TECH PUBLIC
台舟电子

TPFMMT493

NPN Switching Transistor

www.sot23.com.tw

Features

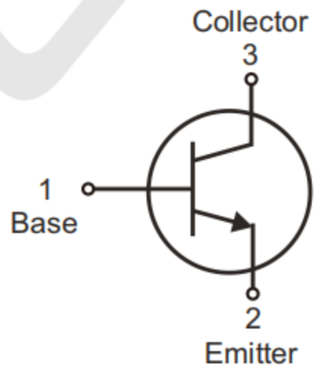
- Low saturation voltage.
- High hFE Max. 300@250mA.
- Ic = 1A .

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.

SOT23

Circuit Diagram



Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	120	V
Collector-emitter voltage	V_{CEO}	100	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	1000	mA
Collector power dissipation	P_C	250	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	500	°C/W
Operation junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage	I_C = 100μA, I_E = 0	$V_{(BR)CBO}$	120			V
Collector-emitter breakdown voltage	I_C = 10mA, I_B = 0	$V_{(BR)CEO}$	100			V
Emitter-base breakdown voltage	I_E = 100μA, I_C = 0	$V_{(BR)EBO}$	5			V
Collector cut-off current	V_{CB} = 100V, I_E = 0	I_{CBO}			0.1	μA
Collector cut-off current	V_{CES} = 100V, I_E = 0	I_{CES}			0.1	μA
Emitter cut-off current	V_{EB} = 4V, I_C = 0	I_{EBO}			0.1	μA
DC current gain (Note 1)	V_{CE} = 10V, I_C = 1mA	$h_{FE(1)}$	100			
	V_{CE} = 10V, I_C = 250mA	$h_{FE(2)}$	100		300	
	V_{CE} = 10V, I_C = 0.5A	$h_{FE(3)}$	60			
	V_{CE} = 10V, I_C = 1A	$h_{FE(4)}$	20			
Collector-emitter saturation voltage (Note 1)	I_C = 500mA, I_B = 50mA	$V_{CE(sat)\,1}$			0.3	V
	I_C = 1A, I_B = 100mA	$V_{CE(sat)\,2}$			0.6	V
Base-emitter saturation voltage (Note 1)	I_C = 1A, I_B = 100mA	$V_{BE(sat)}$			1.15	V
Base-emitter voltage (Note 1)	V_{CE} = 10V, I_C = 1A	V_{BE}			1	V
Transition frequency	V_{CE} = 10V, I_C = 50mA, f = 100MHz	f_T	150			MHz
Collector output capacitance	V_{CB} = 10V, I_E = 0, f = 1MHz	C_{ob}			10	pF

Note: 1. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2.0%.

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

Fig.1 - Static Characteristic

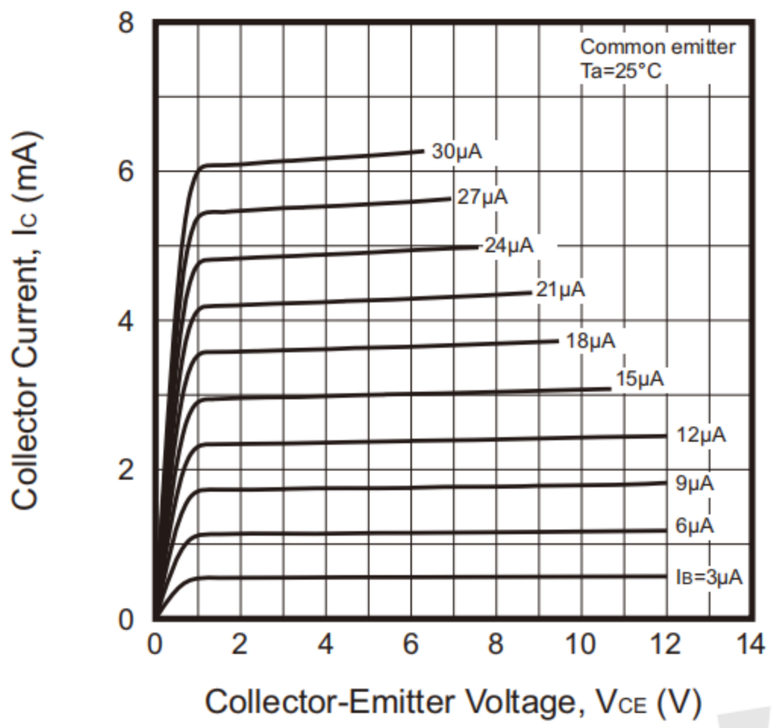


Fig.2 - h_{FE} — I_C

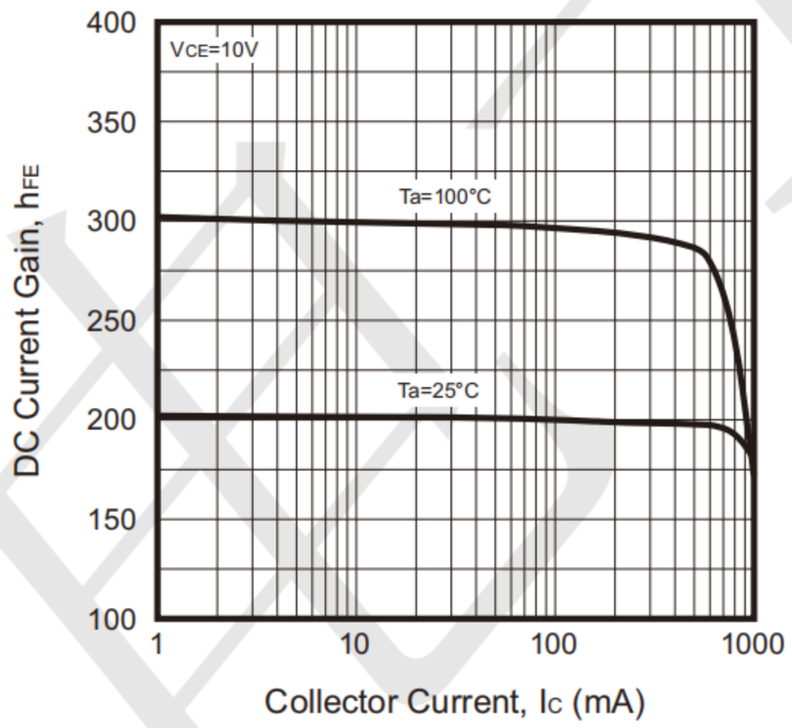


Fig.3 - V_{BEsat} — I_C

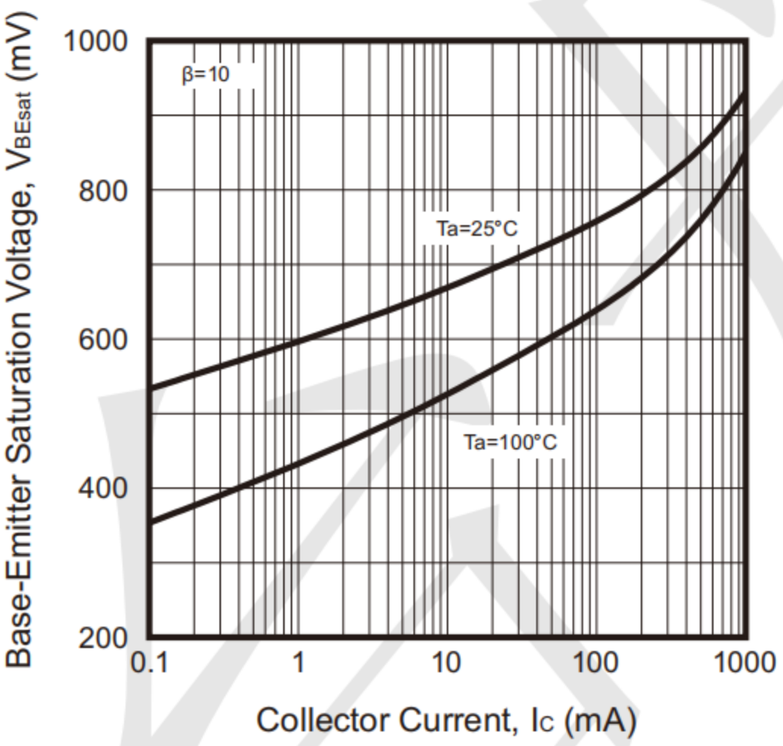
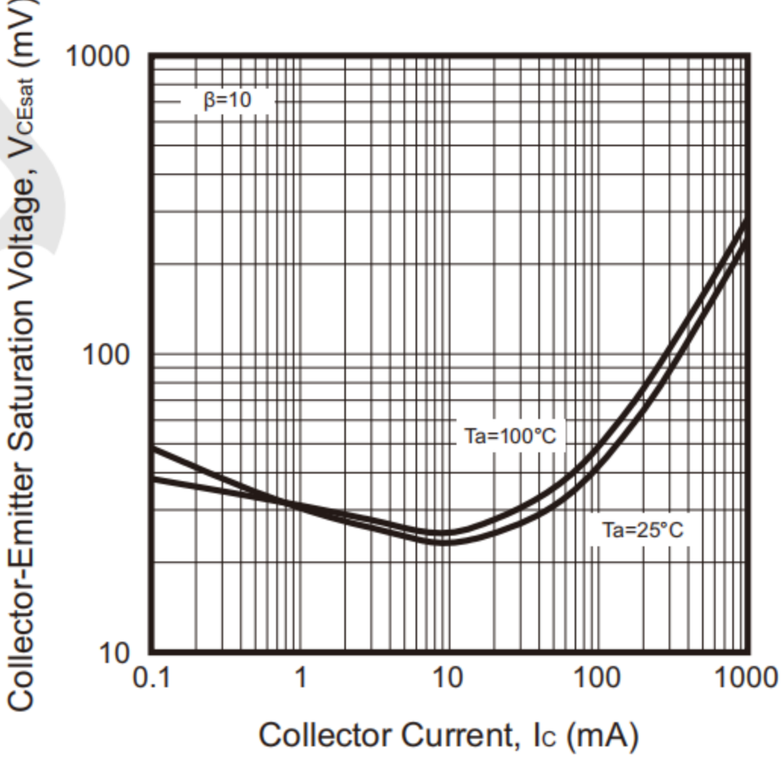


Fig.4 - V_{CEsat} — I_C



Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

Fig.5 - f_T — I_C

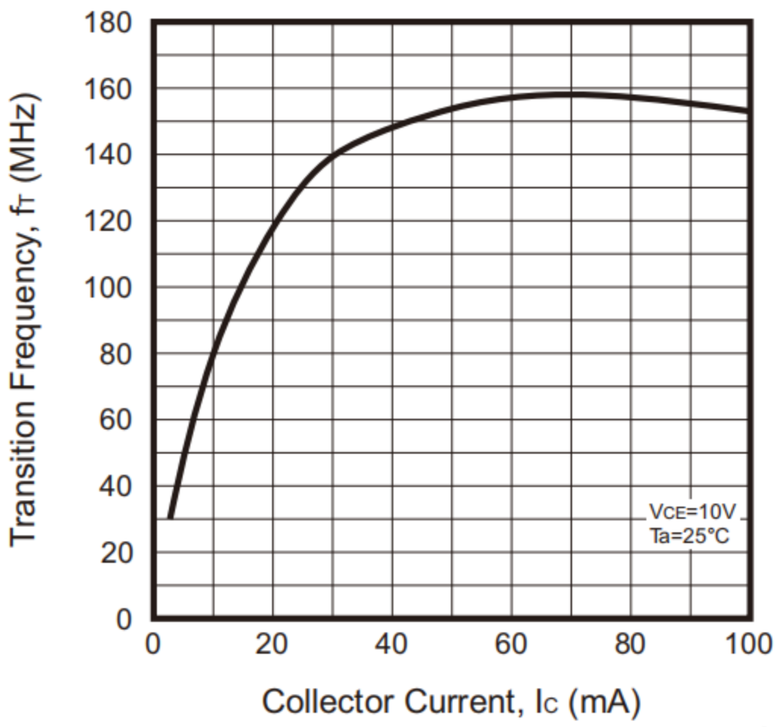


Fig.6 - I_C — V_{BE}

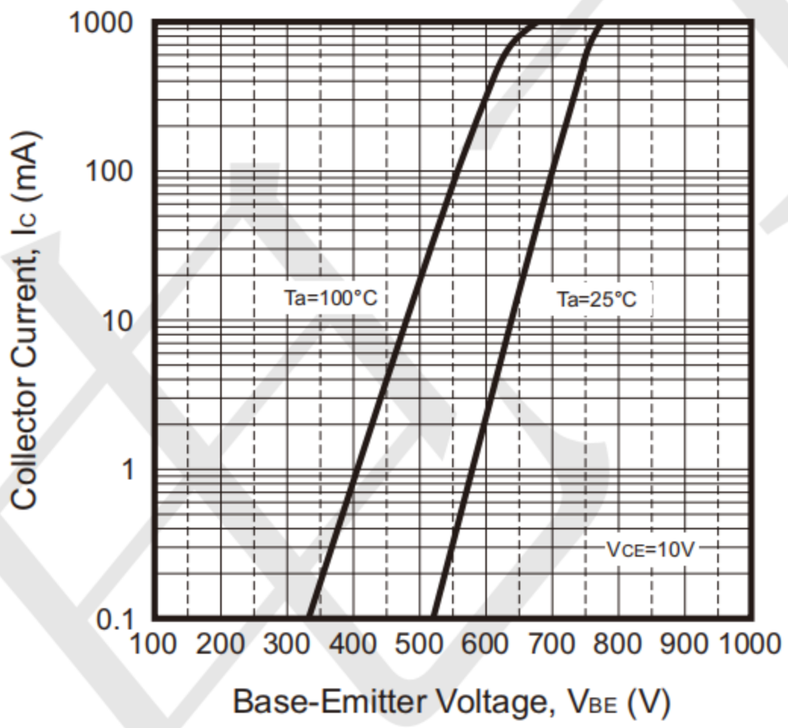
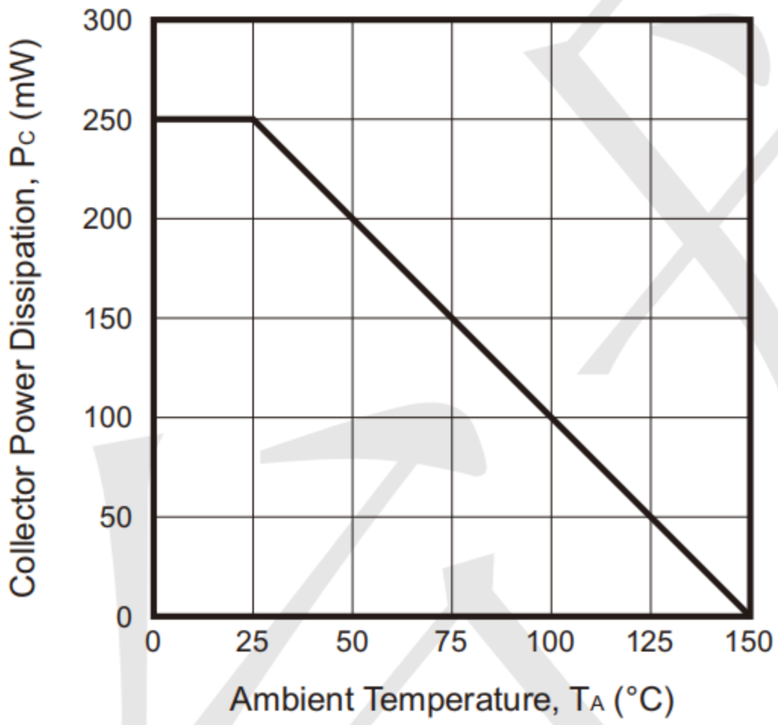
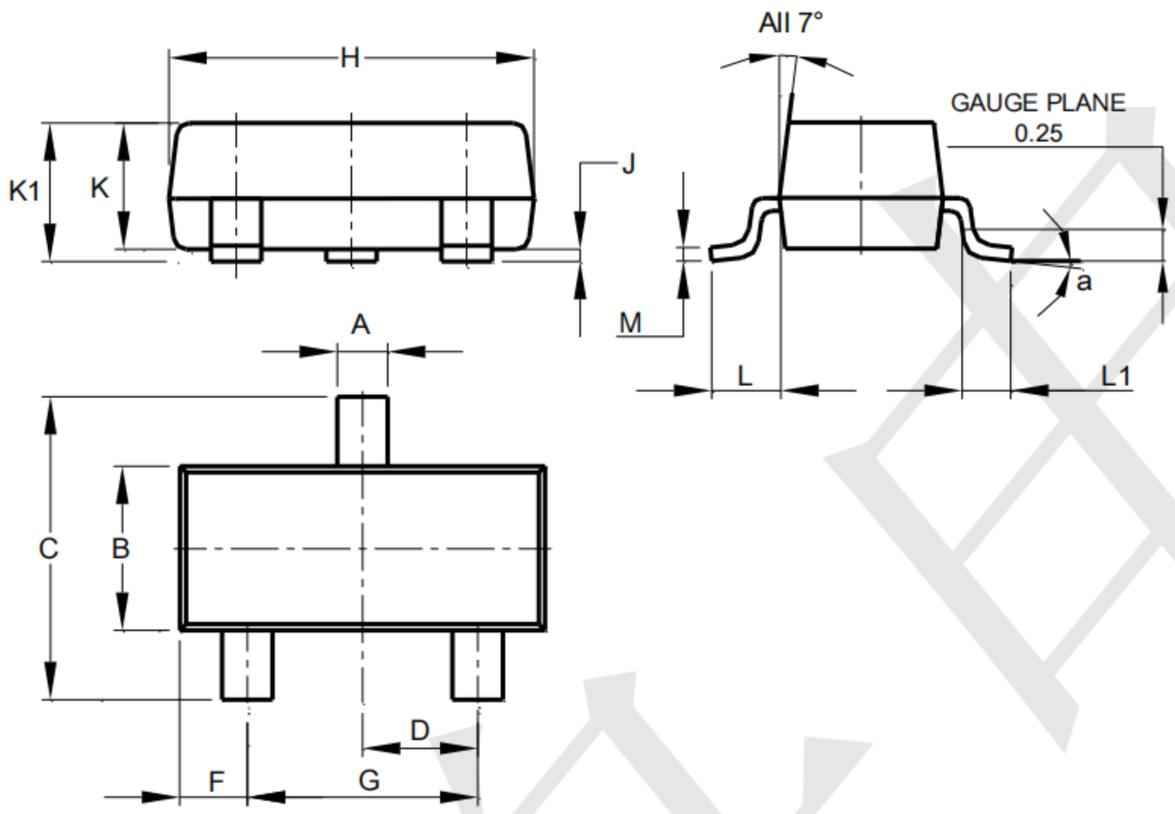


Fig.7 - P_C — T_A

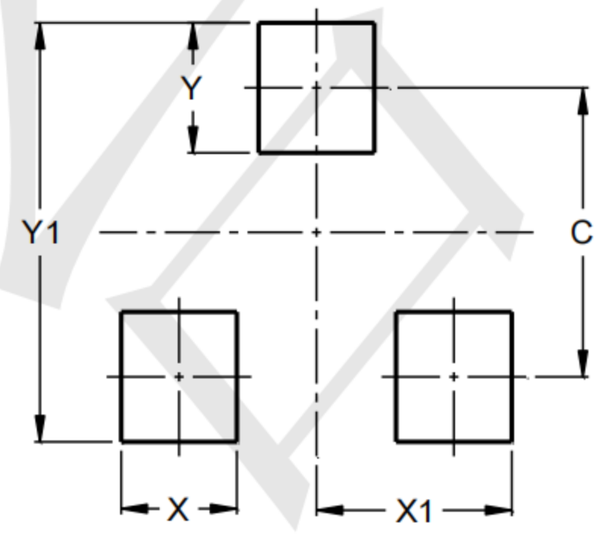


Outline Drawing - SOT23



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Land Pattern - SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9