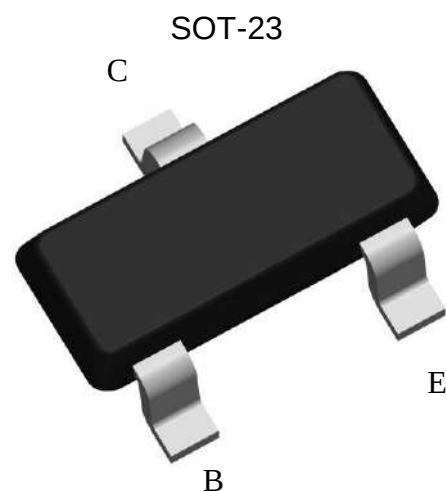


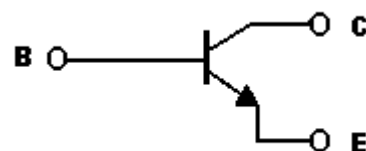
Low $V_{CE(sat)}$ NPN Epitaxial Planar Transistor

Features:

- Low $V_{CE(sat)}$, typically 0.18V at $I_C / I_B = 2A / 0.1A$
- Excellent current gain characteristics
- Complementary to KWB1424
- Pb-free lead plating and halogen-free package



BV_{CEO}	50V
I_C	4A
$R_{CE(SAT)}$ typ.	90m Ω



B : Base
 C : Collector
 E : Emitter

Ordering Information

Device	Package	Shipping
KWD2150	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CB0}	80	V
Collector-Emitter Voltage	V _{CEO}	50	
Emitter-Base Voltage	V _{EBO}	6	
Collector Current (DC)	I _C	4	A
Collector Current (Pulse)	I _{CP}	7 (Note 1)	
Power Dissipation	P _D	225	mW
		660 (Note 2)	
Thermal Resistance, Junction to Ambient	R _{θJA}	556	°C/W
		190	
Operating Junction and Storage Temperature Range	T _j ; T _{stg}	-55~+150	°C

Note : 1. Single Pulse P_w ≤ 350μs, Duty ≤ 2%.

2. Device mounted on an FR-4 PCB, single sided copper, tin plated, mounting pad for collector 1cm².

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	80	-	-	V	I _C =100μA, I _E =0
BV _{CEO}	50	-	-	V	I _C =1mA, I _B =0
BV _{EBO}	6	-	-	V	I _E =50μA, I _C =0
I _{CB0}	-	-	100	nA	V _{CB} =80V, I _E =0
I _{EBO}	-	-	100	nA	V _{EB} =6V, I _C =0
*V _{CE(sat)}	-	40	100	mV	I _C =400mA, I _B =20mA
*V _{CE(sat)}	-	160	220	mV	I _C =1A, I _B =10mA
*V _{CE(sat)}	-	180	320	mV	I _C =2A, I _B =100mA
*R _{CE(sat)}	-	90	160	mΩ	I _C =2A, I _B =100mA
*V _{BE(sat)}	-	0.94	1.3	V	I _C =2A, I _B =200mA
*h _{FE1}	200	-	-	-	V _{CE} =2V, I _C =100mA
*h _{FE2}	270	-	820	-	V _{CE} =2V, I _C =500mA
*h _{FE3}	100	-	-	-	V _{CE} =2V, I _C =1A
f _T	-	175	-	MHz	V _{CE} =1V, I _C =0.1A, f=100MHz
Cob	-	14	-	pF	V _{CB} =10V, f=1MHz

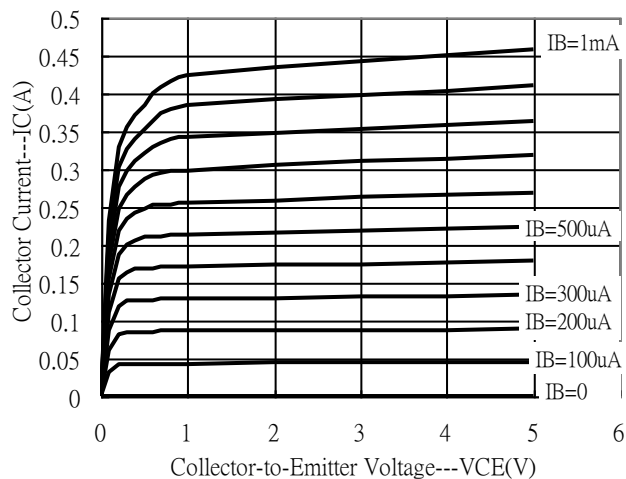
*Pulse Test : Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

Classification Of h_{FE} 2

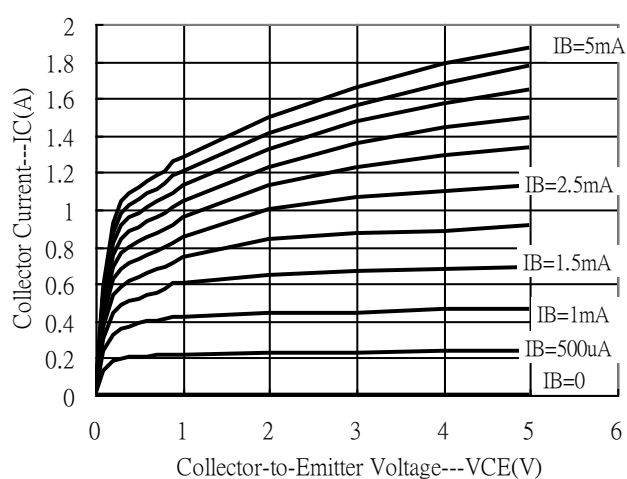
Rank	S	T
Range	270~560	390~820

Typical Characteristics

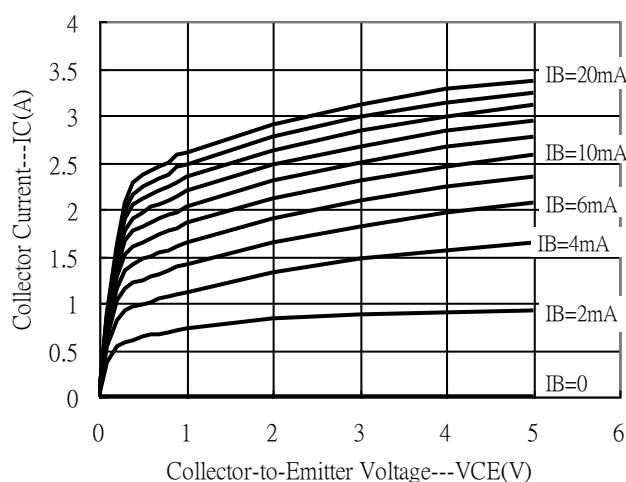
Emitter Grounded Output Characteristics



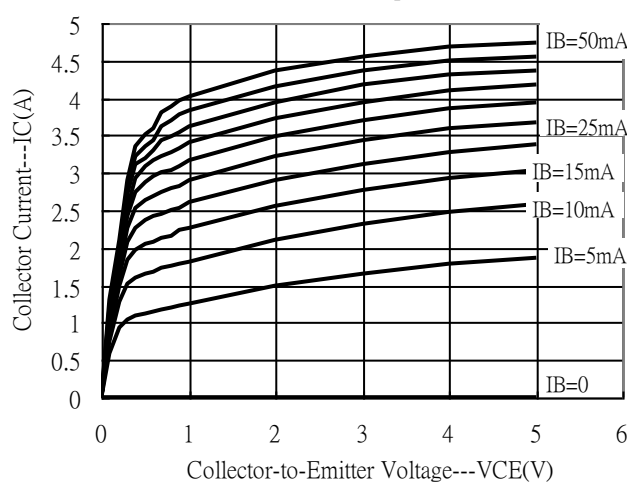
Emitter Grounded Output Characteristics



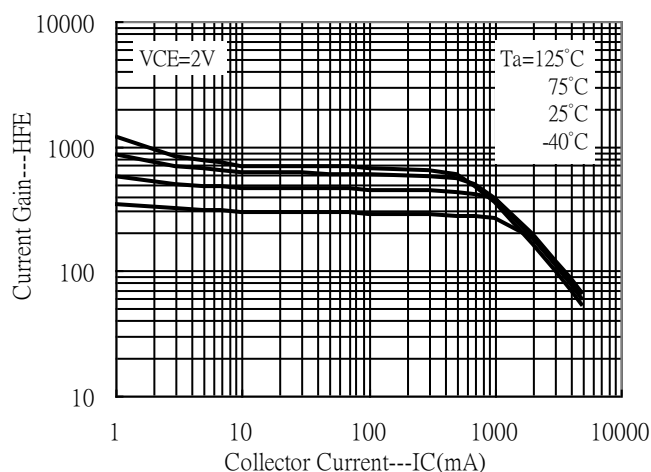
Emitter Grounded Output Characteristics



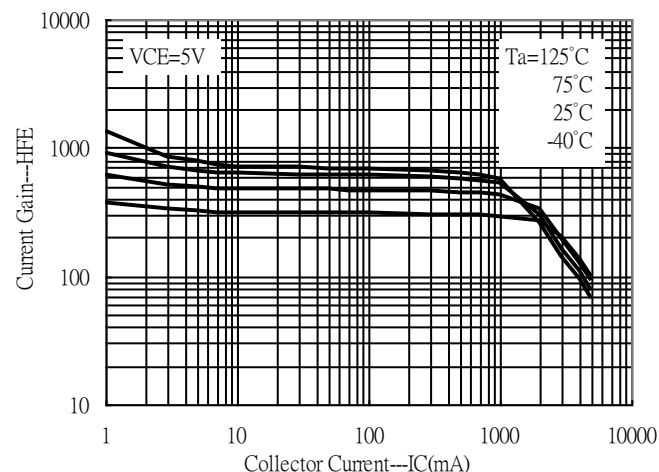
Emitter Grounded Output Characteristics



Current Gain vs Collector Current

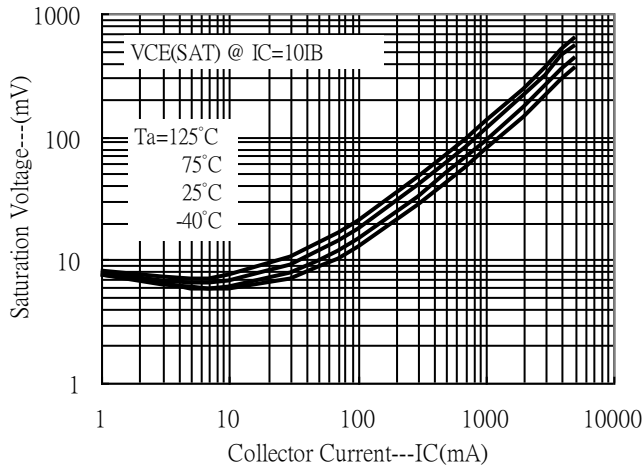


Current Gain vs Collector Current

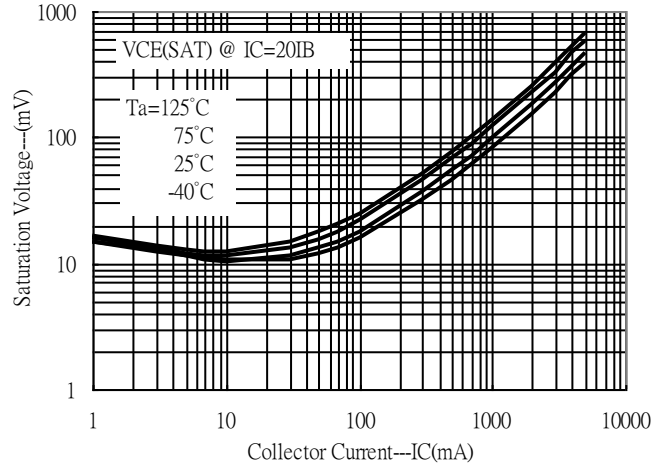


Typical Characteristics(Cont.)

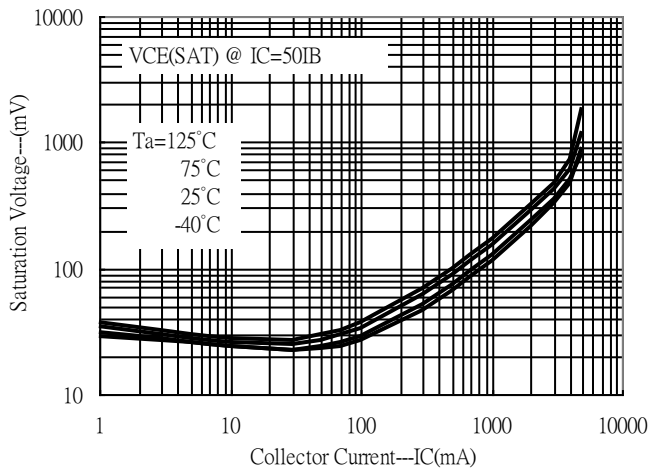
Saturation Voltage vs Collector Current



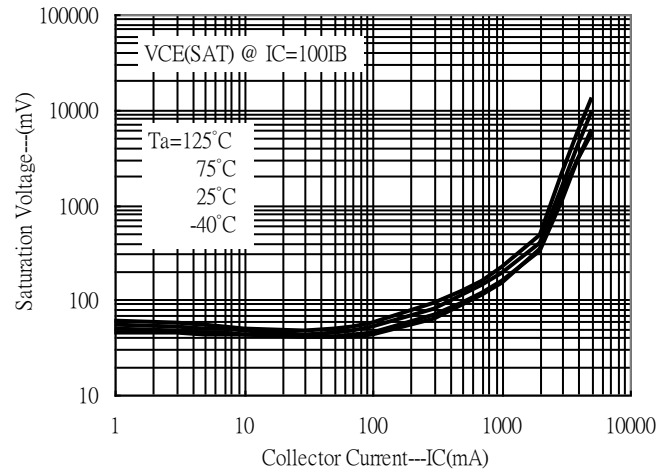
Saturation Voltage vs Collector Current



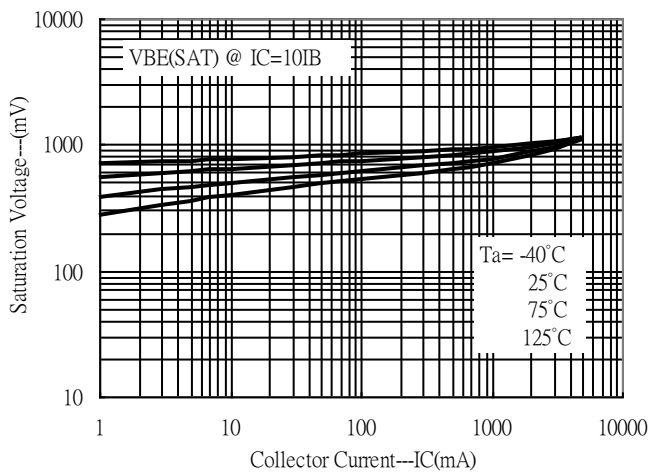
Saturation Voltage vs Collector Current



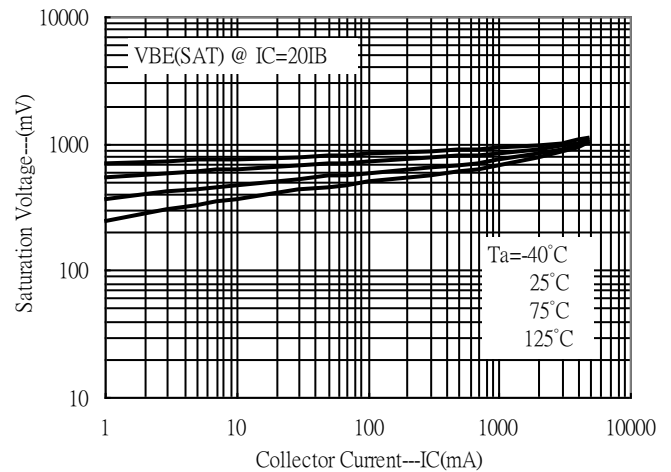
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

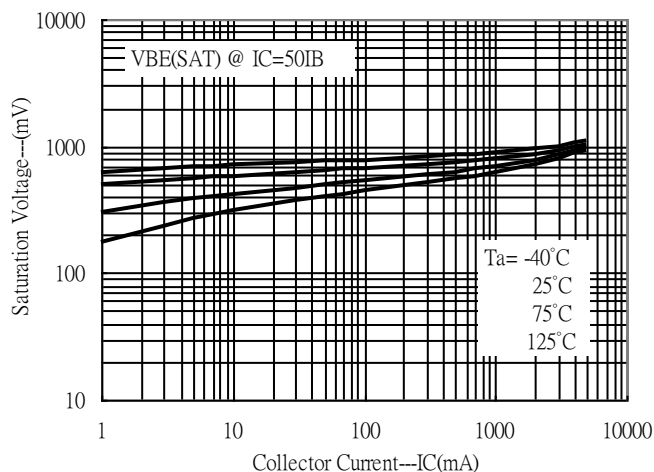


Saturation Voltage vs Collector Current

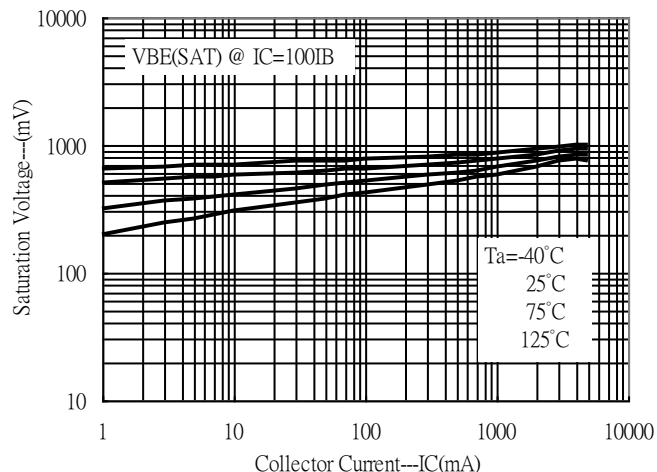


Typical Characteristics(Cont.)

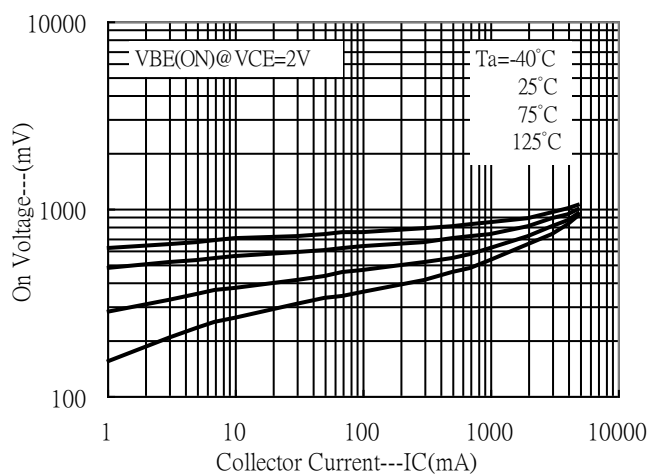
Saturation Voltage vs Collector Current



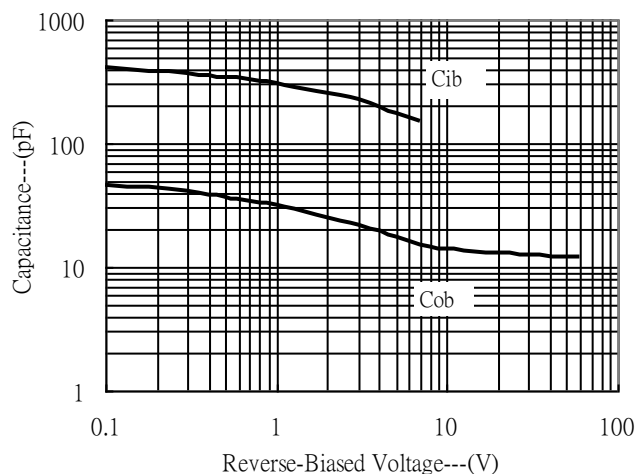
Saturation Voltage vs Collector Current



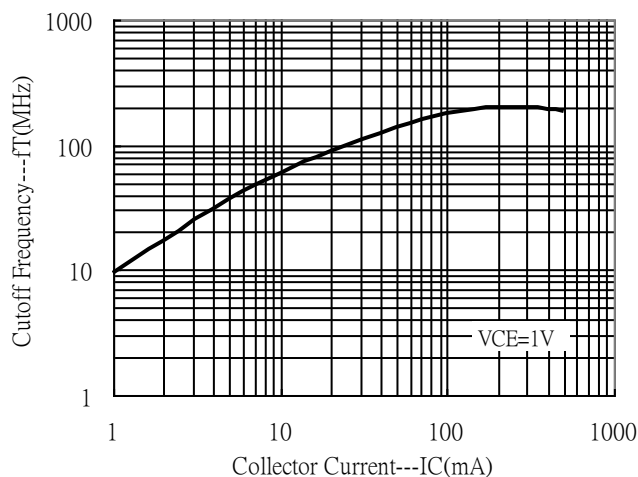
On Voltage vs Collector Current



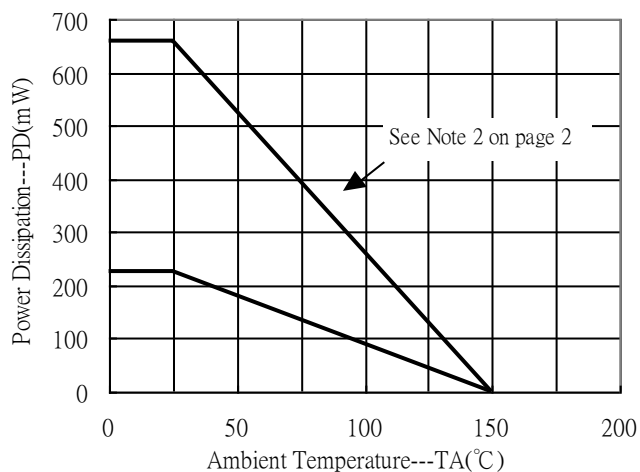
Capacitance vs Reverse-Biased Voltage



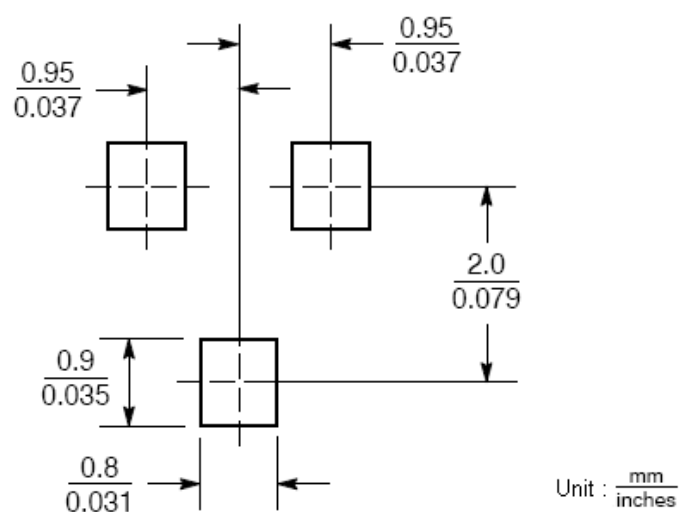
Cutoff frequency vs Collector Current



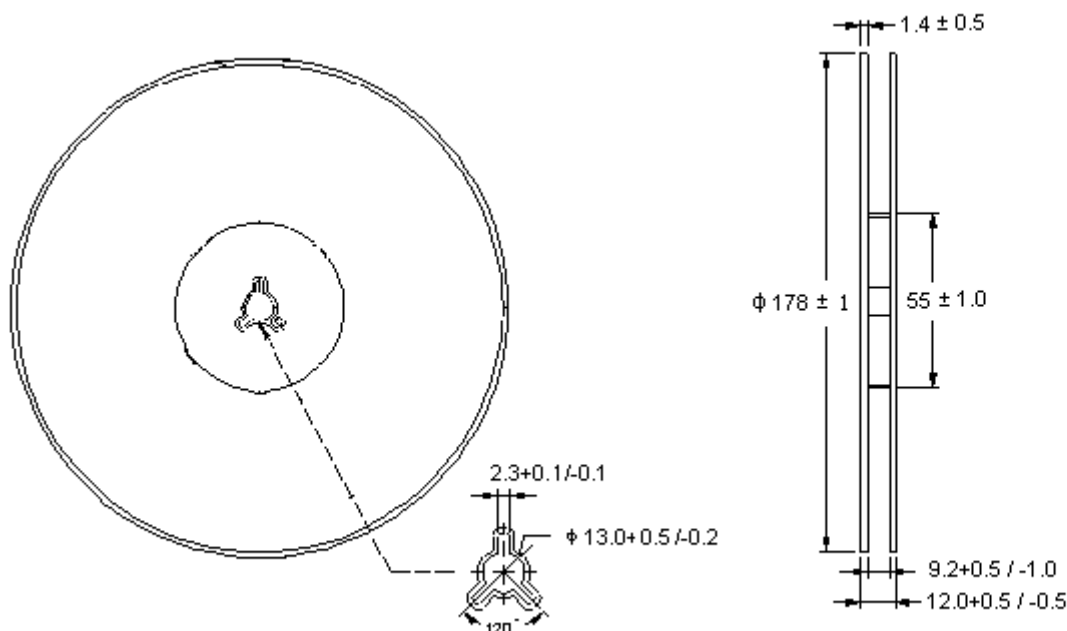
Power Derating Curve



Recommended Soldering Footprint

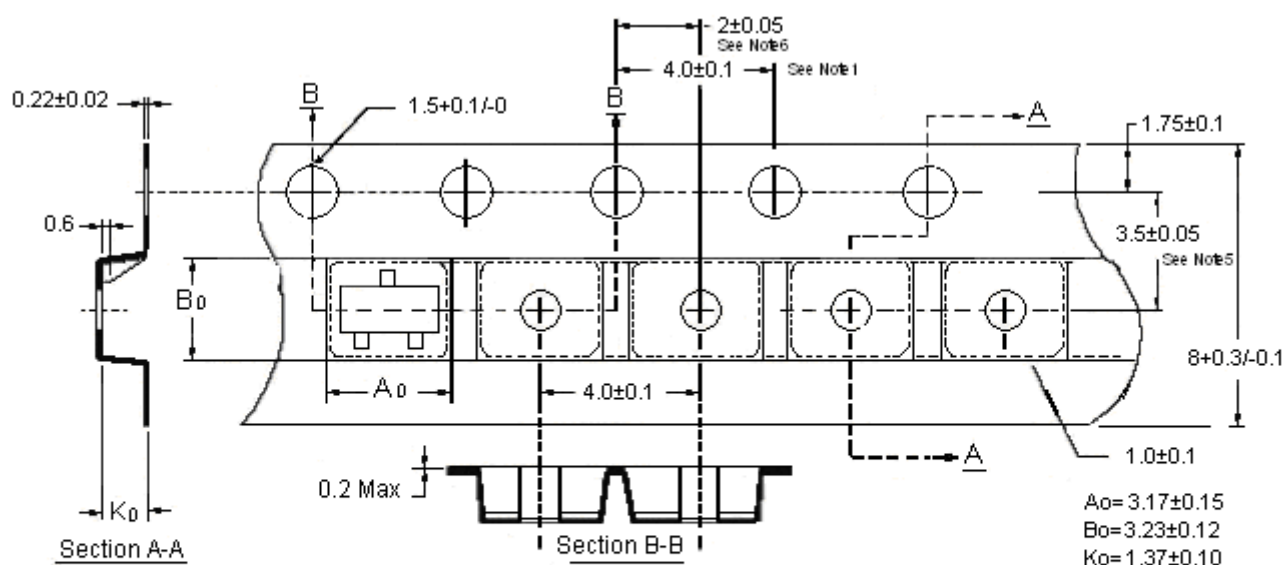


Reel Dimension

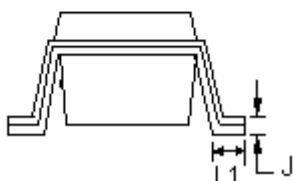
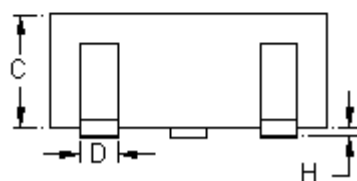
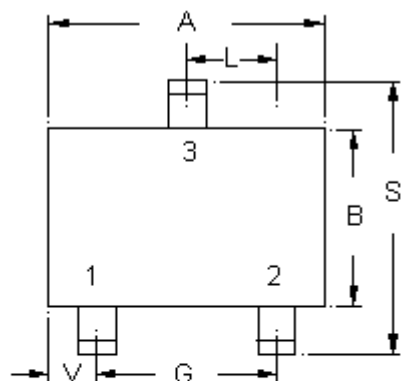


Unit: millimeter

Carrier Tape Dimension



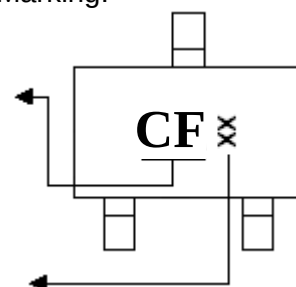
SOT-23 Dimension



Product Code

Date Code: Year+Month
 Year: 7→2017, 8→2018
 Month: 1→1, 2→2, . . .
 9→9, A→10, B→11, C→12

Marking:



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	0.1110	0.1189	2.82	3.02	J	0.0039	0.0079	0.10	0.20
B	0.0590	0.0669	1.50	1.70	L	0.0374	TYP	0.95	TYP
C	0.0413	0.0453	1.05	1.15	L1	0.0118	0.0236	0.30	0.60
D	0.0118	0.0197	0.30	0.50	S	0.1043	0.1161	2.65	2.95
G	0.0709	0.0787	1.80	2.00	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10					