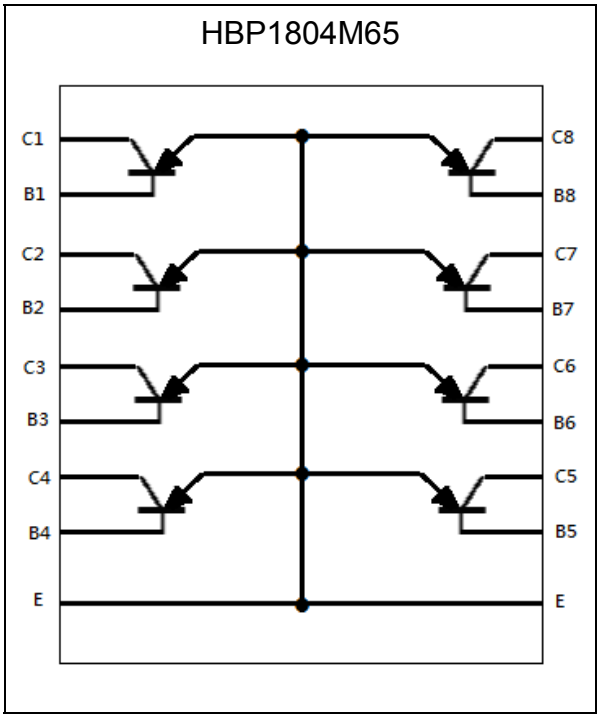
Octuple High Voltage PNP Epitaxial Planar Transistor

HBP1804M65

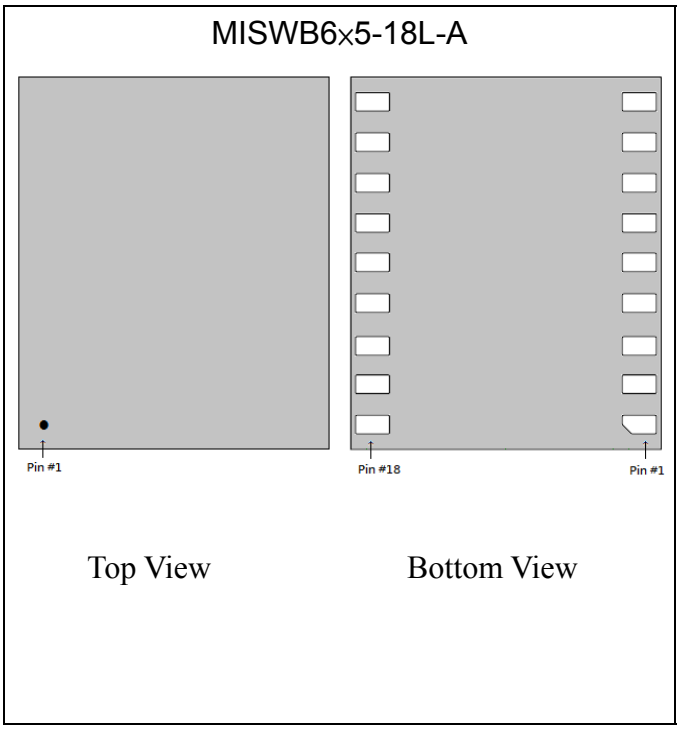
Description

- High breakdown voltage. (BV_{CEO}=-400V)
- Low saturation voltage, typical $V_{CE(sat)}$ =-0.17V at Ic/I_B =-20mA/-1mA.
- Complementary to HBN1803M65
- Pb-free lead plating and halogen-free package

Equivalent Circuit



Outline



The following ratings and characteristics apply to each transistor in this device.

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-400	V
Collector-Emitter Voltage	V_{CEO}	-400	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-300	mA
Total Power Dissipation	Pd	1.5	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

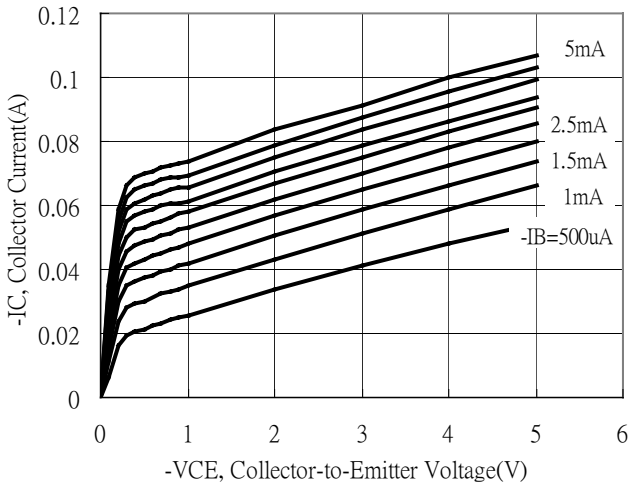
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-400	-	-	V	I_C=-50μA
BV_{CEO}	-400	-	-	V	I_C=-1mA
BV_{EBO}	-5	-	-	V	I_E=-50μA
I_{CBO}	-	-	-100	nA	V_{CB}=-400V
I_{CES}	-	-	-100	nA	V_{CE}=-300V, R_{EB}=0Ω
I_{EBO}	-	-	-100	nA	V_{EB}=-5V
*$V_{CE(sat)}$	-	-0.17	-0.3	V	I_C=-20mA, I_B=-1mA
*$V_{CE(sat)}$	-	-0.18	-0.3	V	I_C=-50mA, I_B=-5mA
*$V_{CE(sat)}$	-	-0.18	-0.3	V	I_C=-100mA, I_B=-20mA
*$V_{BE(sat)}$	-	-0.73	-1	V	I_C=-20mA, I_B=-2mA
*h_{FE}	50	-	300	-	V_{CE}=-10V, I_C=-10mA
*h_{FE}	40	-	-	-	V_{CE}=-10V, I_C=-100mA
f_T	-	100	-	MHz	V_{CE}=-10V, I_C=-10mA, f=5MHz
Cob	-	4.6	-	pF	V_{CB}=-10V, I_E=0A, f=1MHz

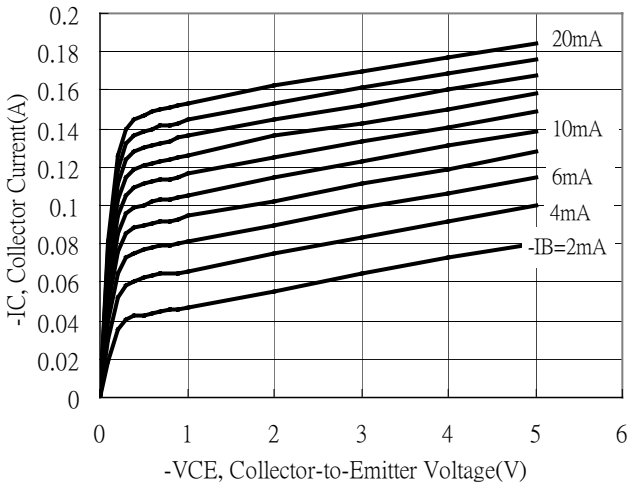
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Typical Characteristics

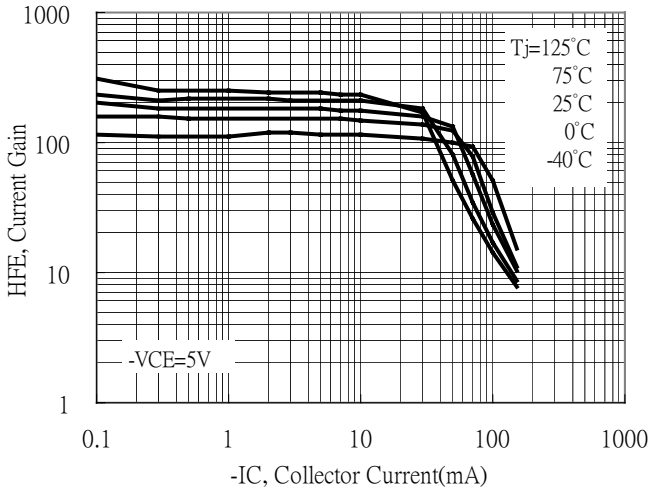
Emitter Grounded Output Characteristics



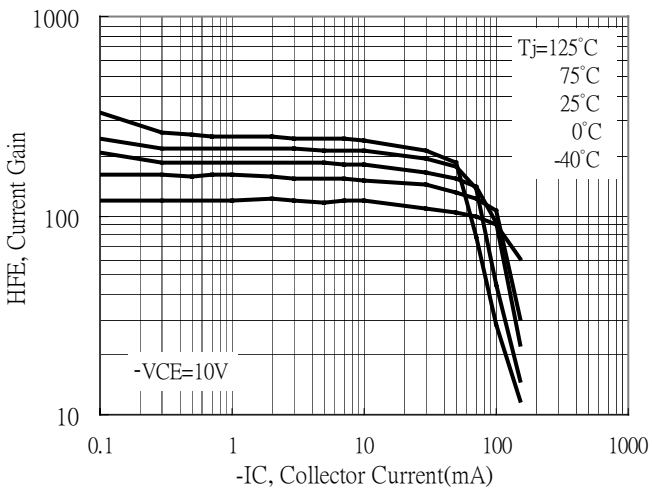
Emitter Grounded Output Characteristics



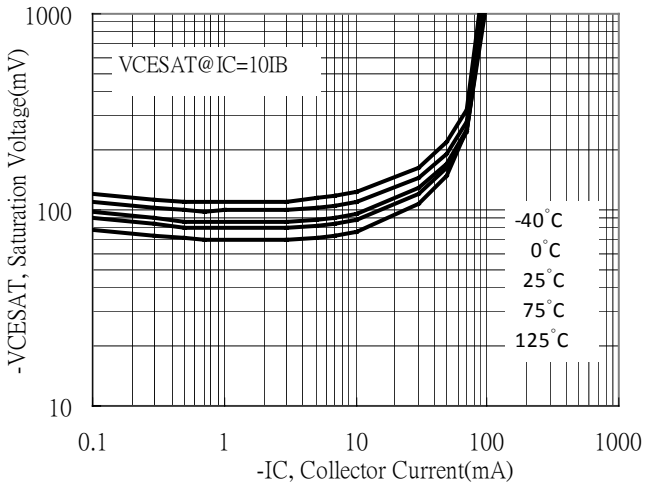
Current Gain vs Collector Current



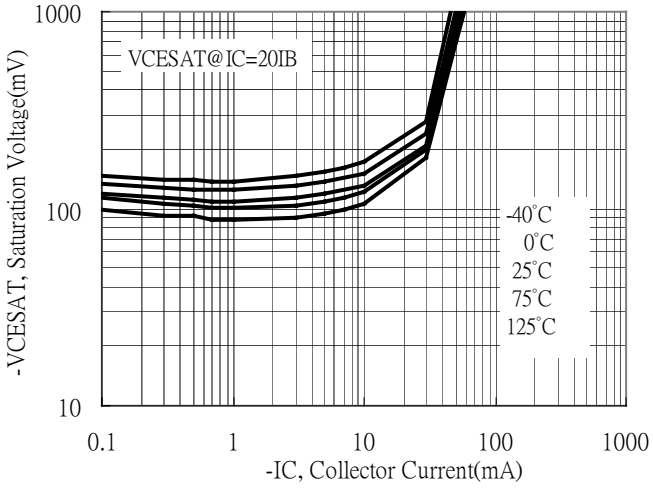
Current Gain vs Collector Current



Saturation Voltage vs Collector Current

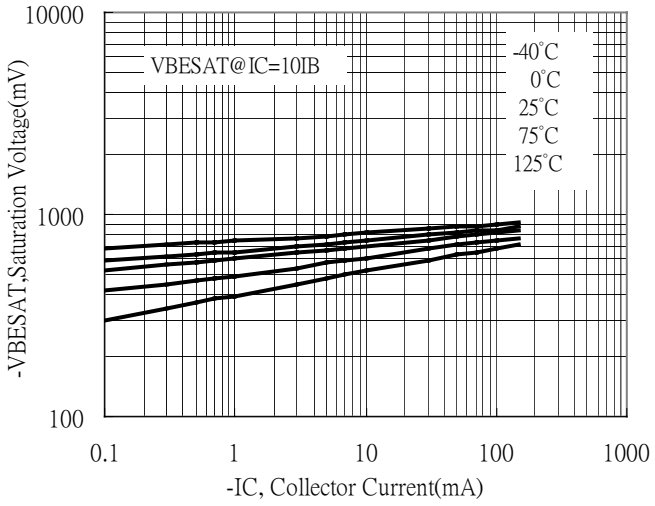


Saturation Voltage vs Collector Current

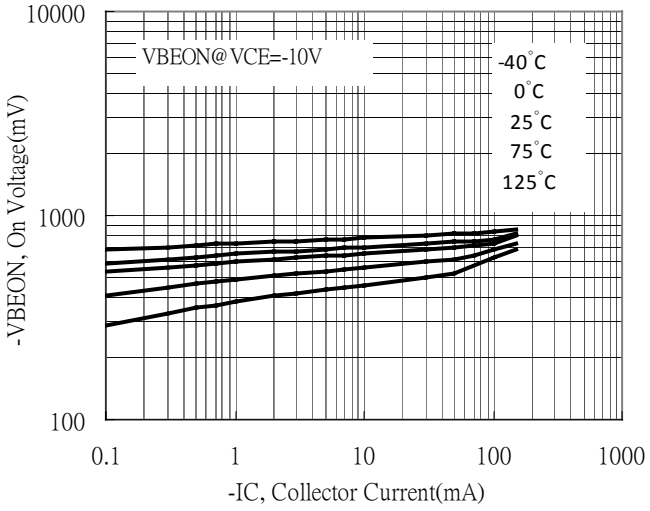


Typical Characteristics(Cont.)

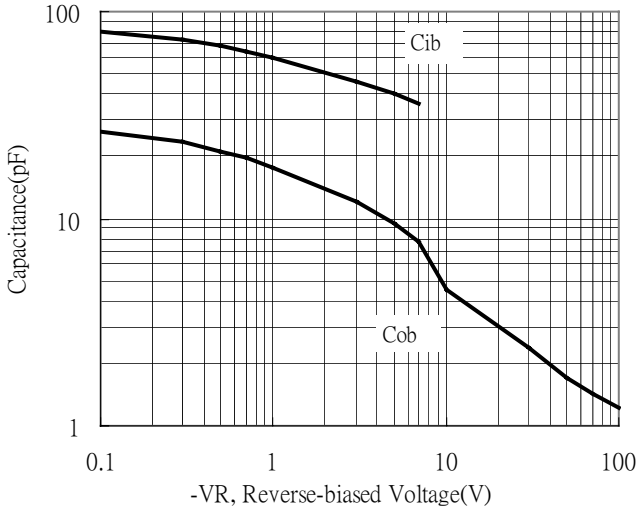
Saturation Voltage vs Collector Current



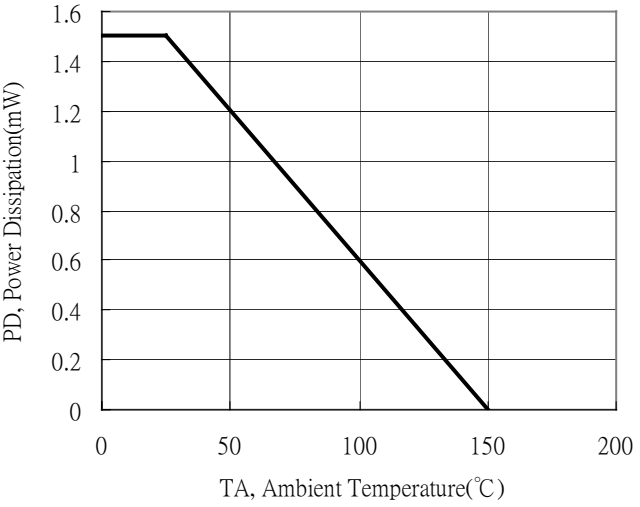
On Voltage vs Collector Current



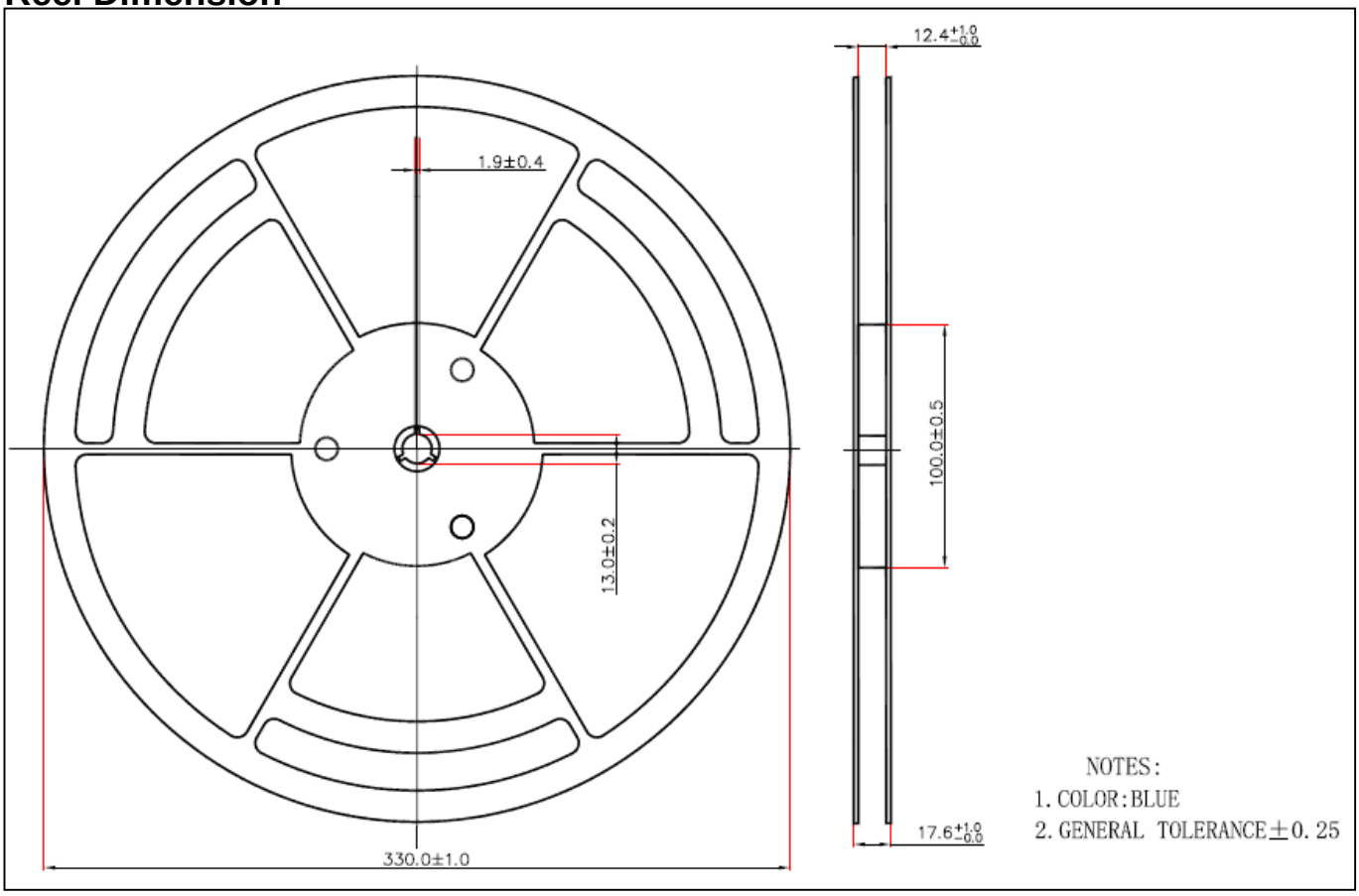
Capacitance vs Reverse-biased Voltage



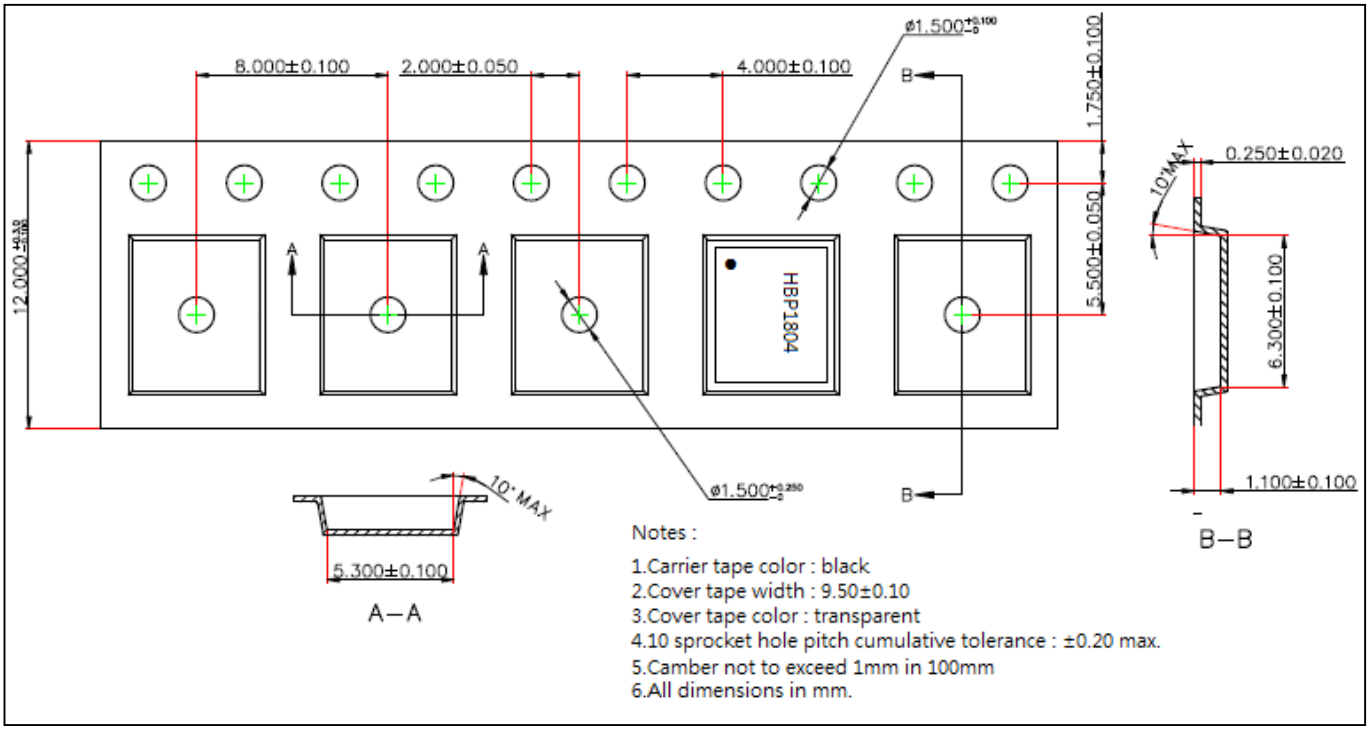
Power Derating Curve



Reel Dimension



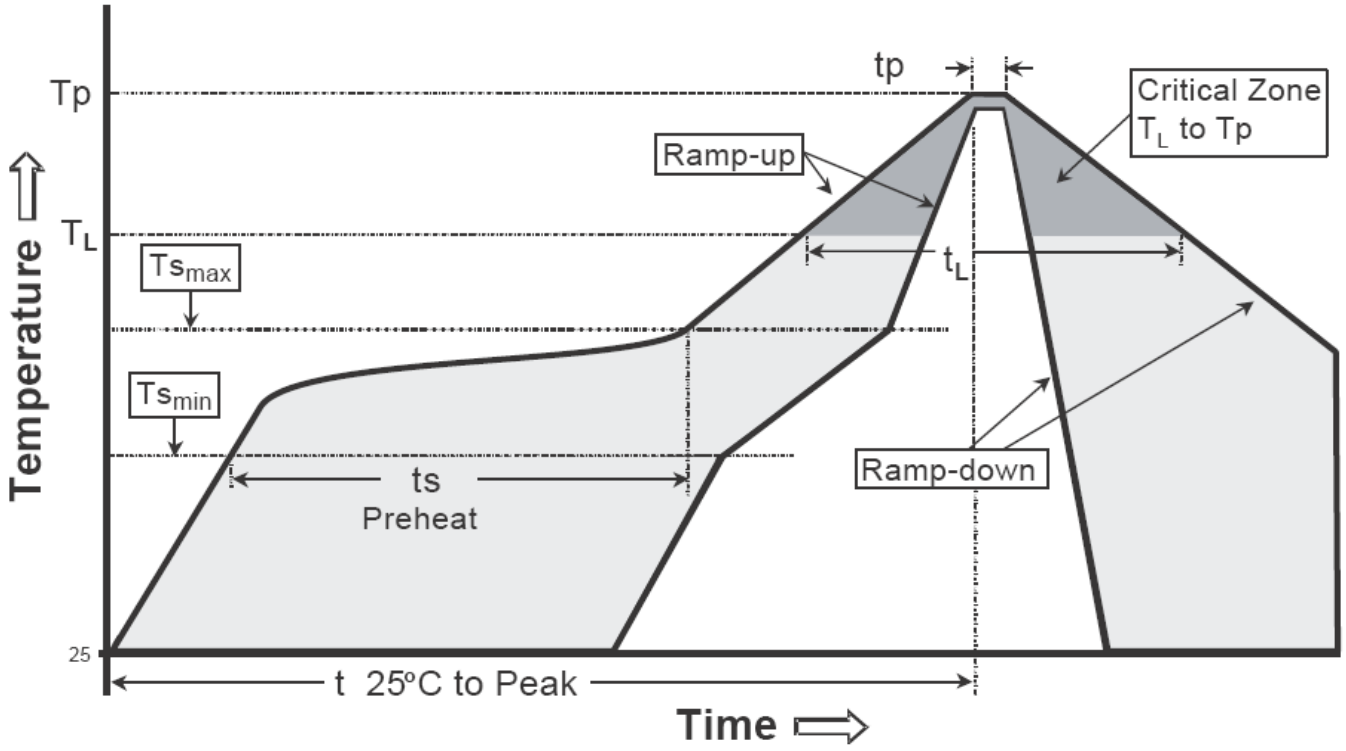
Carrier Tape Dimension



Recommended wave solderiRecommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

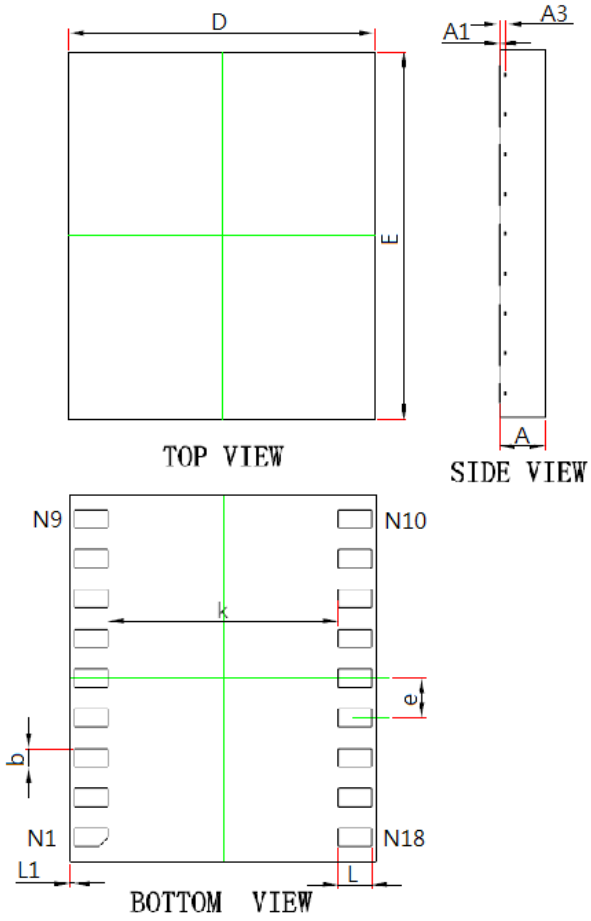
Recommended temperature profile for IR reflow

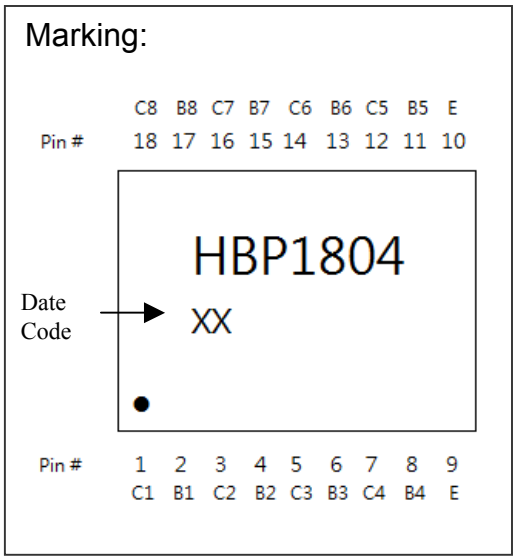


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

MISWB6x5-18L-A Dimension





18-Lead MISWB6x5-18L-A
Plastic Surface Mounted Package
CYStek Package Code: M65

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031	k	3.750 REF		0.148 REF	
A1	0.000	0.046	0.000	0.002	b	0.250	0.350	0.010	0.014
A3	0.110 REF		0.004 REF		e	0.0531	0.0689	1.35	1.75
D	4.900	5.100	0.193	0.201	L	0.650 BSC		0.026 BSC	
E	5.900	6.100	0.232	0.240	L1	0.075 REF		0.003 REF	

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.