



Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	1/8

■ Power Inductor — ENR60 F Series



■ Parts Number Explanation

Example:

ENR	6028	F	—	R47	M	—	T	W	Z
Product Type	Size (mm)	Application		Inductance (uH)	Tolerance		Package	Internal Code	Optional
Wire-wound Power Inductor	6028 6045			R47 : 0.47uH R68 : 0.68uH	N : $\pm 30\%$ M : $\pm 20\%$ K : $\pm 10\%$		T : Taping		Z : Default Code



Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	2/8

■ Standard Electrical Specifications

Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)	Irms (A)
	L (μH)	MAX	TYP	$\Delta L/L \leq 30\%$	$\Delta T \leq 40^{\circ}\text{C}$
ENR6028F-1R0N-TWZ	1.0	20	15	8.00	5.50
ENR6028F-1R5N-TWZ	1.5	25	18	7.00	5.20
ENR6028F-2R2M-TWZ	2.2	28	21	6.00	4.50
ENR6028F-3R3M-TWZ	3.3	40	32	4.50	3.50
ENR6028F-4R7M-TWZ	4.7	45	40	4.00	3.00
ENR6028F-5R6M-TWZ	5.6	60	50	3.50	2.50
ENR6028F-6R8M-TWZ	6.8	65	55	3.20	2.40
ENR6028F-100M-TWZ	10	85	70	2.50	2.00
ENR6028F-120M-TWZ	12	96	80	2.40	1.90
ENR6028F-150M-TWZ	15	125	100	2.30	1.80
ENR6028F-220M-TWZ	22	185	150	1.90	1.40
ENR6028F-270M-TWZ	27	210	185	1.60	1.30
ENR6028F-330M-TWZ	33	260	200	1.40	1.20
ENR6028F-470M-TWZ	47	410	350	1.30	1.00
ENR6028F-560M-TWZ	56	420	360	1.10	0.90
ENR6028F-680M-TWZ	68	500	400	1.00	0.85
ENR6028F-820M-TWZ	82	680	550	0.90	0.80
ENR6028F-101M-TWZ	100	750	620	0.85	0.75
ENR6028F-150M-TWZ	150	860	800	0.65	0.60
ENR6028F-220M-TWZ	220	1600	1300	0.55	0.50
ENR6028F-330M-TWZ	330	2400	1850	0.50	0.45
ENR6028F-470M-TWZ	470	3200	2400	0.35	0.32
ENR6028F-680M-TWZ	680	5500	4300	0.32	0.30
ENR6028F-820M-TWZ	820	5800	4500	0.26	0.25
ENR6028F-102M-TWZ	1000	7800	5950	0.23	0.22



Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	3/8

Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)	Irms (A)
	L (μH)	MAX	TYP	$\Delta L/L_0 \leq 30\%$	$\Delta T \leq 40^\circ\text{C}$
ENR6045F-1R0N-TWZ	1.0	15	11	12.50	6.00
ENR6045F-1R5N-TWZ	1.5	20	16	11.00	4.90
ENR6045F-1R8N-TWZ	1.8	20	16	10.00	4.50
ENR6045F-2R2M-TWZ	2.2	23	18	9.00	4.40
ENR6045F-3R3M-TWZ	3.3	30	23	7.50	4.00
ENR6045F-4R7M-TWZ	4.7	40	32	6.70	3.60
ENR6045F-5R6M-TWZ	5.6	48	39	6.00	3.10
ENR6045F-6R8M-TWZ	6.8	54	44	5.30	2.80
ENR6045F-8R2M-TWZ	8.2	70	55	4.80	2.50
ENR6045F-100M-TWZ	10	72	58	4.50	2.40
ENR6045F-120M-TWZ	12	95	74	3.80	2.20
ENR6045F-150M-TWZ	15	100	80	3.40	2.10
ENR6045F-180M-TWZ	18	130	110	3.10	1.80
ENR6045F-220M-TWZ	22	160	125	2.90	1.60
ENR6045F-330M-TWZ	33	210	175	2.30	1.50
ENR6045F-470M-TWZ	47	315	260	1.90	1.20
ENR6045F-680M-TWZ	68	420	345	1.60	1.00
ENR6045F-101M-TWZ	100	650	545	1.30	0.80
ENR6045F-151M-TWZ	150	1050	820	1.10	0.70
ENR6045F-181M-TWZ	180	1200	900	1.00	0.60
ENR6045F-221M-TWZ	220	2000	1550	0.90	0.50
ENR6045F-331M-TWZ	330	2500	2000	0.80	0.40
ENR6045F-471M-TWZ	470	3300	2500	0.70	0.35
ENR6045F-561M-TWZ	560	4400	3500	0.60	0.30
ENR6045F-681M-TWZ	680	4900	4000	0.50	0.28
ENR6045F-821M-TWZ	820	6500	5200	0.45	0.25
ENR6045F-102M-TWZ	1000	7500	6000	0.40	0.23



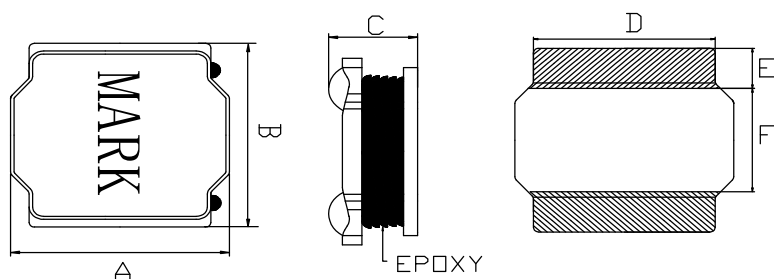
Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	4/8

Notes :

1. Test Frequency : 100KHZ/0.25V
2. Tolerance : N: $\pm 30\%$; M: $\pm 20\%$; K: $\pm 10\%$

■ Dimensions



Note : Using Ink for marking

Recommend Land Pattern

Unit: mm

Type	A	B	C	D	E	F
ENR6028F	6.0 ± 0.2	6.0 ± 0.2	3.0 Max.	5.0 Ref.	1.85 Ref.	2.3 Ref.
ENR6045F	6.0 ± 0.2	6.0 ± 0.2	4.5 Max.	4.9 Ref.	1.55 Ref.	2.9 Ref.

■ Marking

- The inductor is marked with a 3-digit code

Nominal Inductance	
Example	Nominal Value
1R0	1.0 μH
100	10 μH
101	100 μH



Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	5/8

● Reliability test and requirement

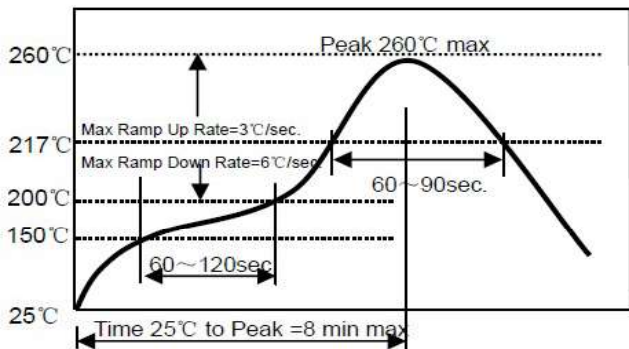
Item	Specification and Requirement	Test Method
Resistance to Soldering Heat	1. No visible mechanical damage 2. Inductance change: Within $\pm 5\%$	1. Solder on PCB to Reflow test Peak Temp. $260 \pm 5^\circ\text{C}$ 5~10 secs ,Cycles: 2 times..Re-flowing Profile: Please refer to Fig-1 2. Test board thickness: 1.5mm 3. Test board material: glass epoxy resin 4. The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.product showed no damage under microscope.(for microscope of Shun Yu SZM-45 20X) 
High Temperature	1.No visible mechanical damage 2.Inductance change: Within $\pm 10\%$	1.Temperature: $125 \pm 2^\circ\text{C}$ 2.Duration: 1000 hours 3.The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.
Steady damp-heat	1.No visible mechanical damage 2.Inductance change: Within $\pm 10\%$	1.Temperature: 85°C 2.Humidity: 85% RH 3.Duration:1000 hours 4.The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.
Mechanical Vibration	1.No visible mechanical damage 2.Inductance change: Within $\pm 10\%$	1.Frequency: 10HZ~55HZ~10HZ/Min Cycles 2.Amplitude: 1.5 mm 3.Directions: X,Y,Z 4.Time: 2 hours in each directions (total of 6 hours)

Fig-1



Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	6/8

Item	Specification and Requirement	Test Method
Thermal Shock	1.No visible mechanical damage 2.Inductance change: Within $\pm 10\%$	1.Temperature and time: -40°C for 30 ± 3 min $\rightarrow 125^{\circ}\text{C}$ for 30 ± 3 min, please refer to Fig-2 2.Transforming interval: Max. 3 Min 3.Tested cycle: 1000 cycles 4.The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made. Fig-2
Salt Spray	1.No visible mechanical damage 2.Inductance change: Within $\pm 10\%$	1.Salt concentration: $(5 \pm 1)\%$ (mass percent) 2.pH value: 6.5 - 7.2 3.temperature: $35 \pm 2^{\circ}\text{C}$ 4.humidity: 85% 5.time: 24 hours 6.in normal temperature and humidity for 1 ~ 2 hours, testing inductance, the inductance value change can not be more than before test $\pm 10\%$.
Terminal strength	1.The peak thrust is greater than 10N	1.The electrode of the inductor is soldered to the PCB, to Fig-3 Then apply a force in the X direction of the arrow. 2.10N force. 3. Keep time: $10(\pm 1)\text{s}$ 4.The first three tests were OK, and the force was applied until the peak value of the product peeling. The test speed was set in the range of 3 ~ 8mm/min.

Test conditions : The sample shall be reflow soldered onto the printed circuit board in every test.

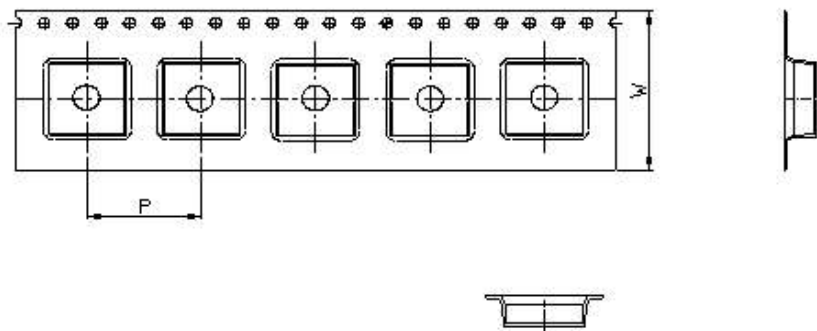


Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	7/8

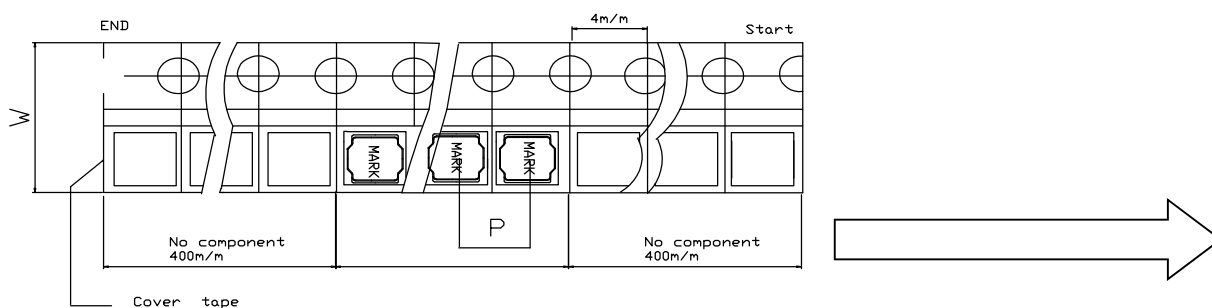
Packaging

(1) CARRIER TAPE DIMENSIONS (Unit : mm)



W	16
P	8

(2) TAPING DIMENSIONS (Unit : mm)



Note : Note: After the product is ready, the outermost layer of the reel is 400mmMIN and the innermost layer is 400mmMIN.

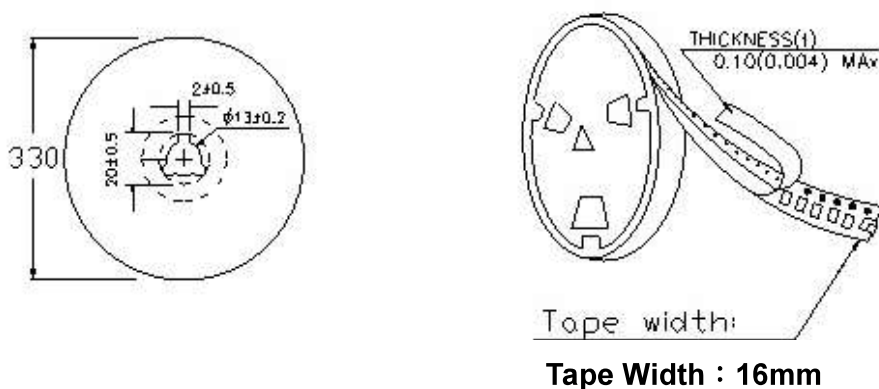
Type	Outermost Layer	Innermost Layer
ENR6028F	400	400
ENR6045F	400	400



Power Inductor ENR60 F Series Product Specifications

Document No.	S-10-12-123-02
Revision Date	2023 / 01 / 16
Page No.	8/8

(3) REEL DIMENSIONS (Unit : mm)



(4) Quantity (PCS)

Type	pcs / Reel
ENR6028F	2000
ENR6045F	1500