## **WIMA SMD-PET**



Metallized Polyester (PET) SMD Film Capacitors with Box Encapsulation. Capacitances from 0.01  $\mu$ F to 6.8  $\mu$ F. Rated Voltages from 63 VDC to 1000 VDC. Size Codes from 1812 to 6054.

### **Special Features**

- Size codes 1812, 2220, 2824, 4030, 5040 and 6054 with PET and encapsulated
- Operating temperature up to 100° C
- Self-healing
- According to RoHS 2011/65/EU

### **Typical Applications**

For general DC-applications e.g.

- By-pass
- Blocking
- Coupling and decoupling
- Timing

### Construction

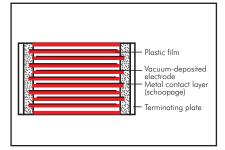
#### Dielectric:

Polyethylene-terephthalate (PET) film

### Capacitor electrodes:

Vacuum-deposited

### Internal construction:



### **Encapsulation:**

Solvent-resistant, flame-retardant plastic case, UL 94 V-0

### **Terminations:**

Tinned plates.

### Marking:

Box colour: Black.

### **Electrical Data**

### Capacitance range:

0.01  $\mu$ F to 6.8  $\mu$ F

### Rated voltages:

63 VDC, 100 VDC, 250 VDC, 400 VDC, 630 VDC, 1000 VDC

### Capacitance tolerances:

 $\pm 20\%$ ,  $\pm 10\%$  ( $\pm 5\%$  available subject to special enquiry)

### Operating temperature range:

-55° C to +100° C (+125° C available subject to special enquiry)

### Climatic test category:

55/100/21 according to IEC for size codes 1812 to 2824 55/100/56 according to IEC for size codes 4030 to 6054

### Insulation resistance at +20° C:

Test voltage:  $1.6 U_r$ , 2 sec. Voltage derating:

A voltage derating factor of 1.25 % per K must be applied from +85° C for DC voltages and from +75° C for AC voltages

### Reliability:

Operational life  $> 300\,000$  hours Failure rate < 2 fit (0.5 x  $U_r$  and 40° C)

U <sub>r</sub>	U <sub>test</sub>	C ≤ 0.33 <b>µ</b> F	0.33 µF < C ≤ 6.8 µF
63 VDC 100 VDC	50 V 100 V	≥ 3.75 x 10 <sup>3</sup> MΩ	≥ 1250 sec (M <b>Ω</b> x <b>µ</b> F)
≥ 250 VDC	100 V	$\geq$ 1 x 10 <sup>4</sup> M $\Omega$	≥ 3000 sec (M <b>Ω</b> x <b>μ</b> F)

Measuring time: 1 min.

### Dissipation factors at $+20^{\circ}$ C: tan $\delta$

at f	C ≤ 0.1 µF	0.1 µF < C ≤ 1.0 µF	C > 1.0 µF
1 kHz	≤ 8 x 10 <sup>-3</sup>	≤ 8 x 10 <sup>-3</sup>	≤ 10 x 10 <sup>-3</sup>
10 kHz	≤ 15 x 10 <sup>-3</sup>	≤ 15 x 10 <sup>-3</sup>	-
100 kHz	≤ 30 x 10 <sup>-3</sup>	_	_

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

Capacitance µF	63 VDC	max	e rise time V k. operation 250 VDC	•	630 VDC	1000 VDC
0.01 0.022 0.033 0.068 0.1 0.22 0.33 0.68 1.0 2.2 3.3 6.8	30/300 20/200 10/100 8/80 3.5/35 3/30	35/350 20/200 10/100 6/60 4/40 3/30	40/400 40/400 12/120 9/90 7/70	35/350 21/210 14/140 10/100 -	40/400 25/250 17/170 - - -	50/500 32/320 - - - -

### **Dip Solder Test/Processing**

### Resistance to soldering heat:

Test Tb in accordance with DIN IEC 60068-2-58/DIN EN 60384-19. Soldering bath temperature max. 260° C. Soldering duration max. 5 sec. Change in capacitance  $\Delta$ C/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.

# **WIMA SMD-PET**



### Continuation

### **General Data**

		63	3 VDC/40 VAC*		10	00 VDC/63 VAC*	250 VDC/160 VAC*				
Capacitance	Size	H		Size	H	1	Size	H			
'	code	± 0.3	Part number	code	± 0.3	Part number	code	± 0.3	Part number		
0.01 µF	1812	3.0	SMDTC02100KA00	1812	3.0	SMDTD02100KA00	2220	3.5	SMDTF02100QA00		
	2220	3.5	SMDTC02100QA00	2220	3.5	SMDTD02100QA00	2824	3.0	SMDTF02100TA00		
0.015	2824	3.0	SMDTC02100TA00	2824	3.0	SMDTD02100TA00			01.45.75001500100		
0.015 "	1812 2220	3.0	SMDTC02150KA00 SMDTC02150QA00	1812 2220	3.0	SMDTD02150KA00 SMDTD02150QA00	2220 2824	3.5	SMDTF02150QA00 SMDTF02150TA00		
	2824	3.0	SMDTC02150TA00	2824	3.0	SMDTD02150TA00	2024	3.0	3/10/110/1301/400		
0.022 "	1812	3.0	SMDTC02220KA00	1812	3.0	SMDTD02220KA00	2220	3.5	SMDTF02220QA00		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2220	3.5	SMDTC02220QA00	2220	3.5	SMDTD02220QA00	2824	3.0	SMDTF02220TA00		
	2824	3.0	SMDTC02220TA00	2824	3.0	SMDTD02220TA00					
0.033 "	1812 2220	3.0	SMDTC02330KA00 SMDTC02330QA00	1812 2220	3.0	SMDTD02330KA00 SMDTD02330QA00	2220 2824	3.5	SMDTF02330QA00 SMDTF02330TA00		
	2824	3.0	SMDTC02330TA00	2824	3.0	SMDTD02330TA00	4030	5.0	SMDTF02330VA00		
0.047 "	1812	3.0	SMDTC02470KA00	1812	3.0	SMDTD02470KA00	2220	3.5	SMDTF02470QA00		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2220	3.5	SMDTC02470QA00	2220	3.5	SMDTD02470QA00	2824	3.0	SMDTF02470TA00		
	2824	3.0	SMDTC02470TA00	2824	3.0	SMDTD02470TA00	4030	5.0	SMDTF02470VA00		
0.068 "	1812	3.0	SMDTC02680KA00	1812	3.0	SMDTD02680KA00	2220	4.5*	SMDTF02680QB00		
	2220 2824	3.0	SMDTC02680QA00 SMDTC02680TA00	2220 2824	3.5	SMDTD02680QA00 SMDTD02680TA00	2824 4030	3.0 5.0	SMDTF02680TA00 SMDTF02680VA00		
0.1 µF	1812	4.0*	SMDTC03100KB00	1812	4.0*	SMDTD03100KB00	2220	4.5*	SMDTF03100QB00		
0.1 <b>p</b> .1	2220	3.5	SMDTC03100QA00	2220	3.5	SMDTD03100QA00	2824	5.0	SMDTF03100TB00		
	2824	3.0	SMDTC03100TA00	2824	3.0	SMDTD03100TA00	4030	5.0	SMDTF03100VA00		
0.15 "	1812	4.0*	SMDTC03150KB00	1812	4.0	SMDTD03150KB00	2824	5.0	SMDTF03150TB00		
	2220 2824	3.5	SMDTC03150QA00 SMDTC03150TA00	2220 2824	3.5	SMDTD03150QA00 SMDTD03150TA00	4030	5.0	SMDTF03150VA00		
0.22 "	1812	4.0*	SMDTC031301A00	1812	4.0	SMDTD031301A00	2824	5.0	SMDTF03220TB00		
0.22 "	2220	3.5	SMDTC03220QA00	2220	3.5	SMDTD03220QA00	4030	5.0	SMDTF03220VA00		
	2824	3.0	SMDTC03220TA00	2824	3.0	SMDTD03220TA00					
0.33 "	1812	4.0	SMDTC03330KB00	2220	4.5	SMDTD03330QB00	2824	5.0	SMDTF03330TB00		
	2220 2824	4.5* 5.0*	SMDTC03330QB00 SMDTC03330TB00	2824 4030	5.0	SMDTD03330TB00 SMDTD03330VA00	4030 5040	5.0	SMDTF03330VA00 SMDTF03330XA00		
0.47 "	1812	4.0	SMDTC03470KB00	2220	4.5	SMDTD03470QB00	4030	5.0	SMDTF03470VA00		
0.17 "	2220	4.5*	SMDTC03470QB00	2824	5.0	SMDTD03470TB00	5040	6.0	SMDTF03470XA00		
	2824	5.0*	SMDTC03470TB00	4030	5.0	SMDTD03470VA00					
0.68 "	2220	4.5	SMDTC03680QB00	2824	5.0	SMDTD03680TB00	5040	6.0	SMDTF03680XA00		
	2824 4030	5.0* 5.0	SMDTC03680TB00 SMDTC03680VA00	4030 5040	5.0	SMDTD03680VA00 SMDTD03680XA00					
1.0 µF	2220	4.5	SMDTC04100QB00	2824	5.0	SMDTD03000XA00	6054	7.0	SMDTF04100YA00		
1.0 μι	2824	5.0*	SMDTC04100GB00	4030	5.0	SMDTD04100VA00	0004	7.0	3/10/100/100/100		
	4030	5.0	SMDTC04100VA00	5040	6.0	SMDTD04100XA00					
1.5 "	2824	5.0	SMDTC04150TB00	4030	5.0	SMDTD04150VA00	* > (	_	h		
	4030	5.0	SMDTC04150VA00	5040	6.0	SMDTD04150XA00		ion ac availal	ccording to catalogue 2013		
2.2 "	2824	5.0	SMDTC04220TB00	5040	6.0	SMDTD04220XA00	31111	avana	DIE		
۳. ۲۰۰۲	4030	5.0	SMDTC04220VA00	0010	0.0	0/4/01/00 1220/4/00					
3.3 "	4030	5.0	SMDTC04330VA00	5040	6.0	SMDTD04330XA00		Part	number completion:		
4.7 "	5040	6.0	SMDTC04470XA00	6054	7.0	SMDTD04470YA00		loler	rance: 20 % = M 10 % = K		
4./ "	3040	0.0	0/10/0044/0//00	0004	7.0	0/ VID 10074/ 01/100			5 % = J		
								   Pack			
6.8 "	6054	7.0	SMDTC04680YA00						ength: none = 00		
								Tape	ed version see page 147.		
* 40 1	50.11	1.					J				

<sup>\*</sup> AC voltage: f = 50 Hz; 1.4 x  $U_{rms}$  + UDC  $\leq U_{r}$ 

Dims. in mm.

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# **WIMA SMD-PET**



### Continuation

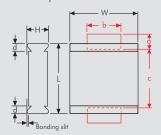
### **General Data**

		40	0 VDC/200 VAC*		63	0 VDC/300 VAC*		100	00 VDC/400 VAC*
Capacitance	Size code	H ± 0.3	Part number	Size code	H ± 0.3	Part number	Size code	H ± 0.3	Part number
0.01 µF	2824 4030	3.0 5.0	SMDTG02100TA00 SMDTG02100VA00	4030	5.0	SMDTJ02100VA00			
0.015 "	2824 4030	3.0 5.0	SMDTG02150TA00 SMDTG02150VA00	4030	5.0	SMDTJ02150VA00	5040	6.0	SMDTO12150XA00
0.022 "	2824 4030	5.0* 5.0	SMDTG02220TB00 SMDTG02220VA00	5040	6.0	SMDTJ02220XA00	5040	6.0	SMDTO12220XA00
0.033 "	2824 4030	5.0 5.0	SMDTG02330TB00 SMDTG02330VA00	5040	6.0	SMDTJ02330XA00	5040	6.0	SMDTO12330XA00
0.047 "	2824 4030	5.0 5.0	SMDTG02470TB00 SMDTG02470VA00	5040	6.0	SMDTJ02470XA00	6054	7.0	SMDTO12470YA00
0.068 "	4030 5040	5.0 6.0	SMDTG02680VA00 SMDTG02680XA00	5040	6.0	SMDTJ02680XA00			
0.1 μF	4030 5040	5.0 6.0	SMDTG03100VA00 SMDTG03100XA00	6054	7.0	SMDTJ03100YA00			
0.15 "	4030 5040	5.0 6.0	SMDTG03150VA00 SMDTG03150XA00	6054	7.0	SMDTJ03150YA00			
0.22 "	5040	6.0	SMDTG03220XA00	6054	7.0	SMDTJ03220YA00			
0.33 "	5040	6.0	SMDTG03330XA00						
0.47 "	6054	7.0	SMDTG03470YA00						

<sup>\*</sup> AC voltage: f = 50 Hz; 1.4 x  $U_{rms}$  + UDC  $\leq U_{r}$ 

Dims. in mm.

Solder pad recommendation



Part number	completion:
Tolerance:	20 % = M
	10% = K
	5% = J
Packing:	bulk = S
Pin length:	none = 00
Taped version	on see page 147.

	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
ı	2824	7.2	6.1	0.5	1.2	4	6.5
ı	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

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<sup>\*</sup> Version according to catalogue 2013 still available

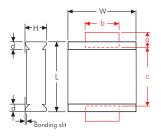
# Recommendation for Processing — and Application of SMD Capacitors



### **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	L	W	d	а	b	С
code	± 0.3	± 0.3		min.	min.	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.

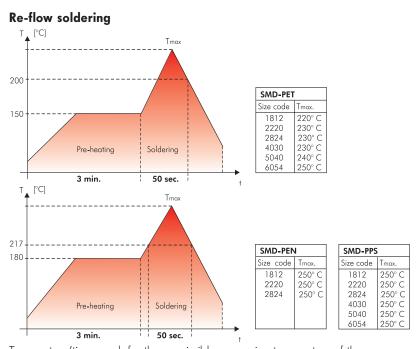
### **Processing**

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**



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 Isuitable for SMD-PET 5040/6054, SMD-PEN 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

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

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

 $t \ge 24 \text{ hours}$ 

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 ≥ 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

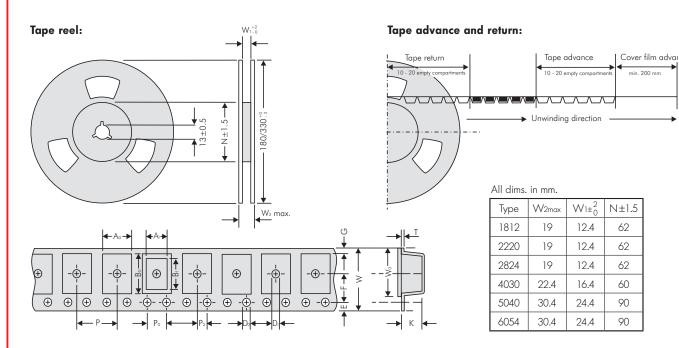
As regards technical performance as well as quality and reliability, the WIMA SMD series offer the possibility to cover nearly all applications of conventionally through-hole film capacitors with SMD components. Furthermore, the WIMA SMD series can now be used for all the demanding capacitor applications 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  $1\,\mu\text{F}/250\text{VDC}$ .

# Blister Tape Packaging and Packing Units of the WIMA SMD Capacitors





Size Code	1812	A0 ±0.1	Αı	Bo ±0.1	Ві	Do +0.1	D <sub>1</sub>	P +01	Po*	P <sub>2</sub> ±0.05	E +0.1	F +0.05	G	W ±0.3	W <sub>0</sub>	K +0.1	T +0.1
Box size	Code	20.1		20.1		-0	-0	20.1	20.1	± 0.00	20.1	10.00		20.0	± 0.2	20.1	20.1
4.8×3.3×3	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
4.8×3.3×4	КВ	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

Size Code	2220	A <sub>0</sub>	Aı	Bo ±0.1	Ві	Do +0.1	D1	P +0.1	Po*	P <sub>2</sub> ±0.05	E ±0.1	F ±0.05	G	W ±0,3	W <sub>0</sub>	K +0.1	T +0.1
Box size	Code	±0.1		±0.1		-0	-0	±0.1	±0.1	10.00	±0.1	±0.00		10.0	10.2	±0.1	10.1
5.7×5.1×3.5	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
5.7×5.1×4.5	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

Size Code	2824	Ao ±0.1	Aı	Bo ±0.1	Ві	Do +0.1	D1	P +0.1	Po*	P <sub>2</sub> ±0.05	E +0.1	F +0.05	G	W ±0.3	₩0 ±0.2	K +0.1	T +0.1
Box size	Code	20.1		20.1		-0	-0	20.1	20.1	10.00	20.1	±0.00		20.0	±0.2	20.1	20.1
7.2×6.1×3	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
7.2×6.1×5	ТВ	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

	Code	A0 ±0.1	Αı	Bo ±0.1	Ві	Do +0.1 -0	D1 +0.1 -0	P ±0.1		P <sub>2</sub> ±0.05		F ±0.05			W0 ±0.2		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

<sup>\*</sup> cumulative after 10 steps  $\pm$  0.2 mm max. Samples and pre-production needs on request or 1 Reel minimum.

### **Packing units**

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

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

taped Reel 330 mm Ø	bulk Standard		
1500	2000		
750	2000		

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

### Part number codes for SMD packing

W (Blister)	Ø in mm	Code
12	180	P
12	330	Q
16	330	R
24	330	Т

Bulk Standard	

### 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

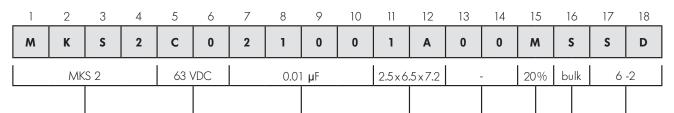
Field 11 - 12: Size and PCM

Field 13 - 14: Version code (e.g. Snubber versions)

Field 15: Capacitance tolerance

Field 16: Packing

Field 17 - 18: Pin length (untaped)



Type descripti	on:	Rated voltage:	Capacitance:	Size:	Tolerance:
SMD-PET	= SMDT	50  VDC = B0	22 pF = 0022	$4.8 \times 3.3 \times 3$ Size 1812 = KA	$\pm 20\% = M$
SMD-PEN	= SMDN	63  VDC = C0	47  pF  = 0047	$4.8 \times 3.3 \times 4$ Size 1812 = KB	$\pm 10\% = K$
SMD-PPS	= SMDI	100  VDC = D0	100  pF = 0100	$5.7 \times 5.1 \times 3.5$ Size $2220 = QA$	$\pm 5\% = J$
FKP 02	= FKPO	250  VDC = FO	150  pF = 0150	$5.7 \times 5.1 \times 4.5$ Size $2220 = QB$	$\pm 2.5\% = H$
MKS 02	=MKS0	400  VDC = G0	220  pF = 0220	$7.2 \times 6.1 \times 3$ Size 2824 = TA	$\pm 1\% = E$
FKS 2	= FKS2	450  VDC = H0	330  pF = 0330	$7.2 \times 6.1 \times 5$ Size 2824 = TB	
FKP 2	= FKP2	520  VDC = H2	470  pF  = 0470	$10.2 \times 7.6 \times 5$ Size $4030 = VA$	
FKS 3	= FKS3	600  VDC = 10	680  pF = 0680	$12.7 \times 10.2 \times 6$ Size $5040 = XA$	
FKP 3	= FKP 3	630  VDC = J0	1000  pF = 1100	$15.3 \times 13.7 \times 7 \text{ Size } 6054 = \text{YA}$	Packing:
MKS 2	=MKS2	700  VDC = K0	1500  pF = 1150	$2.5 \times 7 \times 4.6 \text{ PCM } 2.5 = 0B$	AMMO H16.5 $340 \times 340 = A$
MKP 2	=MKP2	800  VDC = 10	2200  pF = 1220	$3 \times 7.5 \times 4.6 \text{ PCM } 2.5 = 0 \text{ C}$	AMMO H16.5 $490 \times 370 = B$
MKS 4	= MKS4	850  VDC = M0	3300  pF  =  1330  m	$2.5 \times 6.5 \times 7.2 \text{ PCM} = 1 \text{A}$	AMMO H18.5 $340 \times 340 = C$
MKP 4C	= MKPC	900  VDC = NO	4700  pF  = 1470	$3 \times 7.5 \times 7.2 \text{ PCM} 5 = 1B$	AMMO H18.5 $490 \times 370 = D$
MKP 4	=MKP4	1000  VDC = 01	6800  pF = 1680	$2.5 \times 7 \times 10 \text{ PCM} 7.5 = 2A$	REEL H16.5 360 = F
MKP 10	=MKP1	1100  VDC = PO	$0.01  \mu F = 2100$	$3 \times 8.5 \times 10 \text{ PCM } 7.5 = 2B$	REEL H16.5 500 = H
FKP 1	= FKP1	1200  VDC = Q0	$0.022 \mu F = 2220$	$3 \times 9 \times 13 \text{ PCM } 10 = 3A$	REEL H18.5 360 = I
MKP-X2	=MKX2	1250  VDC = R0	$0.047 \ \mu F = 2470$	$4 \times 9 \times 13 \text{ PCM } 10 = 3C$	REEL H18.5 500 = J
MKP-X1 R	=MKX1	1500  VDC = S0	$0.1  \mu F = 3100$	$5 \times 11 \times 18 \text{ PCM } 15 = 4B$	ROLL H16.5 $= N$
MKP-Y2	=MKY2	1600  VDC = T0	$0.22  \mu F = 3220$	$6 \times 12.5 \times 18 \text{ PCM } 15 = 4 \text{ C}$	ROLL H18.5 = 0
MP 3-X2	=MPX2	2000 VDC = U0	$0.47  \mu F = 3470$	$5 \times 14 \times 26.5 \text{ PCM } 22.5 = 5A$	BLISTER W12 180 = P
MP 3-X1	=MPX1	2500  VDC = V0	$1 \mu F = 4100$	$6 \times 15 \times 26.5 \text{ PCM} 22.5 = 5B$	BLISTER W12 330 $= Q$
MP 3-Y2	=MPY2	3000  VDC = W0	$2.2  \mu F = 4220$	$9 \times 19 \times 31.5 \text{ PCM } 27.5 = 6A$	BLISTER W16 330 = R
MP 3R-Y2	=MPRY	4000  VDC = X0	$4.7  \mu F = 4470$	$11 \times 21 \times 31.5 \text{ PCM } 27.5 = 6B$	BLISTER W24 330 $=$ T
MKP 4F	=MKPF	6000 VDC = Y0	$10  \mu F = 5100$	$9 \times 19 \times 41.5 \text{ PCM} 37.5 = 7A$	Bulk/TPS Standard = S
Snubber MKP	= SNMP	250  VAC = 0 VV	$22 \mu F = 5220$	$11 \times 22 \times 41.5 \text{ PCM} 37.5 = 7B$	
Snubber FKP	= SNFP	275  VAC = 1 VV	$ 47  \mu F  = 5470$	$19 \times 31 \times 56$ PCM $48.5 = 8D$	
GTO MKP	= GTOM	300  VAC = 2VV	$100  \mu F = 6100$	$25 \times 45 \times 57$ PCM $52.5 = 9D$	
DC-LINK MKP (		305  VAC = AVV	$220  \mu F = 6220$	ļ	1
DC-LINK MKP		350  VAC = BVV	$1000 \mu F = 7100$		
DC-LINKMKP4		$\begin{array}{ccc} 440 \text{ VAC} &= 4\text{W} \\ 500 \text{ VAC} &= 7\text{W} \end{array}$	$1500  \mu F = 7150$	Version code:	Pin length (untaped)
DC-LINK MKP		500  VAC = 5VV			
DC-LINK MKP				$\begin{array}{ccc} \text{Standard} & = 00 \\ \text{Various A1} & = 10 \end{array}$	$3.5 \pm 0.5 = C9$ 6 -2 = SD
DC-LINK HC	= DCHC			Version A1 $= 1A$	$\begin{array}{ccc} 6 - 2 & = SD \\ 16 \pm 1 & = P1 \end{array}$
DC-LINK HY	= DCHY			Version A1.1.1 = 1B	
1		1	1	Version A2 $= 2A$	

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.

Pin length (taped)

none

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