

1. Part No. Expression

L 3 47 N M - 10

(a) (b) (c) (d) (e)

(a) Series Code

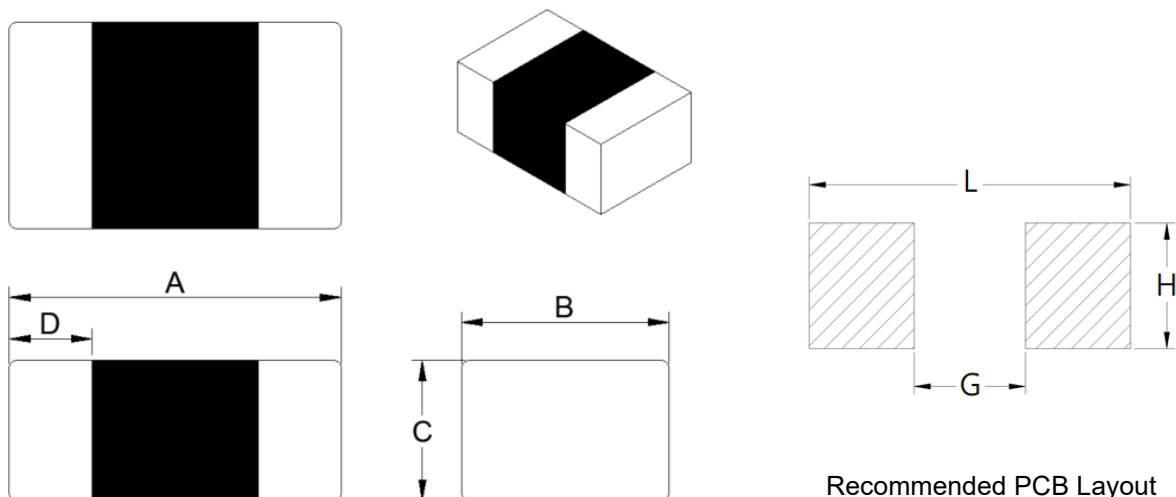
(b) Dimension Code

(c) Inductance Code

(d) Tolerance Code

(e) Internal Code

2. Configuration & Dimensions (Unit: mm)



Recommended PCB Layout

A	B	C	D	L	G	H
2.00±0.20	1.25±0.20	See Electrical Characteristics	0.50±0.30	3.10 Ref	1.00 Ref	1.45 Ref

NOTE: Specifications subject to change without notice. Please check our website for latest information.

3. General Specifications

- (a) Operating Temp.: -40°C to +105°C (including self-temperature rise)
- (b) Storage Temp.: -40°C to +105°C (on board)
- (c) All test data referenced to 25°C ambient.
- (d) Irms: Based on temperature rise ΔT 20°C Max at rated current < 1A and ΔT 40°C Max at rated current $\geq 1A$
- (e) Rated DC Current: The lower value of Irms and Isat.
- (f) Storage Condition (Component in its packaging)
 - i) Temperature: Less than 40°C
 - ii) Humidity: Less than 60% RH

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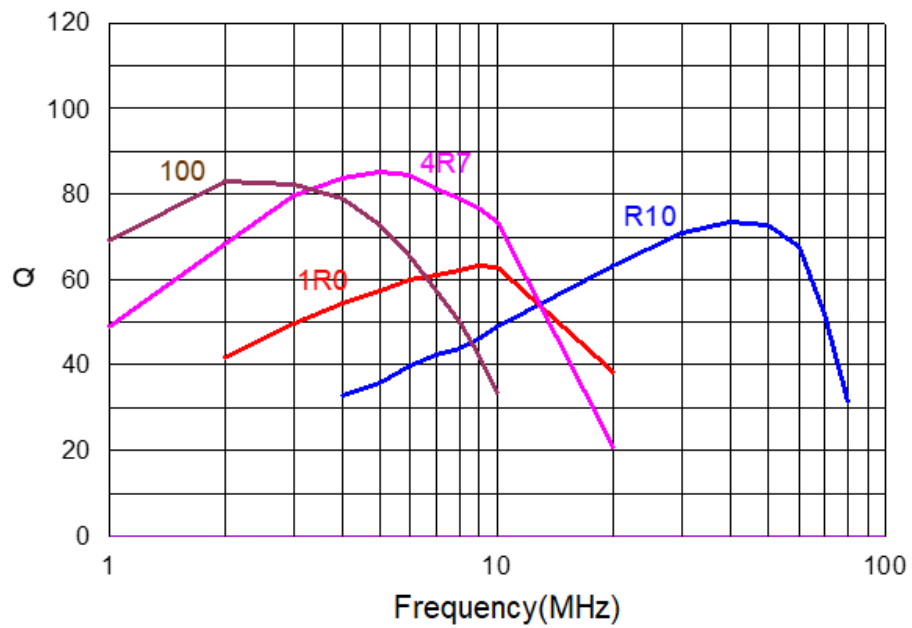
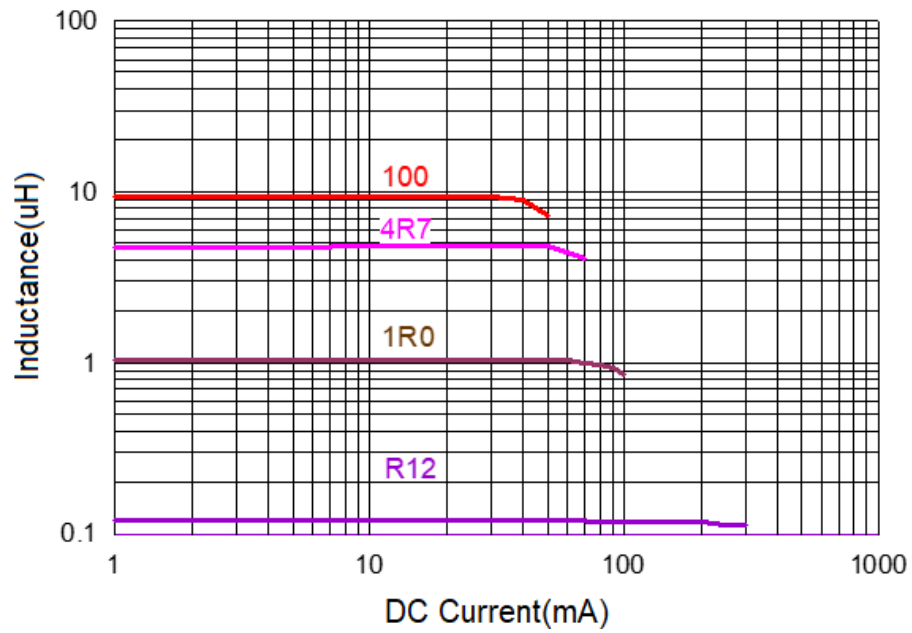
4. Electrical Characteristics

Part Number	Inductance (μ H)	Test Frequency	Q		Rated Current (mA) Max	DCR (Ω) Max	SRF (MHz) Min	C Dimensions ± 0.20
			Min	Test Frequency (MHz)				
L3-47N□-10	0.047	60mV/50MHz	15	50	300	0.20	320	0.85
L3-68N□-10	0.068	60mV/50MHz	15	50	300	0.20	280	0.85
L3-82N□-10	0.082	60mV/50MHz	15	50	300	0.20	255	0.85
L3-R10□-10	0.10	60mV/50MHz	20	25	250	0.30	235	0.85
L3-R12□-10	0.12	60mV/50MHz	20	25	250	0.30	220	0.85
L3-R15□-10	0.15	60mV/50MHz	20	25	250	0.40	200	0.85
L3-R18□-10	0.18	60mV/50MHz	20	25	250	0.40	185	0.85
L3-R22□-10	0.22	60mV/50MHz	20	25	250	0.50	170	0.85
L3-R27□-10	0.27	60mV/50MHz	20	25	250	0.50	150	0.85
L3-R33□-10	0.33	60mV/50MHz	20	25	250	0.55	145	0.85
L3-R39□-10	0.39	60mV/50MHz	25	25	200	0.65	135	0.85
L3-R47□-10	0.47	60mV/50MHz	25	25	200	0.65	125	1.25
L3-R56□-10	0.56	60mV/50MHz	25	25	150	0.75	115	1.25
L3-R68□-10	0.68	60mV/50MHz	25	25	150	0.80	105	1.25
L3-1R0□-10	1.0	60mV/10MHz	45	10	50	0.40	75	0.85
L3-1R5□-10	1.5	60mV/10MHz	45	10	50	0.50	60	0.85
L3-1R8□-10	1.8	60mV/10MHz	45	10	50	0.60	55	0.85
L3-2R2□-10	2.2	60mV/10MHz	45	10	30	0.65	50	0.85
L3-2R7□-10	2.7	60mV/10MHz	45	10	30	0.75	45	1.25
L3-3R3□-10	3.3	60mV/10MHz	45	10	30	0.80	41	1.25
L3-4R7□-10	4.7	60mV/10MHz	45	10	30	1.00	35	1.25
L3-100□-10	10.0	60mV/2MHz	45	2	15	1.15	24	1.25

□Tolerance: K=±10%, L=±15%, M=±20%

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5. Characteristics Curve



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6. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

6-1. IR Soldering Reflow

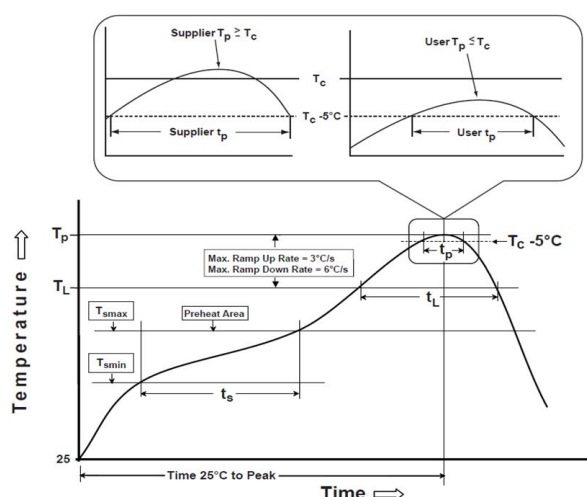
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

6-2. Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

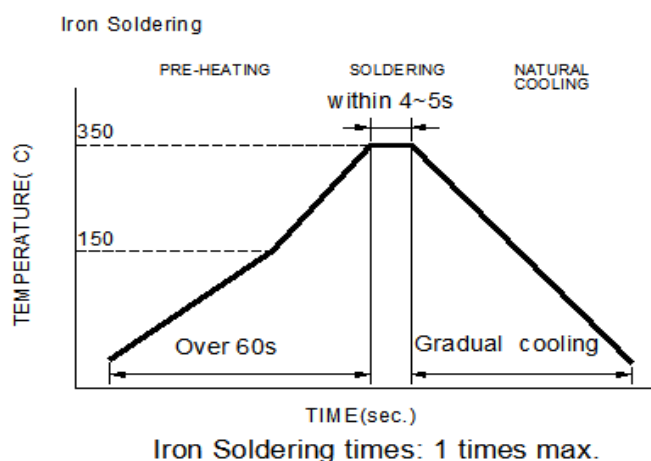
Note:

- Preheat circuit and products to 150°C.
- 355°C tip temperature (Max.)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (Max.)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Soldering iron method: 350±5°C Max

Figure 2: Iron soldering temperature profiles

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Table (1.1) Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat	
-Temperature Min (T_{smin})	150°C
-Temperature Max (T_{smax})	200°C
-Time (t_s) from (T_{smin} to T_{smax})	60-120seconds
Ramp-up rate (T_L to T_p)	3°C /second max.
Liquids temperature (T_L)	217°C
Time (t_L) maintained above T_L	60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at $T_c - 5^\circ\text{C}$ (T_p should be equal to or less than T_c .)	* < 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

T_p : maximum peak package body temperature, **T_c** : the classification temperature.

For user (customer) **T_p** should be equal to or less than **T_c** .

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

Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

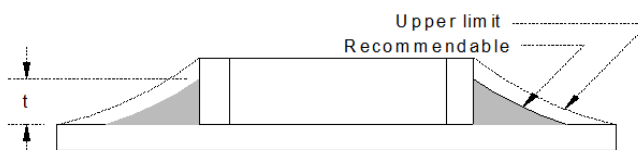
	Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

6-3. Soldering Volume

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceeded as shown in the Figure below.

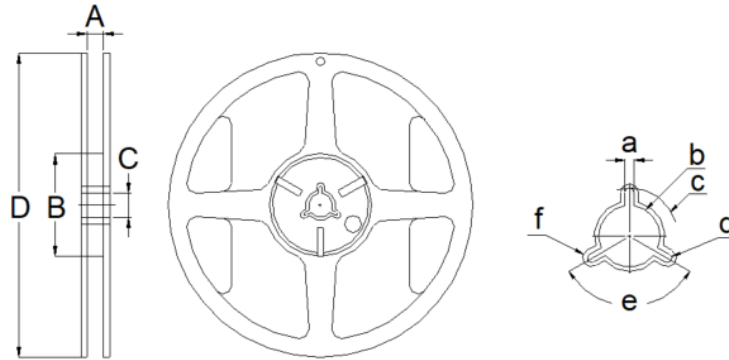
Minimum fillet height = soldering thickness + 25% product height.



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7. Packaging Information

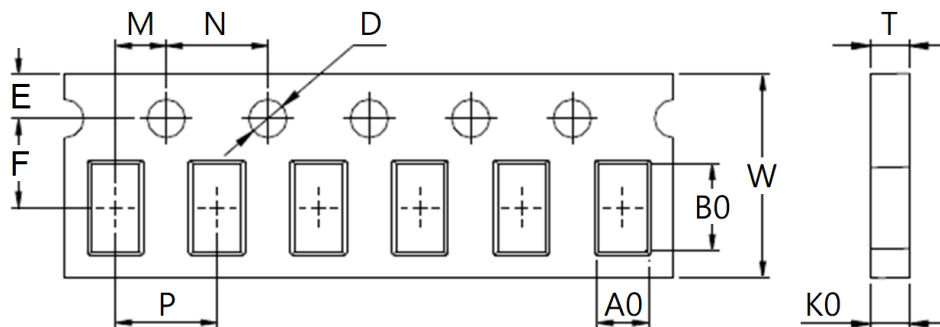
7-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	a
	9.0±0.5	60.0±2.0	13.5 Ref	178.0±2.0	2.0 Ref
7"x8mm	b	c	d	e	f
	13.5 Ref	R10.5	R0.5	120°	R1.9

7-2. Tape Dimension (Unit: mm)

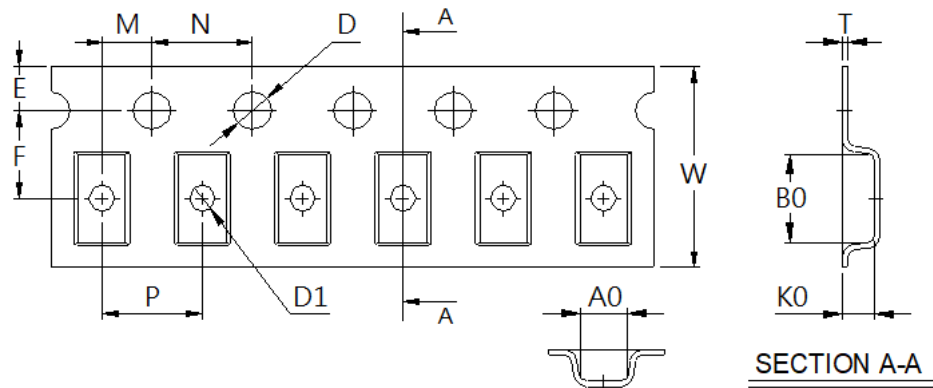
Material of taping is paper



F	E	M	N	D	W
3.50±0.10	1.75±0.10	2.00±0.10	4.00±0.10	1.56+0.10/-0.05	8.00±0.10
B0	A0	K0	P	T	-
2.10±0.05	1.30±0.05	0.95±0.05	4.0±0.10	0.95±0.05	-

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Material of taping is plastic



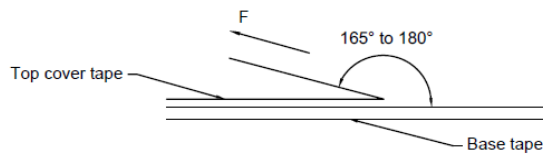
B0	A0	K0	P	T	D1
2.10±0.10	1.28±0.10	1.28±0.10	4.0±0.10	0.22±0.05	1.0±0.10
F	E	M	N	D	W
3.50±0.05	1.75±0.10	2.00±0.05	4.00±0.10	1.50±0.10	8.00±0.10

7-3. Packaging Quantity (Unit: Pcs)

Type	201209	201212
Chip/ Reel	4,000	2,000
Inner Box	20,000	10,000
Middle Box	100,000	50,000
Carton	200,000	100,000

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7-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.

(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

Application Notice

1. Storage Conditions

To maintain the solderability of terminal electrodes:

- (a) Recommended products should be used within 12 months from the time of delivery.
- (b) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation

- (a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- (b) Vacuum pick up is strongly recommended for individual components.
- (c) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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