WIMA SMD-PEN

Metallized Polyethylene-Naphthalate (PEN)
SMD Film Capacitors with Box Encapsulation

Special Features

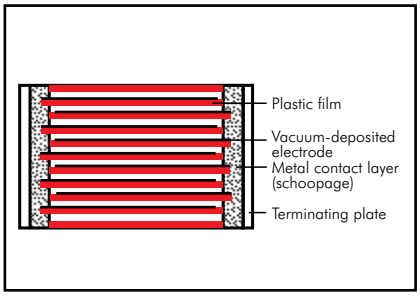
- **Size codes 1812, 2220 and 2824, with PEN and encapsulated**
- **Operating temperature up to 125° C**
- **Self-healing**
- **Suitable for lead-free soldering**
- **According to RoHS 2011/65/EU**

Typical Applications

For general DC-applications e.g.
- **By-pass**
- **Blocking**
- **Coupling and decoupling**
- **Timing**

Construction

Dielectric:
Polyethylene-Naphthalate (PEN) film
Capacitor electrodes:
Vacuum-deposited
Internal construction:



Encapsulation:
Solvent-resistant, flame-retardant plastic case, UL 94 V-0
Terminations:
Tinned plates.
Marking:
Colour: Black.

Electrical Data

Capacitance range:
0.01 µF to 1.0 µF
Rated voltages:
63 VDC, 100 VDC, 250 VDC, 400 VDC
Capacitance tolerances:
±20%, ±10% (±5% available subject to special enquiry)
Operating temperature range:
–55° C to +125° C
Climatic test category:
55/125/21 according to IEC
Insulation resistance at +20° C:

U_r	U_{test}	C ⩽ 0.33 µF	0.33 µF < C ⩽ 1.0 µF
63 VDC 100 VDC	50 V 100 V	⩾ 3.75 x 10^3 MΩ (mean value: 1 x 10^4 MΩ)	⩾ 1250 sec (MΩ x µF) (mean value: 3000 sec)
⩾ 250 VDC	100 V	⩾ 1 x 10^4 MΩ (mean value: 5 x 10^4 MΩ)	⩾ 3000 sec (MΩ x µF) (mean value: 10000 sec)

Measuring time: 1 min.
Dissipation factors at +20° C: tan δ

at f	C ⩽ 0.1 µF	0.1 µF < C ⩽ 1.0 µF
1 kHz	⩽ 8 x 10^{-3}	⩽ 8 x 10^{-3}
10 kHz	⩽ 15 x 10^{-3}	⩽ 15 x 10^{-3}
100 kHz	⩽ 30 x 10^{-3}	–

Maximum pulse rise time: for pulses equal to the rated voltage

Capacitance µF	Pulse rise time V/µsec max. operation/test			
	63 VDC	100 VDC	250 VDC	400 VDC
0.01 ... 0.022	30/300	35/350	40/400	35/350
0.033 ... 0.068	20/200	20/200	40/400	21/210
0.1 ... 0.22	10/100	10/100	12/120	–
0.33 ... 0.68	8/80	6/60	–	–
1.0	3,5/35	4/40	–	–

Test voltage: 1.6 U_r, 2 sec.
Voltage derating:
A voltage derating factor of 1.25 % per K must be applied from +100° C for DC voltages and from +90° C for AC voltages
Reliability:
Operational life > 300000 hours
Failure rate < 2 fit (0.5 x U_r and 40° C)

Dip Solder Test/Processing

Resistance to soldering heat:
Test Tb in accordance with DIN IEC 60068-2-58/DIN EN 60384-23.
Soldering bath temperature max. 260° C.
Soldering duration max. 5 sec.
Change in capacitance ΔC/C < 5%.
Soldering process:
Re-flow soldering (see temperature/time graphs page 13).

Packing

Available taped and reeled in blister pack.

Detailed taping information and graphs at the end of the catalogue.

For further details and graphs please refer to Technical Information.

Continuation

General Data

Capacitance	63 VDC/40 VAC*			100 VDC/63 VAC*		
	Size code	H ± 0.3	Part number	Size code	H ± 0.3	Part number
0.01 µF	1812	3.0	SMDNC02100KA00_____	1812	3.0	SMDND02100KA00_____
	2220	3.5	SMDNC02100QA00_____	2220	3.5	SMDND02100QA00_____
	2824	3.0	SMDNC02100TA00_____	2824	3.0	SMDND02100TA00_____
0.015 „	1812	3.0	SMDNC02150KA00_____	1812	3.0	SMDND02150KA00_____
	2220	3.5	SMDNC02150QA00_____	2220	3.5	SMDND02150QA00_____
	2824	3.0	SMDNC02150TA00_____	2824	3.0	SMDND02150TA00_____
0.022 „	1812	3.0	SMDNC02220KA00_____	1812	3.0	SMDND02220KA00_____
	2220	3.5	SMDNC02220QA00_____	2220	3.5	SMDND02220QA00_____
	2824	3.0	SMDNC02220TA00_____	2824	3.0	SMDND02220TA00_____
0.033 „	1812	3.0	SMDNC02330KA00_____	1812	3.0	SMDND02330KA00_____
	2220	3.5	SMDNC02330QA00_____	2220	3.5	SMDND02330QA00_____
	2824	3.0	SMDNC02330TA00_____	2824	3.0	SMDND02330TA00_____
0.047 „	1812	3.0	SMDNC02470KA00_____	1812	3.0	SMDND02470KA00_____
	2220	3.5	SMDNC02470QA00_____	2220	3.5	SMDND02470QA00_____
	2824	3.0	SMDNC02470TA00_____	2824	3.0	SMDND02470TA00_____
0.068 „	1812	3.0	SMDNC02680KA00_____	1812	3.0	SMDND02680KA00_____
	2220	3.5	SMDNC02680QA00_____	2220	3.5	SMDND02680QA00_____
	2824	3.0	SMDNC02680TA00_____	2824	3.0	SMDND02680TA00_____
0.1 µF	1812	4.0	SMDNC03100KB00_____	1812	4.0	SMDND03100KB00_____
	2220	3.5	SMDNC03100QA00_____	2220	3.5	SMDND03100QA00_____
	2824	3.0	SMDNC03100TA00_____	2824	3.0	SMDND03100TA00_____
0.15 „	1812	4.0	SMDNC03150KB00_____	1812	4.0	SMDND03150KB00_____
	2220	3.5	SMDNC03150QA00_____	2220	3.5	SMDND03150QA00_____
	2824	3.0	SMDNC03150TA00_____	2824	3.0	SMDND03150TA00_____
0.22 „	2220	3.5	SMDNC03220QA00_____	2220	3.5	SMDND03220QA00_____
	2824	3.0	SMDNC03220TA00_____	2824	3.0	SMDND03220TA00_____
0.33 „	2220	4.5	SMDNC03330QB00_____	2220	4.5	SMDND03330QB00_____
	2824	5.0	SMDNC03330TB00_____	2824	5.0	SMDND03330TB00_____
0.47 „	2220	4.5	SMDNC03470QB00_____	2220	4.5	SMDND03470QB00_____
	2824	5.0	SMDNC03470TB00_____	2824	5.0	SMDND03470TB00_____
0.68 „	2824	5.0	SMDNC03680TB00_____	2824	5.0	SMDND03680TB00_____
1.0 µF	2824	5.0	SMDNC04100TB00_____	2824	5.0	SMDND04100TB00_____

* AC voltage: f = 50 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

Dims in mm.

Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
Packing:	bulk = S
Pin length:	none = 00

Taped version see page 139.

Continuation page 22

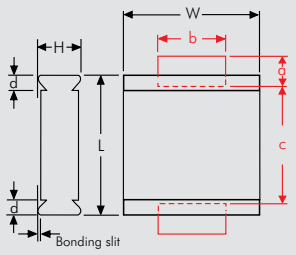
Continuation

General Data

Capacitance	250 VDC/160 VAC* Size code	H ± 0.3	Part number	400 VDC/200 VAC* Size code	H ± 0.3	Part number
0.01 µF	2220 2824	3.5 3.0	SMDNF02100QA00_ _ _ _ SMDNF02100TA00_ _ _ _	2824	3.0	SMDNG02100TA00_ _ _ _
0.015 „	2220 2824	3.5 3.0	SMDNF02150QA00_ _ _ _ SMDNF02150TA00_ _ _ _	2824	3.0	SMDNG02150TA00_ _ _ _
0.022 „	2220 2824	3.5 3.0	SMDNF02220QA00_ _ _ _ SMDNF02220TA00_ _ _ _	2824	5.0	SMDNG02220TB00_ _ _ _
0.033 „	2220 2824	3.5 3.0	SMDNF02330QA00_ _ _ _ SMDNF02330TA00_ _ _ _	2824	5.0	SMDNG02330TB00_ _ _ _
0.047 „	2220 2824	3.5 3.0	SMDNF02470QA00_ _ _ _ SMDNF02470TA00_ _ _ _	2824	5.0	SMDNG02470TB00_ _ _ _
0.068 „	2220 2824	4.5 3.0	SMDNF02680QB00_ _ _ _ SMDNF02680TA00_ _ _ _			
0.1 µF	2220 2824	4.5 5.0	SMDNF03100QB00_ _ _ _ SMDNF03100TB00_ _ _ _			
0.15 „	2824	5.0	SMDNF03150TB00_ _ _ _			

* AC voltage: f = 50 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

Dims in mm.



Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
Packing:	bulk = S
Pin length:	none = 00

Taped version see page 139.

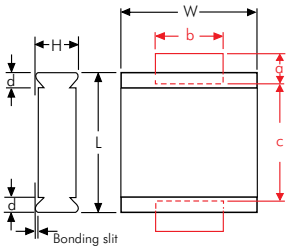
Size code	L ±0.3	W ±0.3	d	a min.	b min.	c max.
1812	4.8	3.3	0.5	1.2	3.5	3.5
2220	5.7	5.1	0.5	1.2	4	4.5
2824	7.2	6.1	0.5	1.2	4	6.5

Recommendation for Processing and Application of SMD Capacitors

Layout Form

The components can generally be positioned on the carrier material as desired. In order to prevent soldering shadows or ensure regular temperature distribution, extreme concentration of the components should be avoided. In practice, it has proven best to keep a minimum distance of the soldering surfaces between two WIMA SMDs of twice the height of the components.

Solder Pad Recommendation



Size code	L ± 0.3	W ± 0.3	d	a min.	b min.	c max.
1812	4.8	3.3	0.5	1.2	3.5	3.5
2220	5.7	5.1	0.5	1.2	4	4.5
2824	7.2	6.1	0.5	1.2	4	6.5
4030	10.2	7.6	0.5	2.5	6	9
5040	12.7	10.2	0.7	2.5	6	11.5
6054	15.3	13.7	0.7	2.5	6	14

The solder pad size recommendations given for each individual series are to be understood as minimum dimensions which can at any time be adjusted to the layout form.

Processing

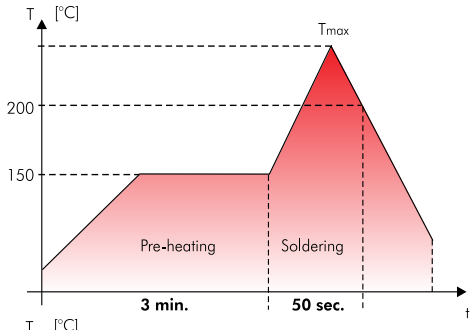
The processing of SMD components

– assembling
– soldering
– electrical final inspection/ calibrating

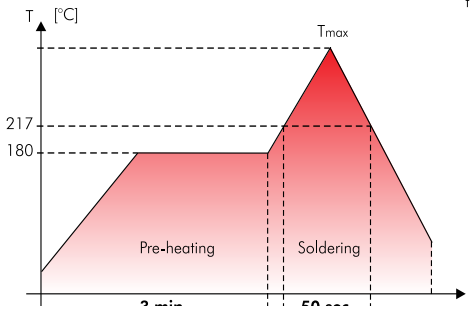
must be regarded as a complete process. The soldering of the printed circuit board, for example, can constitute considerable stress on all the electronic components. The manufacturer's instructions on the processing of the components are mandatory.

Soldering Process

Re-flow soldering



SMD-PET	
Size code	Tmax.
1812	220° C
2220	230° C
2824	230° C
4030	230° C
5040	240° C
6054	250° C



SMD-PEN	
Size code	Tmax.
1812	220° C
2220	230° C
2824	230° C

SMD-PPS	
Size code	Tmax.
1812	250° C
2220	250° C
2824	250° C
4030	250° C
5040	250° C
6054	250° C

Temperature/time graph for the permissible processing temperature of the WIMA SMD film capacitor for typical convection soldering processes.

Due to versatile procedures exact processing parameters for re-flow soldering processes cannot be specified. The graph depicted is to be understood as a recommendation to help establishing a suitable soldering profile fulfilling the requirements in practice at the user. During processing a max. temperature of T=210° C inside the component should not be exceeded. Due to the differing heat absorption the length of the soldering process should be kept as short as possible for smaller size codes.

SMD Handsoldering

WIMA SMD capacitors with plastic film dielectric are generally suitable for hand-soldering, e. g. for lab purposes, with a soldering iron where, however, similar to automated soldering processes, a certain duration and temperature should not be exceeded. These parameters are dependent on the physical size of the components and the relevant heat absorption involved.

The below data are to be regarded as guideline values and should serve to avoid damage to the dielectric caused by excessive heat during the soldering process. The soldering quality depends on the tool used and on the skill and experience of the person with the soldering iron in hand.

Size code	Temperature °C / °F	Time duration
1812	250 / 482	2 sec plate 1 / 5 sec off / 2 sec plate 2
2220	250 / 482	3 sec plate 1 / 5 sec off / 3 sec plate 2
2824	260 / 500	3 sec plate 1 / 5 sec off / 3 sec plate 2
4030	260 / 500	5 sec plate 1 / 5 sec off / 5 sec plate 2
5040	260 / 500	5 sec plate 1 / 5 sec off / 5 sec plate 2
6054	260 / 500	5 sec plate 1 / 5 sec off / 5 sec plate 2

Recommendation for Processing and Application of SMD Capacitors (Continuation)

Solder Paste

To achieve reliable soldering results one of the following solder alloys have from case to case proven being workable:

Lead free solder paste
Sn - Bi
Sn - Zn (Bi)
Sn - Ag - Cu (suitable for SMD-PET 5040/ 6054 and SMD-PPS)

Solder paste with lead
Sn - Pb - Ag (Sn60-Pb40-A, Sn63-Pb37-A)

Washing

WIMA SMD components with plastic encapsulation - like all other components of similar construction irrespective of the make - cannot be regarded as hermetically sealed. Due to today's common washing substances, e. g. on aqueous basis instead of the formerly used halogenated hydrocarbons, with enhanced washing efficiency it became obvious that assembled SMD capacitors may show an impermissibly high deviation of the electrical parameters after a corresponding washing process. Hence it is recommended to refrain from applying industrial washing processes for WIMA SMD capacitors in order to avoid possible damages.

Initial Operation/Calibration

Due to the stress which the components are subjected to during processing, reversible parameter changes occur in almost all electronic components. The capacitance recovery accuracy to be expected with careful processing is within a scope of

$|\Delta C/C| \leqslant 5\ \%$.

For the initial operation of the device a minimum storage time of

$t \geqslant 24$ hours

is to be taken into account. With calibrated devices or when the application is largely dependent on capacitance it is advisable to prolong the storage time to

$t \geqslant 10$ days

In this way ageing effects of the capacitor structure can be anticipated. Parameter changes due to processing are not to be expected after this period of time

Humidity Protection Bags

Taped WIMA SMD capacitors are shipped in humidity protection bags according to JEDEC standard (ESD/EMI-shield/water-vapour proof).
Under controlled conditions the components can be stored two years and more in the originally sealed bag. Opened packing units should immediately be used up for processing. If storage is necessary the opened packing units should be stored air-tight in the original plastic bag.

Reliability

Taking account of the manufacturer's guidelines and compatible processing, the WIMA SMD stand out for the same high quality and reliability as the analogous through-hole WIMA series. The technology of metallized film capacitors used e.g. in WIMA SMD-PET achieves the best values for all fields of application. The expected value is about:

$\lambda_0 \leqslant 2$ fit

Furthermore the production of all WIMA components is subject to the regulations laid down by ISO 9001:2008 as well as the guidelines for component specifications set out by IEC quality assessment system (IECQ) for electronic components.

Electrical Characteristics and Fields of Application

Basically the WIMA SMD series have the same electrical characteristics as the analogous through-hole WIMA capacitors. Compared to ceramic or tantalum dielectrics WIMA SMD capacitors have a number of other outstanding qualities:

- **favourable pulse rise time**
- **low ESR**
- **low dielectric absorption**
- **available in high voltage series**
- **large capacitance spectrum**
- **stand up to high mechanical stress**
- **good long-term stability**

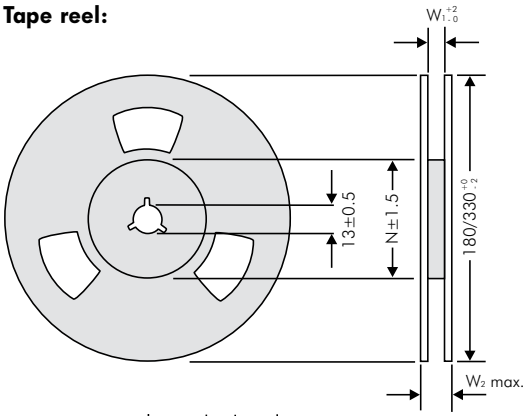
As regards technical performance as well as quality and reliability, the WIMA SMD series offer the possibility to cover nearly all applications of conventionally through-hole film capacitors with SMD components. Furthermore, the WIMA SMD series can now be used for all the demanding
capacitor applications for which, in the past, the use of through-hole components was mandatory:

- **measuring techniques**
- **oscillator circuits**
- **differentiating and integrating circuits**
- **A/D or D/A transformers**
- **sample and hold circuits**
- **automotive electronics**

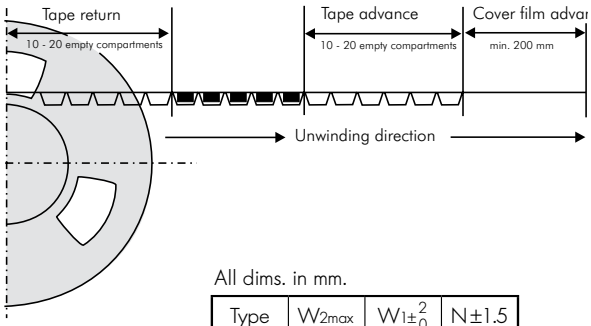
With the WIMA SMD programme available today, the major part of all plastic film capacitors can be replaced by WIMA SMD components. The field of application ranges from standard coupling capacitors to use in switch-mode power supplies as filter or charging capacitors with high voltage and capacitance values, as well as in telecommunications e.g. the well-known telephone capacitor 1µF/250VDC.

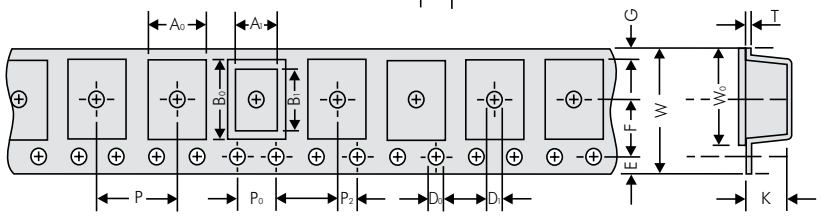
Blister Tape Packaging and Packing Units of the WIMA SMD Capacitors

Tape reel:



Tape advance and return:





All dims. in mm.

Type	W2max	W1±2 0	N±1.5
1812	19	12.4	62
2220	19	12.4	62
2824	19	12.4	62
4030	22.4	16.4	60
5040	30.4	24.4	90
6054	30.4	24.4	90

Size Code 1812		A0 ±0.1	A1	B0 ±0.1	B1	D0 +0.1 -0	D1 +0.1 -0	P ±0.1	P0* ±0.1	P2 ±0.05	E ±0.1	F ±0.05	G	W ±0.3	W0 ±0.2	K ±0.1	T ±0.1
Box size	Code																
4.8x3.3x3	**KA**	3.55	3.3	5.1	4.8	ø1.5	ø1.5	8	4	2	1.75	5.5	2.2	12	9.5	3.4	0.3
4.8x3.3x4	**KB**	3.55	3.3	5.1	4.8	ø1.5	ø1.5	8	4	2	1.75	5.5	2.2	12	9.5	4.4	0.3

Packing units

taped Reel 180 mm ø	taped Reel 330 mm ø	bulk Standard
700	2500	3000
500	2000	3000

Size Code 2220		A0 ±0.1	A1	B0 ±0.1	B1	D0 +0.1 -0	D1 +0.1 -0	P ±0.1	P0* ±0.1	P2 ±0.05	E ±0.1	F ±0.05	G	W ±0.3	W0 ±0.2	K ±0.1	T ±0.1
Box size	Code																
5.7x5.1x3.5	**QA**	6.3	5.7	5.6	5.1	ø1.5	ø1.5	8	4	2	1.75	5.5	1.95	12	9.5	3.7	0.3
5.7x5.1x4.5	**QB**	6.3	5.7	5.6	5.1	ø1.5	ø1.5	8	4	2	1.75	5.5	1.95	12	9.5	4.7	0.3

taped Reel 180 mm ø	taped Reel 330 mm ø	bulk Standard
500	1800	3000
400	1500	3000

Size Code 2824		A0 ±0.1	A1	B0 ±0.1	B1	D0 +0.1 -0	D1 +0.1 -0	P ±0.1	P0* ±0.1	P2 ±0.05	E ±0.1	F ±0.05	G	W ±0.3	W0 ±0.2	K ±0.1	T ±0.1
Box size	Code																
7.2x6.1x3	**TA**	6.6	6.1	7.7	7.2	ø1.5	ø1.5	12	4	2	1.75	5.5	0.9	12	9.5	3.4	0.3
7.2x6.1x5	**TB**	6.6	6.1	7.7	7.2	ø1.5	ø1.5	12	4	2	1.75	5.5	0.9	12	9.5	5.4	0.4

taped Reel 330 mm ø	bulk Standard
1500	2000
750	2000

	Code	A0 ±0.1	A1	B0 ±0.1	B1	D0 +0.1 -0	D1 +0.1 -0	P ±0.1	P0* ±0.1	P2 ±0.05	E ±0.1	F ±0.05	G	W ±0.3	W0 ±0.2	K ±0.1	T ±0.1
Size Code 4030	**VA**	10.7	10.2	8.1	9.1	ø1.5	ø1.5	16	4	2	1.75	7.5	1.9	16	13.3	5.5	0.3
Size Code 5040	**XA**	13.5	12.7	11	11.5	ø1.5	ø1.5	16	4	2	1.75	11.5	4.7	24	21.3	6.5	0.3
Size Code 6054	**YA**	17.0	16.5	15.6	15.0	ø1.5	ø1.5	20	4	2	1.75	11.5	2.95	24	21.3	7.5	0.3

taped Reel 330 mm ø	bulk Standard
775	2000
600	1000
450	500

* cumulative after 10 steps ± 0.2 mm max.
Samples and pre-production needs on request or 1 Reel minimum.

Part number codes for SMD packing

W (Blister)	ø in mm	Code
12	180	**P**
12	330	**Q**
16	330	**R**
24	330	**T**

Bulk Standard	**S**

WIMA Part Number System

A WIMA part number consists of 18 digits and is composed as follows:

Field 1 - 4: Type description
Field 5 - 6: Rated voltage
Field 7 - 10: Capacitance
Field 11 - 12: Size and PCM
Field 13 - 14: Version code (e.g. Snubber versions)
Field 15: Capacitance tolerance
Field 16: Packing
Field 17 - 18: Pin length (untaped)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
M	**K**	**S**	**2**	**C**	**0**	**2**	**1**	**0**	**0**	**1**	**A**	**0**	**0**	**M**	**S**	**S**	**D**
MKS 2				63 VDC		0.01 µF				2.5 x 6.5 x 7.2		-		20%	bulk	6 -2	

Type description:

SMD-PET	= SMDT
SMD-PEN	= SMDN
SMD-PPS	= SMDI
FKP 02	= FKP0
MKS 02	= MKS0
FKS 2	= FKS2
FKP 2	= FKP2
MKS 2	= MKS2
MKP 2	= MKP2
FKS 3	= FKS3
FKP 3	= FKP3
MKS 4	= MKS4
MKP 4	= MKP4
MKP 10	= MKP1
FKP 4	= FKP4
FKP 1	= FKP1
MKP-X2	= MKX2
MKP-X2 R	= MKXR
MKP-X1 R	= MKX1
MKP-Y2	= MKY2
MP 3-X2	= MPX2
MP 3-X1	= MPX1
MP 3-Y2	= MPY2
MP 3R-Y2	= MPRY
Snubber MKP	= SNMP
Snubber FKP	= SNFP
GTO MKP	= GTOM
DC-LINK MKP 3	= DCP3
DC-LINK MKP 4	= DCP4
DC-LINK MKP 4S	= DCPS
DC-LINK MKP 5	= DCP5
DC-LINK MKP 6	= DCP6
DC-LINK HC	= DCHC

Rated voltage:

50 VDC	= B0
63 VDC	= C0
100 VDC	= D0
250 VDC	= F0
400 VDC	= G0
450 VDC	= H0
600 VDC	= I0
630 VDC	= J0
700 VDC	= K0
800 VDC	= L0
850 VDC	= M0
900 VDC	= N0
1000 VDC	= O1
1100 VDC	= P0
1200 VDC	= Q0
1250 VDC	= R0
1500 VDC	= S0
1600 VDC	= T0
2000 VDC	= U0
2500 VDC	= V0
3000 VDC	= W0
4000 VDC	= X0
6000 VDC	= Y0
250 VAC	= 0W
275 VAC	= 1W
300 VAC	= 2W
305 VAC	= AW
400 VAC	= 3W
440 VAC	= 4W
500 VAC	= 5W
...	

Capacitance:

22 pF	= 0022
47 pF	= 0047
100 pF	= 0100
150 pF	= 0150
220 pF	= 0220
330 pF	= 0330
470 pF	= 0470
680 pF	= 0680
1000 pF	= 1100
1500 pF	= 1150
2200 pF	= 1220
3300 pF	= 1330
4700 pF	= 1470
6800 pF	= 1680
0.01 µF	= 2100
0.022 µF	= 2220
0.047 µF	= 2470
0.1 µF	= 3100
0.22 µF	= 3220
0.47 µF	= 3470
1 µF	= 4100
2.2 µF	= 4220
4.7 µF	= 4470
10 µF	= 5100
22 µF	= 5220
47 µF	= 5470
100 µF	= 6100
220 µF	= 6220
1000 µF	= 7100
1500 µF	= 7150
...	

Size:

4.8 x 3.3 x 3 Size 1812	= KA
4.8 x 3.3 x 4 Size 1812	= KB
5.7 x 5.1 x 3.5 Size 2220	= QA
5.7 x 5.1 x 4.5 Size 2220	= QB
7.2 x 6.1 x 3 Size 2824	= TA
7.2 x 6.1 x 5 Size 2824	= TB
10.2 x 7.6 x 5 Size 4030	= VA
12.7 x 10.2 x 6 Size 5040	= XA
15.3 x 13.7 x 7 Size 6054	= YA
2.5 x 7 x 4.6 PCM 2.5	= 0B
3 x 7.5 x 4.6 PCM 2.5	= 0C
2.5 x 6.5 x 7.2 PCM 5	= 1A
3 x 7.5 x 7.2 PCM 5	= 1B
2.5 x 7 x 10 PCM 7.5	= 2A
3 x 8.5 x 10 PCM 7.5	= 2B
3 x 9 x 13 PCM 10	= 3A
4 x 9 x 13 PCM 10	= 3C
5 x 11 x 18 PCM 15	= 4B
6 x 12.5 x 18 PCM 15	= 4C
5 x 14 x 26.5 PCM 22.5	= 5A
6 x 15 x 26.5 PCM 22.5	= 5B
9 x 19 x 31.5 PCM 27.5	= 6A
11 x 21 x 31.5 PCM 27.5	= 6B
9 x 19 x 41.5 PCM 37.5	= 7A
11 x 22 x 41.5 PCM 37.5	= 7B
19 x 31 x 56 PCM 48.5	= 8D
35 x 50 x 57 PCM 52.5	= 9F
...	

Version code:

Standard	= 00
Version A1	= 1A
Version A1.1.1	= 1B
Version A2	= 2A
...	

Tolerance:

±20%	= M
±10%	= K
±5%	= J
±2.5%	= H
±1%	= E
...	

Packing:

AMMO H16.5 340 x 340	= A
AMMO H16.5 490 x 370	= B
AMMO H18.5 340 x 340	= C
AMMO H18.5 490 x 370	= D
REEL H16.5 360	= F
REEL H16.5 500	= H
REEL H18.5 360	= I
REEL H18.5 500	= J
ROLL H16.5	= N
ROLL H18.5	= O
BLISTER W12 180	= P
BLISTER W12 330	= Q
BLISTER W16 330	= R
BLISTER W24 330	= T
Bulk/TPS Standard	= S
...	

Pin length (untaped)

3.5 ±0.5	= C9
6 -2	= SD
16 ±1	= P1
...	

The data on this page is not complete and serves only to explain the part number system. Part number information is listed on the pages of the respective WIMA range.

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