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TPBC817-16

NPN Switching Transistor

www.sot23.com.tw

Features

- For general AF applications.
- High collector current.
- High current gain.
- Low collector-emitter saturation voltage.

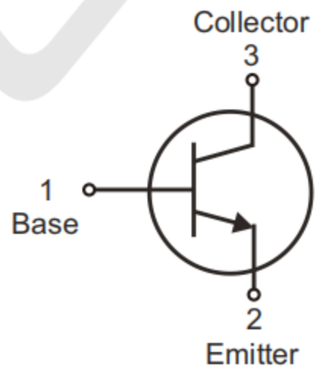
Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Weight: 0.0078 grams(approx.).

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Circuit Diagram



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

Parameter	Symbol	Value	Unit
Collector-Base voltage	V_{CBO}	50	V
Collector-Emitter voltage	V_{CEO}	45	V
Emitter-Base voltage	V_{EBO}	5	V
Collector current-continuous	I_C	500	mA
Collector power dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	°C/W
Junction temperature range	T_J	150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-Base breakdown voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	50			V
Collector-Emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	45			V
Emitter-Base breakdown voltage	$V_{(BR)EBO}$	I_E = 1μA, I_C = 0	5			V
Collector cut-off current	I_{CBO}	V_{CB} = 45V, 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} = 1V, I_C = 100mA	100		600	
	$h_{FE(2)}$	V_{CE} = 1V, I_C = 500mA	40			
Collector-Emitter saturation voltage	$V_{CE(SAT)}$	I_C = 500mA, I_B = 50mA			0.7	V
Base-Emitter saturation voltage	$V_{BE(SAT)}$	I_C = 500mA, I_B = 50mA			1.2	V
Base-Emitter voltage	$V_{BE(ON)}$	V_{CE} = 1V, I_C = 500mA			1.2	V
Collector capacitance	C_{ob}	V_{CB} = 10V, f = 10MHz		10		pF
Transition frequency	f_T	V_{CE} = 5V, I_C = 10mA, f = 100MHz	100			MHz

Classification of $h_{FE(1)}$

Rank	BC817-16-HF	BC817-25-HF	BC817-40-HF
Range	100-250	160-400	250-600

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

Fig.1 - Static Characteristic

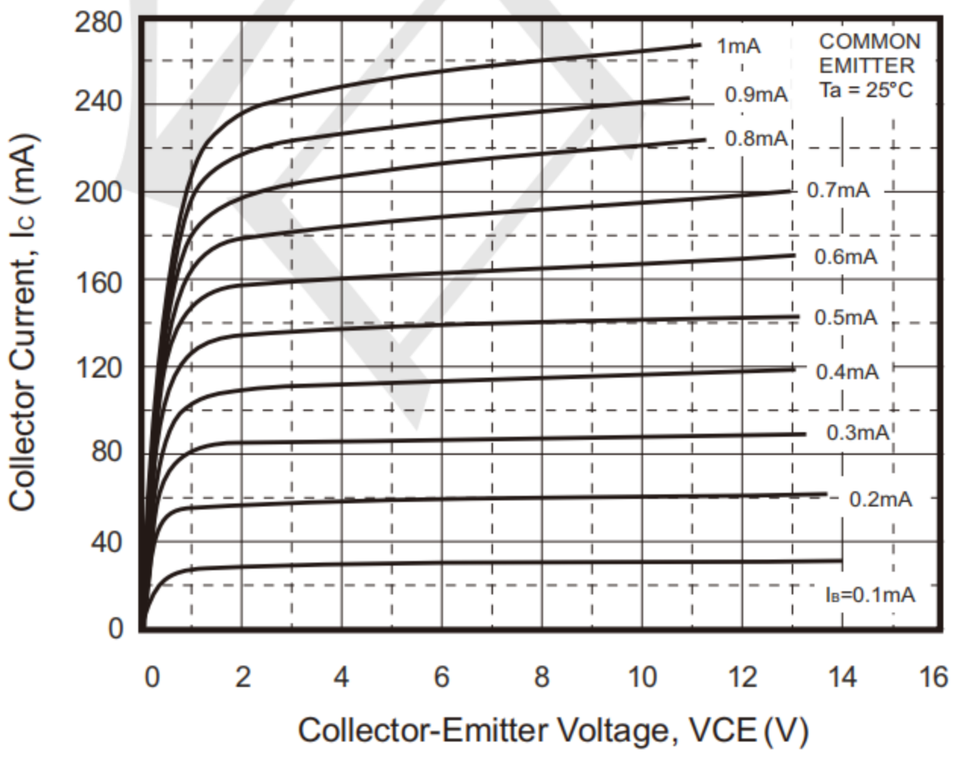
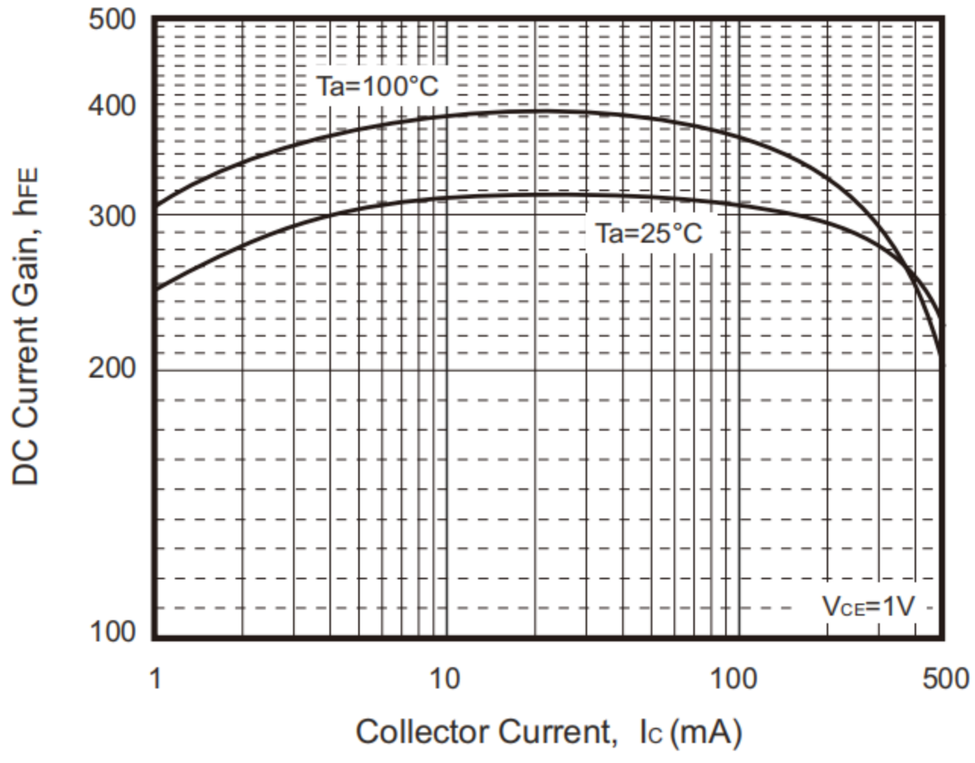


Fig.2 - h_{FE} — I_C



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

Fig.3 - V_{BEsat} — I_C

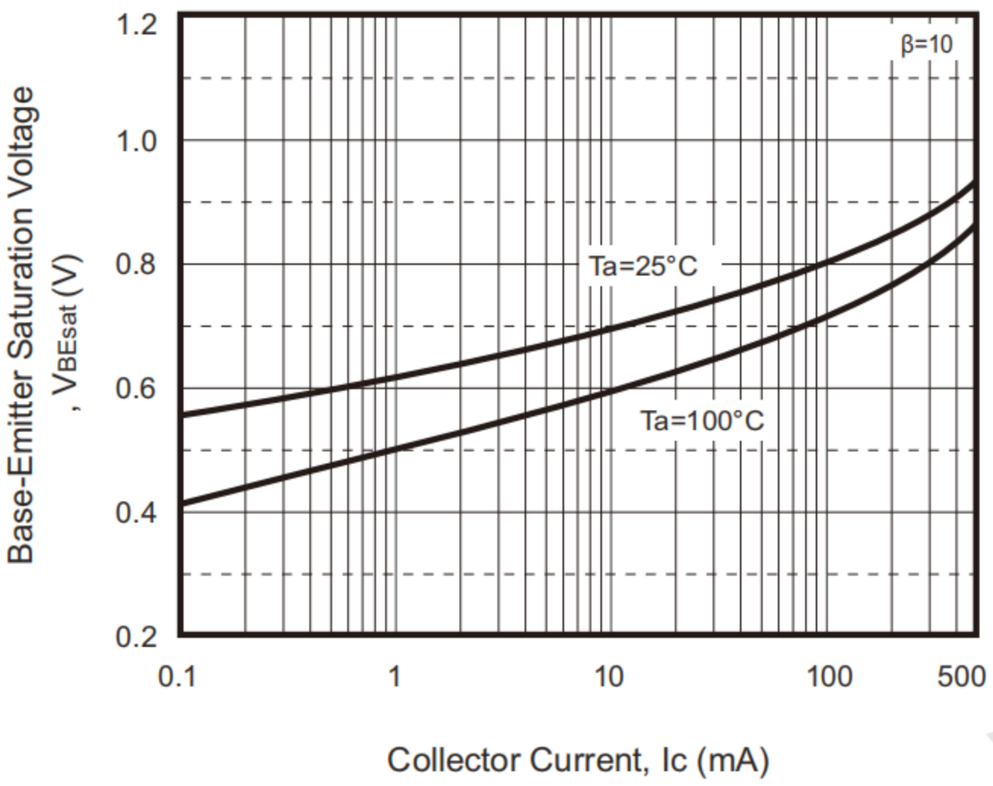


Fig.4 - V_{CEsat} — I_C

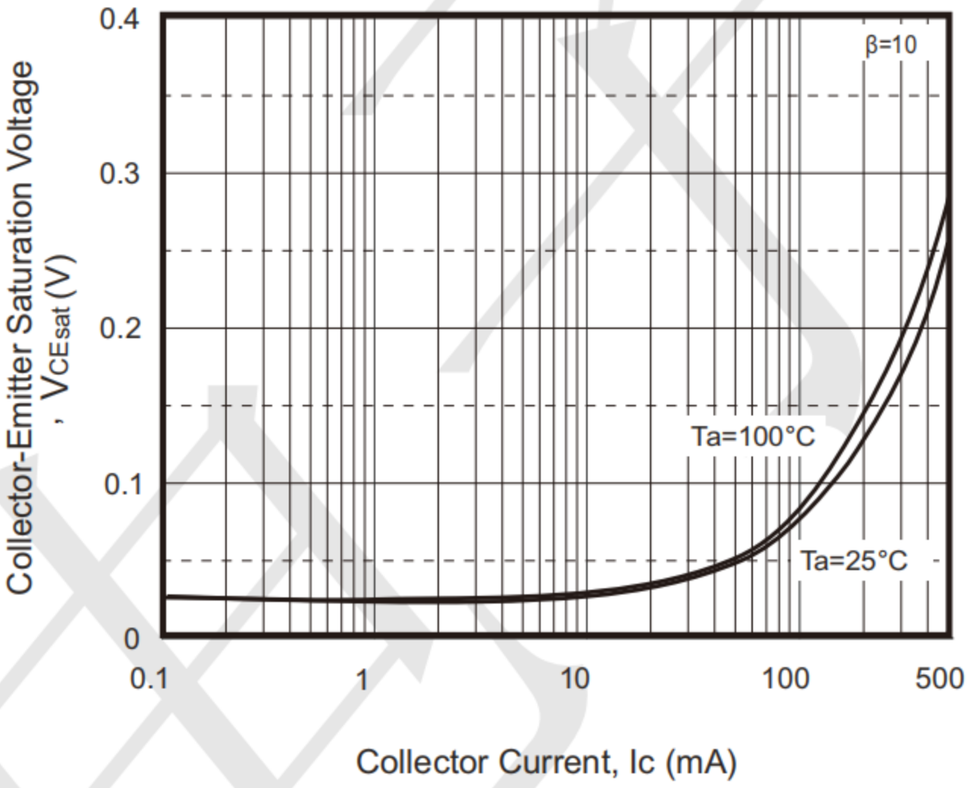


Fig.5 - I_C — V_{BE}

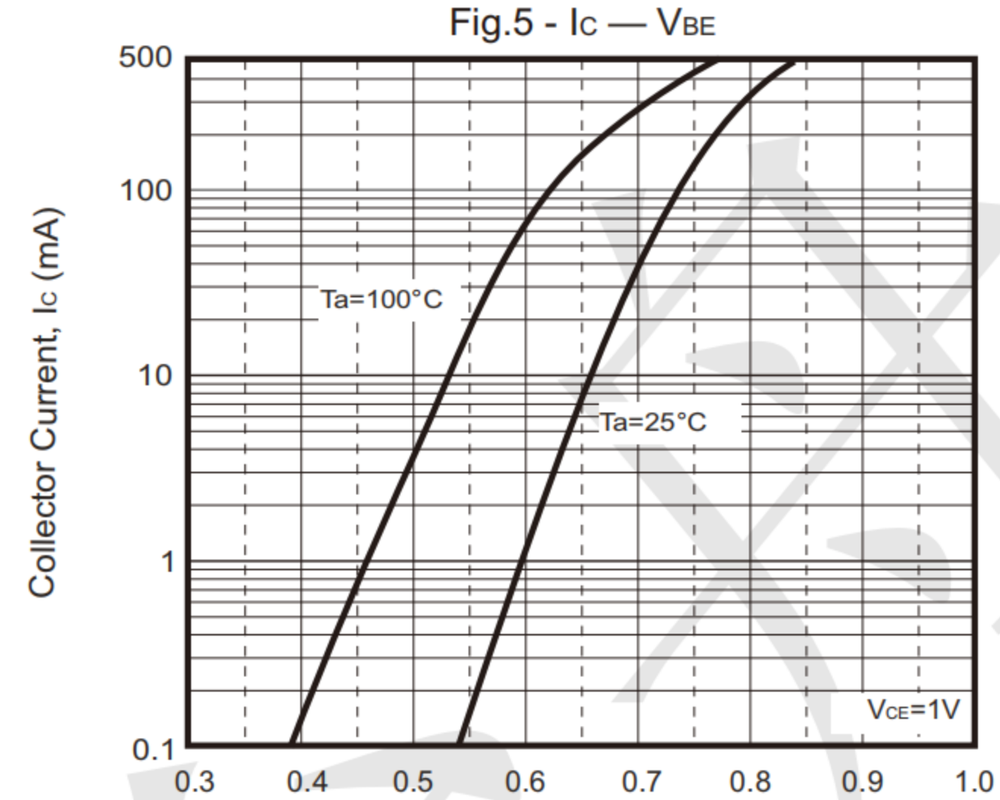


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

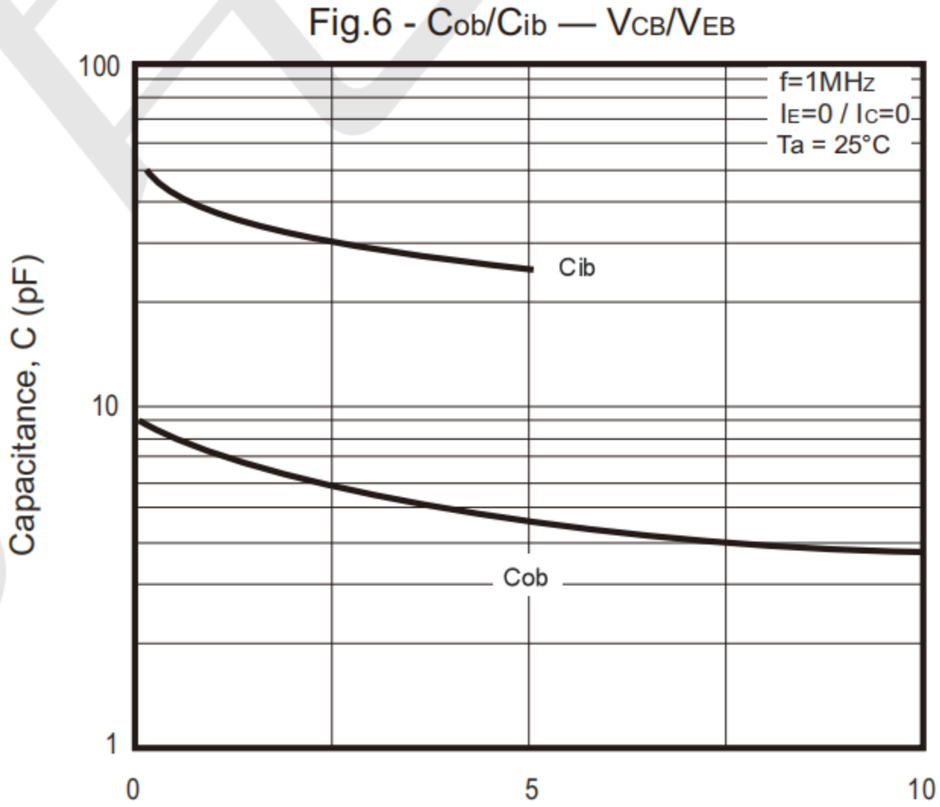


Fig.7 - f_T — I_C

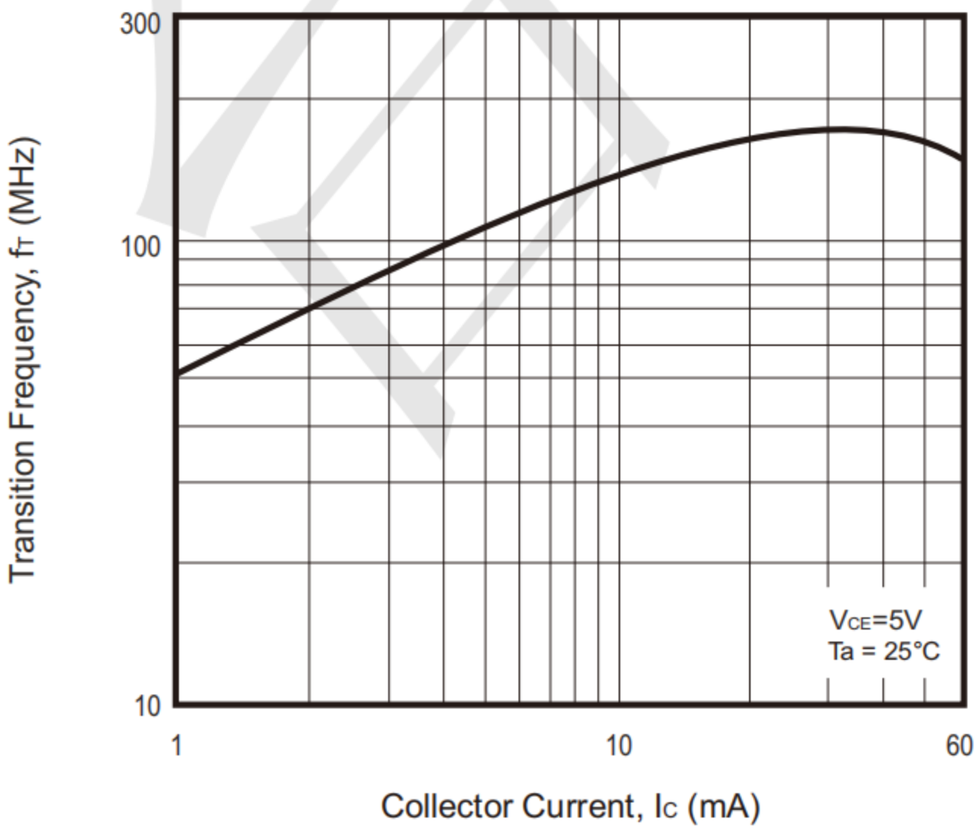
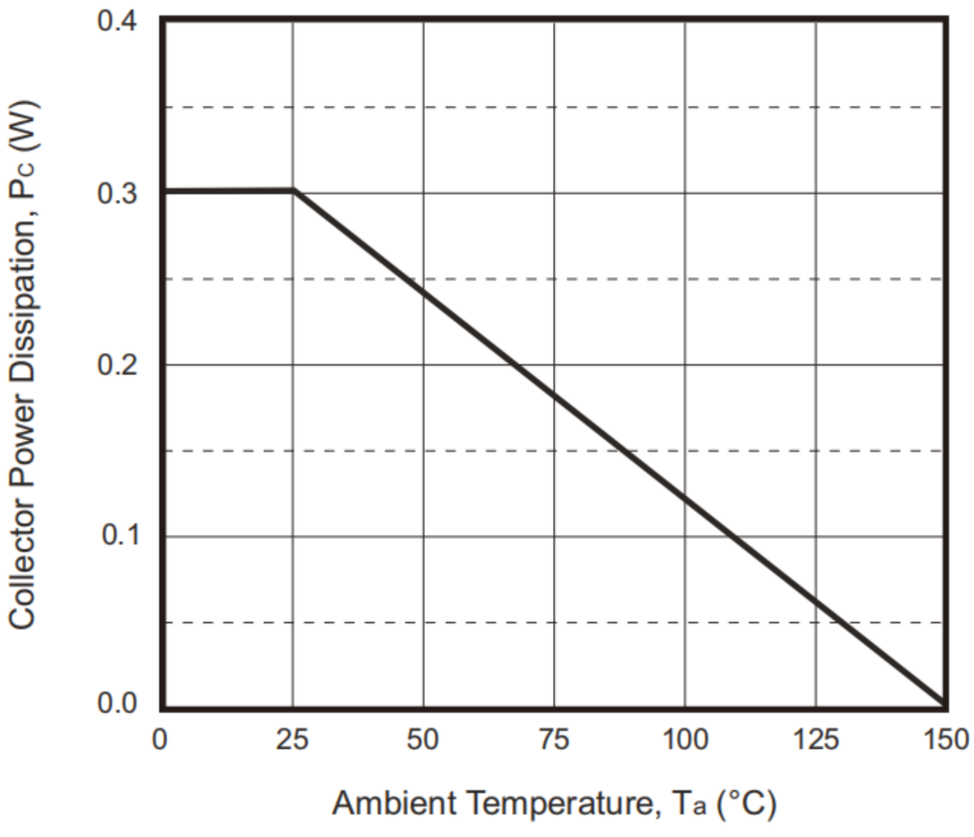
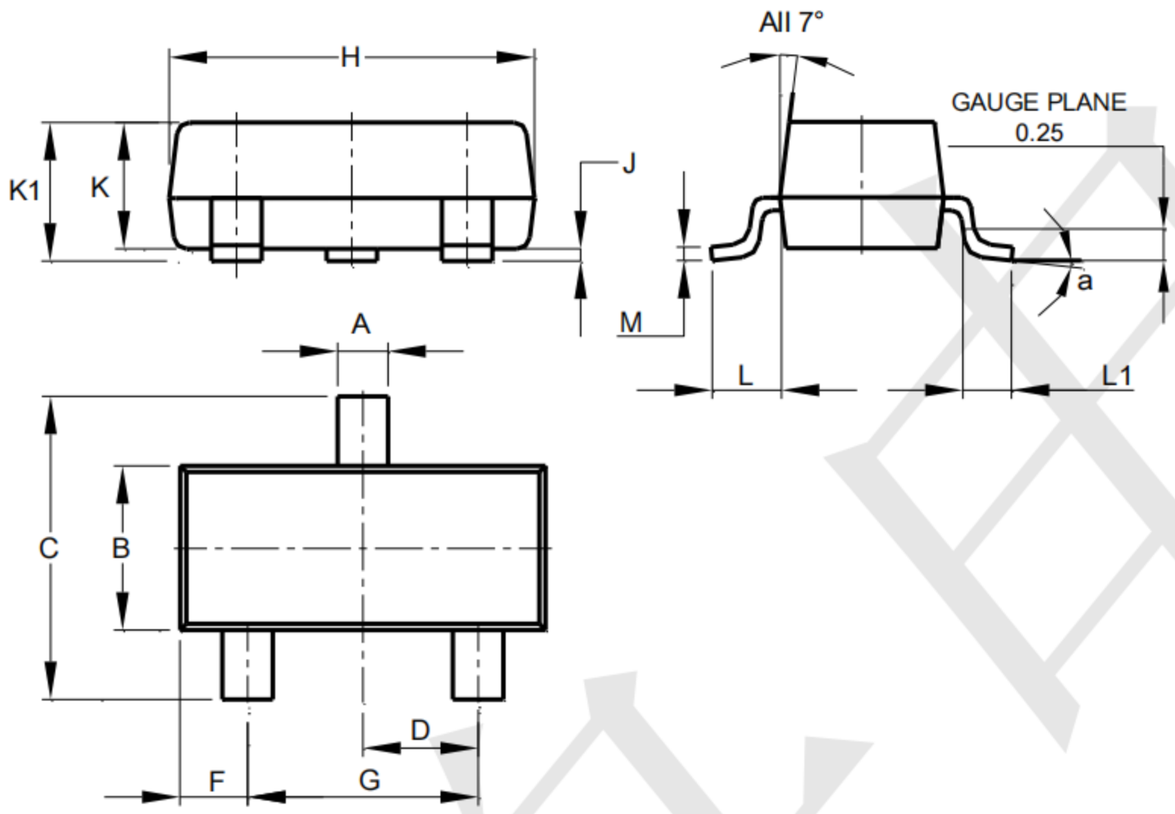


Fig.8 - P_C — Ta



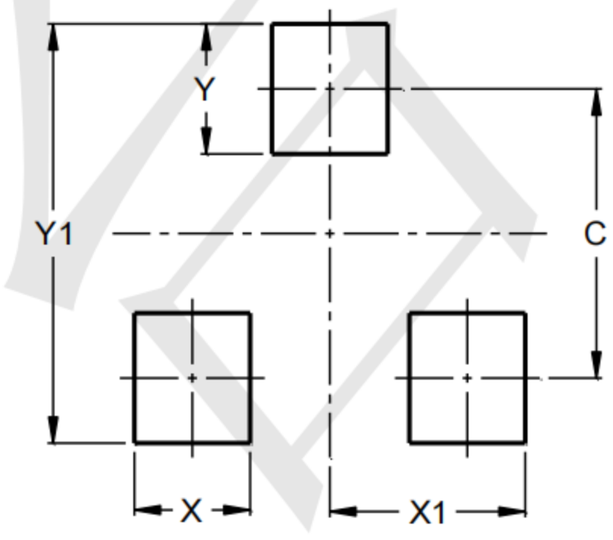
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Outline Drawing - SOT23



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