

Features

- Epoxy meets UL-94 V-0 flammability rating.
- Moisture sensitivity Level 1.
- High conductance.
- Surface mount package ideally suited for automatic insertion.

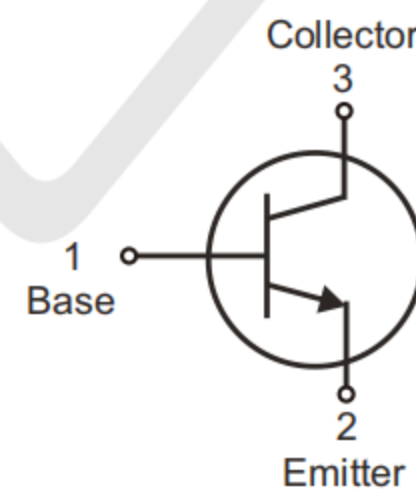
Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102.

SOT23



Circuit Diagram



Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	V _{CBO}	300	V
Collector-emitter voltage	V _{CEO}	300	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _C	500	mA
Collector power dissipation	P _C	350	mW
Operation junction temperature	T _J	150	°C
Storage temperature range	T _{STG}	-55 to +150	°C
Thermal resistance from junction to ambient	R _{θJA}	357	°C/W

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage	$I_C = 100\mu\text{A}, I_E = 0$	V_{CB0}	300			V
Collector-emitter breakdown voltage	$I_C = 1\text{mA}, I_B = 0$	V_{CEO}	300			V
Emitter-base breakdown voltage	$I_E = 100\mu\text{A}, I_C = 0$	V_{EBO}	5			V
Collector-base cut-off current	$V_{CB} = 200\text{V}, I_E = 0$	I_{CBO}			0.5	μA
Emitter-base cut-off current	$V_{EB} = 5\text{V}, I_C = 0$	I_{EBO}			0.5	μA
DC current gain	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	$h_{FE(1)}$	25			
	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	$h_{FE(2)}$	40		300	
	$V_{CE} = 10\text{V}, I_C = 30\text{mA}$	$h_{FE(3)}$	40			
Collector-emitter saturation voltage	$I_C = 20\text{mA}, I_B = 2\text{mA}$	$V_{CE(sat)}$			0.5	V
Base-emitter saturation voltage	$I_C = 20\text{mA}, I_B = 2\text{mA}$	$V_{BE(sat)}$			1.0	V
Transition frequency	$V_{CE} = 20\text{V}, I_C = 10\text{mA}, f = 30\text{MHz}$	f_T	50			MHz

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig.1 - Static Characteristic

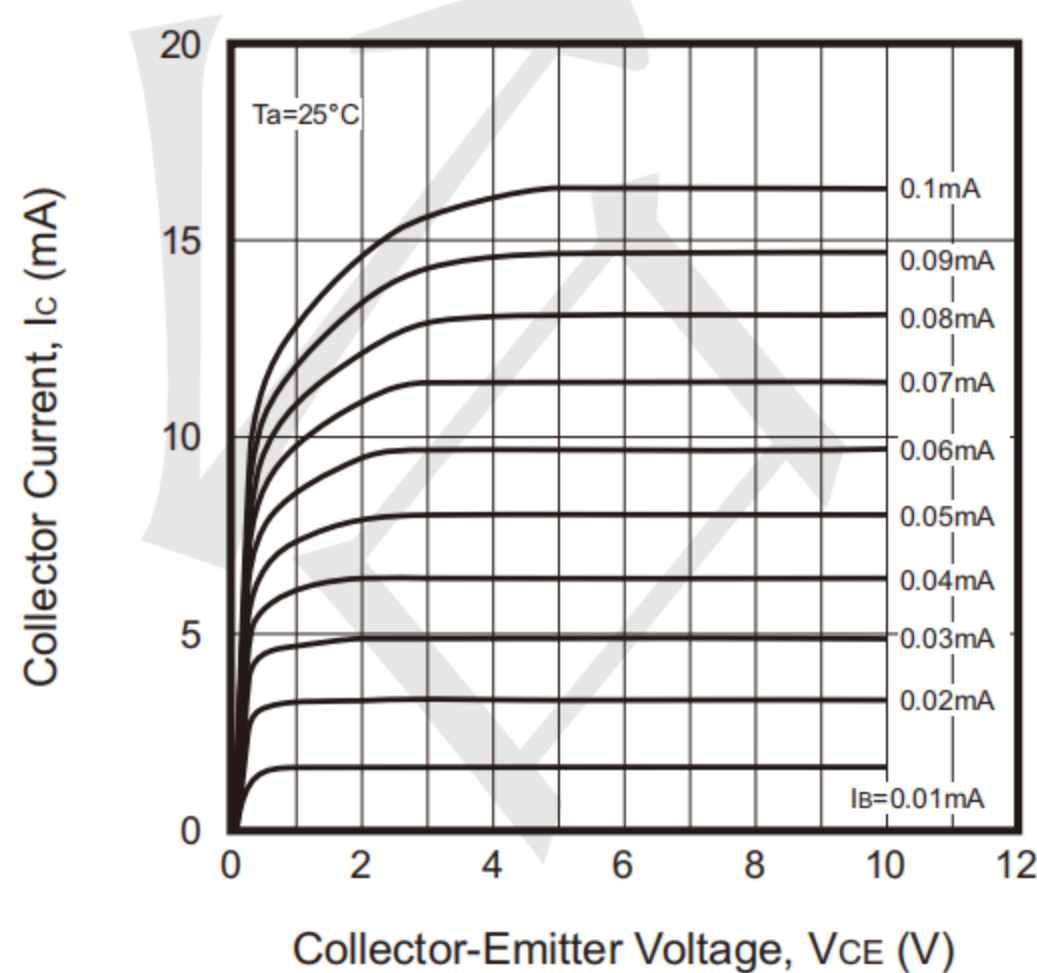
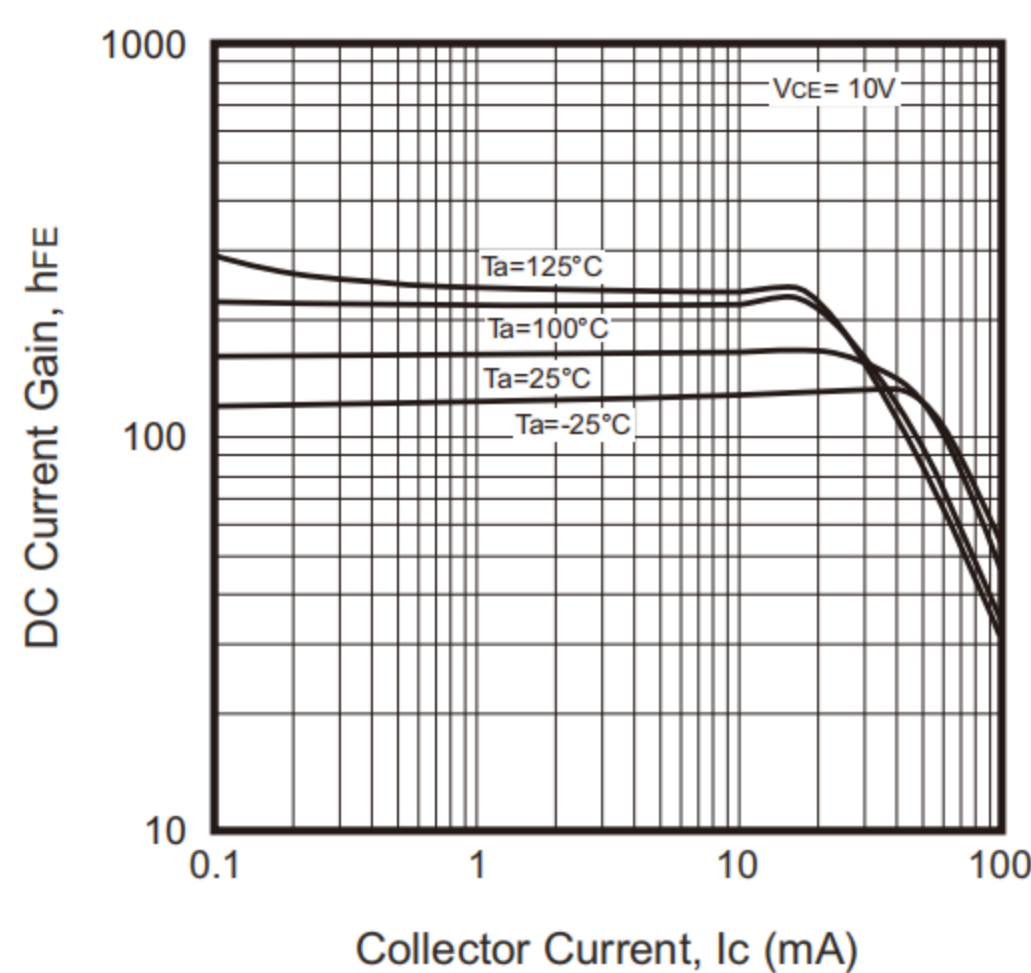


Fig.2 - DC Current Gain



Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig.3 - Collector-Emitter Saturation Voltage

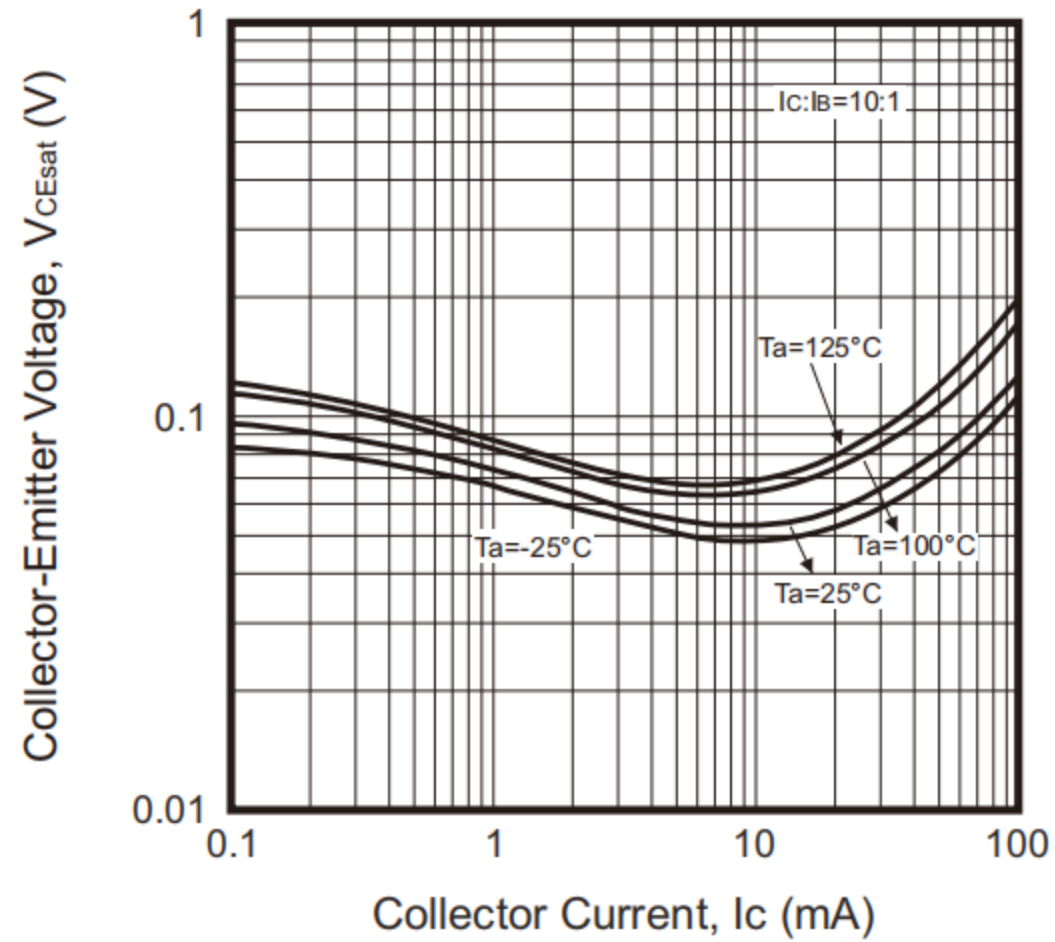


Fig.4 - Base-Emitter Saturation Voltage

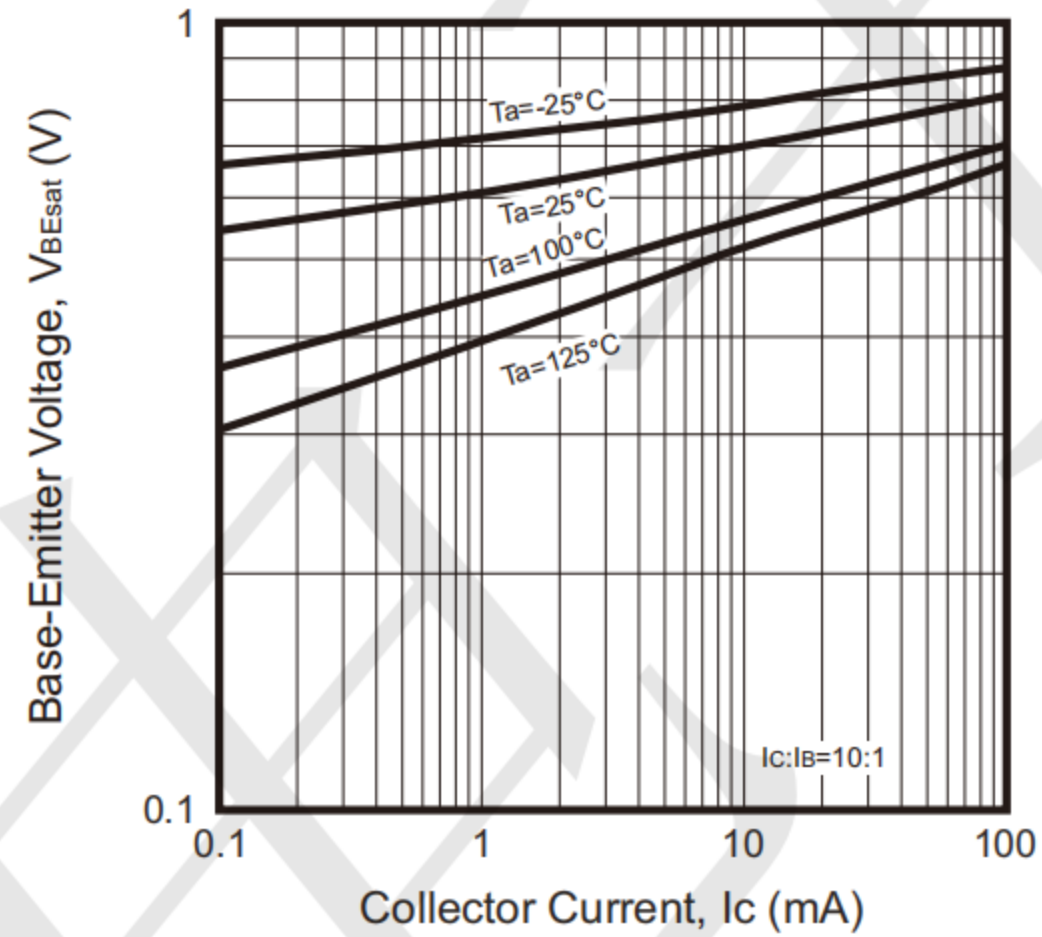


Fig.5 - Base-Emitter on Voltage

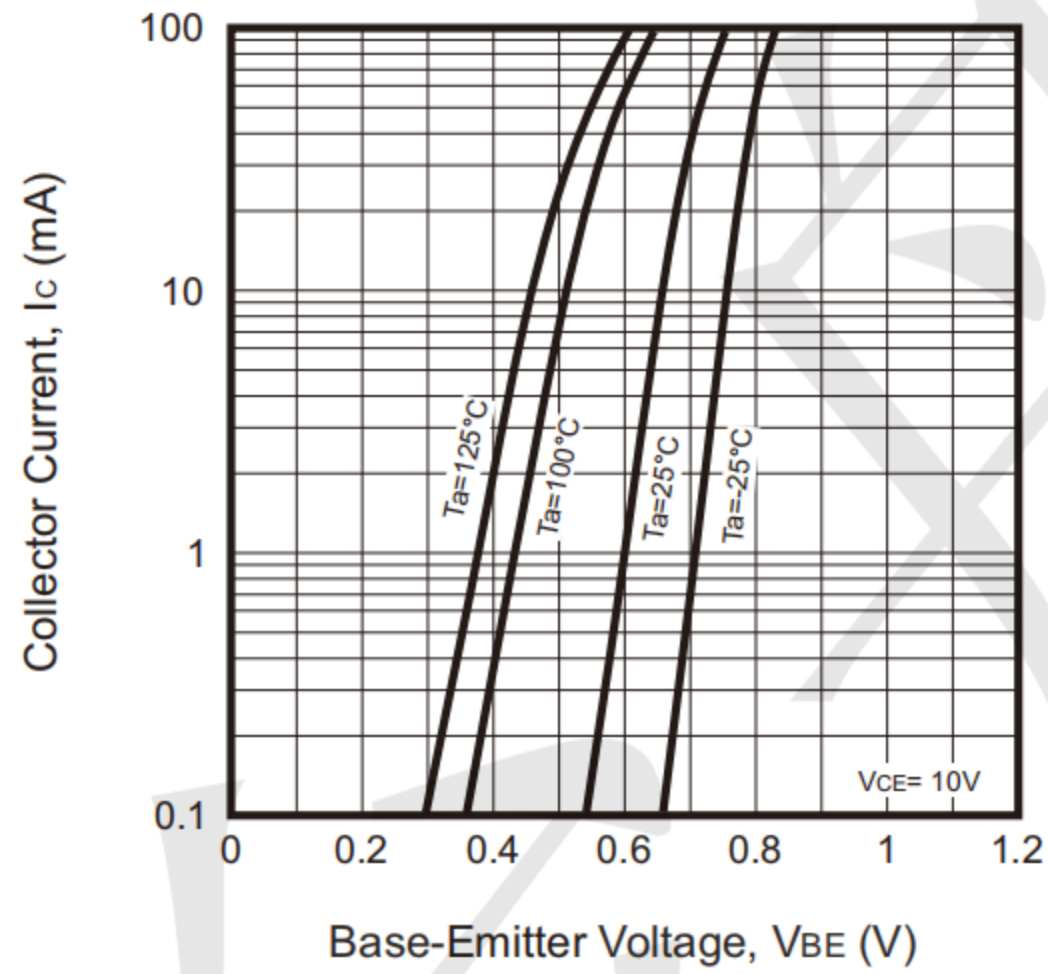


Fig.6 - $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

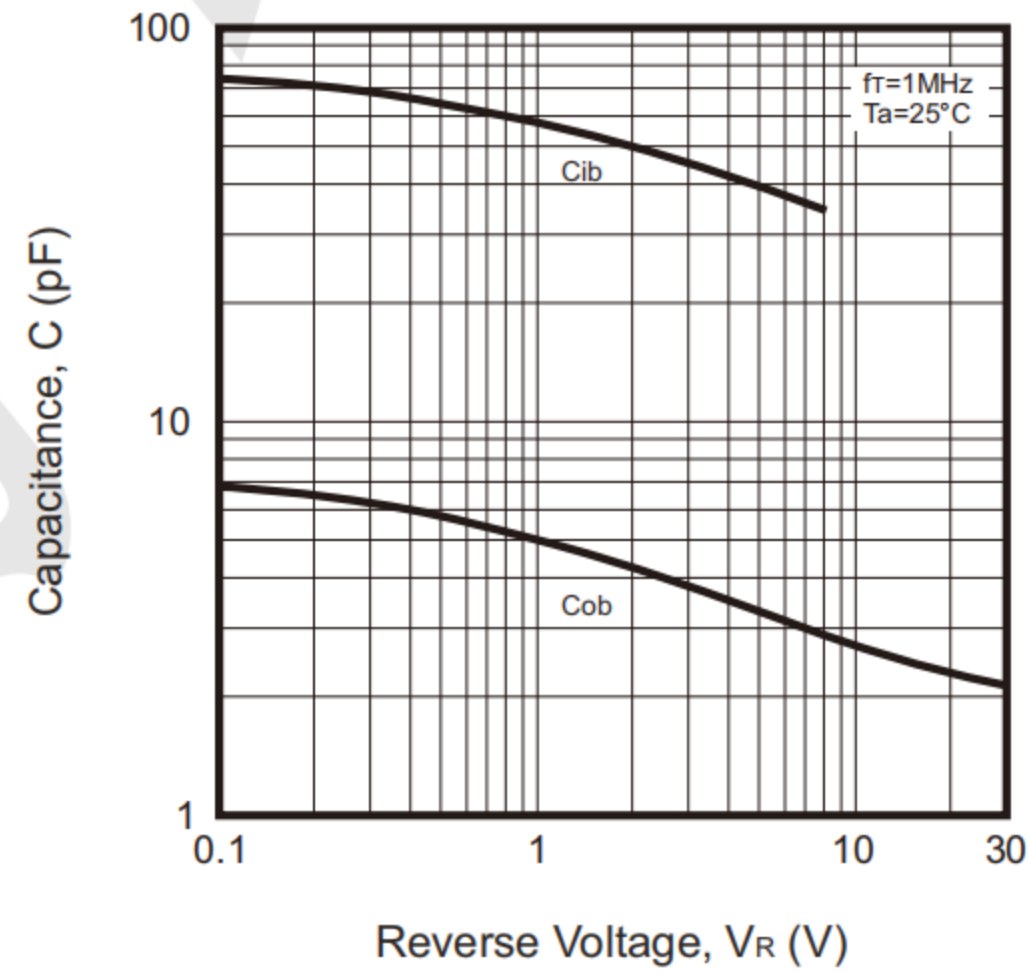
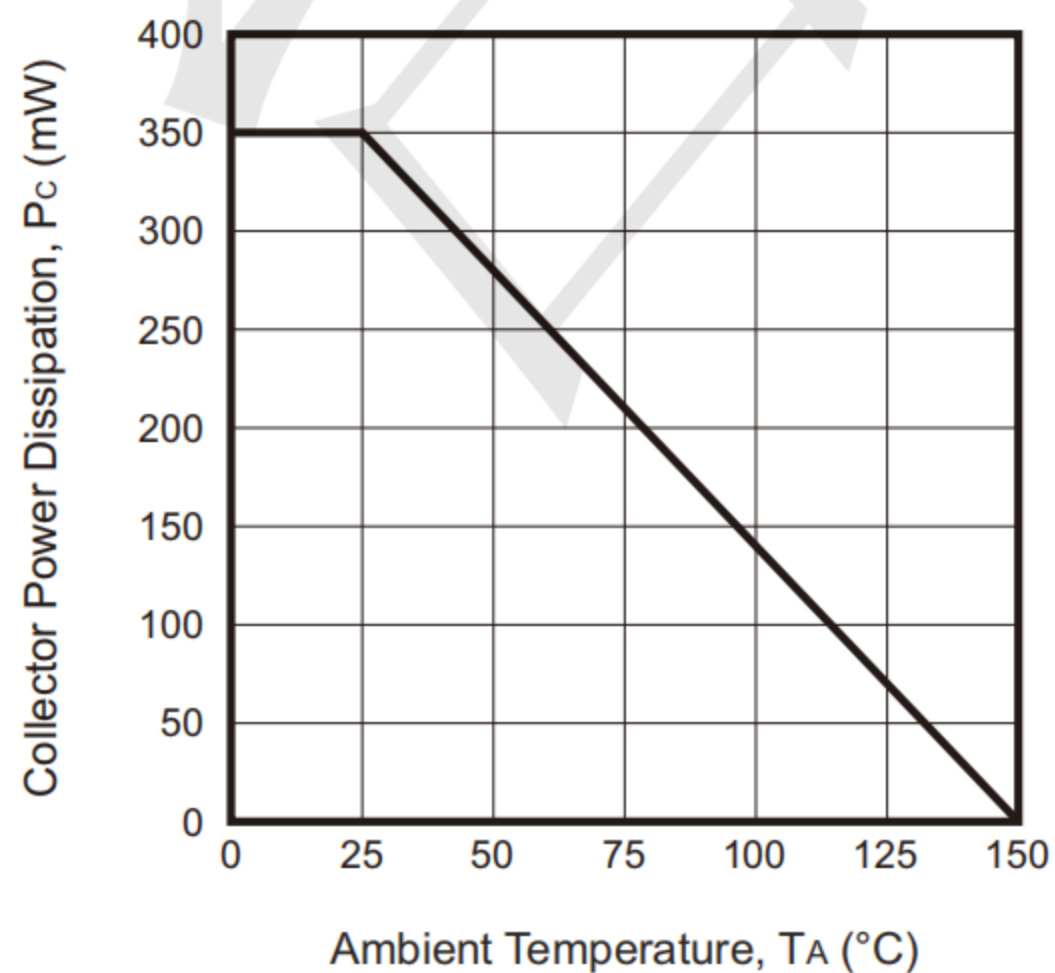


Fig.7 - Collector Power Derating Curve





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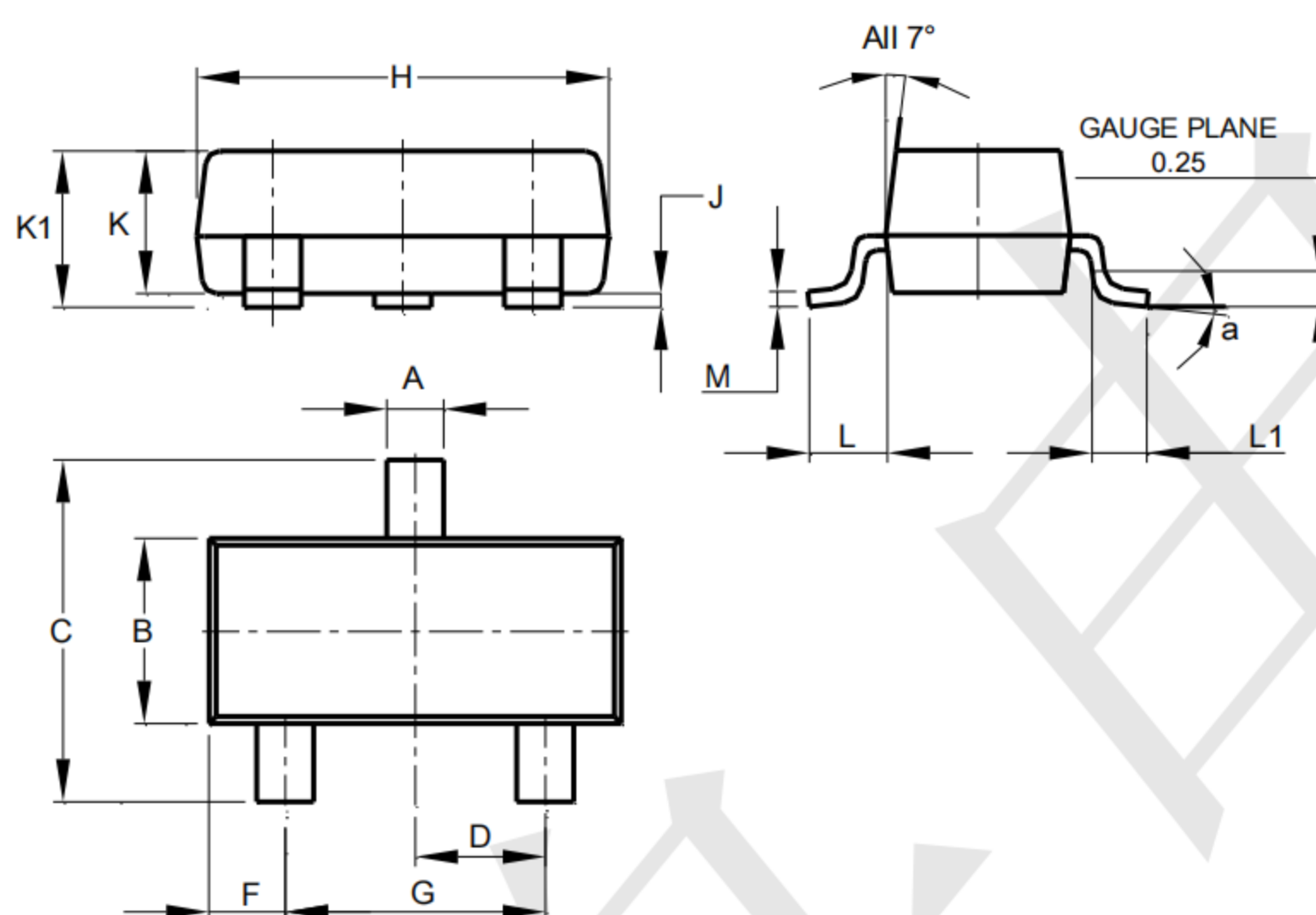
—台用电子—

TPMMBTA42

NPN Switching Transistor

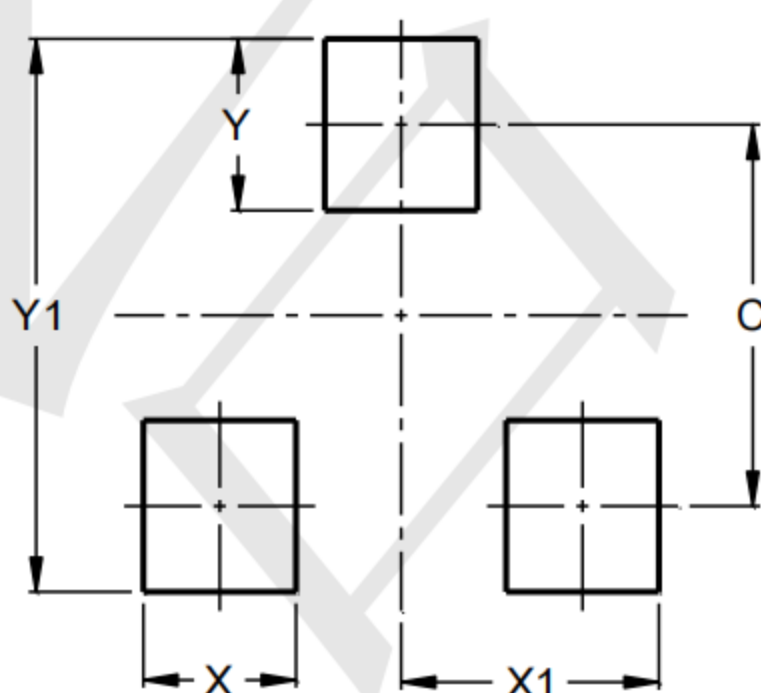
www.sot23.com.tw

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