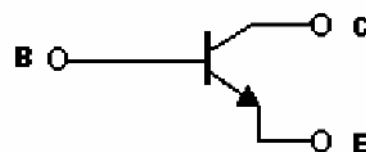
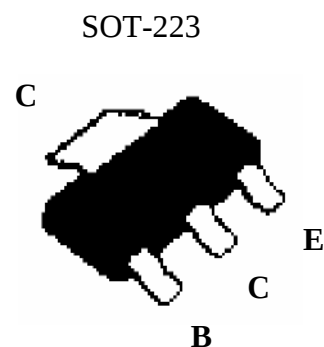


Silicon NPN Epitaxial Planar Transistor

Description:

- High BV_{CEO}
- High current capability
- Pb-free lead plating package



B : Base
C : Collector
E : Emitter

Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	1.5	A
Collector Current (Pulse)	I_{CP}	3	A
Power Dissipation @ $T_C=25^{\circ}\text{C}$	P_D	5	W
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^{\circ}\text{C}$

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	180	-	-	V	I _C =50μA, I _E =0
BV _{CEO}	160	-	-	V	I _C =1mA, I _B =0
BV _{EBO}	5	-	-	V	I _E =50μA, I _C =0
I _{CBO}	-	-	1	μA	V _{CB} =160V, I _E =0
I _{EBO}	-	-	1	μA	V _{EB} =4V, I _C =0
*V _{CE(sat)}	-	-	0.6	V	I _C =1A, I _B =100mA
*V _{BE(on)}	-	-	1.5	V	V _{CE} =2V, I _C =150mA
h _{FE1}	180	-	390	-	V _{CE} =2V, I _C =150mA
h _{FE2}	50	-	-	-	V _{CE} =2V, I _C =500mA
f _T	-	140	-	MHz	V _{CE} =5V, I _C =150mA
Cob	-	27	-	pF	V _{CB} =10V, I _E =0, f=1MHz

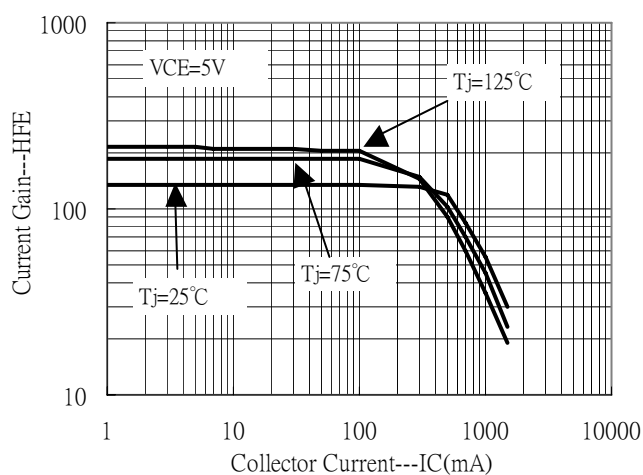
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Ordering Information

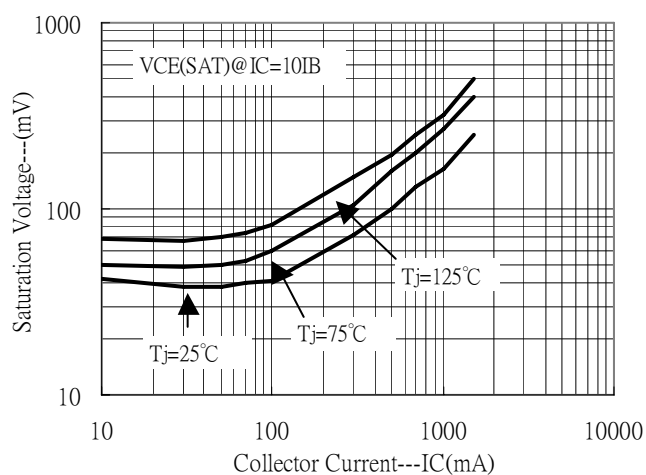
Device	Package	Shipping	Marking
KL1857A	SOT-223 (Pb-free lead plating package)	2500 pcs / Tape & Reel	DQ

Characteristic Curves

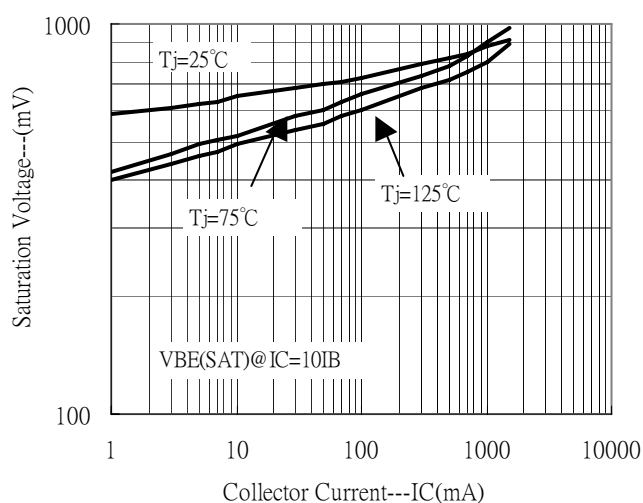
Current Gain vs Collector Current



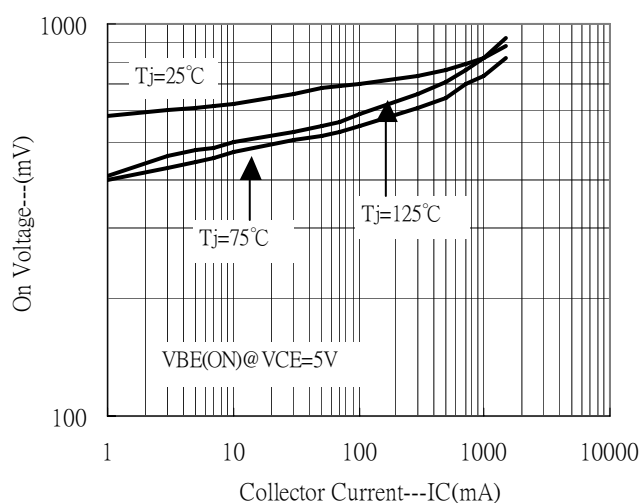
Saturation Voltage vs Collector Current



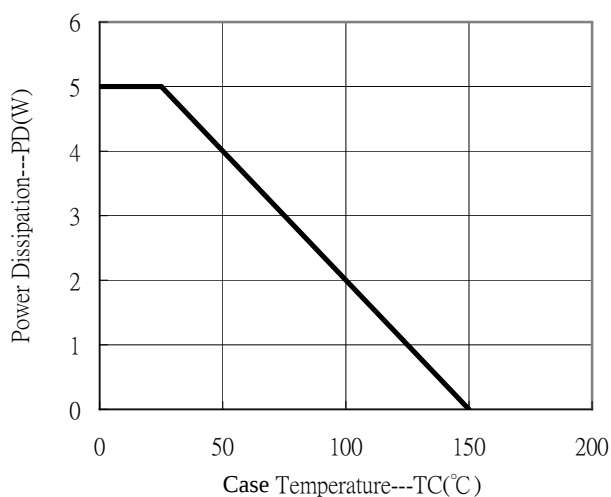
Saturation Voltage vs Collector Current



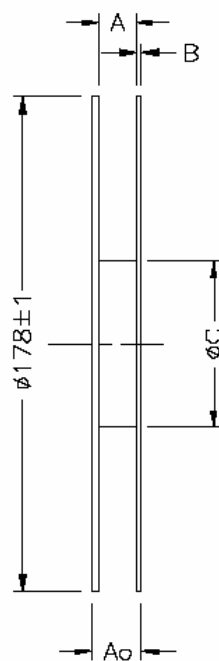
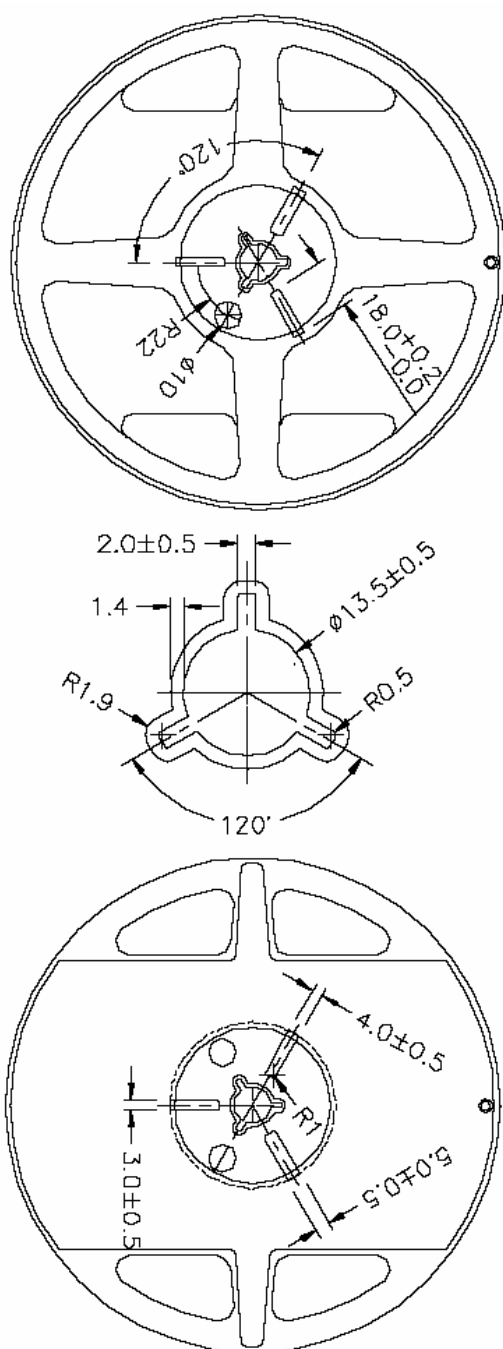
On Voltage vs Collector Current



Power Derating Curve



Reel Dimension



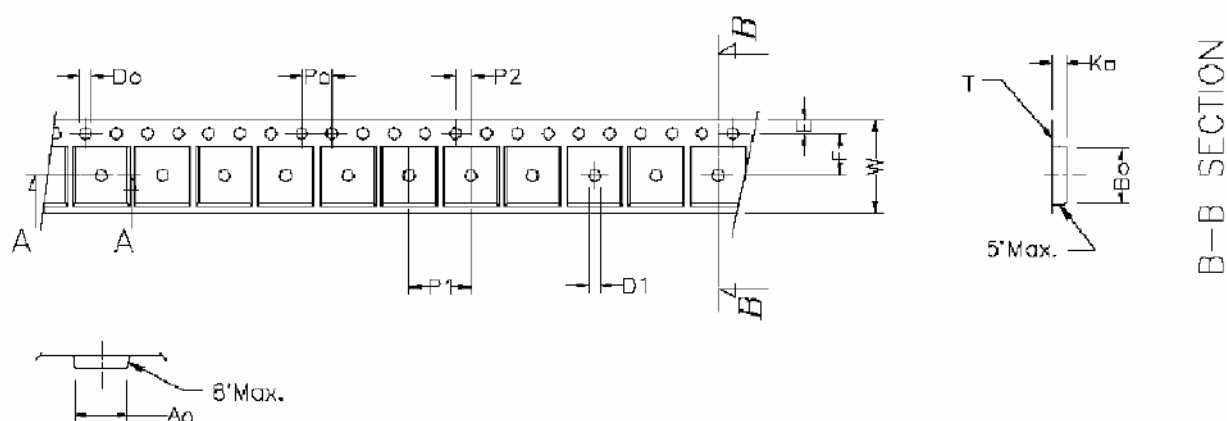
Width of carrier tape	8	12	16
$A \pm 0.05$	9.0	13.0	17.0
$Ao \pm 0.05$	12.0	16.0	20.0
B	1.5	1.5	1.5
$\phi C \begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	60	60	60

NOTE :

1. Material : Anti-static polystyrene.
2. Surface resistivity $10^9 \Omega/\text{m}^2/\text{square}$

UNIT : millimeter

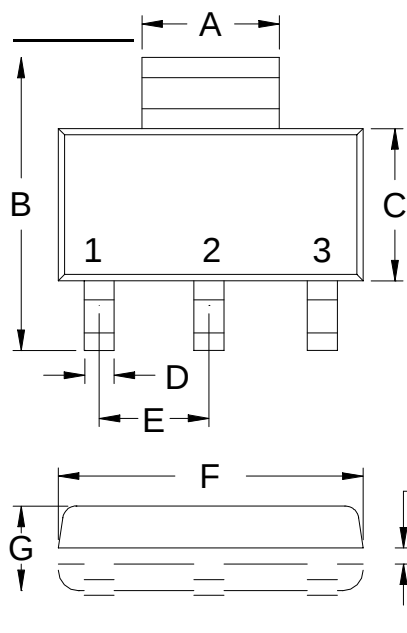
Carrier Tape Dimension



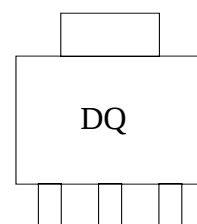
A-A SECTION

symbol	A_o	B_o	K_o	P_o	P_1	P_2	T
Spec	6.83 ± 0.1	7.42 ± 0.1	1.88 ± 0.1	4.0 ± 0.1	8.0 ± 0.10	2.0 ± 0.05	0.292 ± 0.02
symbol	E	F	D_o	D_1	W	$10P_o$	
Spec	1.75 ± 0.1	5.5 ± 0.05	1.60 ± 0.1	1.5 ± 0.25	$12.0^{+0.3}_{-0.1}$	40.0 ± 0.2	

SOT-223 Dimension



Marking:



Style: Pin 1.Base 2.Collector 3.Emitter

3-Lead SOT-223 Plastic
Surface Mounted Package

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13P ⁰	-	*13 ⁰	-
E	*0.0906	-	*2.30	-	a2	0 ⁰	10 ⁰	0 ⁰	10 ⁰
F	0.2480	0.2638	6.30	6.70					