

GTO MKP Capacitors for Pulse Applications with Internal Series Connection. Capacitances from 1.0 μF to 100 μF . Rated Voltages from 400 VDC to 2000 VDC.

Special Features

- Pulse duty construction
- Self-healing
- Cylindrical capacitor body with axial screw and thread connections size M6 or M8
- Internal series connection from 400 VAC
- Very low dissipation factor
- Negative capacitance change versus temperature
- According to RoHS 2011/65/EU

Typical Applications

For high pulse and high frequency applications requiring extremely reliable contacts e.g.

- Damping of voltage spikes on GTO-Thyristors

Construction

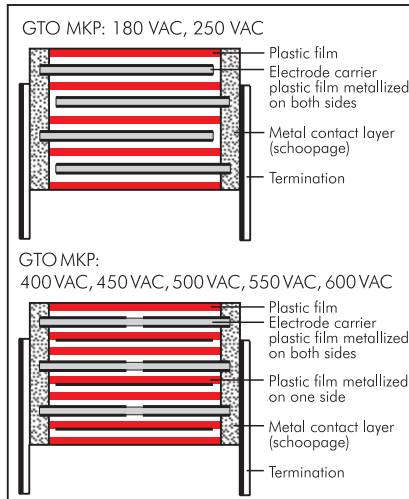
Dielectric:

Polypropylene (PP) film

Capacitor electrodes:

Double-sided metallized plastic film

Internal construction:



Encapsulation:

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

Terminations:

Axial screw connection M6 or M8.

Marking:

Colour: Red. Marking: Black on Silver.

Electrical Data

Capacitance range:

1.0 μF to 100 μF

Rated voltages:

400 VDC, 600 VDC, 850 VDC, 1000 VDC, 1200 VDC, 1500 VDC, 2000 VDC

Capacitance tolerances:

$\pm 20\%$, $\pm 10\%$, $\pm 5\%$

Operating temperature range:

-55°C to $+85^\circ\text{C}$

Climatic test category:

55/085/56 in accordance with IEC

Insulation resistance at $+20^\circ\text{C}$:

$\geq 10000 \text{ sec } (M\Omega \times \mu\text{F})$

Measuring voltage: 100 V/1 min.

Test voltage:

$1.2 U_r$, 2 sec.

Dielectric absorption:

0.05%

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

| at f | $C \leq 20 \mu\text{F}$ | $20 \mu\text{F} < C \leq 50 \mu\text{F}$ | $C > 50 \mu\text{F}$ |
|-------|-------------------------|--|-------------------------|
| 1 kHz | $\leq 3 \times 10^{-4}$ | $\leq 5 \times 10^{-4}$ | $\leq 8 \times 10^{-4}$ |

Voltage derating:

A voltage derating factor of 1.35 % per K must be applied from $+65^\circ\text{C}$ for DC voltages and from $+60^\circ\text{C}$ for AC voltages.

Reliability:

Operational life > 300 000 hours

Failure rate < 1 fit ($0.5 \times U_r$ and 40°C)

Specific dissipation:

| Box size D x L in mm | Specific dissipation in Watts per K above the ambient temperature |
|-------------------------|--|
| 60x49 | 0.186 |
| 70x49 | 0.231 |
| 80x49 | 0.280 |
| 90x49 | 0.333 |
| 90x58 | 0.364 |
| 90x97 | 0.501 |

Mounting Recommendation

Excessive mechanical strain, e.g. pressure or shock onto the capacitor body, is to be avoided during mounting and usage of the capacitors. When fixing the capacitor the screw torque is to be limited to max. 5 Nm.

For further details and graphs please refer to Technical Information.

Packing

Transportation-safe packing in cardboard boxes.

Packing units

| D | pcs. per packing unit |
|----|-----------------------|
| 60 | 12 |
| 70 | 8 |
| 80 | 6 |
| 90 | 6 |

Continuation

General Data

| Capacitance | 400 VDC/180 VAC* | | | | 600 VDC/250 VAC* | | | |
|-------------|------------------|-----------------|------------------------|---------------------|------------------|-----------------|------------------------|---------------------|
| | D x L mm | du/dt V/μsec | I _{max.} A | Part number | D x L mm | du/dt V/μsec | I _{max.} A | Part number |
| 3.5 μF | | | | | 60 x 49 | 200 | 770 | GTOMI04350GA00_____ |
| 4 " | | | | | 60 x 49 | 200 | 890 | GTOMI04400GA00_____ |
| 4.5 " | | | | | 60 x 49 | 200 | 990 | GTOMI04450GA00_____ |
| 5 " | | | | | 60 x 49 | 180 | 1090 | GTOMI04500GA00_____ |
| 6 " | | | | | 60 x 49 | 180 | 1310 | GTOMI04600GA00_____ |
| 8 " | | | | | 60 x 49 | 80 | 610 | GTOMI04800GA00_____ |
| 10 μF | | | | | 60 x 49 | 80 | 780 | GTOMI05100GA00_____ |
| 15 " | 60 x 49 | 50 | 790 | GTOMG05150GA00_____ | 60 x 49 | 80 | 1150 | GTOMI05150GA00_____ |
| 20 " | 60 x 49 | 50 | 1050 | GTOMG05200GA00_____ | 70 x 49 | 80 | 1540 | GTOMI05200GB00_____ |
| 25 " | 60 x 49 | 50 | 1330 | GTOMG05250GA00_____ | 70 x 49 | 80 | 1940 | GTOMI05250GB00_____ |
| 30 " | 60 x 49 | 50 | 1610 | GTOMG05300GA00_____ | 80 x 49 | 80 | 2340 | GTOMI05300GC00_____ |
| 40 " | 70 x 49 | 50 | 2090 | GTOMG05400GB00_____ | 90 x 49 | 80 | 3080 | GTOMI05400GD00_____ |
| 50 " | 80 x 49 | 50 | 2680 | GTOMG05500GC00_____ | 90 x 58 | 60 | 3050 | GTOMI05500GE00_____ |
| 60 " | 80 x 49 | 50 | 3240 | GTOMG05600GC00_____ | 90 x 97 | 35 | 2140 | GTOMI05600GF00_____ |
| 70 " | 90 x 49 | 50 | 3630 | GTOMG05700GD00_____ | 90 x 97 | 35 | 2520 | GTOMI05700GF00_____ |
| 80 " | 90 x 49 | 50 | 4100 | GTOMG05800GD00_____ | 90 x 97 | 35 | 2810 | GTOMI05800GF00_____ |
| 90 " | 90 x 58 | 40 | 3800 | GTOMG05900GE00_____ | 90 x 97 | 35 | 3200 | GTOMI05900GF00_____ |
| 100 μF | 90 x 58 | 40 | 4300 | GTOMG06100GE00_____ | 90 x 97 | 35 | 3550 | GTOMI06100GF00_____ |

| Capacitance | 850 VDC/400 VAC* | | | | 1000 VDC/450 VAC* | | | |
|-------------|------------------|-----------------|------------------------|---------------------|-------------------|-----------------|------------------------|---------------------|
| | D x L mm | du/dt V/μsec | I _{max.} A | Part number | D x L mm | du/dt V/μsec | I _{max.} A | Part number |
| 3 μF | 60 x 49 | 200 | 770 | GTOMM04300GA00_____ | 60 x 49 | 260 | 790 | GTOMO14300GA00_____ |
| 3.5 " | 60 x 49 | 200 | 770 | GTOMM04350GA00_____ | 60 x 49 | 260 | 910 | GTOMO14350GA00_____ |
| 4 " | 60 x 49 | 200 | 890 | GTOMM04400GA00_____ | 60 x 49 | 260 | 1050 | GTOMO14400GA00_____ |
| 4.5 " | 60 x 49 | 200 | 990 | GTOMM04450GA00_____ | 60 x 49 | 260 | 1170 | GTOMO14450GA00_____ |
| 5 " | 60 x 49 | 200 | 1090 | GTOMM04500GA00_____ | 60 x 49 | 260 | 1310 | GTOMO14500GA00_____ |
| 6 " | 60 x 49 | 200 | 1310 | GTOMM04600GA00_____ | 60 x 49 | 260 | 1550 | GTOMO14600GA00_____ |
| 8 " | 60 x 49 | 200 | 1740 | GTOMM04800GA00_____ | 70 x 49 | 260 | 2080 | GTOMO14800GB00_____ |
| 10 μF | 70 x 49 | 200 | 2190 | GTOMM05100GB00_____ | 70 x 49 | 260 | 2600 | GTOMO15100GB00_____ |
| 15 " | 70 x 49 | 200 | 3230 | GTOMM05150GB00_____ | 90 x 49 | 260 | 3920 | GTOMO15150GD00_____ |
| 20 " | 80 x 49 | 200 | 4310 | GTOMM05200GC00_____ | 90 x 58 | 200 | 4300 | GTOMO15200GE00_____ |
| 25 " | 90 x 49 | 200 | 5390 | GTOMM05250GD00_____ | 90 x 97 | 120 | 3050 | GTOMO15250GF00_____ |
| 30 " | 90 x 58 | 160 | 4800 | GTOMM05300GE00_____ | 90 x 97 | 120 | 3580 | GTOMO15300GF00_____ |
| 40 " | 90 x 97 | 100 | 3780 | GTOMM05400GF00_____ | 90 x 97 | 120 | 4770 | GTOMO15400GF00_____ |
| 50 " | 90 x 97 | 100 | 4790 | GTOMM05500GF00_____ | | | | |
| 60 " | 90 x 97 | 100 | 5800 | GTOMM05600GF00_____ | | | | |

* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{rms} + UDC \leq U_r$

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

Part number completion:

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

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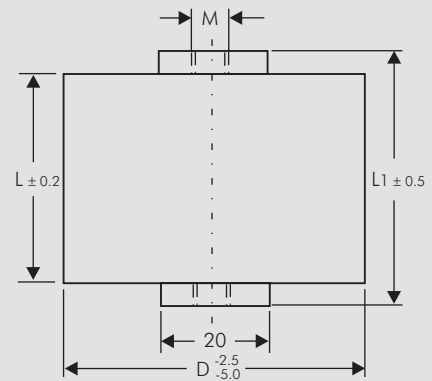
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Continuation

General Data

| Capacitance | 1200 VDC/500 VAC* | | | | 1500 VDC/550 VAC* | | | |
|-------------|-------------------|-----------------|------------------------|----------------|-------------------|-----------------|------------------------|----------------|
| | D x L mm | du/dt V/μsec | I _{max.} A | Part number | D x L mm | du/dt V/μsec | I _{max.} A | Part number |
| 1 μF | | | | | 60 x 49 | 400 | 420 | GTOMS04100GA00 |
| 1.5 " | | | | | 60 x 49 | 400 | 590 | GTOMS04150GA00 |
| 2 " | | | | | 60 x 49 | 400 | 820 | GTOMS04200GA00 |
| 2.5 " | 60 x 49 | 300 | 770 | GTOMQ04250GA00 | 60 x 49 | 400 | 1010 | GTOMS04250GA00 |
| 3 " | 60 x 49 | 300 | 950 | GTOMQ04300GA00 | 60 x 49 | 400 | 1220 | GTOMS04300GA00 |
| 3.5 " | 60 x 49 | 300 | 1070 | GTOMQ04350GA00 | 60 x 49 | 400 | 1400 | GTOMS04350GA00 |
| 4 " | 60 x 49 | 300 | 1230 | GTOMQ04400GA00 | 70 x 49 | 400 | 1630 | GTOMS04400GB00 |
| 4.5 " | 60 x 49 | 300 | 1380 | GTOMQ04450GA00 | 70 x 49 | 400 | 1800 | GTOMS04450GB00 |
| 5 " | 60 x 49 | 300 | 1570 | GTOMQ04500GA00 | 70 x 49 | 400 | 2010 | GTOMS04500GB00 |
| 6 " | 70 x 49 | 300 | 1840 | GTOMQ04600GB00 | 80 x 49 | 400 | 2390 | GTOMS04600GC00 |
| 8 " | 70 x 49 | 300 | 2470 | GTOMQ04800GB00 | 90 x 49 | 400 | 3210 | GTOMS04800GD00 |
| 10 μF | 80 x 49 | 300 | 3080 | GTOMQ05100GC00 | 90 x 58 | 320 | 3210 | GTOMS05100GE00 |
| 15 " | 90 x 58 | 230 | 3550 | GTOMQ05150GE00 | 90 x 97 | 180 | 2690 | GTOMS05150GF00 |
| 20 " | 90 x 97 | 130 | 2690 | GTOMQ05200GF00 | 90 x 97 | 180 | 3600 | GTOMS05200GF00 |
| 25 " | 90 x 97 | 130 | 3370 | GTOMQ05250GF00 | | | | |
| 30 " | 90 x 97 | 130 | 4110 | GTOMQ05300GF00 | | | | |

| Capacitance | 2000 VDC/600 VAC* | | | |
|-------------|-------------------|-----------------|------------------------|----------------|
| | D x L mm | du/dt V/μsec | I _{max.} A | Part number |
| 1 μF | 60 x 49 | 500 | 500 | GTOMU04100GA00 |
| 1.5 " | 60 x 49 | 500 | 750 | GTOMU04150GA00 |
| 2 " | 70 x 49 | 500 | 1000 | GTOMU04200GB00 |
| 2.5 " | 70 x 49 | 500 | 1250 | GTOMU04250GB00 |
| 3 " | 80 x 49 | 500 | 1500 | GTOMU04300GC00 |
| 3.5 " | 80 x 49 | 500 | 1750 | GTOMU04350GC00 |
| 4 " | 90 x 49 | 500 | 2000 | GTOMU04400GD00 |
| 4.5 " | 90 x 49 | 500 | 2250 | GTOMU04450GD00 |
| 5 " | 90 x 58 | 500 | 2500 | GTOMU04500GE00 |
| 6 " | 90 x 58 | 450 | 2700 | GTOMU04600GE00 |
| 8 " | 90 x 97 | 400 | 3200 | GTOMU04800GF00 |
| 10 μF | 90 x 97 | 300 | 3000 | GTOMU05100GF00 |



| D | L | L1 | M |
|----|----|-----|----|
| 60 | 49 | 55 | M6 |
| 70 | 49 | 55 | M6 |
| 80 | 49 | 55 | M8 |
| 90 | 49 | 55 | M8 |
| 90 | 58 | 64 | M8 |
| 90 | 97 | 103 | M8 |

* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{\text{rms}} + \text{UDC} \leq U_r$

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

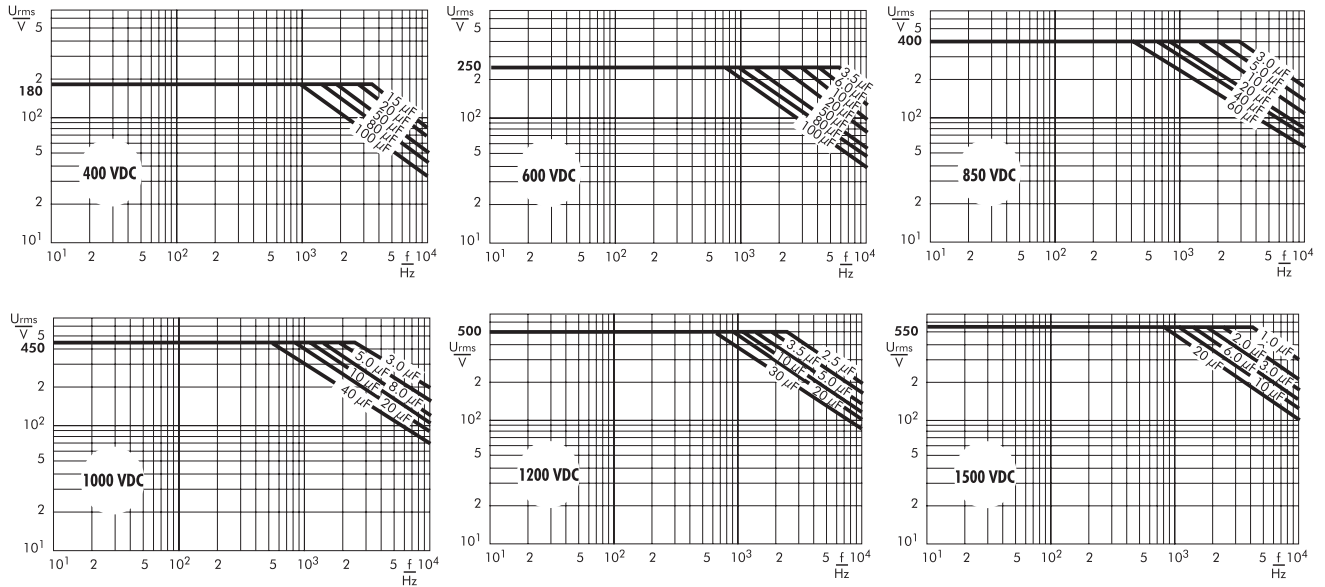
| Part number completion: | |
|-------------------------|-----------|
| Tolerance: | 20 % = M |
| | 10 % = K |
| | 5 % = J |
| Packing: | bulk = S |
| Pin length: | none = 00 |

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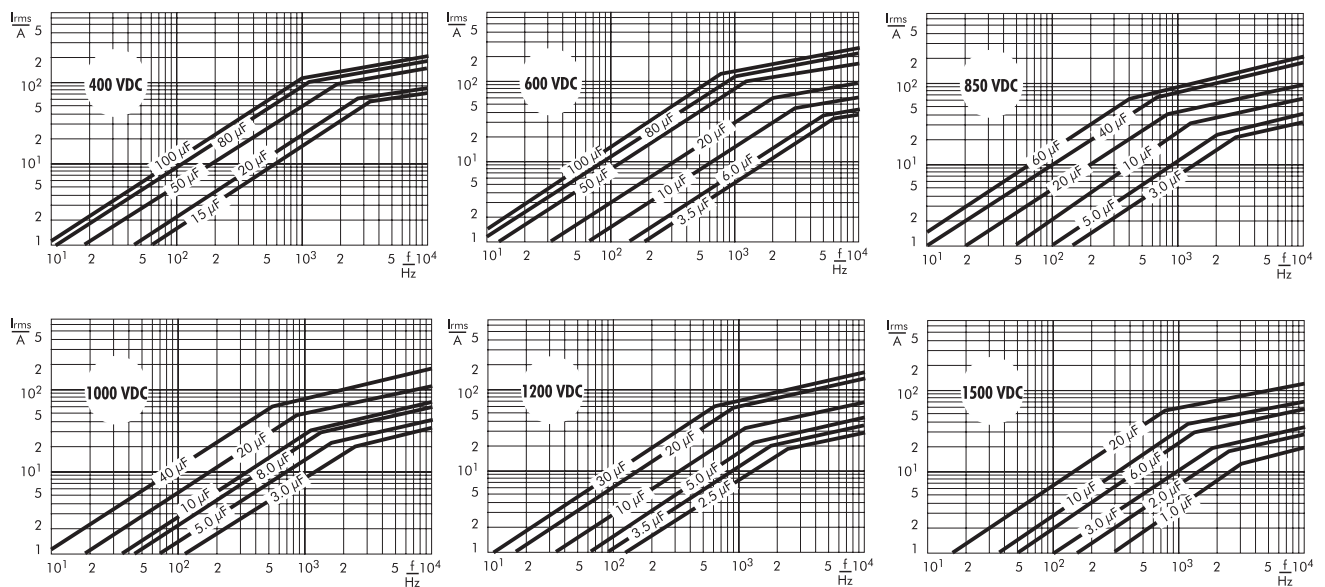
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Continuation

Permissible AC voltage in relation to frequency at 20° C internal temperature rise (general guide).



Permissible AC current in relation to frequency at 20° C internal temperature rise (general guide).





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 | | | 2.5x6.5x7.2 | | - | | 20% | bulk | 6 -2 | | |

| | | | | |
|--|--|---|--|---|
| <p>Type description:</p> <p>SMD-PET = SMDT SMD-PEN = SMDN SMD-PPS = SMDI FKP 02 = FKPO MKS 02 = MKS0 FKS 2 = FKS2 FKP 2 = FKP2 FKS 3 = FKS3 FKP 3 = FKP 3 MKS 2 = MKS2 MKP 2 = MKP2 MKS 4 = MKS4 MKP 4C = MKPC MKP 4 = MKP4 MKP 10 = MKP1 FKP 1 = FKP1 MKP-X2 = MKX2 MKP-X1 R = MKX1 MKP-Y2 = MKY2 MP 3-X2 = MPX2 MP 3-X1 = MPX1 MP 3-Y2 = MPY2 MP 3R-Y2 = MPRY MKP 4F = MKPF Snubber MKP = SNMP Snubber FKP = SNFP GTO MKP = GTOM DC-LINK MKP 3 = DCP3 DC-LINK MKP 4 = DCP4 DC-LINK MKP 4S = DCP5 DC-LINK MKP 5 = DCP5 DC-LINK MKP 6 = DCP6 DC-LINK HC = DCHC DC-LINK HY = DCHY</p> | <p>Rated voltage:</p> <p>50 VDC = B0 63 VDC = C0 100 VDC = D0 250 VDC = F0 400 VDC = G0 450 VDC = H0 520 VDC = H2 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 350 VAC = BW 440 VAC = 4W 500 VAC = 5W ...</p> | <p>Capacitance:</p> <p>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 ...</p> | <p>Size:</p> <p>4.8x3.3x3 Size 1812 = KA 4.8x3.3x4 Size 1812 = KB 5.7x5.1x3.5 Size 2220 = QA 5.7x5.1x4.5 Size 2220 = QB 7.2x6.1x3 Size 2824 = TA 7.2x6.1x5 Size 2824 = TB 10.2x7.6x5 Size 4030 = VA 12.7x10.2x6 Size 5040 = XA 15.3x13.7x7 Size 6054 = YA 2.5x7x4.6 PCM 2.5 = 0B 3x7.5x4.6 PCM 2.5 = 0C 2.5x6.5x7.2 PCM 5 = 1A 3x7.5x7.2 PCM 5 = 1B 2.5x7x10 PCM 7.5 = 2A 3x8.5x10 PCM 7.5 = 2B 3x9x13 PCM 10 = 3A 4x9x13 PCM 10 = 3C 5x11x18 PCM 15 = 4B 6x12.5x18 PCM 15 = 4C 5x14x26.5 PCM 22.5 = 5A 6x15x26.5 PCM 22.5 = 5B 9x19x31.5 PCM 27.5 = 6A 11x21x31.5 PCM 27.5 = 6B 9x19x41.5 PCM 37.5 = 7A 11x22x41.5 PCM 37.5 = 7B 19x31x56 PCM 48.5 = 8D 25x45x57 PCM 52.5 = 9D ...</p> <p>Version code:</p> <p>Standard = 00 Version A1 = 1A Version A1.1.1 = 1B Version A2 = 2A ...</p> | <p>Tolerance:</p> <p>±20% = M ±10% = K ±5% = J ±2.5% = H ±1% = E ...</p> <p>Packing:</p> <p>AMMO H16.5 340x340 = A AMMO H16.5 490x370 = B AMMO H18.5 340x340 = C AMMO H18.5 490x370 = 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 ...</p> <p>Pin length (untaped)</p> <p>3.5 ±0.5 = C9 6 -2 = SD 16 ±1 = P1 ...</p> <p>Pin length (taped)</p> <p>none = 00</p> |
|--|--|---|--|---|

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.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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