

Metallized Polyphenylene-Sulphide (PPS) SMD Film Capacitors with Box Encapsulation

Special Features

- Size codes 1812, 2220 and 2824 with PPS and encapsulated
- Operating temperature up to 140° C
- Self-healing
- Suitable for lead-free soldering
- Low dissipation factor
- Low dielectric absorption
- Very constant capacitance value versus temperature
- According to RoHS 2002/95/EC

Typical Applications

For general applications in high temperature circuits e.g.

- By-pass
- Blocking
- Coupling and decoupling
- Timing
- Filtering
- Oscillating circuits

Construction

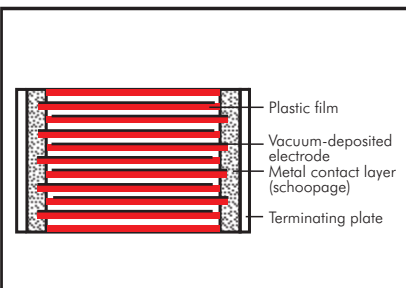
Dielectric:

Polyphenylene-sulphide (PPS) film

Capacitor electrodes:

Vacuum-deposited

Internal construction:



Encapsulation:

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

Terminations:

Tinned plates.

Marking:

Colour: Black.

Electrical Data

Capacitance range:

0.01 µF to 0.47 µF

Rated voltages:

63 VDC, 100 VDC, 250 VDC

Capacitance tolerances:

±20%, ±10%, ±5%

Operating temperature range:

-55° C to +140° C

Climatic test category:

55/140/56 in accordance with IEC

Insulation resistance at +20° C:

$C \leq 0.33 \mu\text{F}$: $\geq 1 \times 10^4 \text{ M}\Omega$

(mean value: $3 \times 10^4 \text{ M}\Omega$)

$C = 0.47 \mu\text{F}$: $\geq 3000 \text{ sec (M}\Omega \times \mu\text{F)}$

(mean value: 6000 sec)

Measuring voltage: 50 V/1 min.

Test voltage: 1.6 U_r, 2 sec.

Maximum pulse rise time:

Capacitance µF	Pulse rise time V/µsec max. operation/test		
	63 VDC	100 VDC	250 VDC
0.01 ... 0.022	35/350	35/350	50/500
0.033 ... 0.068	20/200	20/200	40/400
0.1 ... 0.47	15/150	15/150	40/400

for pulses equal to the rated voltage

Dip Solder Test/Processing

Resistance to soldering heat:

Test Tb in accordance with

DIN IEC 60068-2-20/EN 132 200.

Soldering bath temperature max. 260° C.

Soldering duration max. 5 sec.

Change in capacitance $\Delta C/C < 5\%$.

Soldering process:

Wave soldering and re-flow soldering

(see temperature/time graphs page 14).

Dissipation factors at +20° C: tan δ

at f	$C \leq 0.1 \mu\text{F}$	$0.1 \mu\text{F} < C \leq 0.47 \mu\text{F}$
1 kHz	$\leq 15 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
10 kHz	$\leq 20 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
100 kHz	$\leq 50 \times 10^{-4}$	-

Voltage derating:

For DC and AC voltages a voltage derating factor of 1 % per K must be applied from + 100° C and of 2 % per K from + 125° C.

Reliability:

Operational life > 300 000 hours

Failure rate < 2 fit (0.5 x U_r and 40° C)

Packing

Available taped and reeled in 12 mm blister pack.

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

For further details and graphs please refer to Technical Information.

Continuation

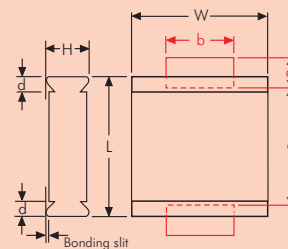
General Data

Capacitance	63 VDC/40 VAC*		100 VDC/63 VAC*		250 VDC/160 VAC*	
	Size code	H ±0.3	Size code	H ±0.3	Size code	H ±0.3
0.01 μ F	1812	2.0	1812	2.0	2220	2.5
0.015 "	1812	2.0	1812	2.0	2220	2.5
0.022 "	1812	3.0	1812	3.0	2220	3.5
0.033 "	1812	3.0	2220	2.5	2824	3.0
0.047 "	2220	2.5	2220	2.5	2824	4.0
0.068 "	2220	2.5	2220	2.5	2824	4.0
0.1 μ F	2220	3.5	2824	3.0	2824	5.0
0.15 "	2824	3.0	2824	3.0		
0.22 "	2824	4.0	2824	4.0		
0.33 "	2824	4.0	2824	4.0		
0.47 "	2824	5.0	2824	5.0		

* AC voltage: $f \leq 400$ Hz; $1.4 \times U_{rms} + U_{DC} \leq U_r$

Taped version see page 99.

Solder pad recommendation



Dims. in mm.

Size code	L ± 0.3	W ± 0.3	d	a max.	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

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WIMA SMD capacitors with PET or MP dielectric according to catalogue 2004 available on request.