

PMR209

- RC unit, class X2, metallized paper with integrated resistor
- 0.047 – 0.47 μF , 22 – 470 Ω , 250 VAC, +85 °C

- Small dimensions
- Excellent self-healing properties. Ensures long life even when subjected to frequent overvoltages.
- High dU/dt capability.
- Self-extinguishing encapsulation.
- Good resistance to ionisation due to impregnated dielectric.
- The impregnated paper ensures excellent stability giving outstanding reliability properties, especially in applications having continuous operation.

TYPICAL APPLICATIONS

RC unit for use in DC and AC applications for:

- contact protection
- interference suppression of contacts
- transient suppression

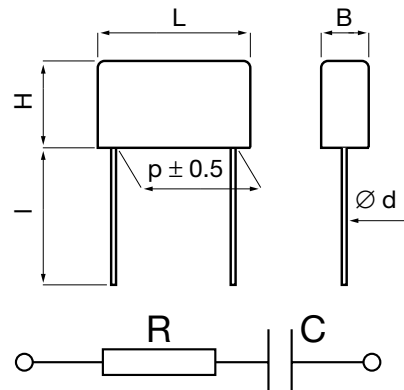
CONSTRUCTION

Single layer metallized paper. Encapsulated and impregnated in self-extinguishing material meeting the requirements of UL 94V-0. The resistance in the metal layer is utilized as series resistance, integrated resistor.

TECHNICAL DATA

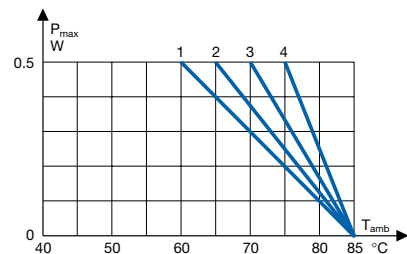
Rated voltage	250 VAC 50/60 Hz, 630 VDC
Capacitance range	0.047 – 0.47 μF
Capacitance tolerance	$\pm 20\%$
Resistance range	22 – 470 Ω
Resistance tolerance	$\pm 30\%$
Peak pulse voltage	1000 V
Temperature range	–40 to +85°C
Climatic category	40/085/56/B
Approvals	S, N, D, FI, VDE, SEV, UL
Series resistance	The series resistance is defined at 1 kHz for $\text{RC} \geq 50 \mu\text{s}$ and at 100 kHz for $\text{RC} < 50 \mu\text{s}$.
Insulation resistance	$\geq 3000 \text{ M}\Omega$ for $C \leq 0.33 \mu\text{F}$ $\geq 1000 \text{ s}$ for $C > 0.33 \mu\text{F}$ Measured at 500 VDC after 60 s, +23°C
Pulse current	Max 12 A repetitive. Max 20 A peak for occasional transients.
Test voltage between terminals	The 100% screening factory test is carried out at 1800 VDC. The voltage level is selected to meet the requirements in applicable equipment standards. All electrical characteristics are checked after the test.
In DC applications	Recommended voltage $\leq 630 \text{ VDC}$.
Power ratings	The average losses may reach 0.5 W provided the surface temperature does not exceed +85°C. For max. permitted power dissipation vs temperature, see derating curves.

Curve	Dimensions
1	B = 7.3
2	B = 7.6
3	B = 11.3
4	B = 15.3



d = 0.8 for p = 15.2 and 20.3
1.0 for p = 25.4

l: standard: 30 +5/-0 mm (code R30)
option: short leads, tolerance +0/-1 mm (standard 6 mm, code R06)
Other lead lengths on request.



Maximum allowable power dissipation vs ambient temperature and case sizes.

ENVIRONMENTAL TEST DATA

Vibration	IEC 60068-2-6, Test Fc	3 directions at 2 hour each 10 – 500 Hz at 0.75 mm or 98 m/s ²	No visible damage, No open or short circuit
Bump	IEC 60068-2-29, Test Eb	4000 bumps at 390 m/s ²	No visible damage, No open or short circuit
Solderability	IEC 60068-2-20, Test Ta	Solder globule method	Wetting time for d $\leq 0.8 < 1 \text{ s}$ for d $> 0.8 < 1.5 \text{ s}$
Active flammability	EN 132400		
Passive flammability	IEC 60384-14 (1993), EN 132400		
Humidity	IEC 60068-2-3, Test Ca	+40°C and 90 – 95% R.H.	56 days

ARTICLE TABLE

Capaci- tance μF	Resis- tance Ω	Max dimensions in mm				Quantity per package			Weight g	Approvals	Article code
		B	H	L	p	R30 pcs	R06 pcs	reel taped pcs			
0.047	47	7.3	13.0	19.0	15.2	400	800	400	3.0	✓✓✓✓✓✓✓	PMR209MB5470M047R30
0.047	100	7.3	13.0	19.0	15.2	400	800	400	3.0	✓✓✓✓✓✓✓	PMR209MB5470M100R30
0.10	22	7.6	14.0	24.0	20.3	250	1500	250	4.0	✓✓✓✓✓✓✓	PMR209MC6100M022R30
0.10	33	7.6	14.0	24.0	20.3	250	1500	250	4.0	✓✓✓✓✓✓✓	PMR209MC6100M033R30
0.10	47	7.6	14.0	24.0	20.3	250	1500	250	4.0	✓✓✓✓✓✓✓	PMR209MC6100M047R30
0.10	68	7.6	14.0	24.0	20.3	250	1500	250	4.0	✓✓✓✓✓✓✓	PMR209MC6100M068R30
0.10	100	7.6	14.0	24.0	20.3	250	1500	250	4.0	✓✓✓✓✓✓✓	PMR209MC6100M100R30
0.10	150	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6100M150R30
0.10	220	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6100M220R30
0.10	330	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6100M330R30
0.10	470	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6100M470R30
0.22	22	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M022R30
0.22	33	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M033R30
0.22	47	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M047R30
0.22	68	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M068R30
0.22	100	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M100R30
0.22	150	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M150R30
0.22	220	11.3	16.5	24.0	20.3	150	1500	180	7.0	✓✓✓✓✓✓✓	PMR209MC6220M220R30
0.22	330	12.1	19.0	30.5	25.4	100	800		10.0	✓✓✓✓✓✓✓	PMR209ME6220M330R30
0.22	470	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6220M470R30
0.47	33	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6470M033R30
0.47	47	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6470M047R30
0.47	68	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6470M068R30
0.47	100	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6470M100R30
0.47	150	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6470M150R30
0.47	220	15.3	22.0	30.5	25.4	75	600		15.0	✓✓✓✓✓✓✓	PMR209ME6470M220R30

APPROVALS/REFERENCE DOCUMENTS

Certification Body	Specification	Approval reference
S	EN 132400	9528104
N	EN 132400	P951 03084
D	EN 132400	304424
FI	EN 132400	184789-01
VDE	EN 132400	91805
SEV	EN 132400	00-1929
UL	UL 1283	E 100117

MARKING

- RIFA
- RIFA article code
- RC unit
- Rated capacitance and resistance
- Rated voltage
- X2
- SH, for self-healing
- Climatic category according to IEC 60068-1, appendix A
- Passive flammability class
- Circuit diagram
- Manufacturing code (year, month)

ORDERING INFORMATION

The article code for the standard part is given in the article table.
For other options, see page 21.

PACKING

RC units in standard design (lead length 30 mm) and with $L < 24$ mm and lead length 5 or 6 mm are packed bulk in a box with dimensions 245 x 145 x 80 mm. Quantity/package as per article table. RC units with $L \geq 24$ mm and lead length 5 or 6 mm are packed on trays piled in a box with dimensions 300 x 260 x 195 mm.

Quantity/package as per article table.
Reels with taped capacitors are packed 10 in a box with dimensions 370 x 370 x 560 mm. The standard quantity/reel is for 360 mm reel. If 500 mm reel is required, it must be specified when ordering and the quantity is 2 x the given quantity.