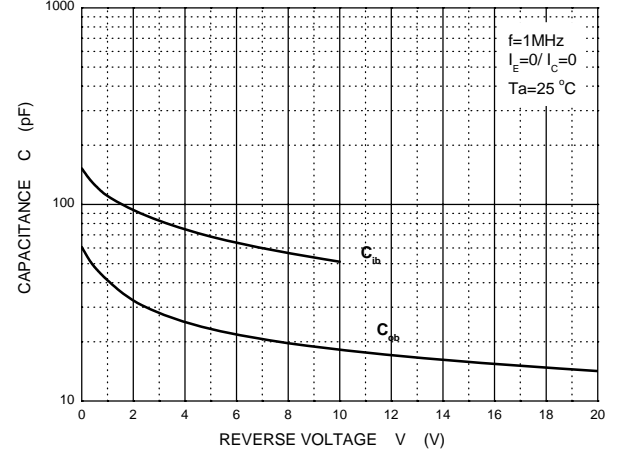
V_{BEsat} — I_c



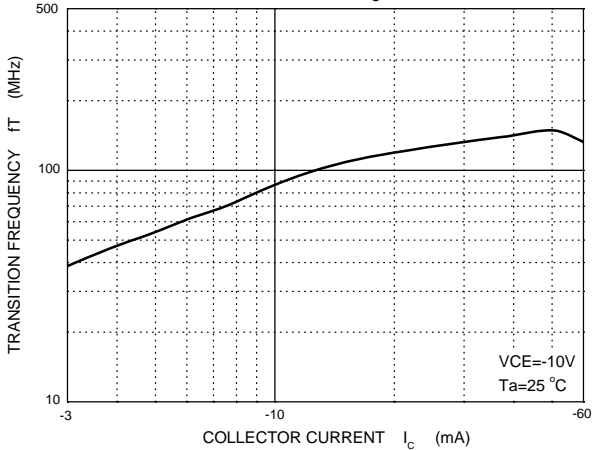
V_{BE} — I_c



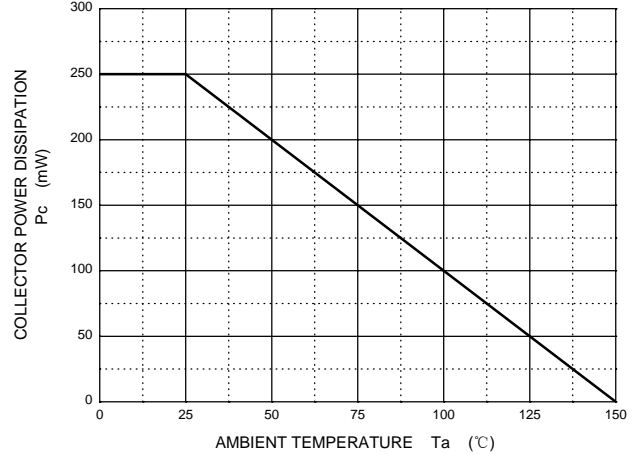
C_{ob}/C_{ib} — V_{CE}/V_{EB}



f_T — I_c

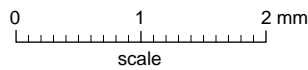
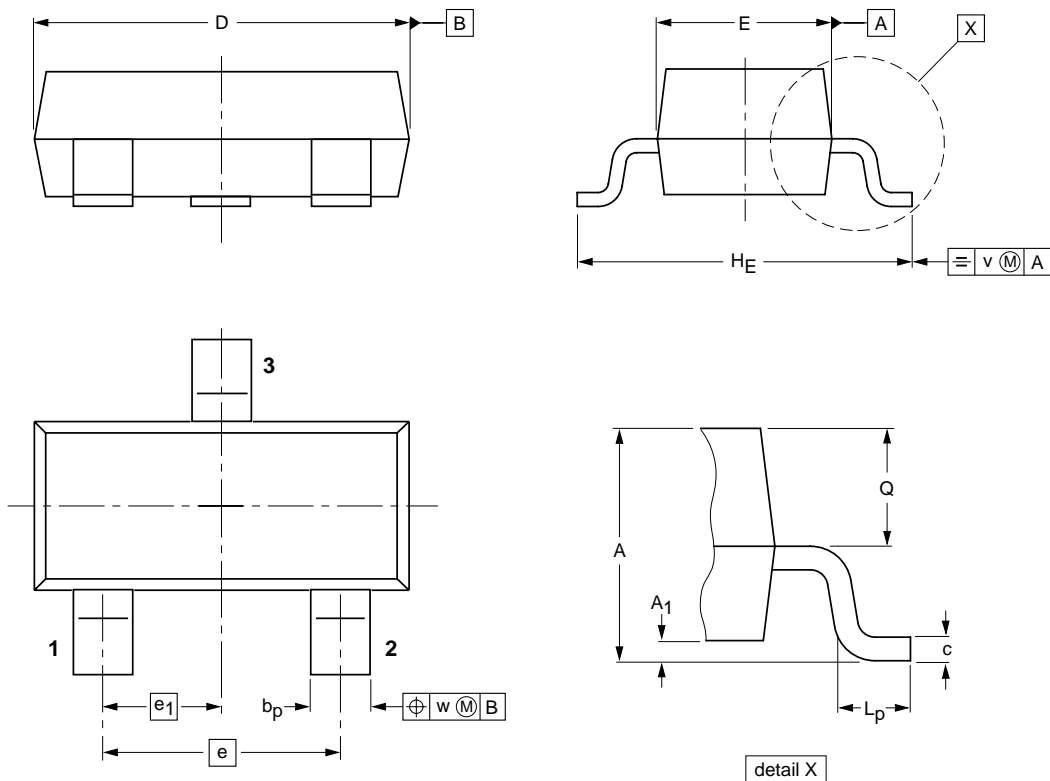


P_c — T_a



Package Outline

SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1

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