

Overview



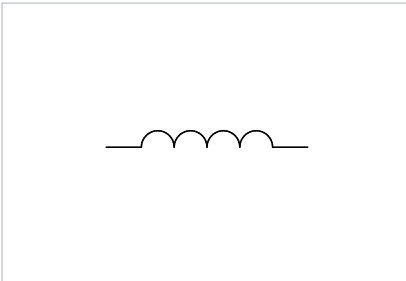
Characteristics

- Open size / unshielded
- Saturation currents up to 15 A
- Low tolerances at high inductance values
- Operating temperature: -50 °C to +150 °C (sizes 4532 and 5848)
- Operating temperature: -40 °C to +125 °C (sizes 7850 and 1054)
- Automotive approved

Applications

- Integrated DC/DC-converter
- Switching regulators with low operating voltage
- Perfectly suitable for switching regulators with extremely high efficiency
- Optimal attenuation in MHz frequency range

Schematic:



Certification:	
RoHS Approval	Compliant [2011/65/EU&2015/863]
REACH Approval	Conform or declared [(EC)1907/2006]
Halogen Free	Conform [JEDEC JS709B]
Halogen Free	Conform [IEC 61249-2-21]
Component Qualification	AEC-Q200 Grade 0
Automotive Approval	Released

General Properties:	
It is recommended that the temperature of the component does not exceed +150 °C under worst case conditions	
Ambient Temperature	-40 °C up to +85 °C
Operating Temperature	40 °C 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	
Coplanarity of the terminal pads: 120 µm	

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Specific Information

Order Code	L (μ H)	I _R (A)	I _{SAT} (A)	f _{res} (MHz)	Mount	Revision
Size 4532						
7847730	1	4	5.72	110	SMT	003.000
784773018	1.8	2.7	3.6	85	SMT	003.000
784773022	2.2	2.5	3.38	74	SMT	003.000
784773033	3.3	2	2.88	55	SMT	003.000
784773039	3.9	1.88	2.57	50	SMT	003.000
784773047	4.7	1.82	2.46	45	SMT	003.000
784773056	5.6	1.58	2.43	40	SMT	003.000
784773068	6.8	1.54	2.1	35	SMT	003.000
784773082	8.2	1.5	1.8	30	SMT	003.000
78477310	10	1.45	1.74	30	SMT	003.000
784773112	12	1.28	1.62	30	SMT	003.000
784773115	15	1.2	1.46	27	SMT	003.000
784773118	18	1.1	1.29	22	SMT	004.000
784773122	22	1	1.22	20	SMT	003.000
784773127	27	0.94	1	17	SMT	004.000
784773133	33	0.86	0.9	16	SMT	003.000
784773139	39	0.77	0.87	15	SMT	003.000
784773147	47	0.68	0.77	12	SMT	003.000
784773156	56	0.64	0.75	12	SMT	003.000
784773168	68	0.56	0.68	11	SMT	003.000
Size 5848						
784774006	0.6	8.2	13.5	210	SMT	003.000
784774022	2.2	4.6	8.2	54	SMT	003.000
784774027	2.7	4	8	50	SMT	003.000
784774033	3.3	3.7	7.5	43	SMT	003.000
784774047	4.7	3	5.5	33	SMT	003.000
784774068	6.8	2.4	5	28	SMT	003.000
78477410	10	2.2	2.5	26	SMT	003.000
784774112	12	2	1.94	24	SMT	003.000
784774115	15	1.53	1.9	20	SMT	003.000
784774118	18	1.45	1.69	19	SMT	003.000
784774122	22	1.28	1.53	16	SMT	003.000
784774127	27	1.19	1.4	15	SMT	003.000
784774133	33	1.09	1.17	14	SMT	003.000
784774139	39	0.94	1.1	12	SMT	004.000
784774147	47	0.86	1	10	SMT	003.000
784774156	56	0.77	0.9	10	SMT	003.000
784774168	68	0.64	0.86	10	SMT	003.000
784774182	82	0.6	0.72	8	SMT	003.000
78477420	100	0.57	0.68	7	SMT	003.000
784774212	120	0.49	0.63	7	SMT	003.000
784774215	150	0.46	0.54	6	SMT	003.000

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Specific Information

Order Code	L (μ H)	I_R (A)	I_{SAT} (A)	f_{res} (MHz)	Mount	Revision
784774218	180	0.42	0.5	6	SMT	003.000
784774222	220	0.41	0.47	5	SMT	003.000
Size 7850						
784775022	2.2	6	6	70	SMT	003.004
784775047	4.7	4.5	4.5	47	SMT	002.004
784775056	5.6	4	4	34	SMT	002.004
784775068	6.8	3.7	3.8	30	SMT	002.004
784775082	8.2	3.2	3.2	33	SMT	003.004
78477510	10	2.3	2.95	23	SMT	002.004
784775112	12	2.18	2.23	20	SMT	002.004
784775115	15	1.93	2.2	18	SMT	002.004
784775118	18	1.89	2.14	17	SMT	002.004
784775122	22	1.76	1.81	15	SMT	002.004
784775127	27	1.48	1.62	14	SMT	002.004
784775133	33	1.35	1.47	13	SMT	002.004
784775139	39	1.25	1.33	12	SMT	002.004
784775147	47	1.17	1.24	10	SMT	003.000
784775168	68	0.99	1.05	8	SMT	002.004
784775182	82	0.9	0.95	7	SMT	002.004
78477520	100	0.77	0.86	7	SMT	002.004
784775212	120	0.67	0.81	6	SMT	002.004
784775215	150	0.6	0.71	6	SMT	002.004
784775218	180	0.55	0.57	5	SMT	002.004
784775222	220	0.51	0.56	5	SMT	002.004
784775227	270	0.47	0.51	4	SMT	002.004
784775233	330	0.43	0.48	4	SMT	002.004
784775239	390	0.38	0.43	3	SMT	002.004
784775247	470	0.36	0.38	3	SMT	002.004
Size 1054						
784776047	4.7	5	6	43	SMT	003.004
784776056	5.6	4.8	5.5	40	SMT	003.004
784776068	6.8	4.4	5	30	SMT	003.004
784776082	8.2	4.2	4.25	25	SMT	003.004
78477610	10	2.98	3.24	22	SMT	002.004
784776112	12	2.72	3.15	20	SMT	002.004
784776115	15	2.47	2.88	19	SMT	002.004
784776118	18	2.36	2.43	18	SMT	002.004
784776122	22	2.04	2.07	16	SMT	002.004
784776127	27	1.95	1.98	15	SMT	002.004
784776133	33	1.78	1.89	12	SMT	002.004
784776139	39	1.62	1.8	11	SMT	002.004
784776147	47	1.45	1.62	11	SMT	002.004
784776156	56	1.36	1.53	9	SMT	002.004

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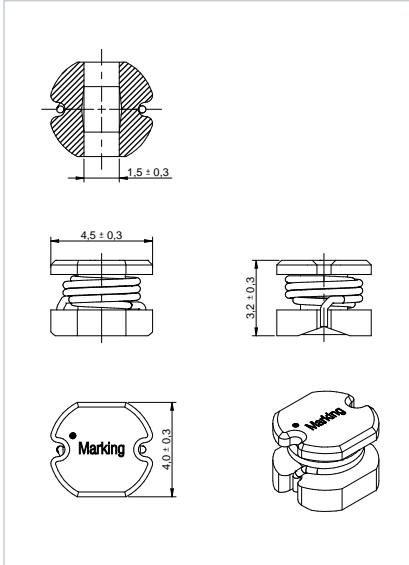

Specific Information

Order Code	L (μ H)	I _R (A)	I _{SAT} (A)	f _{res} (MHz)	Mount	Revision
784776168	68	1.19	1.49	8	SMT	002.004
784776182	82	1.11	1.17	7	SMT	002.004
78477620	100	1.02	1.1	7	SMT	002.004
784776212	120	0.94	0.99	6	SMT	002.004
784776215	150	0.81	0.9	5	SMT	002.004
784776218	180	0.76	0.78	5	SMT	002.004
784776222	220	0.67	0.77	4.5	SMT	002.004
784776227	270	0.62	0.68	4	SMT	002.004
784776233	330	0.52	0.59	4	SMT	002.004
784776239	390	0.49	0.54	3.7	SMT	002.004
784776247	470	0.44	0.5	3	SMT	002.004

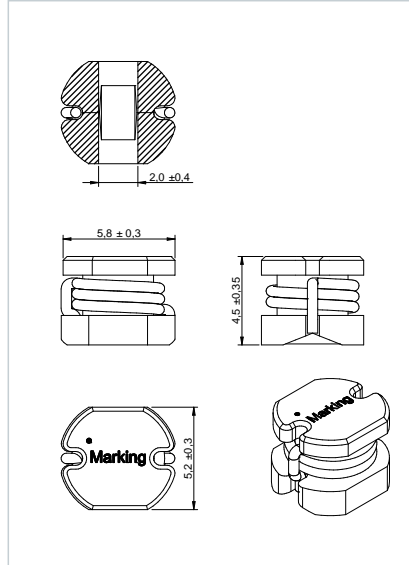
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Dimensions

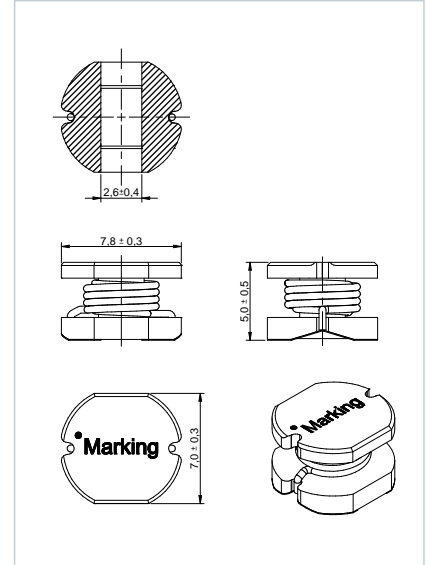
Dimensions: [mm] 4532



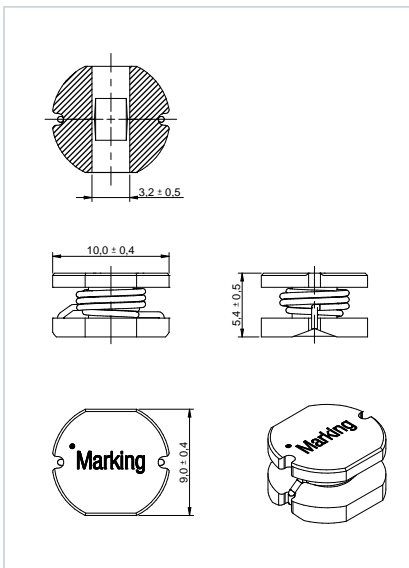
Dimensions: [mm] 5848



Dimensions: [mm] 7850



Dimensions: [mm] 1054



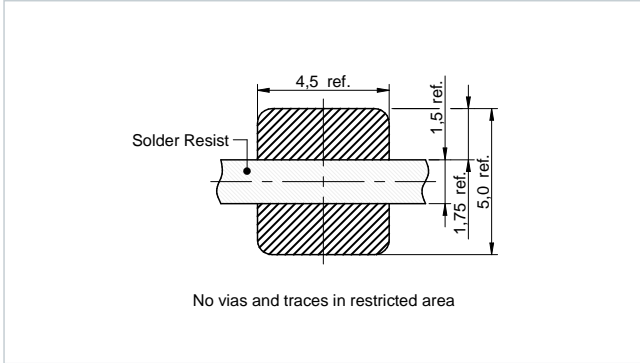
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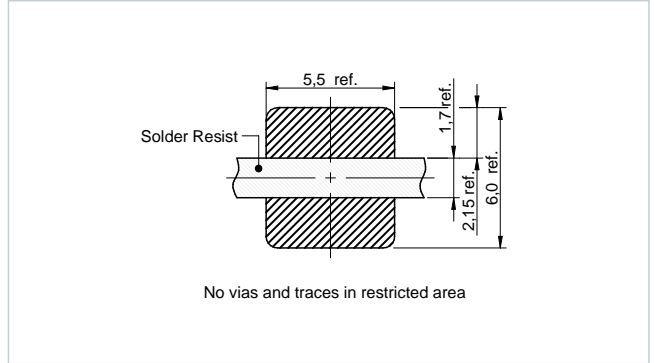


Drawings

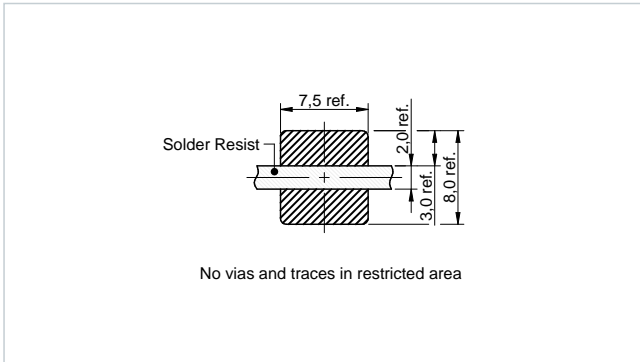
Recommended Land Pattern: [mm] 4532



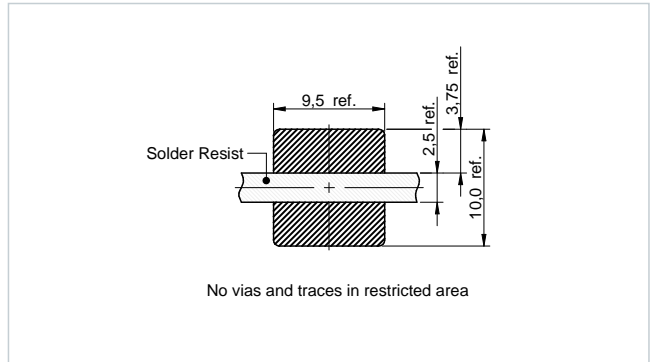
Recommended Land Pattern: [mm] 5848



Recommended Land Pattern: [mm] 7850



Recommended Land Pattern: [mm] 1054



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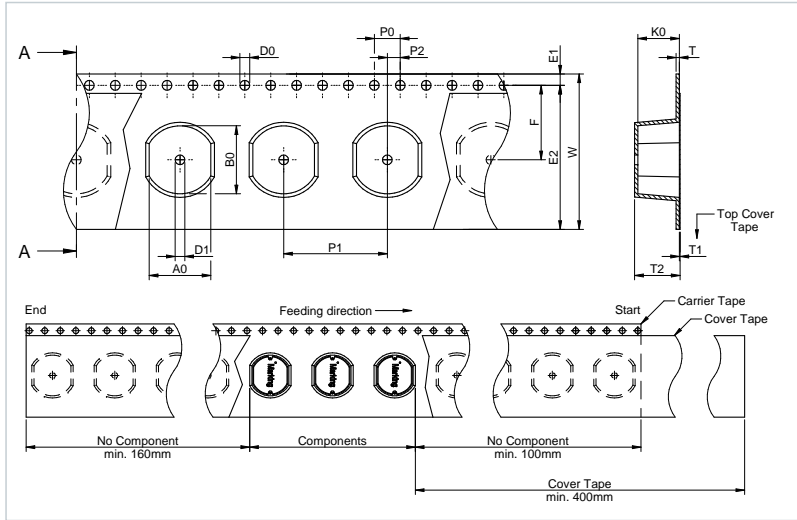
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Packaging Specification

Size 4532

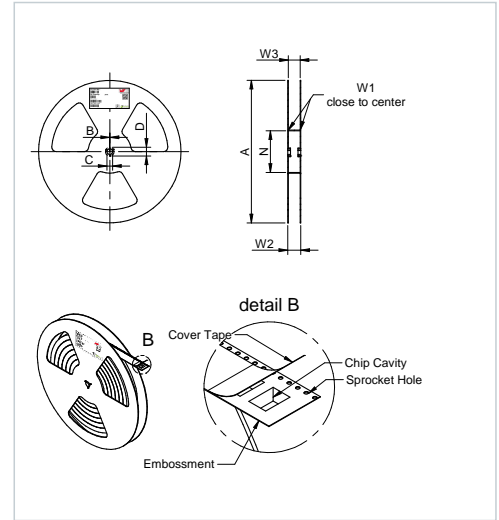
Packaging Specification - Tape: [mm]



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

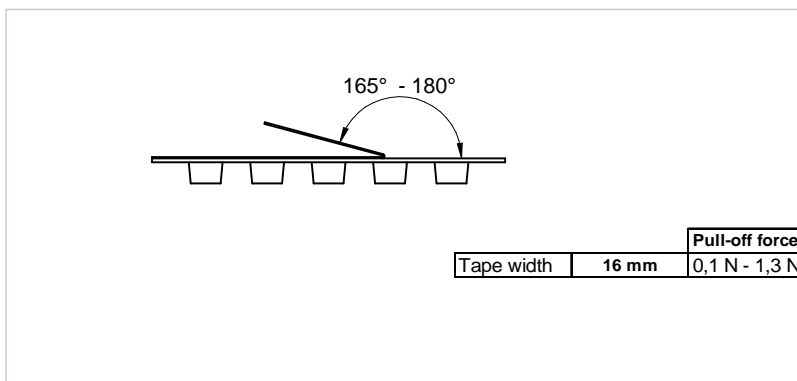
	Tape Type	A0 (mm)	B0 (mm)	W (mm)	T (mm)	T1 (mm)	T2 (mm)	K0 (mm)	P0 (mm)
Tolerance		typ.	typ.	+0,3/ -0,1	±0,1	max.	typ.	typ.	±0,1
Value	2a	4,50	5,50	16,00	0,25	0,10	4,00	3,55	4,00
	P1 (mm)	P2 (mm)	D0 (mm)	D1 (mm)	E1 (mm)	E2 (mm)	F (mm)	Material	Qty. (pcs.)
Tolerance	±0,1	±0,05	+0,3/ -0,1	min.	±0,1	min.	±0,05		
Value	8,00	2,00	1,50	1,50	1,75	14,25	7,50	Polystyrene	1500

Packaging Specification - Reel: [mm]



	A (mm)	B (mm)	C (mm)	D (mm)	N (mm)
Tolerance		min.	±0,8	min.	min.
Value	330	1,5	13	20,2	100
	W1 (mm)	W2 (mm)	W3 (mm)	W3 (mm)	Material
Tolerance	+1,5	max.	min.	max.	
Value	16,40	22,4	15,9	19,40	Polystyrene

Pull of Force:



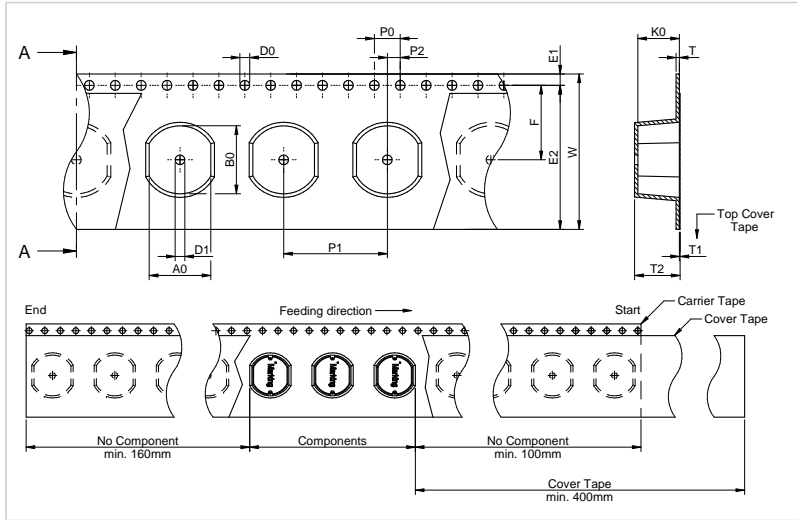
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Packaging Specification

Size 5848

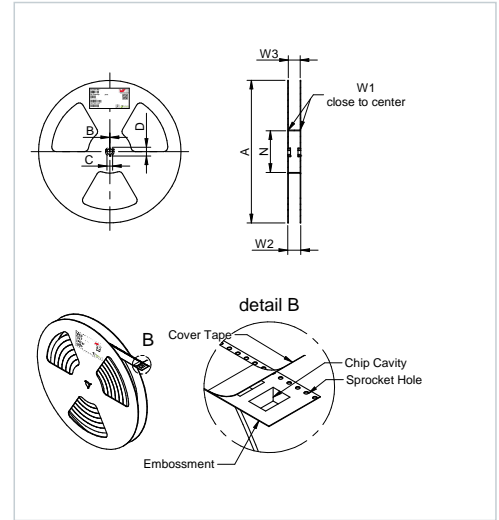
Packaging Specification - Tape: [mm]



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

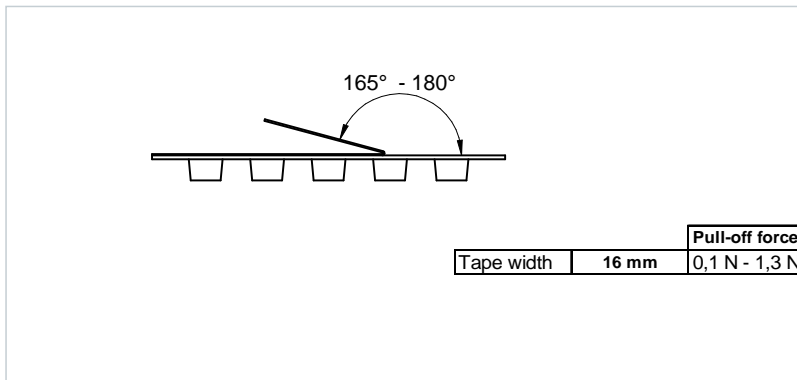
	Tape Type	A0 (mm)	B0 (mm)	W (mm)	T (mm)	T1 (mm)	T2 (mm)	K0 (mm)	P0 (mm)
Tolerance		typ.	typ.	+0,3/ -0,1	±0,1	max.	typ.	typ.	±0,1
Value	2a	5,50	6,50	16,00	0,25	0,10	5,50	5,05	4,00
	P1 (mm)	P2 (mm)	D0 (mm)	D1 (mm)	E1 (mm)	E2 (mm)	F (mm)	Material	Qty. (pcs.)
Tolerance	±0,1	±0,05	+0,3/ -0,1	min.	±0,1	min.	±0,05		
Value	8,00	2,00	1,50	1,50	1,75	14,25	7,50	Polystyrene	1500

Packaging Specification - Reel: [mm]



	A (mm)	B (mm)	C (mm)	D (mm)	N (mm)
Tolerance		min.	±0,8	min.	min.
Value	330	1,5	13	20,2	100
	W1 (mm)	W2 (mm)	W3 (mm)	W3 (mm)	Material
Tolerance	+1,5	max.	min.	max.	
Value	16,40	22,4	15,9	19,40	Polystyrene

Pull of Force:



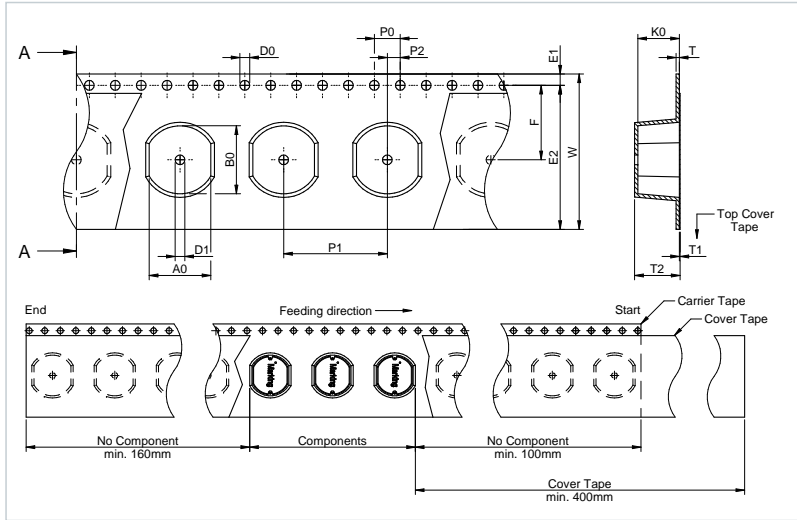
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Packaging Specification

Size 7850

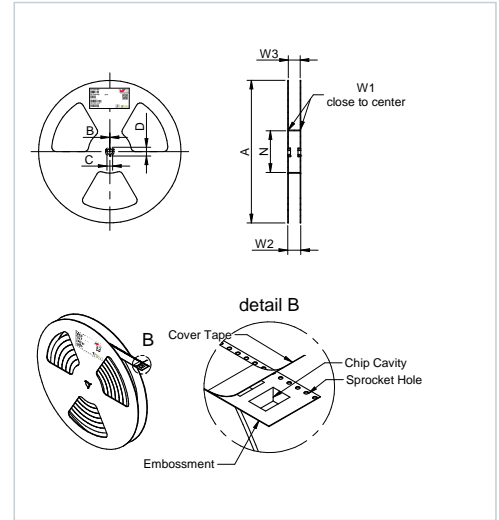
Packaging Specification - Tape: [mm]



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

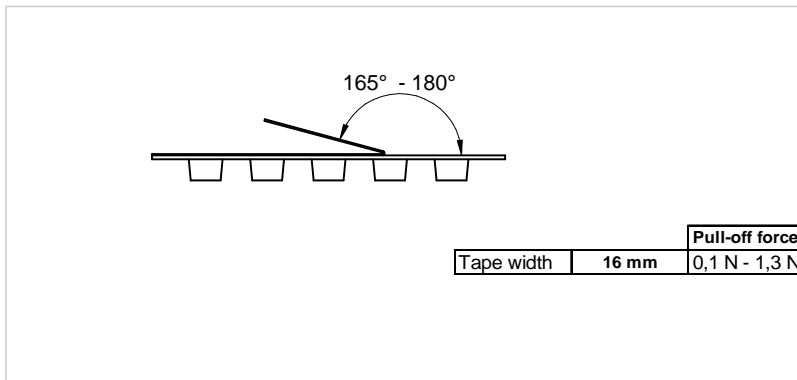
	Tape Type	A0 (mm)	B0 (mm)	W (mm)	T (mm)	T1 (mm)	T2 (mm)	K0 (mm)	P0 (mm)
Tolerance		typ.	typ.	+0,3/ -0,1	±0,1	max.	typ.	typ.	±0,1
Value	2a	7,50	8,50	16,00	0,25	0,10	6,00	5,55	4,00
	P1 (mm)	P2 (mm)	D0 (mm)	D1 (mm)	E1 (mm)	E2 (mm)	F (mm)	Material	Qty. (pcs.)
Tolerance	±0,1	±0,05	+0,3/ -0,1	min.	±0,1	min.	±0,05		
Value	12,00	2,00	1,50	1,50	1,75	14,25	7,5	Polystyrene	500

Packaging Specification - Reel: [mm]



	A (mm)	B (mm)	C (mm)	D (mm)	N (mm)
Tolerance		min.	±0,8	min.	min.
Value	330	1,5	13	20,2	100
	W1 (mm)	W2 (mm)	W3 (mm)	W3 (mm)	Material
Tolerance	+1,5	max.	min.	max.	
Value	16,40	22,4	15,9	19,40	Polystyrene

Pull of Force:



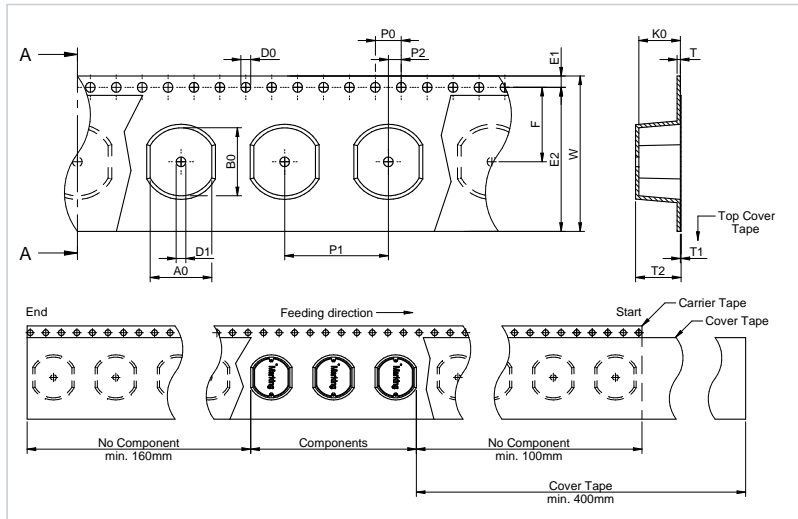
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Packaging Specification

Size 1054

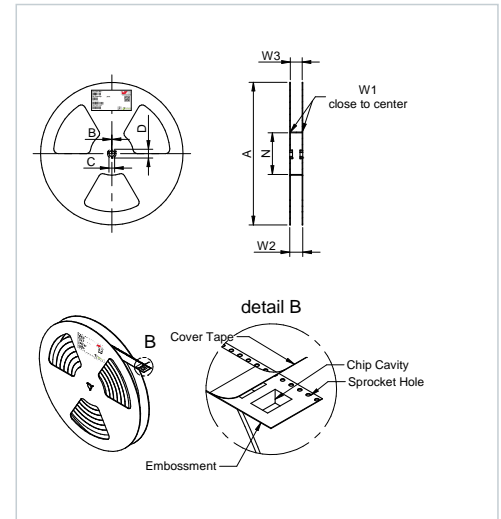
Packaging Specification - Tape: [mm]



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

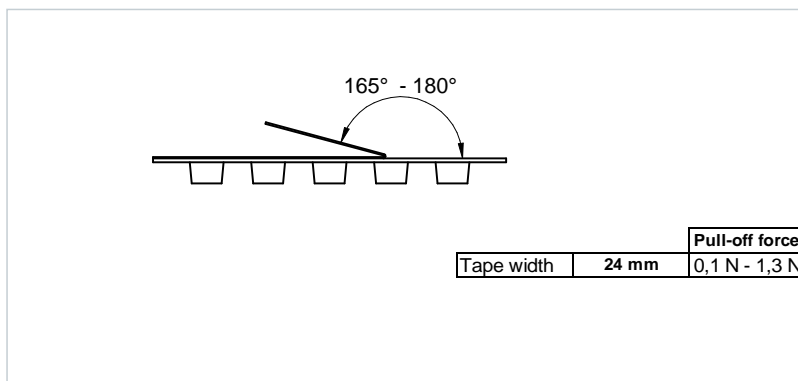
	Tape Type	A0 (mm)	B0 (mm)	W (mm)	T (mm)	T1 (mm)	T2 (mm)	K0 (mm)	P0 (mm)
Tolerance		typ.	typ.	+0,3/ -0,1	±0,1	max.	typ.	typ.	±0,1
Value	2a	9,50	10,50	24,00	0,50	0,10	7,00	6,40	4,00
	P1 (mm)	P2 (mm)	D0 (mm)	D1 (mm)	E1 (mm)	E2 (mm)	F (mm)	Material	Qty. (pcs.)
Tolerance	±0,1	±0,05	+0,3/ -0,1	min.	±0,1	min.	±0,05		
Value	16,00	2,00	1,50	1,50	1,75	22,25	11,50	Polystyrene	500

Packaging Specification - Reel: [mm]



	A (mm)	B (mm)	C (mm)	D (mm)	N (mm)
Tolerance		min.	±0,8	min.	min.
Value	330	1,5	13	20,2	100
	W1 (mm)	W2 (mm)	W3 (mm)	W3 (mm)	Material
Tolerance	+ 1,5	max.	min.	max.	
Value	24,4	30,40	23,9	27,4	Polystyrene

Pull of Force:



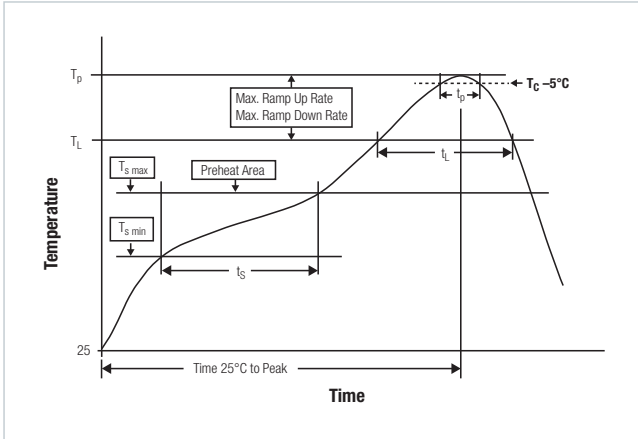
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Soldering Profile

Size 4532, 5848, 7850, 1054

Classification Reflow Profile for SMT components:



Classification Reflow Soldering Profile:

Profile Feature		Value
Preheat Temperature Min	$T_{s \text{ min}}$	150 °C
Preheat Temperature Max	$T_{s \text{ max}}$	200 °C
Preheat Time t_s from $T_{s \text{ min}}$ to $T_{s \text{ max}}$	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 mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
PB-Free Assembly Package Thickness < 1.6 mm	260 °C	260 °C	260 °C
PB-Free Assembly Package Thickness 1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
PB-Free Assembly Package Thickness > 2.5 mm	250 °C	245 °C	245 °C
Sn-PB Assembly Package Thickness < 2.5 mm	235 °C	220 °C	
Sn-PB Assembly Package Thickness \geq 2.5 mm	220 °C	220 °C	

refer to IPC/ JEDEC J-STD-020E

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Cautions and Warnings:

The following conditions apply to all goods within the product series of WE-PD2A of Würth Elektronik eiSos GmbH & Co. KG:

General:

All recommendations according to the general technical specifications of the data sheet have to be complied with.

The usage and operation of the product within ambient conditions, which probably alloy or harm the wire isolation, has to be avoided.

If the product is potted in customer applications, the potting material might shrink during and after hardening. The product is exposed to the pressure of the potting material with the effect that the core, wire and termination is possibly damaged by this pressure and so the electrical as well as the mechanical characteristics are endangered to be affected. After the potting material is cured, the core, wire and termination of the product have to be checked if any reduced electrical or mechanical functions or destructions have occurred.

The responsibility for the applicability of customer specific products and use in a particular customer design is always within the authority of the customer. All technical specifications for standard products do also apply to customer specific products.

Washing varnish agent that is used during the production to clean the customer application might damage or change the characteristics of the wire insulation, the marking or the plating. The washing varnish agent could have a negative effect on the long term function of the product.

Direct mechanical impact to the product shall be prevented as the ferrite material of the core could flake or in the worst case it could break.

Product specific:

Follow all instructions mentioned in the data sheet, especially:

- The soldering profile has to be complied with according to the technical reflow soldering specification, otherwise this will void the warranty.
- All products shall be used before the end of the period of 12 months based on the product date code, if not a 100% solderability can't be ensured.
- Violation of the technical product specifications such as exceeding the nominal rated current will void the warranty.
- Solvents may influence the product marking.

The general and product specific cautions 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.

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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.

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