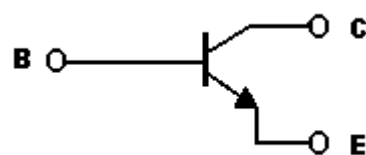
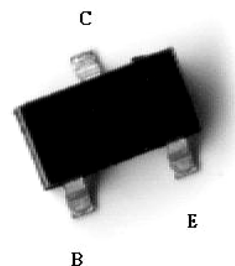


Low Vcesat NPN Epitaxial Planar Transistor

Features:

- Low $V_{CE(sat)}$, $V_{CE(sat)}=0.35\text{ V}$ (typical), at $I_C / I_B = 3\text{A} / 0.1\text{A}$
- Excellent DC current gain characteristics
- Complementary to BTB1386N3
- Pb-free lead plating and halogen-free package

SOT-23



B : Base
C : Collector
E : Emitter

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current (DC)	I_C	5	A
Collector Current (Pulse)	I_{CP}	8 (Note)	A
Power Dissipation	P_d	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_j	-55~+150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~+150	$^\circ\text{C}$

Note : Single Pulse $P_w \leq 350\mu\text{s}$, Duty $\leq 2\%$.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CEO}	20	-	-	V	I _C =1mA, I _B =0
BV _{EBO}	7	-	-	V	I _E =10μA, I _C =0
I _{CBO}	-	-	0.1	μA	V _{CB} =10V, I _E =0
I _{CEO}	-	-	1	μA	V _{CE} =10V, I _B =0
I _{EBO}	-	-	0.1	μA	V _{EB} =7V, I _C =0
*V _{CE(sat)}	-	0.35	1.0	V	I _C =3A, I _B =0.1A
*h _{FE1}	230	-	800	-	V _{CE} =2V, I _C =500mA
*h _{FE2}	150	-	-	-	V _{CE} =2V, I _C =2A
f _T	-	150	-	MHz	V _{CE} =6V, I _E =50mA, f=200MHz
Cob	-	-	50	pF	V _{CB} =20V, I _E =0A, f=1MHz

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

Classification Of h_{FE1}

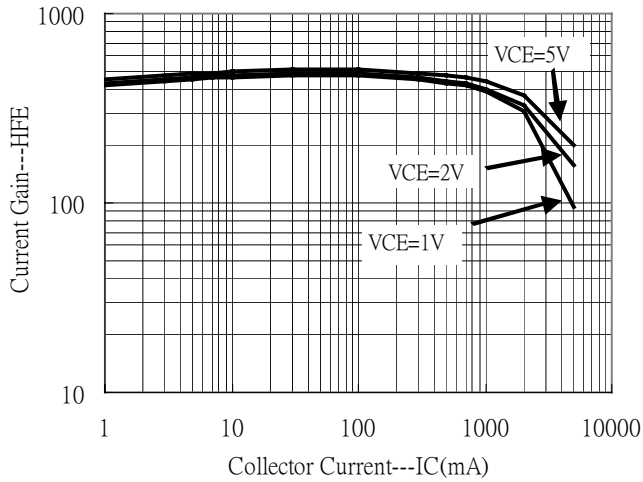
Rank	Q	R	S
Range	230~380	340~600	400~800

Ordering Information

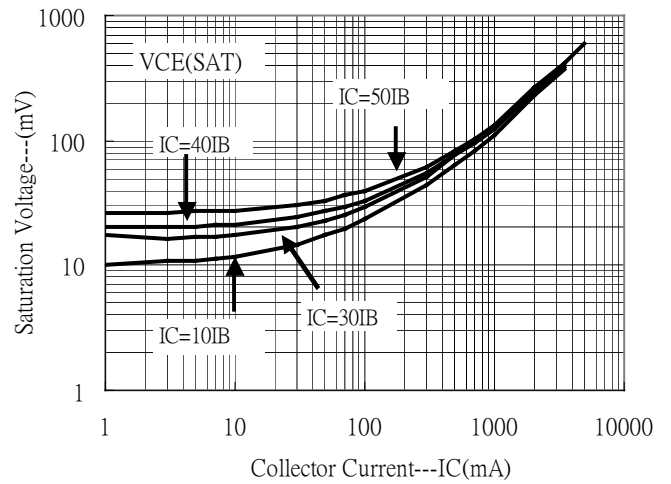
Device	H _{FE} Rank	Package	Shipping
KWND965-Q	Q	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel
KWND965-R	R	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel
KWND965-S	S	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

Typical Characteristics

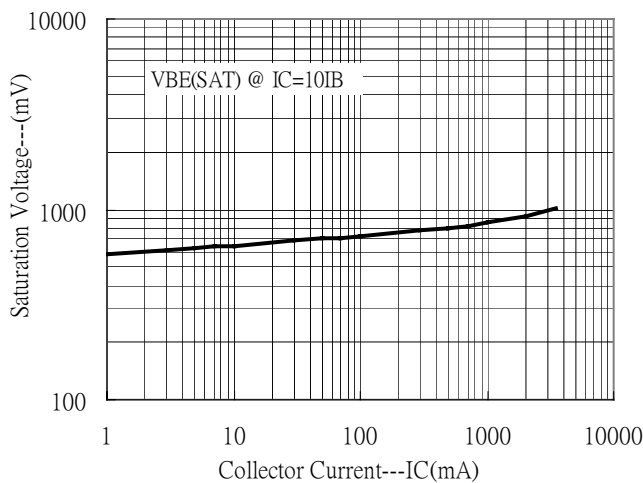
Current Gain vs Collector Current



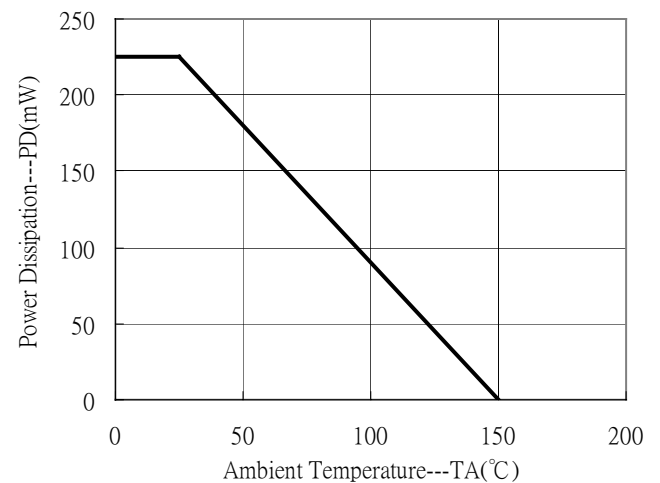
Saturation Voltage vs Collector Current



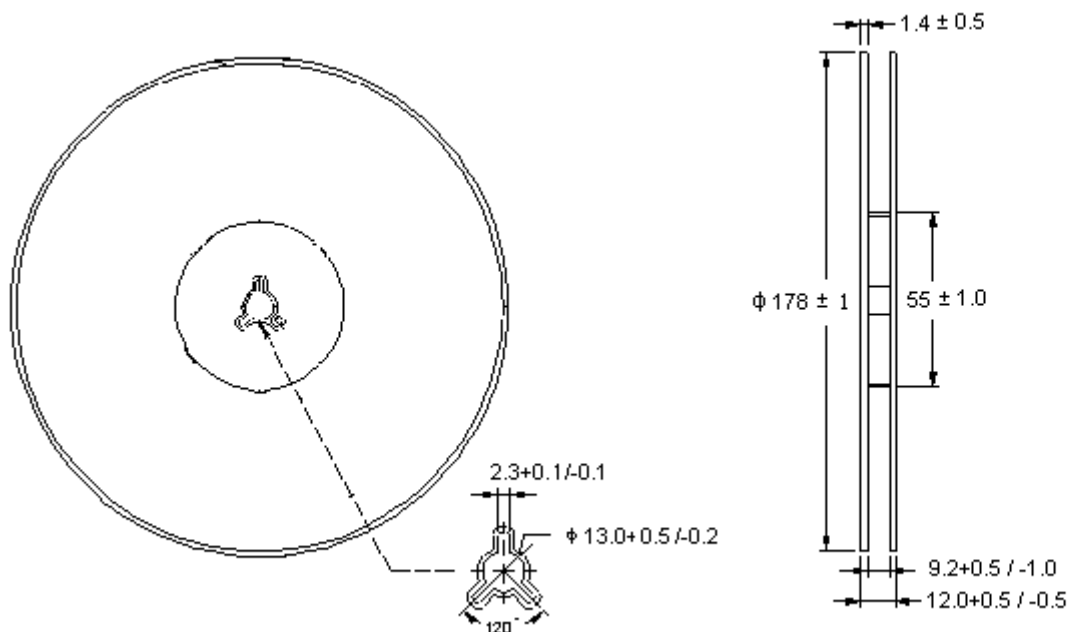
Saturation Voltage vs Collector Current



Power Derating Curve

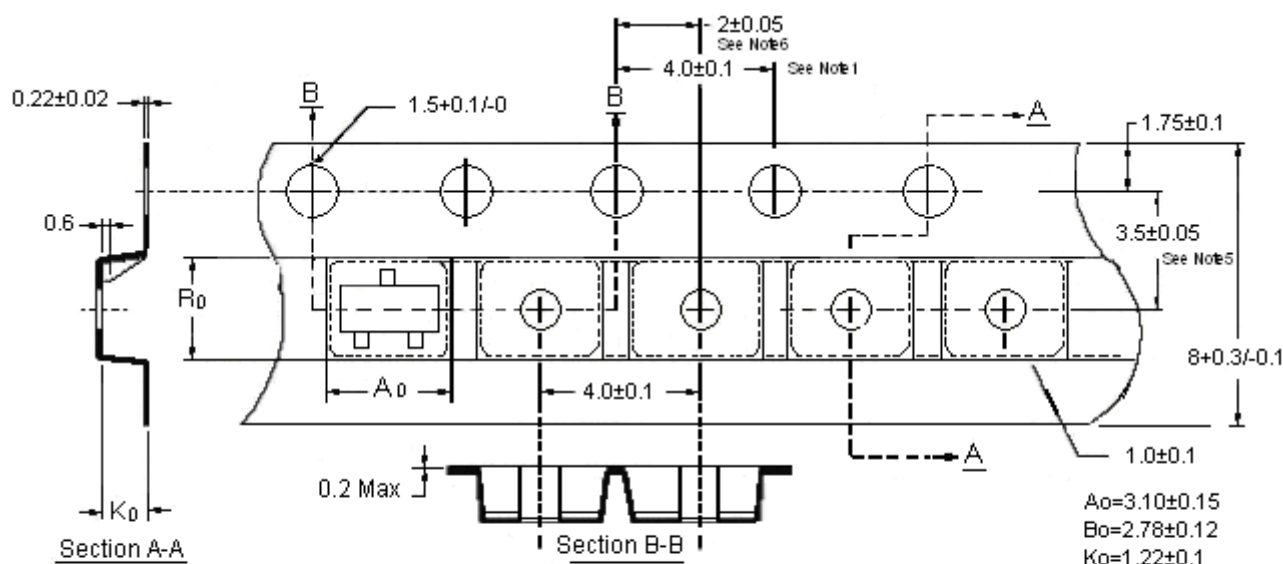


Reel Dimension

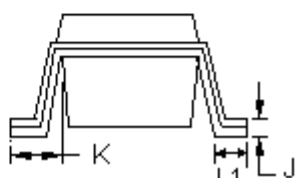
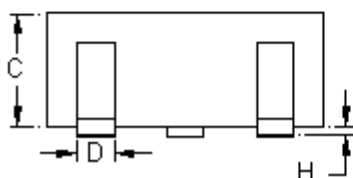
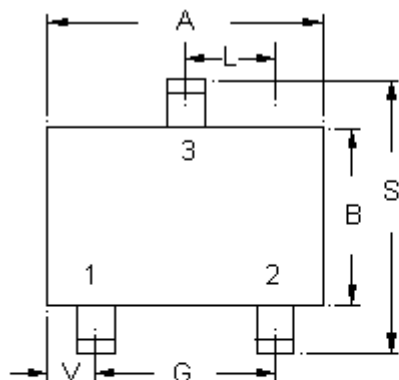


Unit: millimeter

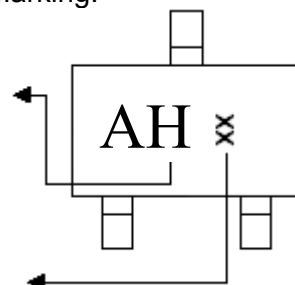
Carrier Tape Dimension



SOT-23 Dimension



Marking:



Product Code

Date Code: Year+Month
 Year: 3→2003, 4→2004
 Month: 1→1, 2→2, . . .
 9→9, A→10, B→11, C→12

3-Lead SOT-23 Plastic
 Surface Mounted Package

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50