

CUSTOMER APPROVAL SHEET

CUSTOMER :

CUSTOMER P/N :

DESCRIPTION :

OUR ITEM : ENR201610F-100M

QUANTITY : 5 PCS

DATE : 2022/2/23

SPECIFICATION

	“ ✓ ”	CUSTOMER'S SIGNATURE	NOTE
FULL APPROVAL			
CONDITIONAL APPROVED			
REJECTED			

DRAWN BY	CHECKED BY	APPROVED BY
<i>Mandy</i>	Nady	DEMI

Head office

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Low Profile Power Inductor

Feature

- 1.High current saturation.
- 2.Magnetically Shielded Structure.
- 3.Low profile construction and miniature size.

Applications

- 1.DC to DC converters & Power Line Filter
- 2.DVC/DSC/PDA, LCD display.

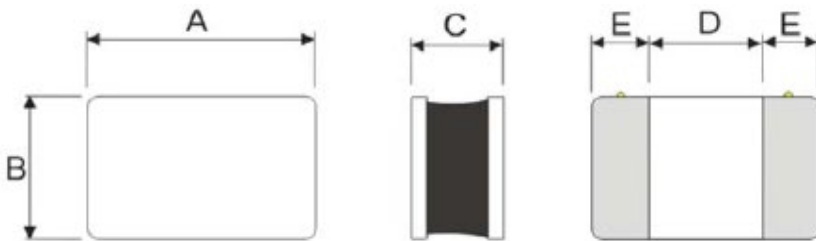
Product Identification



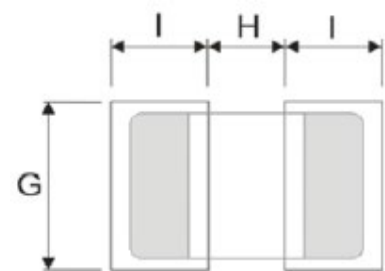
Series Name	Dimensions (W x L x H)		Internal code	
ENR	201610	2.0 x 1.6 x 1.0 mm	F	Square

Inductance		Tolerance	
100	10uH	M	20%

Shape and Dimension



Recommended PCB Pattern



Dimensions(mm)

Part No.	A	B	C	D	E	G	H	I
ENR201610F-100M	2.0	1.6	1.0	0.8	0.60	1.60	0.70	0.65
	± 0.2	± 0.2	Max.	± 0.2	± 0.2	Ref.	Ref.	Ref.

Electrical Characteristics

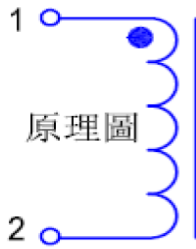
Test Item	Inductance (uH)	Isat (A)	Irms (A)	DCR (mΩ)	Test Frequency
ENR201610F-100M	10	0.50	0.45	1020/820	100 KHz / 0.25 V
	± 20%	Max.	Max.	Max/Typ	

Note

- 1.Isat : DC Saturation Current that will cause initial inductance to drop approximately 30 % max.
- 2.Irms : DC Current that will cause an approximate ΔT of 40°C .
- 3.Test Instrument : L (CH1062), RDC(HIOKI 3540), IDC (CH1062+CH1320)

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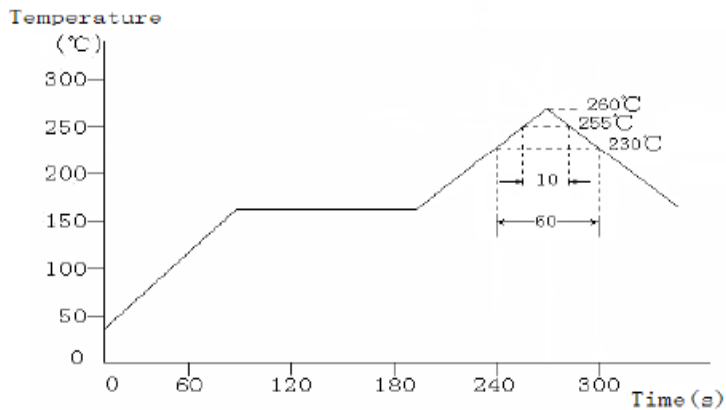
Equivalent Circuit Schematic



Rating

1. Operating temperature : $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
2. Storage conditions : $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

Reflow Soldering Heat Endurance

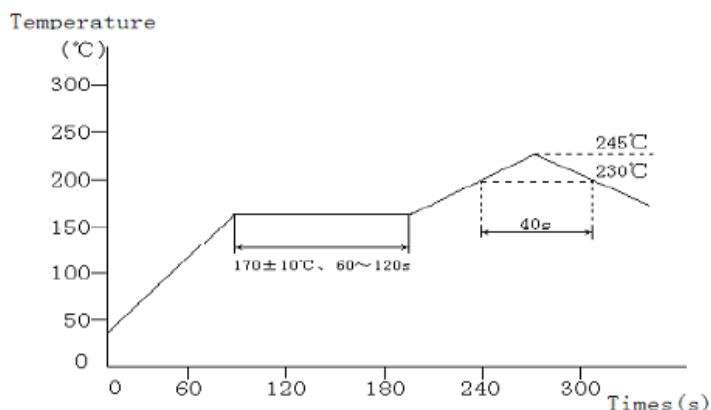


No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

The reflow test profile may vary with the testing instruments.

Recommended Reflow Conditions



The recommended reflow profile is based on the testing instruments used. Solder ability will depend on the testing equipments, reflow conditions, testing method, etc. So it is necessary to make a confirmation of them when the reflow conditions are set up.

However halogen lamp shall be used, side heat will be beyond range of resistance heat, so we can't recommend it.

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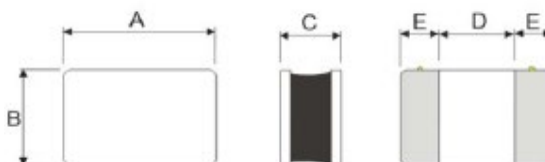
Test Data

Customer				Data	2022/2/23				
Description	ENR201610F-100M			Quantity	5 PCS				
Test Item	L (μ H)	L(0.5A) (μ H)	DCR (m Ω)	A (mm)	B (mm)	C (mm)			
SPEC	10.0	L(0A)*70%	1020	2.0	1.6	1.0			
Upper	12	-	1020	2.2	1.8	1.0			
Lower	8	5.6	-	1.8	1.4	-			
Tolerance	20%	Min	Max	0.2	0.2	Max.			
Test Frequency	1MHz/0.25V								
1	10.10	8.12	821.40	2.02	1.64	0.95			
2	10.14	8.18	824.30	2.00	1.66	0.94			
3	10.08	8.21	823.30	2.02	1.64	0.94			
4	10.12	8.22	820.20	2.02	1.64	0.96			
5	10.06	8.16	826.10	2.00	1.68	0.94			
6									
7									
8									
9									
10									
Average	10.10	8.18	823.06	2.01	1.65	0.95			
Max	10.14	8.22	826.10	2.02	1.68	0.96			
Min	10.06	8.12	820.20	2.00	1.64	0.94			
Range	0.08	0.10	5.90	0.02	0.04	0.02			
Test Condition	Temp	25 $^{\circ}$ C		R.H.		62%			

Material	SPEC	Test Instrument
Core		1. LCR : HIOKI3532-50
Wire		2. DCR : HIOKI 3540
Solder		3. IDC : HP4284A+42841

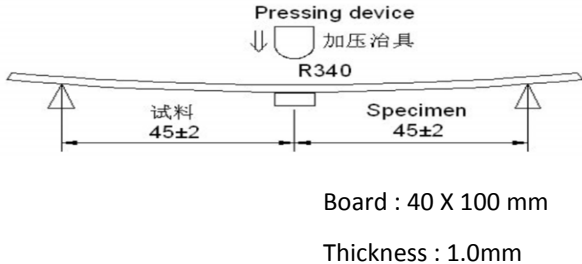
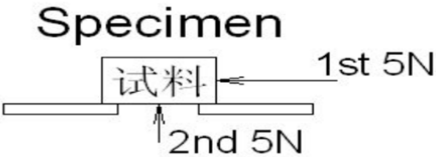
Note.

Configuration



Low Profile Power Inductor

Reliability and Test Conditions

ITEM	Conditions	Specification
Temperature Drift	To be measured in the range of -40°C to 105°C.	Inductance temperature coefficient 2000 ppm/°C or less
Storage Temperature	With taping.	-40°C to 125°C
Operating Temperature	Including self temperature rise.	-40°C to 125°C
Bending Test	<p>Apply pressure gradually in the direction of the arrow at a rate of about 0.5mm/s until bent depth reaches 3mm and hold for 30±5s.</p>  <p style="text-align: center;">Board : 40 X 100 mm Thickness : 1.0mm</p>	Change from an initial value L : within±10%
Adhesion Strength	<p>A static load using a R0.5 pressing tool shall be applied the arrow and to the body of the specimen in the direction of the arrow and shall be hold for 60±5s. Measure after removing pressure.</p> 	Change from an initial value L : within±10%
Vibration	<p>The specimen shall be subjected to a vibration of 1.5mm amplitude, sweep frequency 10~55Hz (10Hz to 55Hz to 10Hz in a period of one minute) for 1 h in each of 3(X,Y,Z) axes.</p>	Change from an initial value L : within±10%
Mechanical Shock	<p>Peak acceleration: 981 m/S² Duration of pulse : 6ms 3 times in each of 3(X,Y,Z)axes. The specimen must be fixed on test board. Three successive shock shall be applied in the perpendicular direction of each surface of the specimen.</p>	Change from an initial value L : within±10%

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Reliability and Test Conditions

ITEM	Conditions	Specification
Free fall Test	<p>The specimen must be fixed on test board.</p> <p>It must be equipped with instruments of which weight is 500g.</p> <p>Then it shall be fallen freely from 1m height to rigid wood 3 times in each of three axes.</p>	<p>Change from an initial value</p> <p>L : within±10%</p>
Solderability	<p>Terminals shall be immersed for 5 to 10 seconds in flux at room temperature.</p> <p>Dip sample into solder bath containing molten solder at 245±5°C for 3±0.5 seconds.</p>	<p>New solder shall cover 90% minimum of the surface immersed.</p>
Dielectric Strength	<p>100V DC shall be applied for 60s between the terminal and the core.</p>	<p>Without damage.</p>
Resistance to Soldering Heat	<p>Test method : Reflow soldering method</p> <p>Preheat 150~180°C 90 ± 30s</p> <p>Peak temp 250(+ 5,-0)°C (230°C min ,30 ± 10s)</p> <p>The specimen shall be subjected to the reflow process under the above condition 2 times.</p> <p>Test board shall be 0.8mm thick.</p> <p>Base material shall be glass epoxy resin.</p> <p>Measurement</p> <p>The specimen shall be stored at standard atmospheric conditions for 1h in prior to the measurement.</p>	<p>Change from an initial value</p> <p>L : within±10%</p>
Insulation resistance	<p>100V DC shall be applied between the terminal and the core.</p>	<p>100mΩ or more.</p>
Low temperature	<p>The specimen shall be stored at a temperature of -40 ± 3°C for 500 ± 12h.</p> <p>Then it shall be stabilized under standard atmospheric conditions for 1h before measurement.</p> <p>Measurement shall be made within 1h.</p>	<p>Change from an initial value</p> <p>L : within±10%</p>

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☑.Reliability and Test Conditions

ITEM	Conditions	Specification
Dry heat	The specimen shall be stored at a temperature of $105 \pm 2^{\circ}\text{C}$ for $500 \pm 12\text{h}$. Then it shall be stabilized under standard atmospheric conditions for 1h before measurement. Measurement shall be made within 1h.	Change from an initial value L : within $\pm 10\%$
Dump heat	The specimen shall be stored at a temperature of $60 \pm 2^{\circ}\text{C}$ with relative humidity of 90 ~ 95% for $500 \pm 2\text{h}$. Then it shall be stabilized under standard atmospheric conditions for 1h before measurement. Measurement shall be made within 1h.	Change from an initial value L : within $\pm 10\%$
Temperature cycle	The specimen shall be subjected to 500 continuous cycles of temperature change of -40°C for 30 min and 105°C for 30 min with the transit period of 2min or less. Then it shall be stabilized under standard atmospheric conditions for 1h before measurement. Measurement shall be made within 1h.	Change from an initial value L : within $\pm 10\%$

☑.Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions in making measurements and test as follows.

1. Ambient temperature : 5°C to 35°C
2. Relative humidity : 45% to 85%
3. Air pressure : 86kPa to 106kPa

If more strict measurement is required, measurement shall be made within following limits.

1. Ambient temperature : $20 \pm 2^{\circ}\text{C}$
2. Relative humidity: $65 \pm 5\%$
3. Air pressure: 86kPa to 106kPa

☑.Standard atmospheric conditions

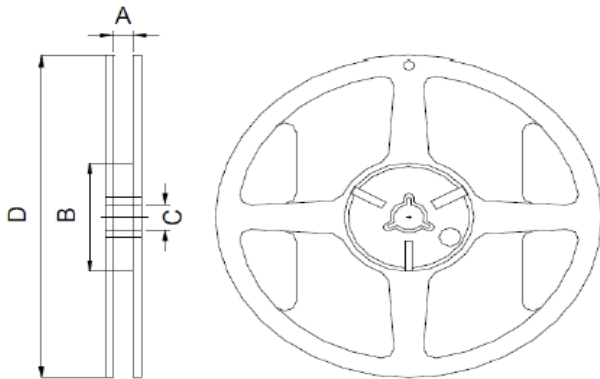
We confirm that our products and our production process accord with "rule of RoHS".

All mater used in this product are registered material under the law concerning the examination and Regulation of Manufacture of Chemical Substances.

Low Profile Power Inductor

1. Packing Specifications

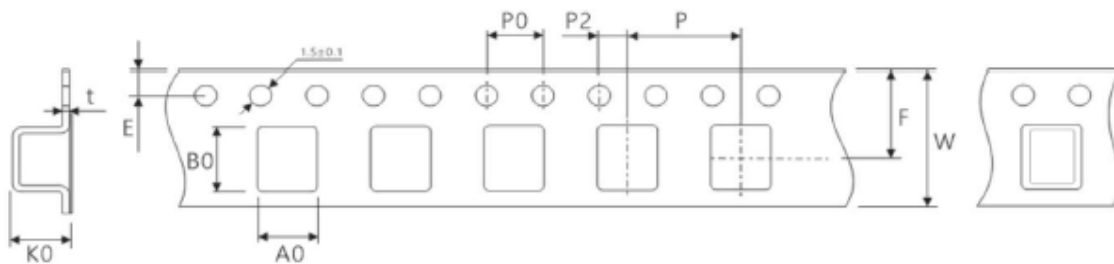
1.Reel Dimension



Dimensions(mm)

Item	A	B	C	D
13"x8	8±1	72±1	13±1	178±1

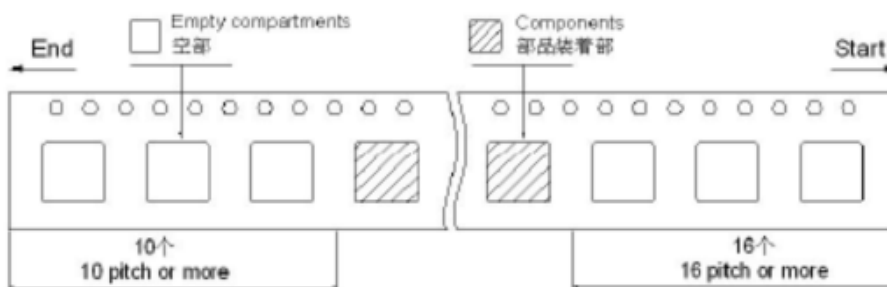
2.Taping Dimension



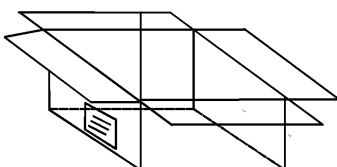
Dimensions(mm)

Item	W	A0	B0	K0	E	F	P	P0	P2			T
8mm	8.0	1.90	2.30	1.20	1.75	3.50	4.00	4.00	2.00			0.25
	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1			±0.05

3.Taping method



4.Packaging Carton



Reel Packing Unit	Inner Box Packing	Carton Packing Unit
2,000 PCS / Reel	20,000 PCS / Box	80,000 PCS / Box