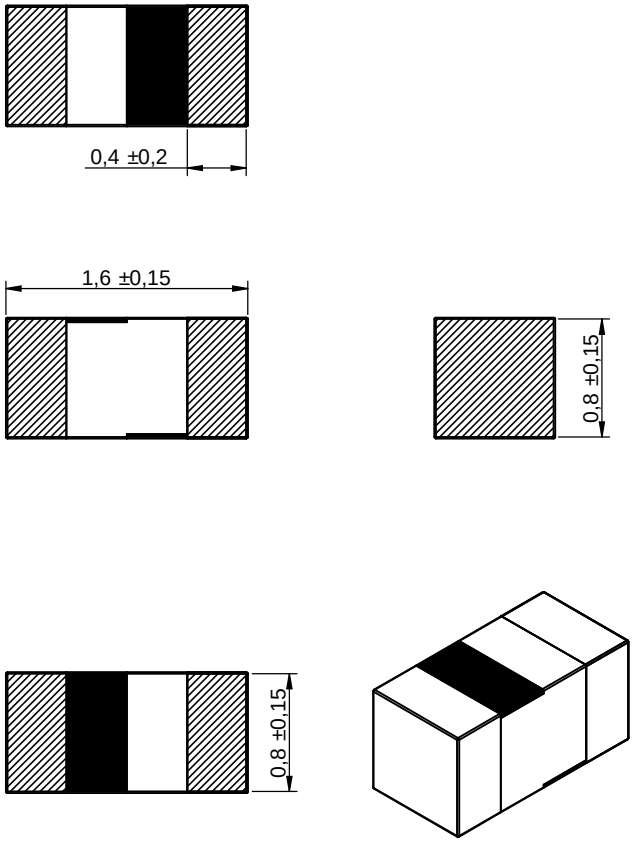
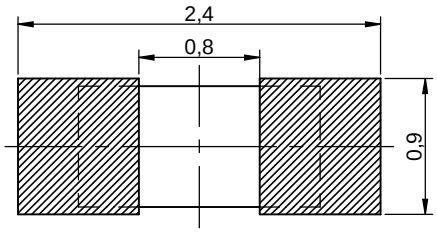
Dimensions: [mm]



Scale - 20:1

Recommended Land Pattern: [mm]



Scale - 20:1

Schematic:

Electrical Properties:

Properties		Test conditions	Value	Unit	Tol.
Inductance	L	100 MHz	47	nH	±5%
Q-Factor	Q	100 MHz	12		min.
DC Resistance	R_{DC}	@ 20 °C	0.7	Ω	max.
Rated Current	I_R	ΔT = 20 K	300	mA	max.
Self Resonant Frequency	f_{res}		900	MHz	min.

Certification:

RoHS Approval	Compliant [2011/65/EU&2015/863]
REACh Approval	Conform or declared [(EC)1907/2006]

General Information:

It is recommended that the temperature of the component does not exceed +120°C under worst case conditions	
Ambient Temperature (referring to I_R)	-40 up to +85 °C
Operating Temperature	-55 up to +125 °C
Storage Conditions (in original packaging)	< 40 °C ; < 75 % RH
Moisture Sensitivity Level (MSL)	1
Test conditions of Electrical Properties: +20 °C, 33 % RH if not specified differently	

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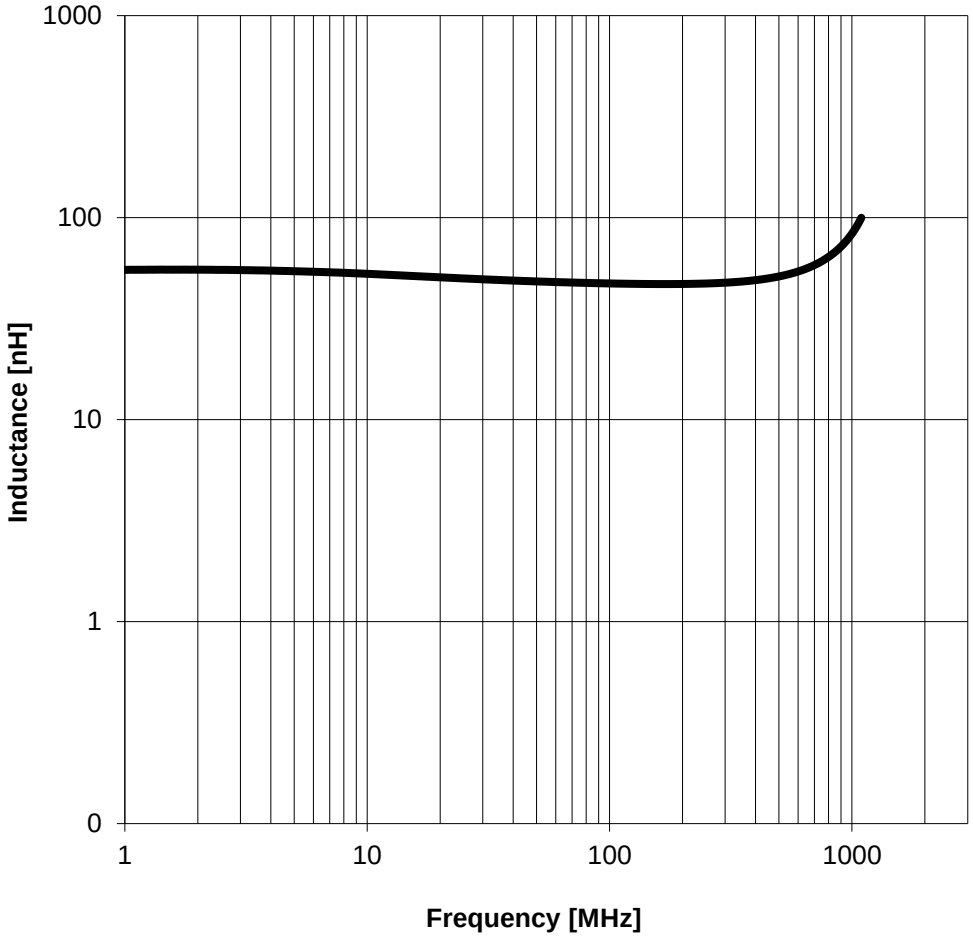
CHECKED	REVISION	DATE (YYYY-MM-DD)	GENERAL TOLERANCE	PROJECTION METHOD
JoMa	001.001	2020-03-27	DIN ISO 2768-1m	

DESCRIPTION
WE-MK SMT Multilayer Ceramic Inductor

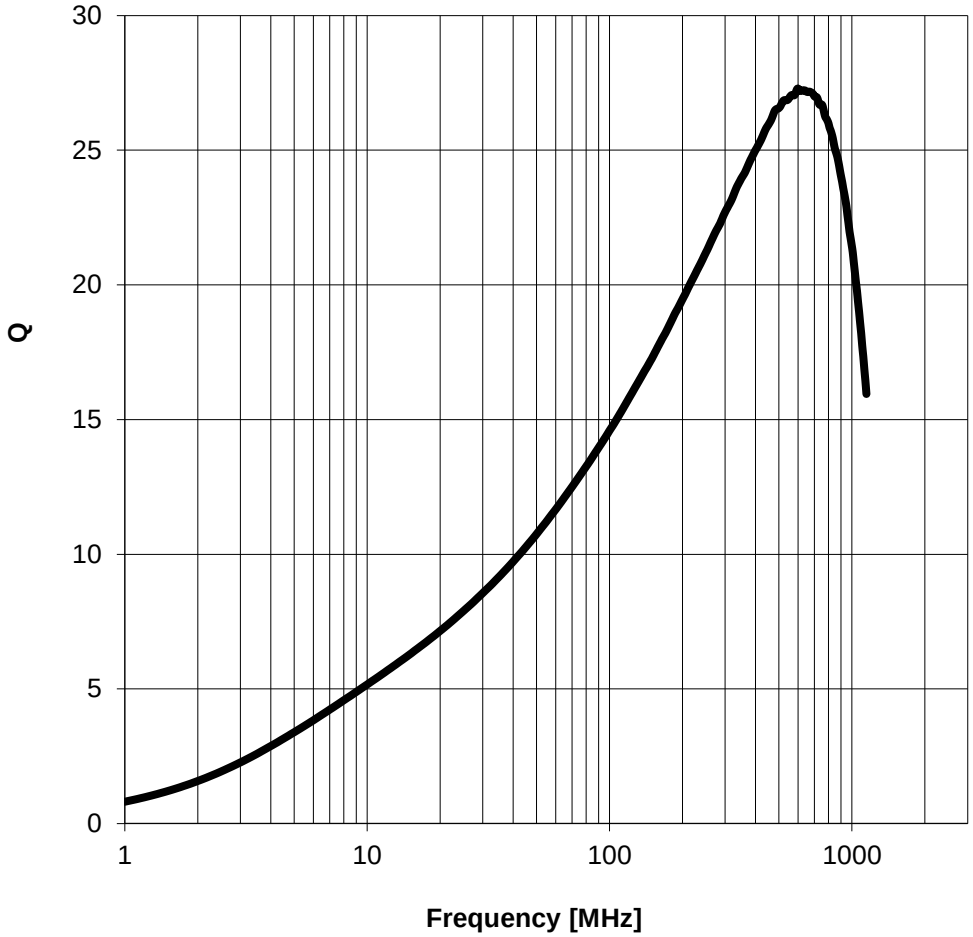
ORDER CODE
7447860147

SIZE/TYPE	BUSINESS UNIT	STATUS	PAGE
0603	eiSos	Valid	1/6

Typical Inductance vs. Frequency Characteristics:



Q-Factor vs. Frequency:



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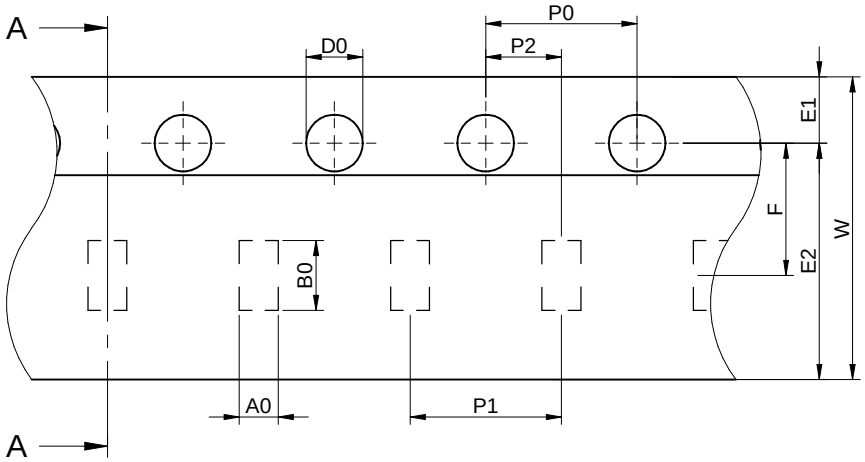
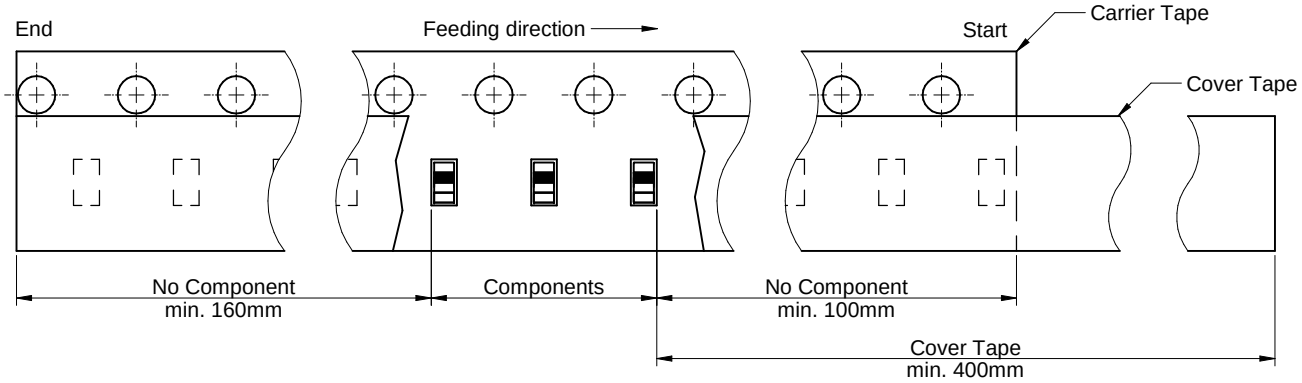
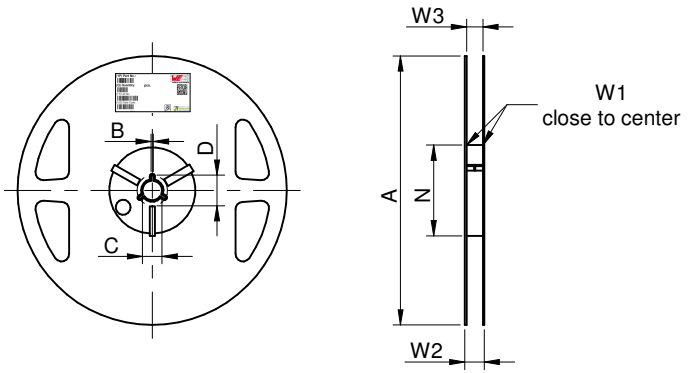
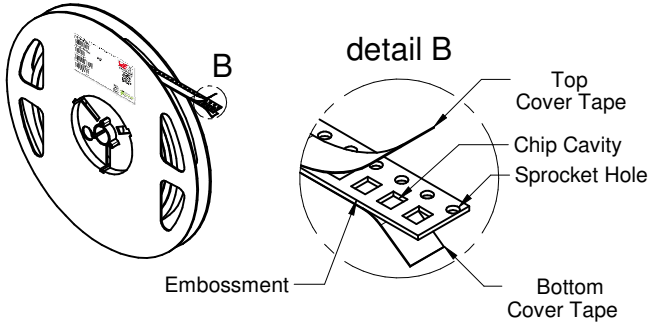
0603	eiSos	Valid	2/6

Packaging Specification - Tape and Reel: [mm]





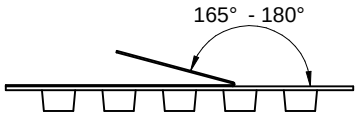




A (mm)	B (mm)	C (mm)	D (mm)	N (mm)	W1 (mm)	W2 (mm)	W3 (mm)	W3 (mm)	Material
± 2,0	min.	min.	min.	min.	+1,5	max.	min.	max.	
178	1.5	12.8	20.2	50	8.4	14.4	7.9	10.9	Polystyrene/ Polyurethane

Packaging is reffered to the international standard **IEC 60286-3:2019**

	Tape Type	A0 (mm)	B0 (mm)	W (mm)	T (mm)	T1 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	D0 (mm)	E1 (mm)	E2 (mm)	F (mm)	Material	Qty. (pcs.)
Tolerance		typ.	typ.	+0,3/ -0,1	ref.	ref.	±0,1	±0,1	+0,05	+0,1 / -0,0	±0,1	min.	±0,05		
Value	1a	1,03	1,85	8,00	0,95	0,10	4,00	4,00	2,00	1,50	1,75	6,25	3,50	Paper	4000



		Pull-of force
Tape width	8 mm	0,1 N - 1,0 N

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DESCRIPTION
WE-MK SMT Multilayer Ceramic Inductor

ORDER CODE
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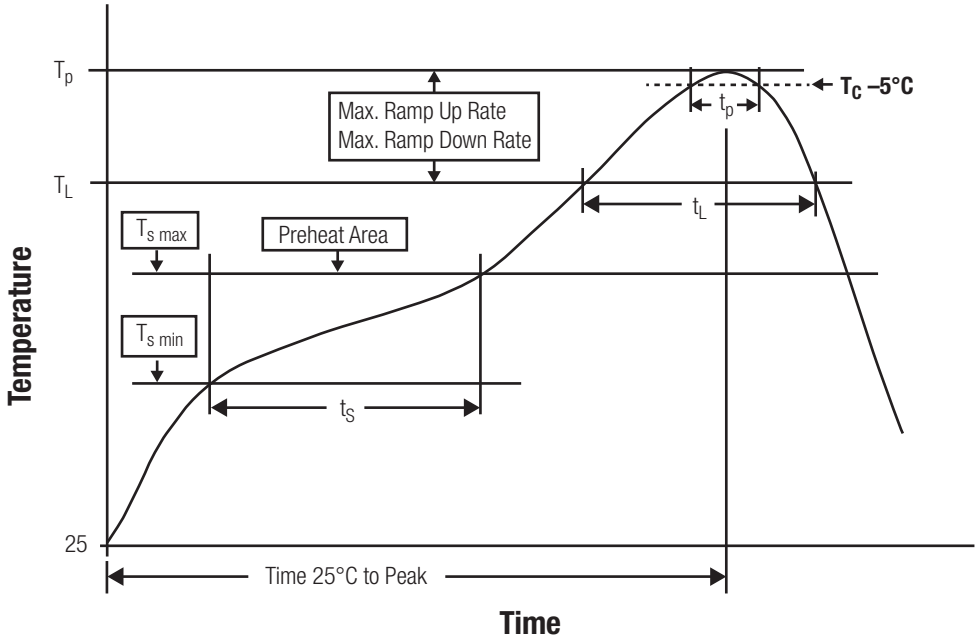
SIZE/TYPE	BUSINESS UNIT	STATUS	PAGE
0603	eiSos	Valid	3/6

Classification Reflow Profile for SMT components:



Classification Reflow Soldering Profile:

Profile Feature		Value
Preheat Temperature Min	$T_{s\ min}$	150 °C
Preheat Temperature Max	$T_{s\ max}$	200 °C
Preheat Time t_s from $T_{s\ min}$ to $T_{s\ max}$	t_s	60 - 120 seconds
Ramp-up Rate (T_L to T_P)		3 °C/ second max.
Liquidous Temperature	T_L	217 °C
Time t_L maintained above T_L	t_L	60 - 150 seconds
Peak package body temperature	T_p	$T_p \leq T_c$, see Table below
Time within 5°C of actual peak temperature	t_p	20 - 30 seconds
Ramp-down Rate (T_P to T_L)		6 °C/ second max.
Time 25°C to peak temperature		8 minutes max.

refer to IPC/ JEDEC J-STD-020E

Package Classification Reflow Temperature (T_C):

Properties	Volume mm³ <350	Volume mm³ 350-2000	Volume mm³ >2000
PB-Free Assembly I Package Thickness < 1.6 mm	260 °C	260 °C	260 °C
PB-Free Assembly I Package Thickness 1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
PB-Free Assembly I Package Thickness ≥ 2.5 mm	250 °C	245 °C	245 °C

refer to IPC/ JEDEC J-STD-020E

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JoMa	001.001	2020-03-27	DIN ISO 2768-1m	

DESCRIPTION: **WE-MK SMT Multilayer Ceramic Inductor**

ORDER CODE: **7447860147**

SIZE/TYPE	BUSINESS UNIT	STATUS	PAGE
0603	eiSos	Valid	4/6

Cautions and Warnings:

The following conditions apply to all goods within the product series of WE-MK of Würth Elektronik eiSos GmbH & Co. KG:

General:

- This electronic component is designed and manufactured for use in general electronic equipment.
- Würth Elektronik must be asked for written approval (following the PPAP procedure) before incorporating the components into any equipment in fields such as military, aerospace, aviation, nuclear control, submarine, transportation (automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network, etc. where higher safety and reliability are especially required and/or if there is the possibility of direct damage or human injury.
- Electronic components that will be used in safety-critical or high-reliability applications, should be pre-evaluated by the customer.
- The component is designed and manufactured to be used within the datasheet specified values. If the usage and operation conditions specified in the datasheet are not met, the wire insulation may be damaged or dissolved.
- Do not drop or impact the components, the component may be damaged.
- Würth Elektronik products are qualified according to international standards, which are listed in each product reliability report. Würth Elektronik does not warrant any customer qualified product characteristics beyond Würth Elektroniks' specifications, for its validity and sustainability over time.
- The responsibility for the applicability of the customer specific products and use in a particular customer design is always within the authority of the customer. All technical specifications for standard products also apply to customer specific products.

Product specific:

Soldering:

- The solder profile must comply with the technical product specifications. All other profiles will void the warranty. Wave soldering is allowed for components bigger than 0805 after evaluation and approval.
- All other soldering methods are at the customers' own risk.

Cleaning and Washing:

- Washing agents used during the production to clean the customer application might damage or change the characteristics of the wire insulation, marking or plating. Washing agents may have a negative effect on the long-term functionality of the product.

Potting:

- If the product is potted in the customer application, the potting material might shrink or expand during and after hardening. Shrinking could lead to an incomplete seal, allowing contaminants into the core. Expansion could damage the components. We recommend a manual inspection after potting to avoid these effects.

Storage Conditions:

- A storage of Würth Elektronik products for longer than 12 months is not recommended. Within other effects, the terminals may suffer degradation, resulting in bad solderability. Therefore, all products shall be used within the period of 12 months based on the day of shipment.
- Do not expose the components to direct sunlight.
- The storage conditions in the original packaging are defined according to DIN EN 61760-2.
- The storage conditions stated in the original packaging apply to the storage time and not to the transportation time of the components.

Handling:

- Violation of the technical product specifications such as exceeding the nominal rated current will void the warranty.
- The temperature rise of the component must be taken into consideration. The operating temperature is comprised of ambient temperature and temperature rise of the component.The operating temperature of the component shall not exceed the maximum temperature specified.

These cautions and warnings comply with the state of the scientific and technical knowledge and are believed to be accurate and reliable. However, no responsibility is assumed for inaccuracies or incompleteness.

Important Notes

The following conditions apply to all goods within the product range of Würth Elektronik eiSos GmbH & Co. KG:

1. General Customer Responsibility

Some goods within the product range of Würth Elektronik eiSos GmbH & Co. KG contain statements regarding general suitability for certain application areas. These statements about suitability are based on our knowledge and experience of typical requirements concerning the areas, serve as general guidance and cannot be estimated as binding statements about the suitability for a customer application. The responsibility for the applicability and use in a particular customer design is always solely within the authority of the customer. Due to this fact it is up to the customer to evaluate, where appropriate to investigate and decide whether the device with the specific product characteristics described in the product specification is valid and suitable for the respective customer application or not.

2. Customer Responsibility related to Specific, in particular Safety-Relevant Applications

It has to be clearly pointed out that the possibility of a malfunction of electronic components or failure before the end of the usual lifetime cannot be completely eliminated in the current state of the art, even if the products are operated within the range of the specifications.
In certain customer applications requiring a very high level of safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health it must be ensured by most advanced technological aid of suitable design of the customer application that no injury or damage is caused to third parties in the event of malfunction or failure of an electronic component. Therefore, customer is cautioned to verify that data sheets are current before placing orders. The current data sheets can be downloaded at www.we-online.com.

3. Best Care and Attention

Any product-specific notes, cautions and warnings must be strictly observed. Any disregard will result in the loss of warranty.

4. Customer Support for Product Specifications

Some products within the product range may contain substances which are subject to restrictions in certain jurisdictions in order to serve specific technical requirements. Necessary information is available on request. In this case the field sales engineer or the internal sales person in charge should be contacted who will be happy to support in this matter.

5. Product R&D

Due to constant product improvement product specifications may change from time to time. As a standard reporting procedure of the Product Change Notification (PCN) according to the JEDEC-Standard inform about minor and major changes. In case of further queries regarding the PCN, the field sales engineer or the internal sales person in charge should be contacted. The basic responsibility of the customer as per Section 1 and 2 remains unaffected.

6. Product Life Cycle

Due to technical progress and economical evaluation we also reserve the right to discontinue production and delivery of products. As a standard reporting procedure of the Product Termination Notification (PTN) according to the JEDEC-Standard we will inform at an early stage about inevitable product discontinuance. According to this we cannot guarantee that all products within our product range will always be available. Therefore it needs to be verified with the field sales engineer or the internal sales person in charge about the current product availability expectancy before or when the product for application design-in disposal is considered. The approach named above does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

7. Property Rights

All the rights for contractual products produced by Würth Elektronik eiSos GmbH & Co. KG on the basis of ideas, development contracts as well as models or templates that are subject to copyright, patent or commercial protection supplied to the customer will remain with Würth Elektronik eiSos GmbH & Co. KG. Würth Elektronik eiSos GmbH & Co. KG does not warrant or represent that any license, either expressed or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, application, or process in which Würth Elektronik eiSos GmbH & Co. KG components or services are used.

8. General Terms and Conditions

Unless otherwise agreed in individual contracts, all orders are subject to the current version of the “General Terms and Conditions of Würth Elektronik eiSos Group”, last version available at www.we-online.com.

RoHS COMPLIANT REACh COMPLIANT

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JoMa	001.001	2020-03-27	DIN ISO 2768-1m	

DESCRIPTION
WE-MK SMT Multilayer Ceramic Inductor

ORDER CODE
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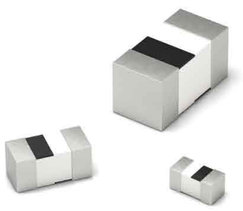
SIZE/TYPE	BUSINESS UNIT	STATUS	PAGE
0603	eiSos	Valid	6/6

WE-MK Multilayer Ceramic SMT Inductor EXTENDED



		Size	L (mm)	W (mm)	H (mm)	Mount
SPC		0201	0.6	0.3	0.3	SMT
SPC		0402	1	0.5	0.5	SMT
SPC		0603	1.6	0.8	0.8	SMT

Characteristics

- Coil integrated in a multilayer ceramic structure
- All inductors with polarity marking
- High self resonant frequency
- Inductive tolerances of 5%; ± 0.3 nH
- Operating temperature: –55°C to +125°C
- Inductance very stable over temperature
- Recommended solder profile: Reflow

Applications

- High frequency circuits
- Bluetooth
- Wireless LAN
- Filter circuits
- Oscillators
- Pagers
- Laptops
- PCMCIA-cards

Products

All | 0201 | 0402 | 0603

	Order Code	Data-sheet	Simu-lation	Downloads	L (nH)	Tol. L	Test Condition L	$Q_{min.}$	Test Condition Q	$R_{DC\,max.}$ (Ω)	I_R (mA)	f_{min} (MHz)	Design Kit	Samples
	7447860010	SPEC		10 FILES	1	±0.3nH	100 MHz	8	100 MHz	0.05	300	10000	744786	1
NEW	7447860010G	SPEC		8 FILES	1	±0.1nH	100 MHz	8	100 MHz	0.05	300	10000	–	1
	7447860012	SPEC		10 FILES	1.2	±0.3nH	100 MHz	8	100 MHz	0.05	300	10000	744786	1
NEW	7447860012G	SPEC		8 FILES	1.2	±0.1nH	100 MHz	8	100 MHz	0.05	300	10000	–	1
	7447860015	SPEC		10 FILES	1.5	±0.3nH	100 MHz	8	100 MHz	0.1	300	6000	744786	1
NEW	7447860015G	SPEC		8 FILES	1.5	±0.1nH	100 MHz	8	100 MHz	0.1	300	6000	–	1
	7447860018	SPEC		10 FILES	1.8	±0.3nH	100 MHz	8	100 MHz	0.2	300	6000	744786	1
NEW	7447860018G	SPEC		8 FILES	1.8	±0.1nH	100 MHz	8	100 MHz	0.1	300	6000	–	1
	7447860022	SPEC		10 FILES	2.2	±0.3nH	100 MHz	8	100 MHz	0.1	300	6000	744786	1
NEW	7447860022G	SPEC		8 FILES	2.2	±0.1nH	100 MHz	8	100 MHz	0.1	300	6000	–	1
	7447860027	SPEC		10 FILES	2.7	±0.3nH	100 MHz	10	100 MHz	0.1	300	6000	744786	1
NEW	7447860027G	SPEC		8 FILES	2.7	±0.1nH	100 MHz	10	100 MHz	0.1	300	6000	–	1
	7447860033	SPEC		10 FILES	3.3	±0.3nH	100 MHz	10	100 MHz	0.12	300	6000	744786	1
NEW	7447860033G	SPEC		8 FILES	3.3	±0.1nH	100 MHz	10	100 MHz	0.12	300	6000	–	1
	7447860039	SPEC		10 FILES	3.9	±0.3nH	100 MHz	10	100 MHz	0.14	300	6000	744786	1
NEW	7447860039G	SPEC		8 FILES	3.9	±0.1nH	100 MHz	10	100 MHz	0.14	300	6000	–	1
	7447860047	SPEC		10 FILES	4.7	±0.3nH	100 MHz	10	100 MHz	0.16	300	4000	744786	1
NEW	7447860047G	SPEC		8 FILES	4.7	±0.1nH	100 MHz	10	100 MHz	0.16	300	4000	–	1
	7447860056	SPEC		10 FILES	5.6	±0.3nH	100 MHz	10	100 MHz	0.18	300	4000	744786	1
NEW	7447860056G	SPEC		8 FILES	5.6	±0.1nH	100 MHz	10	100 MHz	0.18	300	4000	–	1
	7447860068	SPEC		10 FILES	6.8	±5%	100 MHz	10	100 MHz	0.22	300	4000	744786	1
NEW	7447860068G	SPEC		8 FILES	6.8	±2%	100 MHz	10	100 MHz	0.22	300	4000	–	1
	7447860082	SPEC		10 FILES	8.2	±5%	100 MHz	10	100 MHz	0.24	300	3500	744786	1
NEW	7447860082G	SPEC		8 FILES	8.2	±2%	100 MHz	10	100 MHz	0.24	300	3500	–	1
	7447860110	SPEC		10 FILES	10	±5%	100 MHz	12	100 MHz	0.26	300	3400	744786	1
NEW	7447860110G	SPEC		8 FILES	10	±2%	100 MHz	12	100 MHz	0.26	300	3400	–	1
	7447860112	SPEC		10 FILES	12	±5%	100 MHz	12	100 MHz	0.28	300	2600	744786	1
NEW	7447860112G	SPEC		8 FILES	12	±2%	100 MHz	12	100 MHz	0.28	300	2600	–	1
	7447860115	SPEC		10 FILES	15	±5%	100 MHz	12	100 MHz	0.32	300	2300	744786	1
NEW	7447860115G	SPEC		8 FILES	15	±2%	100 MHz	12	100 MHz	0.32	300	2300	–	1
	7447860118	SPEC		10 FILES	18	±5%	100 MHz	12	100 MHz	0.35	300	2000	744786	1
NEW	7447860118G	SPEC		8 FILES	18	±2%	100 MHz	12	100 MHz	0.35	300	2000	–	1
	7447860122	SPEC		10 FILES	22	±5%	100 MHz	12	100 MHz	0.4	300	1600	744786	1
NEW	7447860122G	SPEC		8 FILES	22	±2%	100 MHz	12	100 MHz	0.4	300	1600	–	1
	7447860127	SPEC		10 FILES	27	±5%	100 MHz	12	100 MHz	0.45	300	1400	744786	1
NEW	7447860127G	SPEC		8 FILES	27	±2%	100 MHz	12	100 MHz	0.45	300	1400	–	1
	7447860133	SPEC		10 FILES	33	±5%	100 MHz	12	100 MHz	0.55	300	1200	744786	1
NEW	7447860133G	SPEC		8 FILES	33	±2%	100 MHz	12	100 MHz	0.55	300	1200	–	1
	7447860139	SPEC		10 FILES	39	±5%	100 MHz	12	100 MHz	0.6	300	1100	744786	1
NEW	7447860139G	SPEC		8 FILES	39	±2%	100 MHz	12	100 MHz	0.6	300	1100	–	1
	7447860147	SPEC		10 FILES	47	±5%	100 MHz	12	100 MHz	0.7	300	900	744786	1
NEW	7447860147G	SPEC		8 FILES	47	±2%	100 MHz	12	100 MHz	0.7	300	900	–	1
	7447860156	SPEC		10 FILES	56	±5%	100 MHz	12	100 MHz	0.75	300	900	744786	1
NEW	7447860156G	SPEC		8 FILES	56	±2%	100 MHz	12	100 MHz	0.75	300	900	–	1
	7447860168	SPEC		10 FILES	68	±5%	100 MHz	12	100 MHz	0.85	300	700	744786	1
NEW	7447860168G	SPEC		8 FILES	68	±2%	100 MHz	12	100 MHz	0.85	300	700	–	1
	7447860182	SPEC		10 FILES	82	±5%	100 MHz	12	100 MHz	0.95	300	600	744786	1
NEW	7447860182G	SPEC		8 FILES	82	±2%	100 MHz	12	100 MHz	0.95	300	600	–	1
	7447860210	SPEC		10 FILES	100	±5%	100 MHz	12	100 MHz	1	300	600	744786	1
NEW	7447860210G	SPEC		8 FILES	100	±2%	100 MHz	12	100 MHz	1	300	600	–	1
	7447860212	SPEC		10 FILES	120	±5%	50 MHz	8	50 MHz	1.2	300	500	744786	1
NEW	7447860212G	SPEC		8 FILES	120	±2%	50 MHz	8	50 MHz	1.2	300	500	–	1
	7447860215	SPEC		10 FILES	150	±5%	50 MHz	8	50 MHz	1.2	300	500	744786	1
NEW	7447860215G	SPEC		8 FILES	150	±2%	50 MHz	8	50 MHz	1.2	300	500	–	1
	7447860218	SPEC		10 FILES	180	±5%	50 MHz	8	50 MHz	1.3	300	400	744786	1
NEW	7447860218G	SPEC		8 FILES	180	±2%	50 MHz	8	50 MHz	1.3	300	400	–	1
	7447860222	SPEC		10 FILES	220	±5%	50 MHz	8	50 MHz	1.5	300	400	744786	1
NEW	7447860222G	SPEC		8 FILES	220	±2%	50 MHz	8	50 MHz	1.5	300	400	–	1
	7447860227	SPEC		10 FILES	270	±5%	50 MHz	8	50 MHz	1.9	300	400	744786	1
NEW	7447860227G	SPEC		8 FILES	270	±2%	50 MHz	8	50 MHz	1.9	300	400	–	1
	7447860233	SPEC		10 FILES	330	±5%	50 MHz	8	50 MHz	2.1	300	350	744786	1
NEW	7447860233G	SPEC		8 FILES	330	±2%	50 MHz	8	50 MHz	2.1	300	350	–	1
	7447860239	SPEC		10 FILES	390	±5%	50 MHz	8	50 MHz	2.3	150	350	744786	1
NEW	7447860239G	SPEC		8 FILES	390	±2%	50 MHz	8	50 MHz	2.3	150	350	–	1
	7447860243	SPEC		10 FILES	430	±5%	50 MHz	8	50 MHz	2.4	150	300	744786	1
NEW	7447860243G	SPEC		8 FILES	430	±2%	50 MHz	8	50 MHz	2.4	150	300	–	1
	7447860247	SPEC		10 FILES	470	±5%	50 MHz	8	50 MHz	2.6	150	300	744786	1
NEW	7447860247G	SPEC		8 FILES	470	±2%	50 MHz	8	50 MHz	2.6	150	300	–	1

Suitable for


WE-MCA Antennas


WCAP-CSRF MLCCs

Assortments

Articles from this product series can be found in the following assortments:

Design Kit WE-MK SMT Multilayer Ceramic Inductor