TECH PUBLIC
台舟电子

S8050-J-TP

NPN Switching Transistor

www.sot23.com.tw

Features

- Collector current: I_C=0.5A
- High total power dissipation: P_C=300mW
- Excellent HFE linearity.

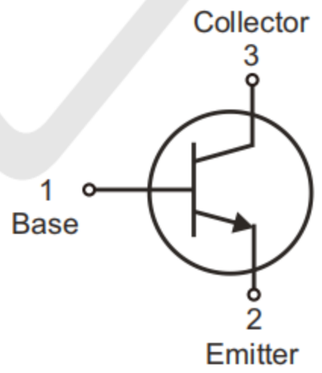
Mechanical data

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

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Circuit Diagram



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

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	40	V
Collector-emitter voltage	V_{CEO}	25	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	500	mA
Collector power dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	°C/W
Operation junction and storage temperature range	T_J ,T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min	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 = 1mA, I_B = 0	25		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	5		V
Collector cut-off current	I_{CBO}	V_{CB} = 40V, I_E = 0		0.1	μA
Collector cut-off current	I_{CEO}	V_{CE} = 20V, I_B = 0		0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 5V, I_C = 0		0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE} = 1V, I_C = 50mA	120	400	
	$h_{FE(2)}$	V_{CE} = 1V, I_C = 500mA	50		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 50mA		0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 500mA, I_B = 50mA		1.2	V
Transition frequency	f_T	V_{CE} = 6V, I_C = 20mA, f = 30MHz	150		MHz

Classification of h_{FE} (1)

Rank	S8050-L-HF	S8050-H-HF	S8050-J-HF
Range	120-200	200-350	300-400

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

Fig.1 - Static Characteristic

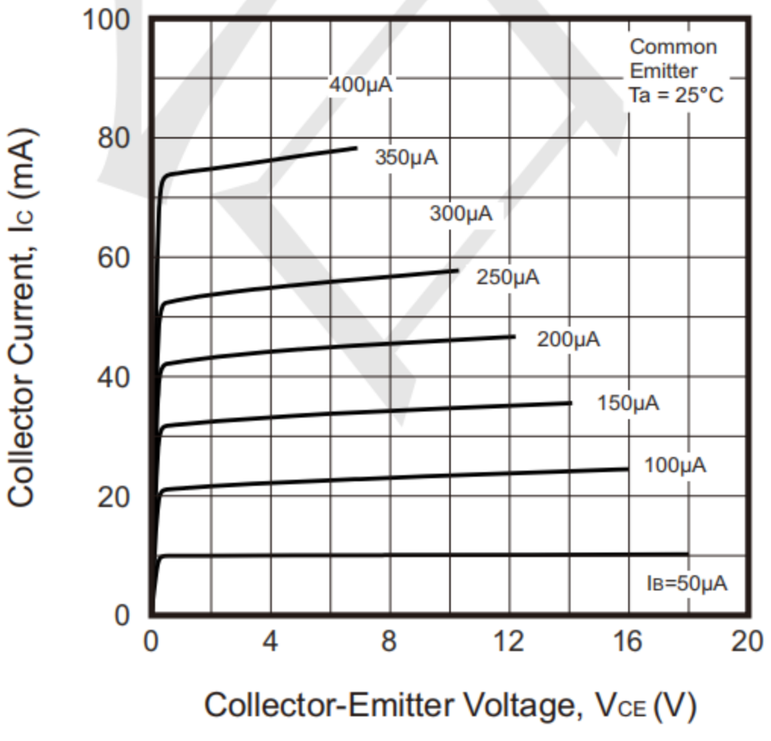
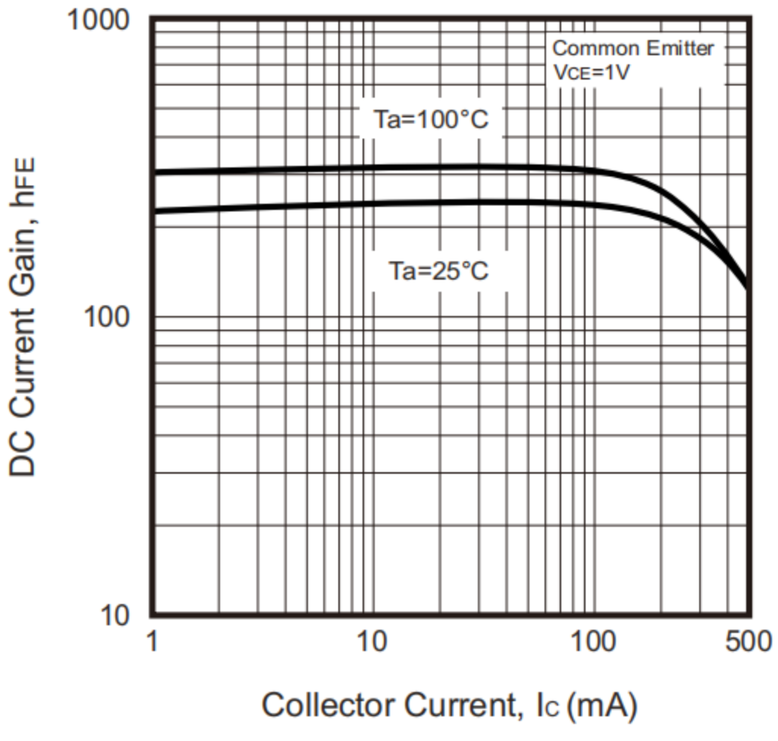


Fig.2 - h_{FE} — I_C



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

Fig.3 - V_{CEsat} — I_C

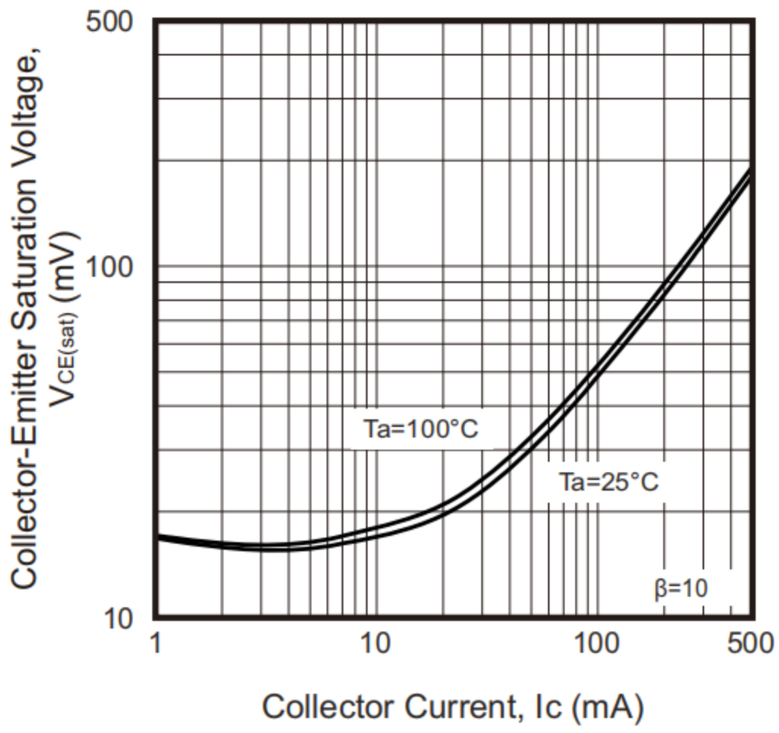


Fig.4 - V_{BEsat} — I_C

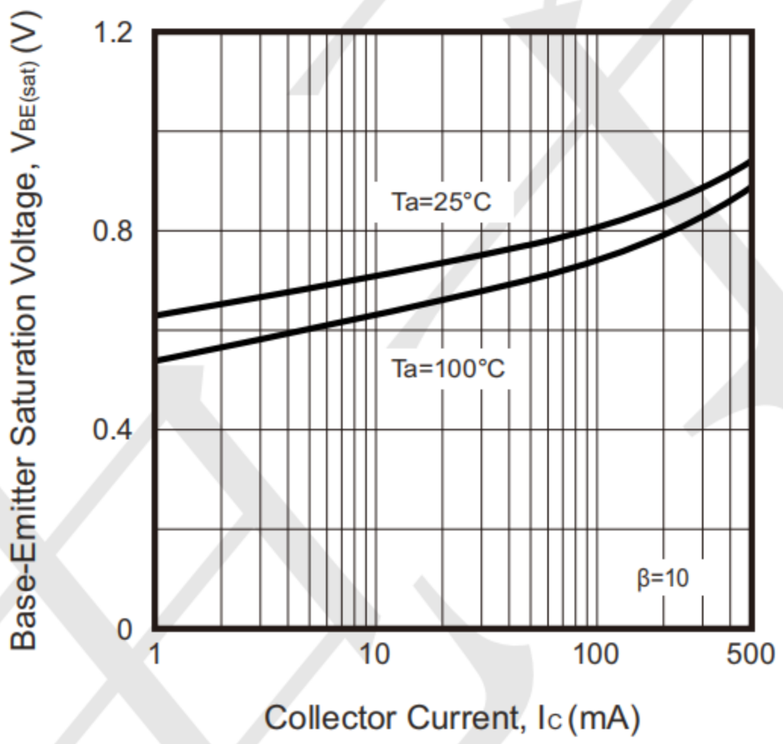


Fig.5 - I_C — V_{BE}

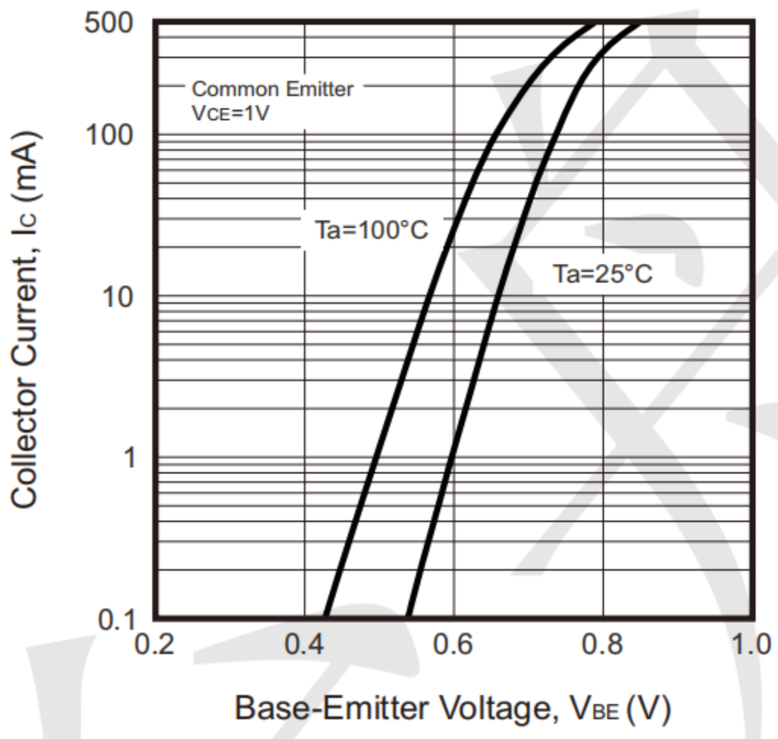


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

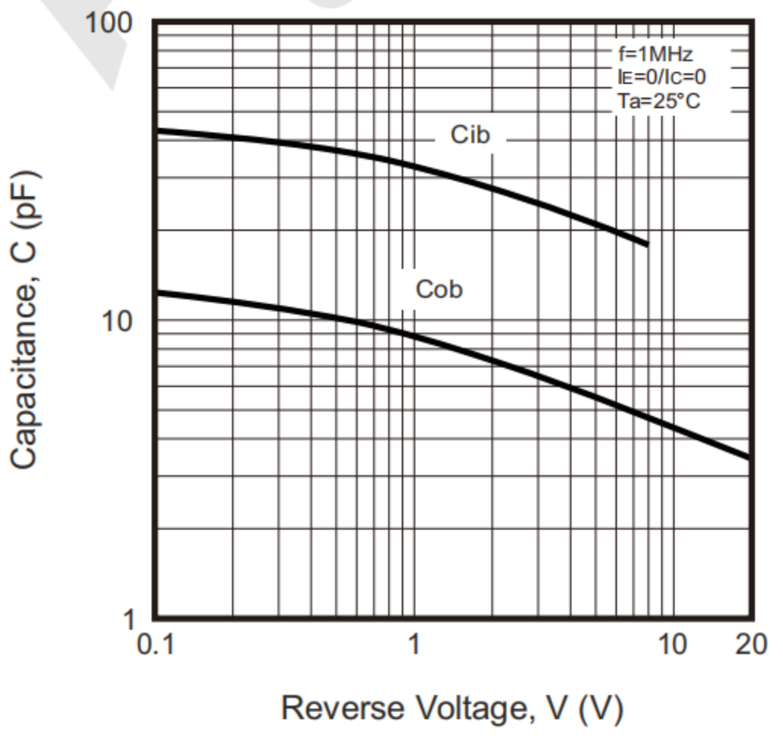


Fig.7 - f_T — I_C

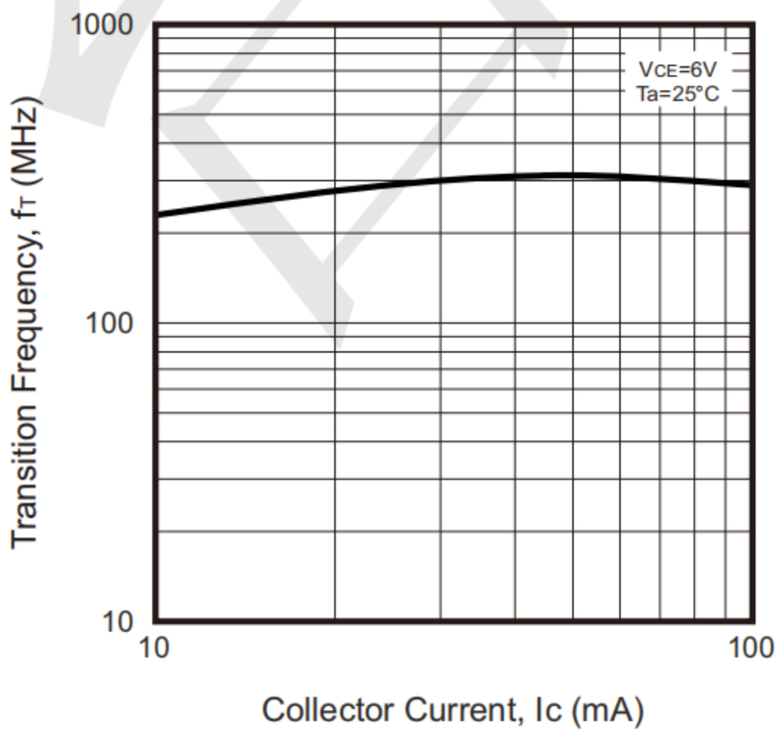
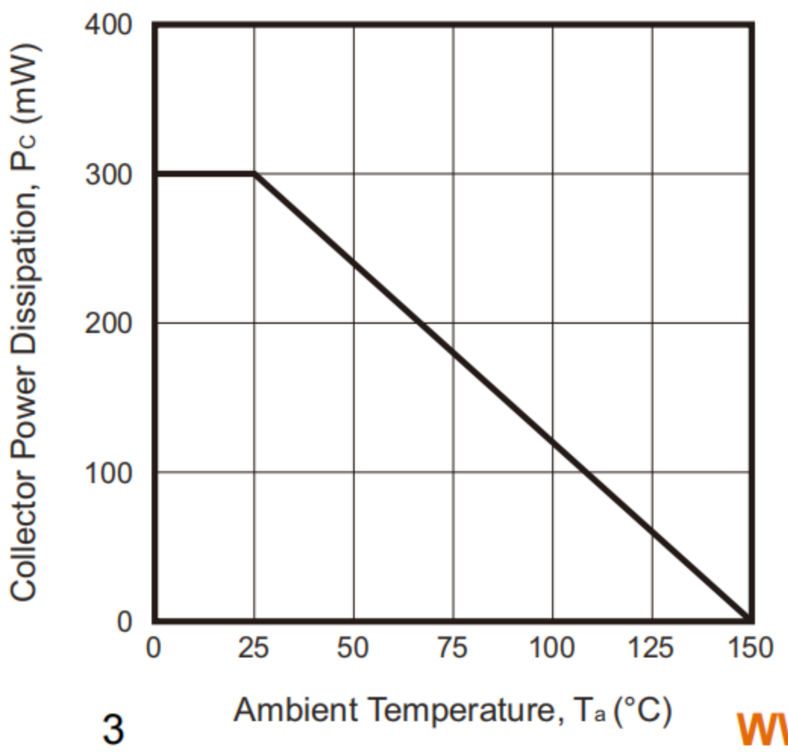
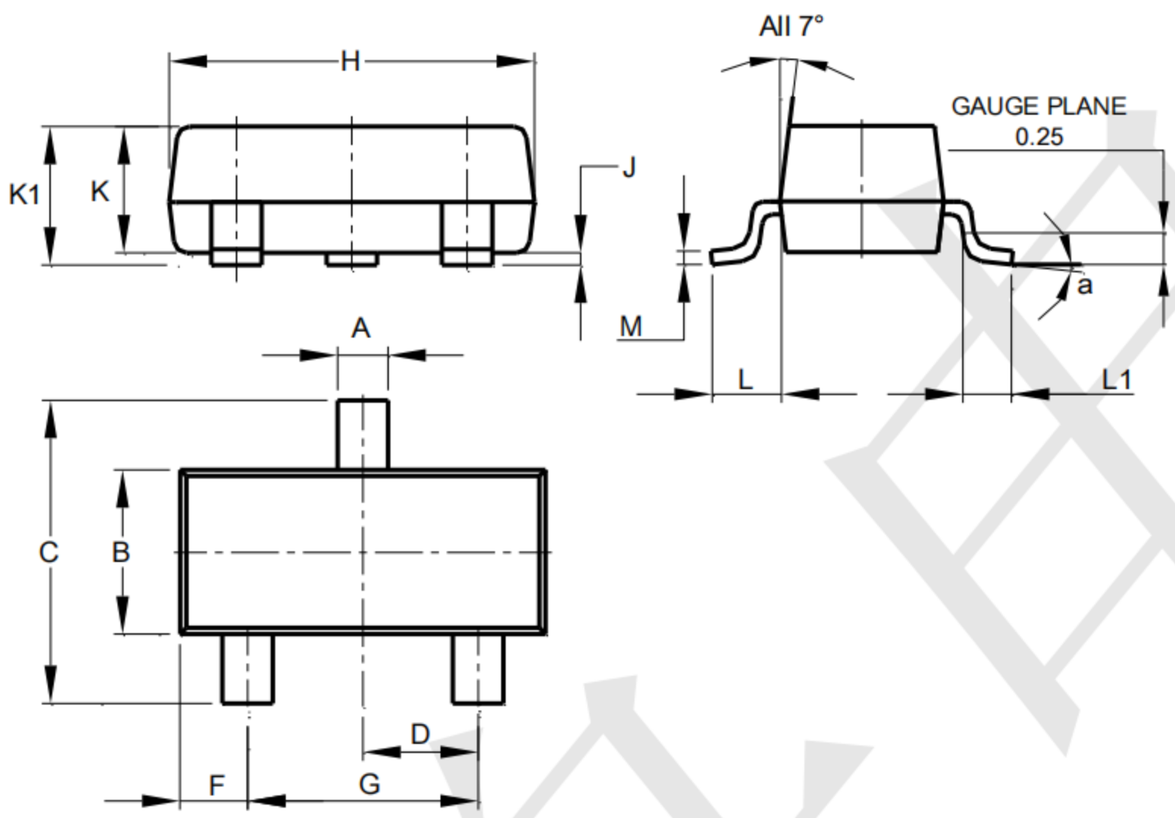


Fig.8 - P_C — T_a



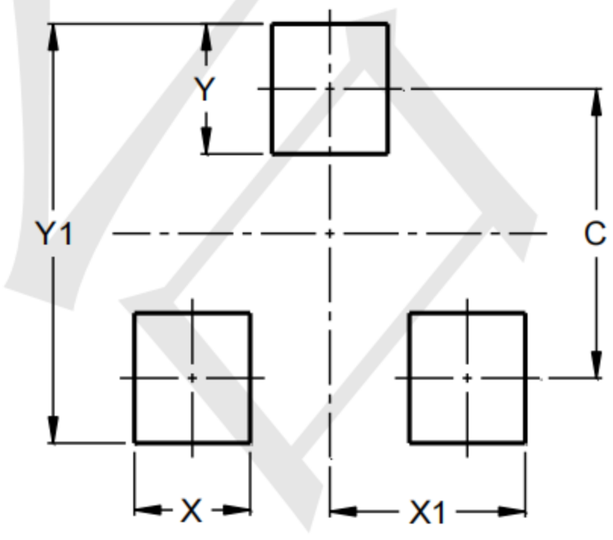
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Outline Drawing - SOT23



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