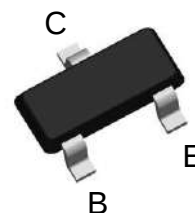


Low Vcesat PNP Epitaxial Planar Transistor

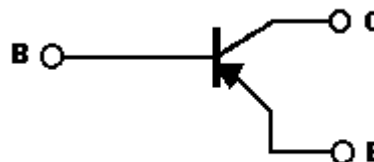
Features:

- Low $V_{CE(sat)}$, $V_{CE(sat)} = -0.25V$ (max), at $I_C / I_B = -500mA / -50mA$
- Pb-free lead plating and halogen-free package

SOT-23



BV_{CEO}	-40V
I_C	-2A
$R_{CESAT(TYP)}$	0.22Ω



B : Base
 C : Collector
 E : Emitter

Ordering Information

Device	Package	Shipping
KWB5140	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CBO}	-40	V
Collector-Emitter Voltage	V _{CEO}	-40	
Emitter-Base Voltage	V _{EBO}	-5	
Collector Current(DC)	I _C	-2	A
Peak Collector Current	I _{CM}	-4 *1	
Peak Base Current	I _{BM}	-1	
Power Dissipation	P _D	300 *2	mW
		450 *3	
Thermal Resistance, Junction to Ambient	R _{θJA}	417 *2	°C/W
		278 *3	
Thermal Resistance, Junction to Case	R _{θJC}	39	
Operating Junction and Storage Temperature Range	T _j ;T _{stg}	-65~+150	°C

Note :1 Single pulse, Pw=10ms

2 When mounted on a FR-4 PCB, single-sided copper, tinplated and standard footprint.

3 When mounted on a FR-4 PCB, single-sided copper, tinplated and mounting pad for collector 1 cm².

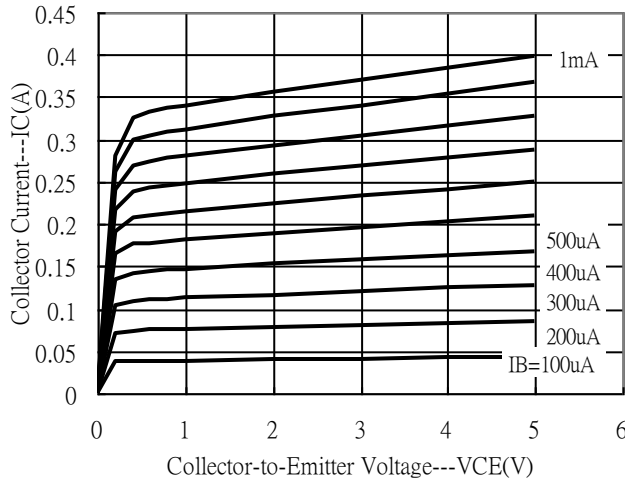
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	-40	-	-	V	I _C =-50μA, I _E =0
BV _{CEO}	-40	-	-	V	I _C =-1mA, I _B =0
BV _{EBO}	-5	-	-	V	I _E =-50μA, I _C =0
I _{CBO}	-	-	-100	nA	V _{CB} =-40V, I _E =0
I _{CEO}	-	-	-1	μA	V _{CE} =-30V, I _E =0
I _{EBO}	-	-	-100	nA	V _{EB} =-5V, I _C =0
*V _{CE(sat)}	-	-75	-200	mV	I _C =-100mA, I _B =-1mA
*V _{CE(sat)}	-	-110	-250	mV	I _C =-500mA, I _B =-50mA
*V _{CE(sat)}	-	-196	-400	mV	I _C =-1A, I _B =-100mA
*R _{CE(sat)}	-	220	500	mΩ	I _C =-500mA, I _B =-50mA
*V _{BE(sat)}	-	-860	-1	V	I _C =-1A, I _B =-50mA
*V _{BE(on)}	-	-762	-0.9	V	V _{CE} =-5V, I _C =-1A
*h _{FE} 1	300	464	-	-	V _{CE} =-5V, I _C =-1mA
*h _{FE} 2	300	427	600	-	V _{CE} =-5V, I _C =-100mA
*h _{FE} 3	250	360	-	-	V _{CE} =-5V, I _C =-500mA
*h _{FE} 4	160	300	-	-	V _{CE} =-5V, I _C =-1A
f _T	-	75	-	MHz	V _{CE} =-5V, I _C =-10mA, f=100MHz
Cob	-	20	-	pF	V _{CB} =-10V, f=1MHz

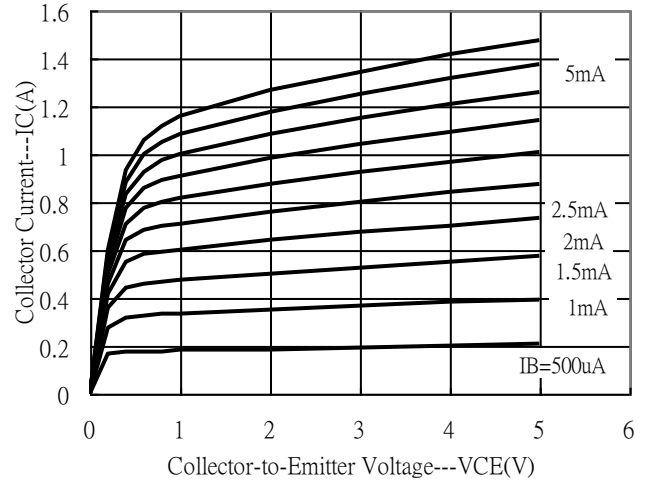
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

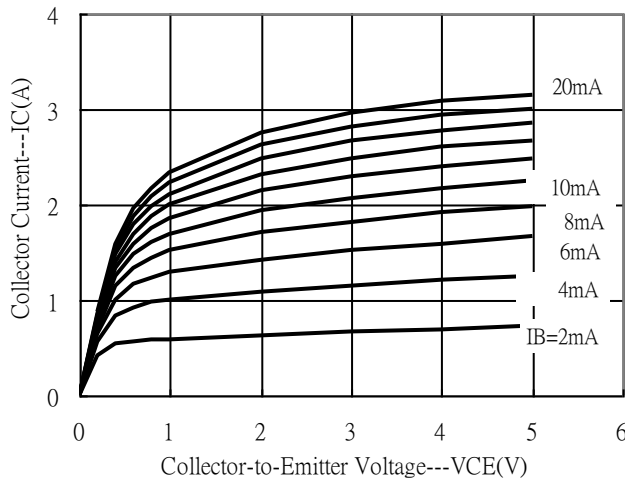
Emitter Grounded Output Characteristics



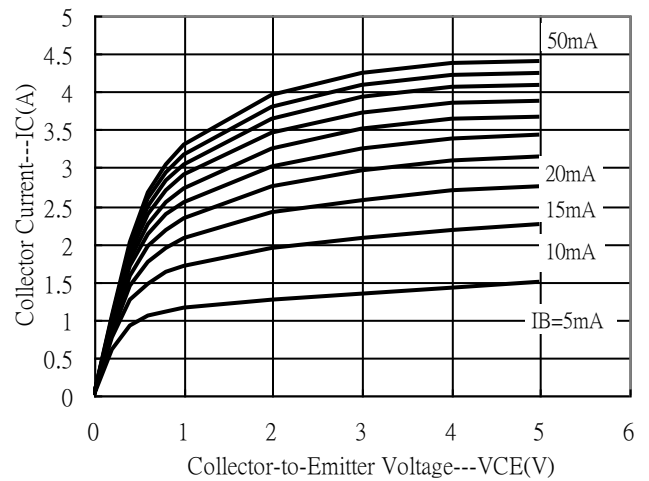
Emitter Grounded Output Characteristics



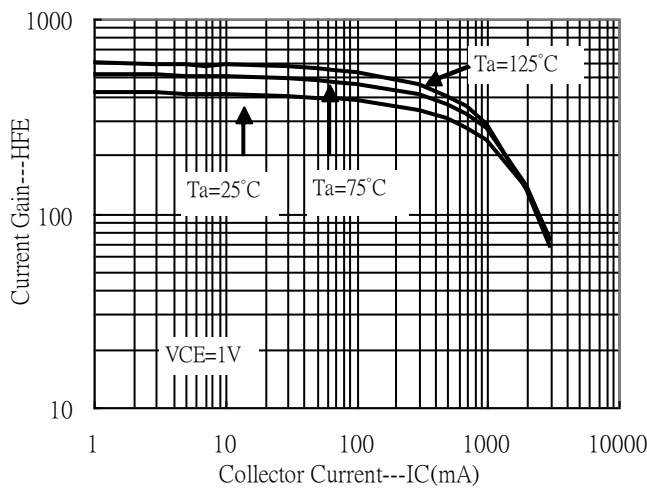
Emitter Grounded Output Characteristics



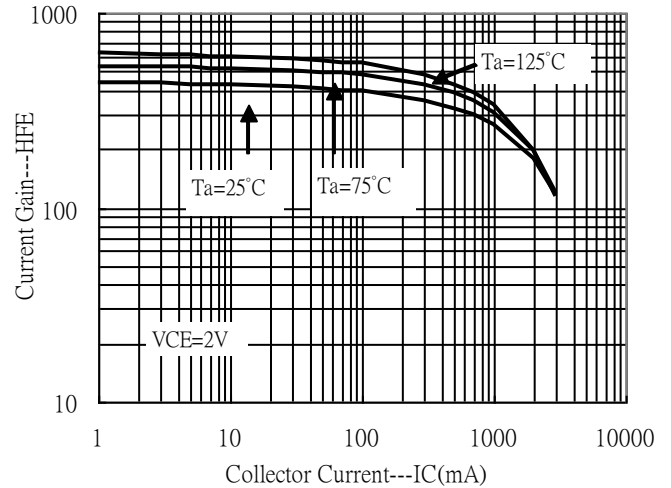
Emitter Grounded Output Characteristics



Current Gain vs. Collector Current

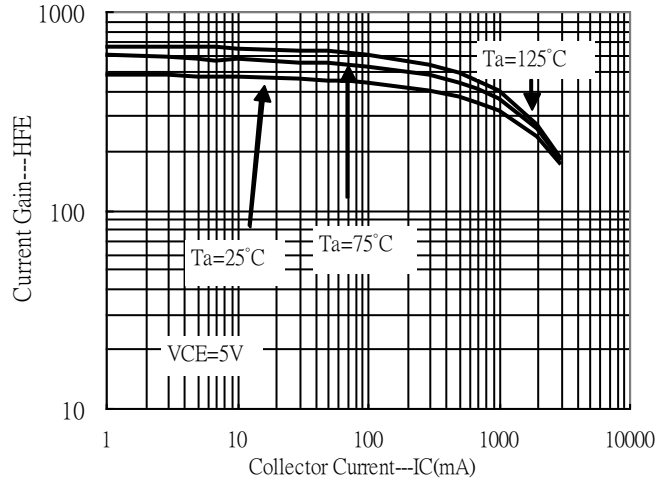


Current Gain vs. Collector Current

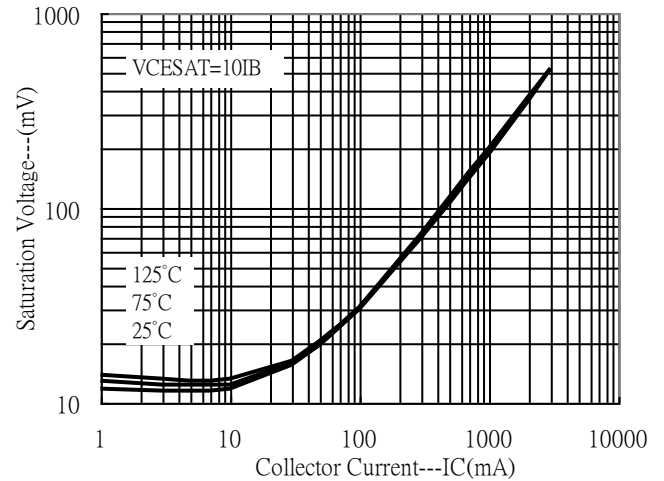


Typical Characteristics(Cont.)

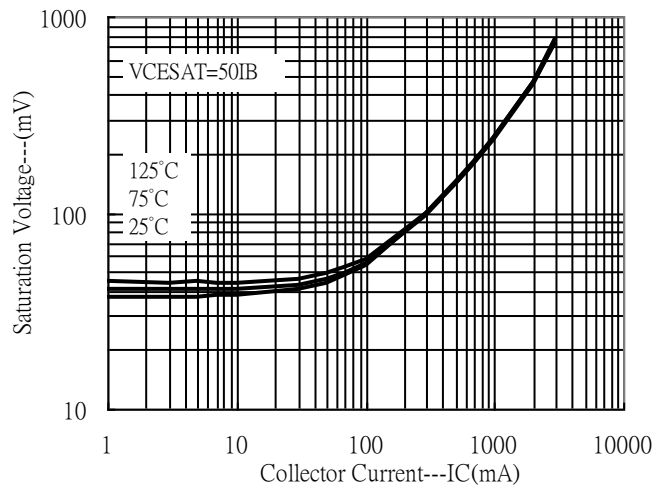
Current Gain vs Collector Current



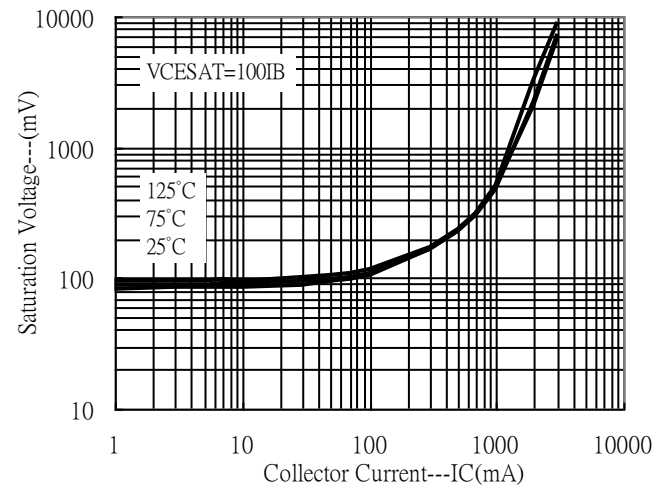
Saturation Voltage vs Collector Current



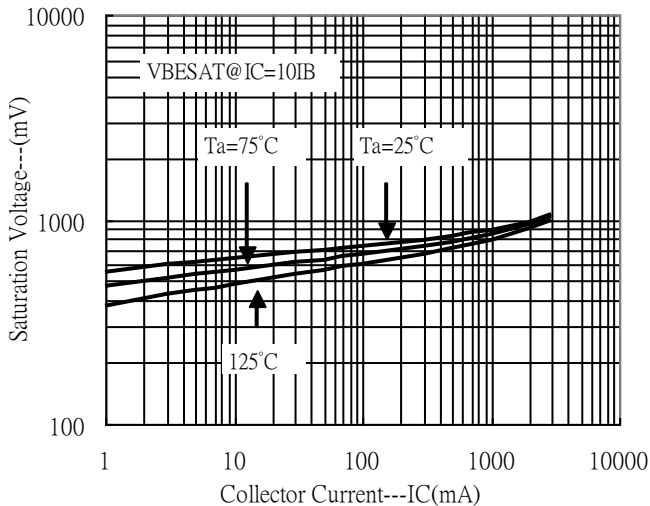
Saturation Voltage vs Collector Current



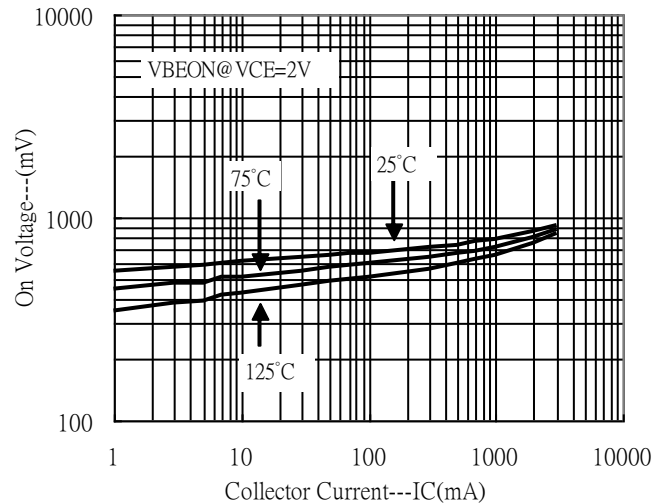
Saturation Voltage vs Collector Current



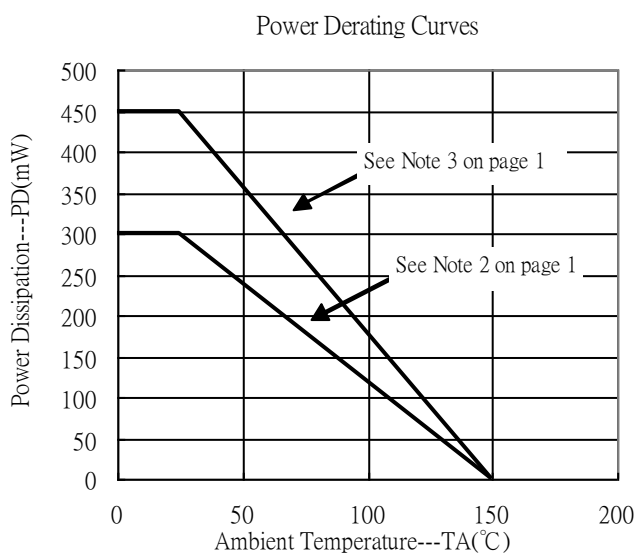
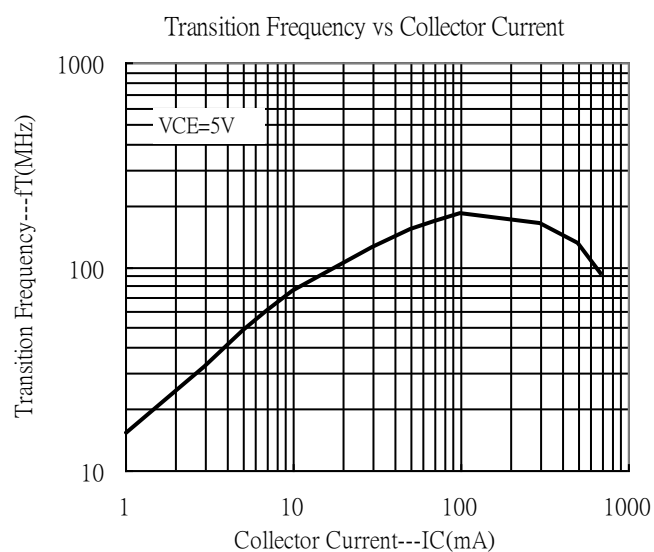
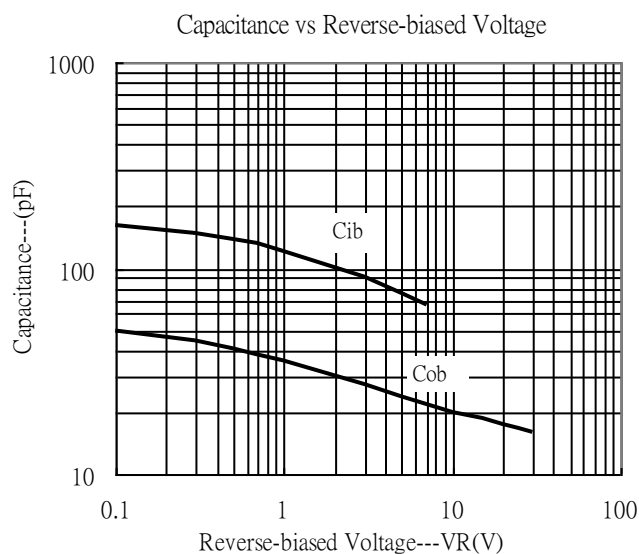
Saturation Voltage vs Collector Current



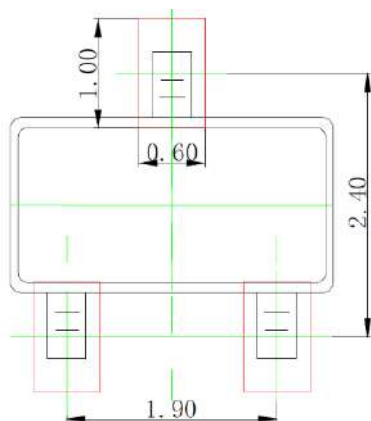
On Voltage vs Collector Current



Typical Characteristics(Cont.)

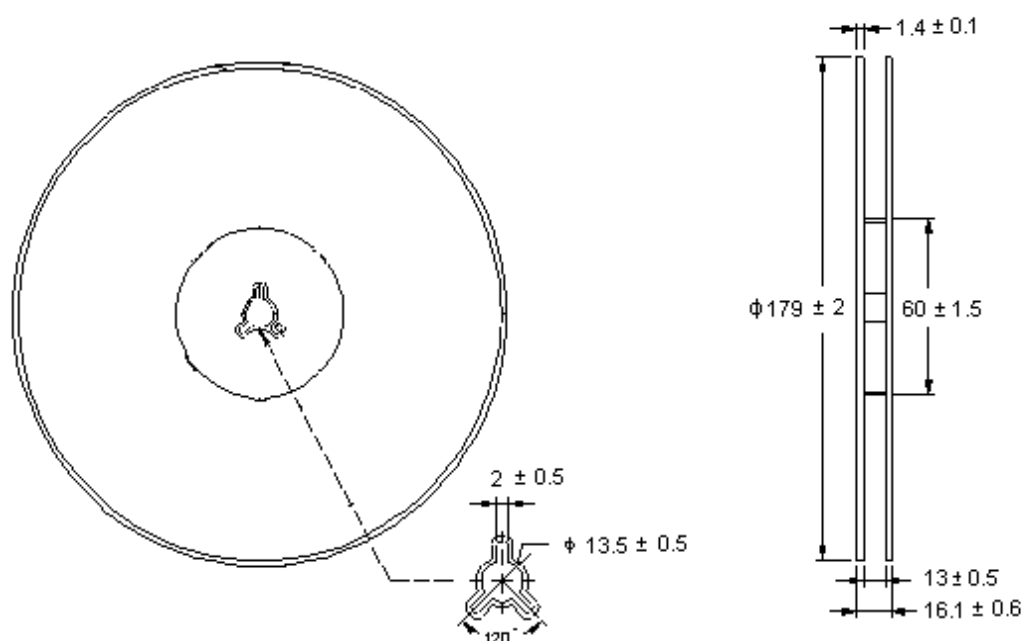


Recommended Soldering Footprint



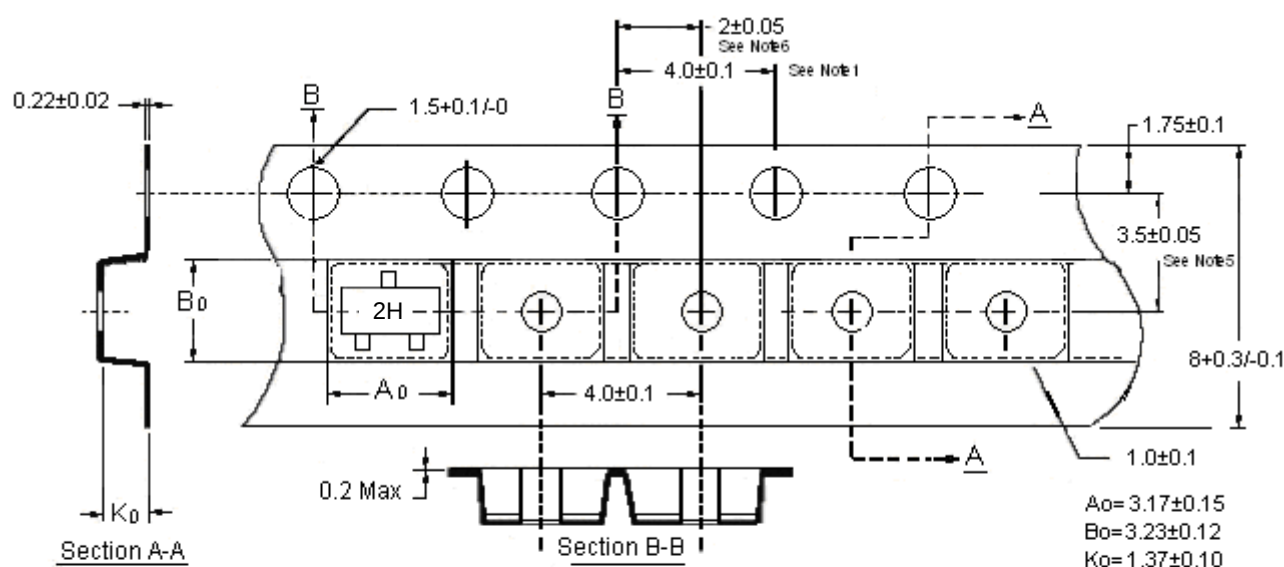
Unit : mm

Reel Dimension



Unit: millimeter

Carrier Tape Dimension

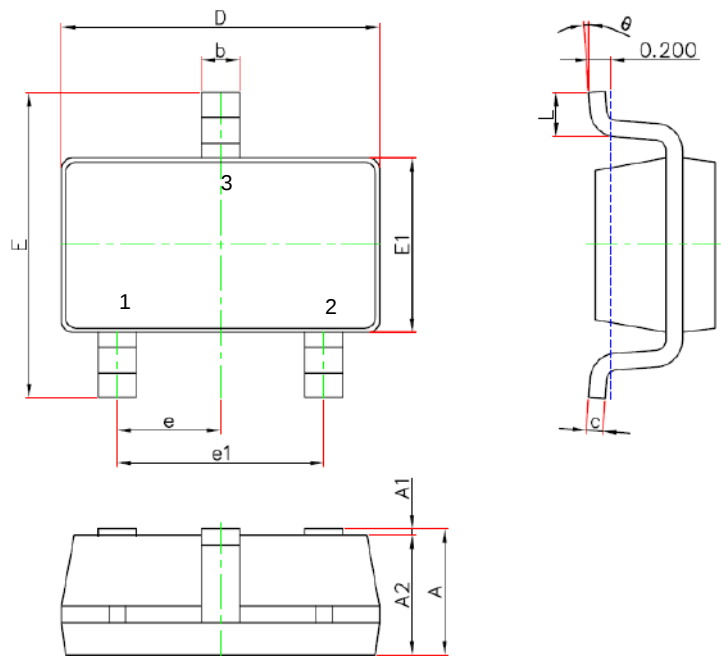


Notes:

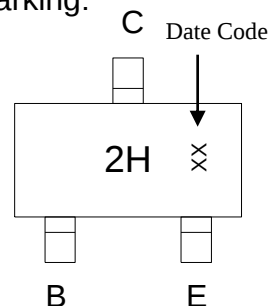
1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

SOT-23 Dimension



Marking:



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

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.041	0.049	1.05	1.25	E1	0.059	0.067	1.50	1.70
A1	0.000	0.004	0.00	0.10	E	0.104	0.116	2.65	2.95
A2	0.041	0.045	1.05	1.15	e	0.037 BSC		0.95 BSC	
b	0.012	0.020	0.30	0.50	e1	0.071	0.079	1.80	2.00
c	0.004	0.008	0.10	0.20	L	0.012	0.024	0.30	0.60
D	0.111	0.119	2.82	3.02	θ	0°	8°	0°	8°