

High Current, Power Inductors

MAWH-1770-XXX-M-5A Power Choke



Description

- AEC-Q200 qualified
- Halogen Free
- 155°C maximum total temperature operation
- 17.45x17.15x7.0mm maximum surface mount package
- Magnetically shielded, low EMI
- High current carrying capacity, Low core losses
- RoHS compliant

Applications

- Automotive applications

Environmental Data

- Storage temperature range: -55°C to +155°C
- Operating temperature range: -55°C to +155°C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 compliant

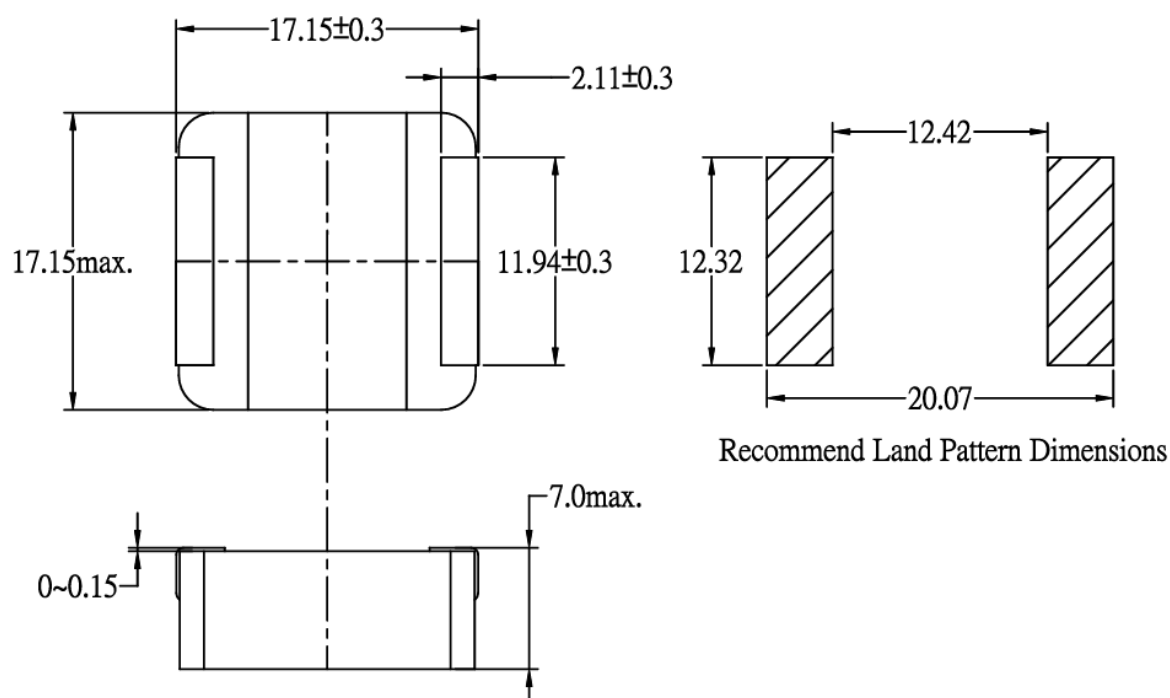
Description												
MAWH-1770-1R0-M-5A				1.0μH				±20%				
Model				Inductance Value				Inductance Tolerance				
Global Part Number												
M	A	W	H	1	7	7	0	1	R	0	M	5A
Product Series				Dimensions				Inductance Value		Tolerance		155°C

Part No.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L0 (μH)	DCR (mΩ)		Idc (A)	Isat (A)
	±20%, 100kHz, 1V	TYP.	MAX.	TYP.	TYP.
MAWH-1770-R47-M-5A	0.47	0.70	0.81	57.0	90.0
MAWH-1770-1R0-M-5A	1.0	1.15	1.32	44.5	60.0
MAWH-1770-1R5-M-5A	1.5	1.9	2.2	35.0	50.0
MAWH-1770-2R2-M-5A	2.2	2.2	2.5	31.5	38.0
MAWH-1770-3R3-M-5A	3.3	3.0	3.5	26.0	33.5
MAWH-1770-4R7-M-5A	4.7	4.0	4.6	18.0	29.0
MAWH-1770-6R8-M-5A	6.8	6.0	6.9	16.5	24.0
MAWH-1770-8R2-M-5A	8.2	7.8	9.0	14.5	22.5
MAWH-1770-100-M-5A	10.0	8.7	10.0	13.5	22.0
MAWH-1770-150-M-5A	15.0	13.5	15.5	12.5	17.0
MAWH-1770-220-M-5A	22.0	21.0	24.0	9.0	12.5
MAWH-1770-330-M-5A	33.0	33.5	38.5	7.2	11.5
MAWH-1770-470-M-5A	47.0	39.0	45.0	6.5	9.5
MAWH-1770-680-M-5A	68.0	55.0	63.5	5.0	8.0

Notes

1. All test data is referenced to 25°C ambient
2. Operating temperature range - 55°C to + 155°C
3. Idc(A): DC current (A) that will cause an approximate ΔT of 40°C (reference ambient temperature is 25°C)
4. Isat(A): DC current (A) that will cause L0 to drop approximately 30%
5. The part temperature (ambient + temp rise) should not exceed 155°C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

• Dimensions-mm

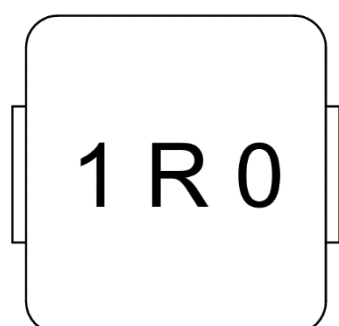


• Marking

The inductor is marked with a 3-digit code

Example - $-1.0 \rightarrow 1R0$

Note: Using Laser for marking



Performance Graphs

Test Instruments

Wayne kerr 3260B/G LCR Meter

Wayne kerr 3265B Bias Current Source

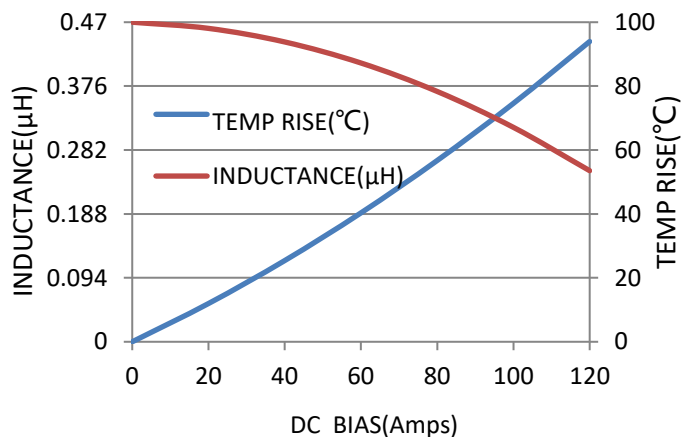
Test Condition

Temperature: $26 \pm 3^{\circ}\text{C}$

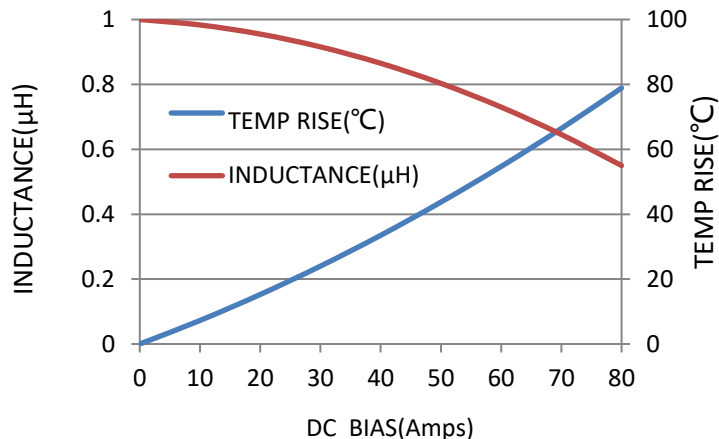
Humidity: < 70% RH

Frequency: 100kHz, 1.0V

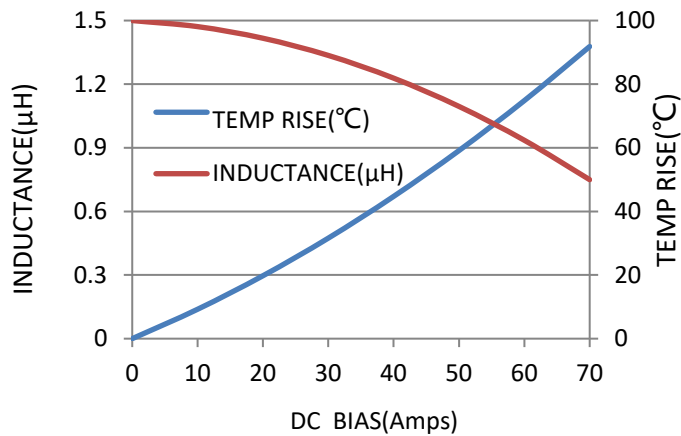
MAWH-1770-R47-M-5A



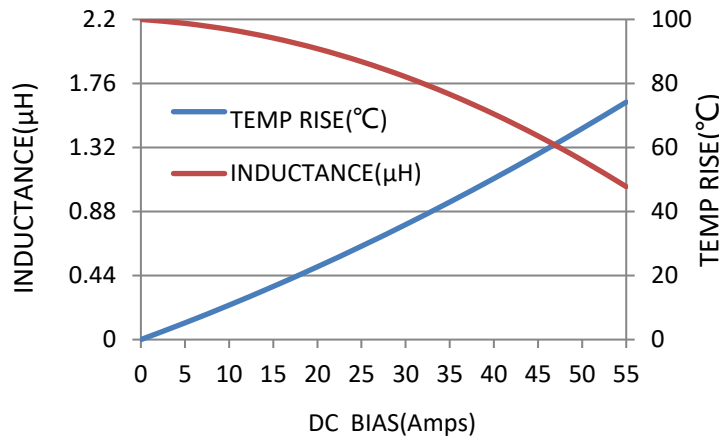
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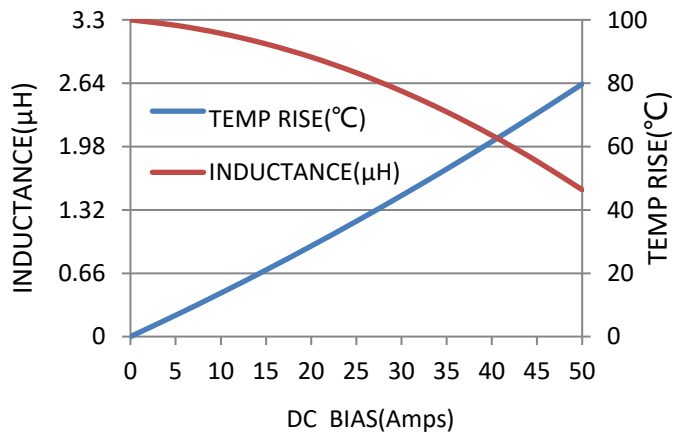
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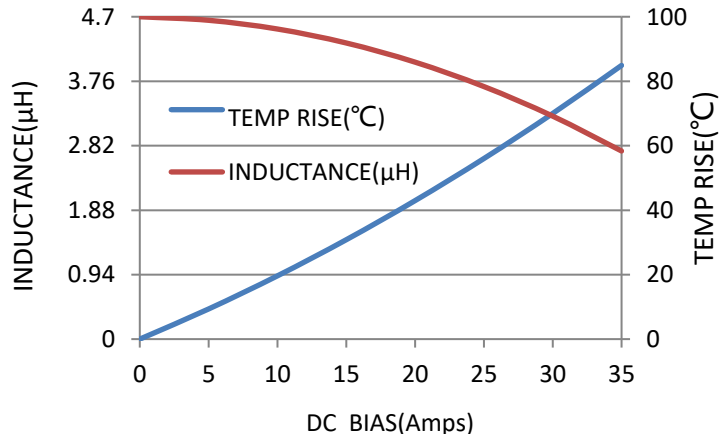
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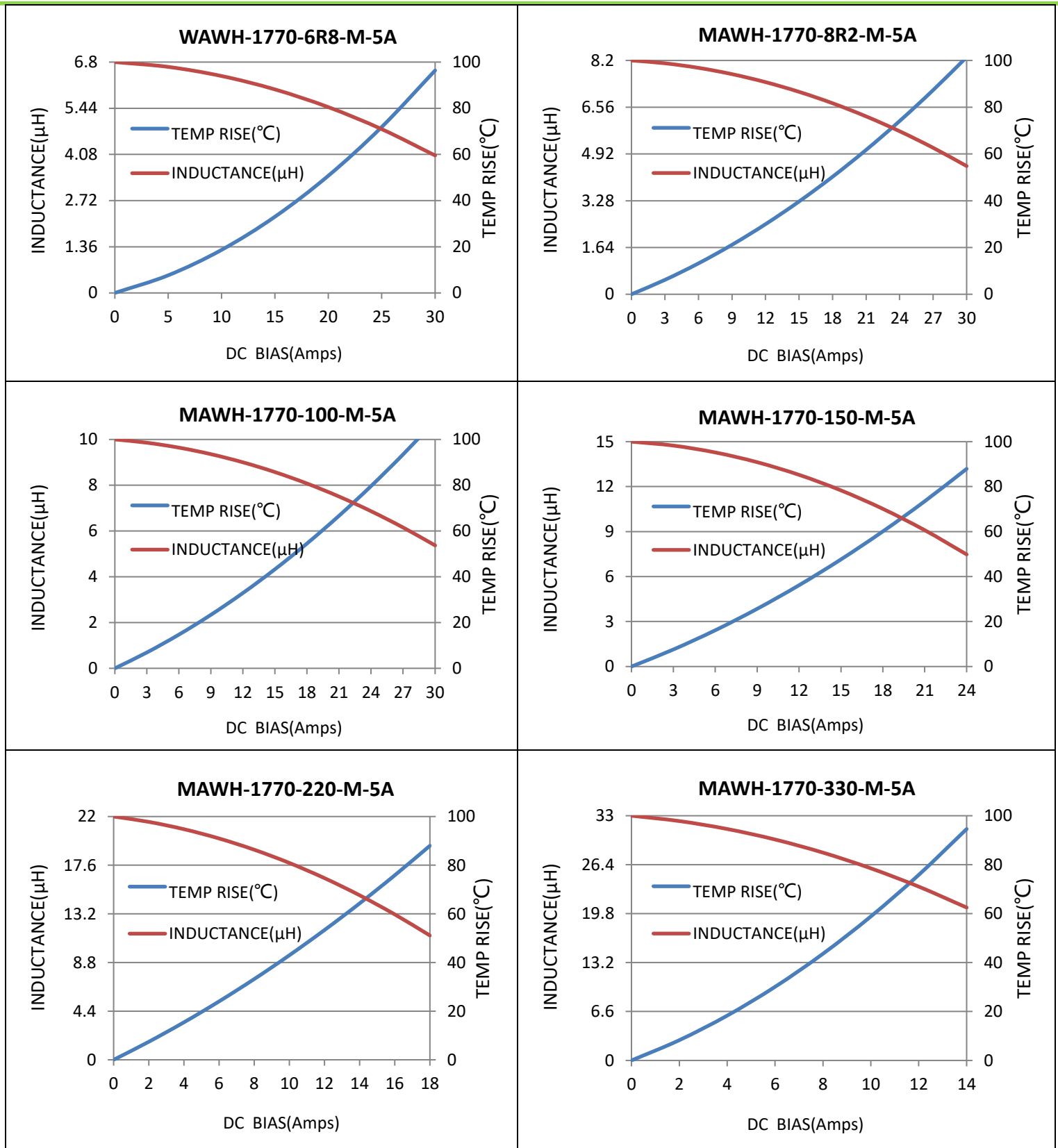


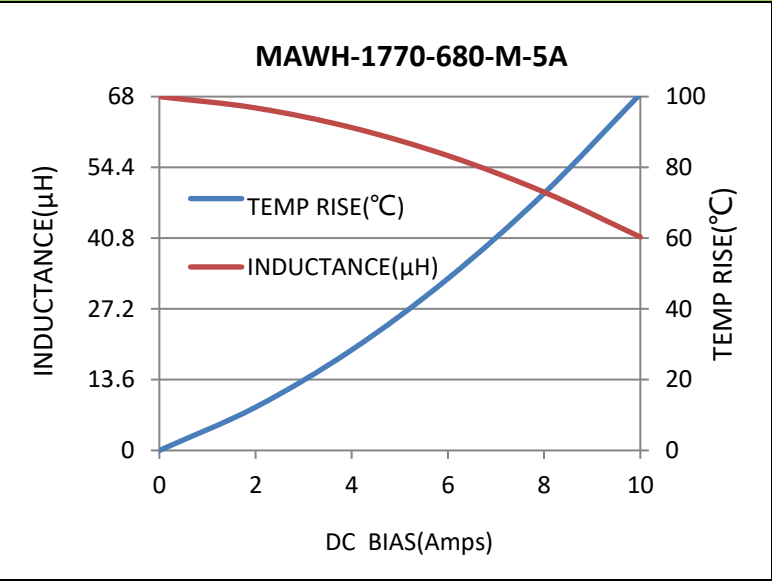
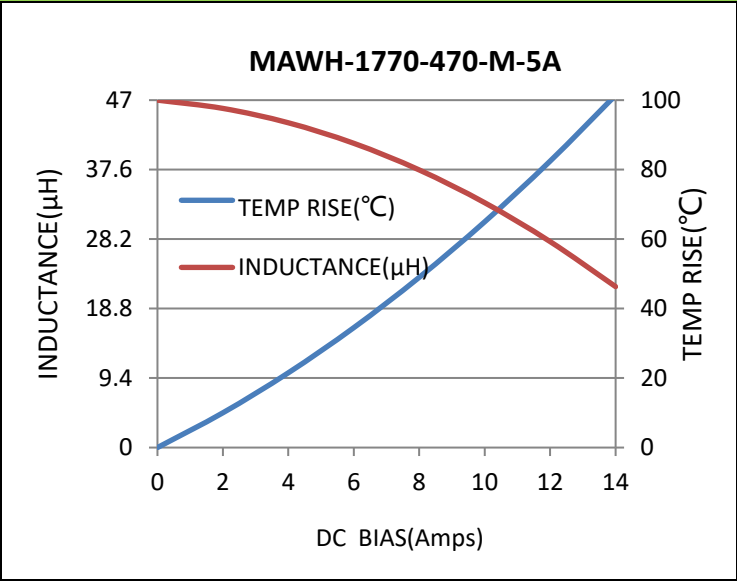
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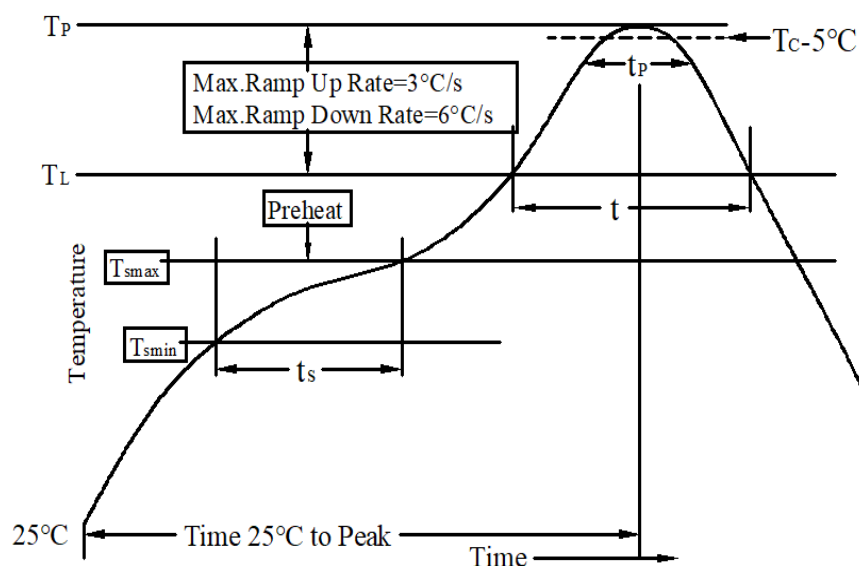
MAWH-1770-4R7-M-5A







• Solder Reflow Profile


Table 1-Standard SnPb Solder(T_c)

Package Thickness	Volume mm^3	Volume mm^3
	<350	<350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2-Lead(Pb) Free Solder(T_c)

Package Thickness	Volume mm^3	Volume mm^3	Volume mm^3
	<350	350-2000	>2000
<1.6mm	260°C	260°C	260°C
1.6-2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

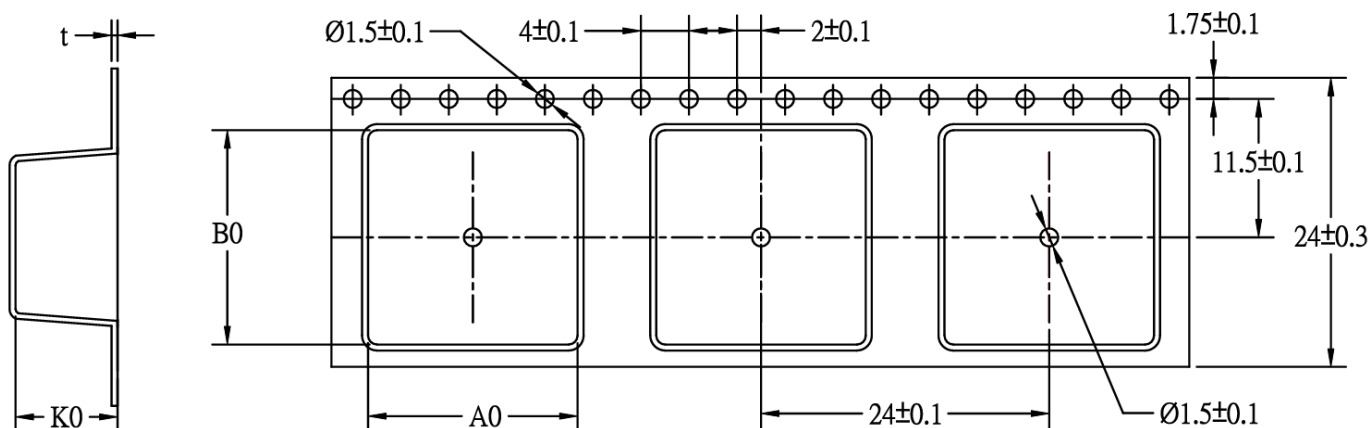
Reference JDEC J-STD-020

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak		
• Temperature min. (T_{smmin})	100°C	150°C
• Temperature max. (T_{smmax})	150°C	200°C
• Time (T_{smmin} to T_{smmax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smmax} to T_p	3°C/Second Max.	3°C/Second Max.
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60-150 Seconds	60-150 Seconds
Peak package body temperature (T_p)*	Table 1	Table 2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20 Seconds**	30 Seconds**
Average ramp-down rate (T_p to T_{smmax})	6°C/Second Max.	6°C/Second Max.
Time 25°C to Peak Temperature	6 Minutes Max.	8 Minutes Max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

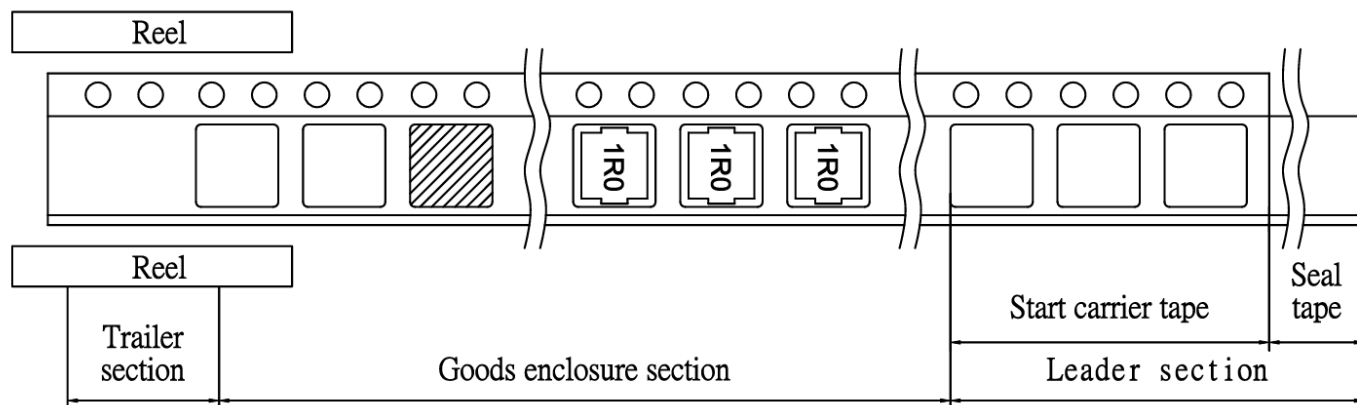
** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

Tape Packaging Dimensions-mm



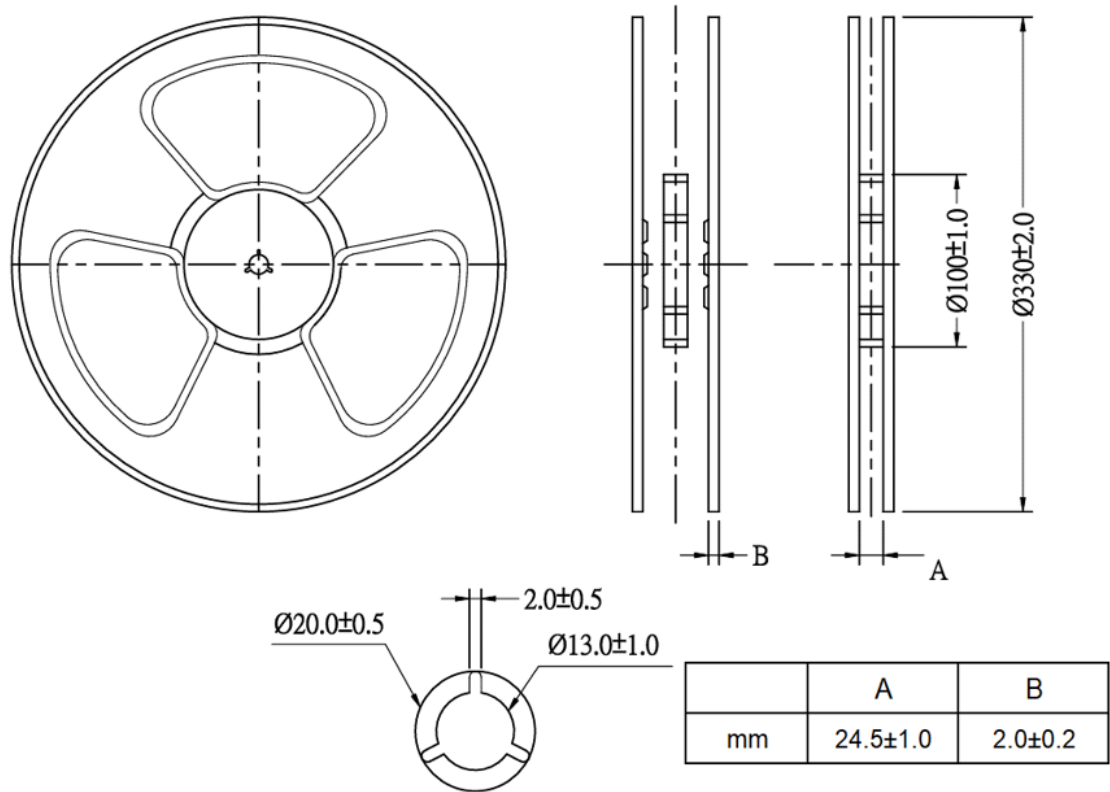
A0	B0	K0	t
17.45 ± 0.10	17.8 ± 0.10	7.3 ± 0.10	0.5 ± 0.05

Taping dimension and tape direction, Leader, Trailer, section dimension



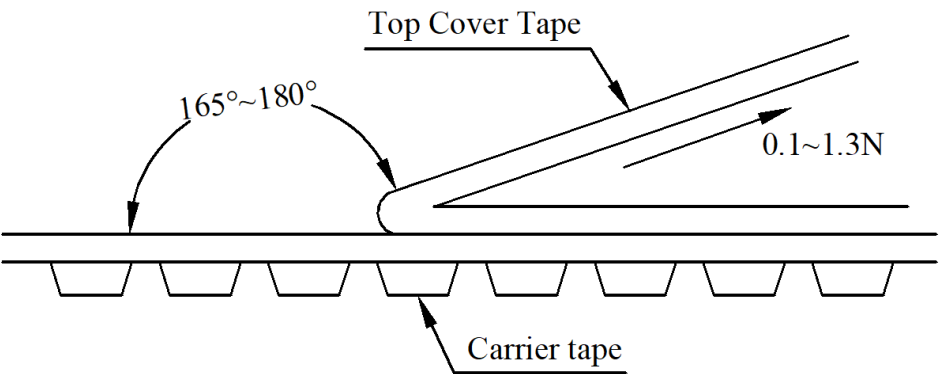
Leader section	Min.400mm
Carrier tape start size	Min.100mm
Trailer section size	Min.160mm

Reel Dimensions-mm



• Peel force of top cover tape

The peel speed shall be about 300mm/minute
The peel force of top cover tape shall be between 0.1 to 1.3 N



- Numbers of taping
200pieces/reel