

MGK Series

Features

- Endurance with ripple current: 105°C, 5,000 hours
- RoHS Compliance

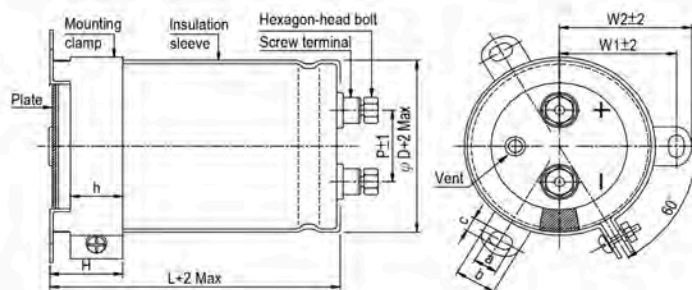


Sleeve & Marking Color: Black & Golden

Specifications

| Items | Performance | | | | | | | | | | | | |
|--|---|-----------------------------------|-----------|--------------------|------------------------------|--------|-----------------------------------|-----------------|------------------------|------|------|-----|-----|
| Category Temperature Range | -25°C ~ +105°C | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% (at 120Hz, 20°C) | | | | | | | | | | | | |
| Leakage Current (at 20°C) | $I = 3\sqrt{CV}$ or 5 (mA) whichever is smaller (after 5 minutes) Where, C = rated capacitance in µF, V = rated DC working voltage in V | | | | | | | | | | | | |
| Tanδ (at 120 Hz, 20°C) | See the Dimensions & Permissible Ripple Current | | | | | | | | | | | | |
| Low Temperature Characteristics (at 120Hz) | Capacitance change : $C(-25^{\circ}\text{C}) / C(+20^{\circ}\text{C}) \geq 0.7$ | | | | | | | | | | | | |
| Endurance | <table border="1"> <tr> <td>Test Time</td> <td>5,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> | Test Time | 5,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ | Less than 200% of specified value | Leakage Current | Within specified value | | | | |
| | Test Time | 5,000 Hrs | | | | | | | | | | | |
| | Capacitance Change | Within ±20% of initial value | | | | | | | | | | | |
| | Tanδ | Less than 200% of specified value | | | | | | | | | | | |
| | Leakage Current | Within specified value | | | | | | | | | | | |
| * The above specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with rated ripple current applied for 5,000 hours at 105°C. | | | | | | | | | | | | | |
| Shelf Life Test | <table border="1"> <tr> <td>Test Time</td> <td>1,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> | Test Time | 1,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ | Less than 200% of specified value | Leakage Current | Within specified value | | | | |
| | Test Time | 1,000 Hrs | | | | | | | | | | | |
| | Capacitance Change | Within ±20% of initial value | | | | | | | | | | | |
| | Tanδ | Less than 200% of specified value | | | | | | | | | | | |
| | Leakage Current | Within specified value | | | | | | | | | | | |
| * The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors before the measurements (Refer to JIS C 5101-4 4.1). | | | | | | | | | | | | | |
| Ripple Current and Frequency Multipliers | <table border="1"> <tr> <td>Frequency (Hz)</td> <td>50 / 60</td> <td>100 / 120</td> <td>300</td> <td>1k</td> <td>10k up</td> </tr> <tr> <td>Multiplier</td> <td>0.7</td> <td>1.0</td> <td>1.1</td> <td>1.3</td> <td>1.4</td> </tr> </table> | Frequency (Hz) | 50 / 60 | 100 / 120 | 300 | 1k | 10k up | Multiplier | 0.7 | 1.0 | 1.1 | 1.3 | 1.4 |
| | Frequency (Hz) | 50 / 60 | 100 / 120 | 300 | 1k | 10k up | | | | | | | |
| Multiplier | 0.7 | 1.0 | 1.1 | 1.3 | 1.4 | | | | | | | | |
| Ripple Current and Temperature Multipliers | <table border="1"> <tr> <td>Temperature (°C)</td> <td>40</td> <td>60</td> <td>85</td> <td>105</td> </tr> <tr> <td>Multiplier</td> <td>2.44</td> <td>2.16</td> <td>2.00</td> <td>1.00</td> </tr> </table> | Temperature (°C) | 40 | 60 | 85 | 105 | Multiplier | 2.44 | 2.16 | 2.00 | 1.00 | | |
| | Temperature (°C) | 40 | 60 | 85 | 105 | | | | | | | | |
| Multiplier | 2.44 | 2.16 | 2.00 | 1.00 | | | | | | | | | |
| Failure percentage | ≤ 3% (During useful life) | | | | | | | | | | | | |
| Failure rate | 70 fit (70×10 ⁻⁹ /h) | | | | | | | | | | | | |

Diagram of Dimensions



Unit: mm

| φ D | P | W1 | W2 | H | h | a | b | c |
|------|------|------|------|----|----|---|------|-----|
| 51 | 22.0 | 31.8 | 36.5 | 30 | 24 | 7 | 14.0 | 4.5 |
| 63.5 | 28.6 | 38.1 | 42.6 | 30 | 24 | 7 | 14.0 | 4.5 |
| 76.2 | 32.0 | 44.5 | 49.2 | 30 | 24 | 7 | 14.0 | 5.0 |
| 89 | 32.0 | 50.8 | 55.6 | 30 | 24 | 7 | 14.0 | 5.0 |

Screw Specifications:

- Plug hexagon-head screw: M5×0.8×10
- Max. screw tightening torque: 3.23Nm

Dimension and Permissible Ripple Current

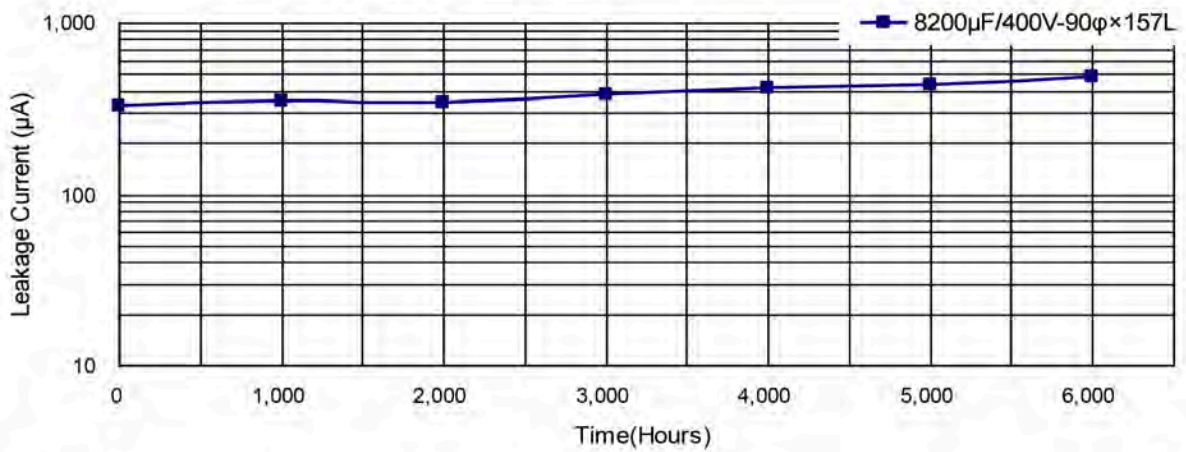
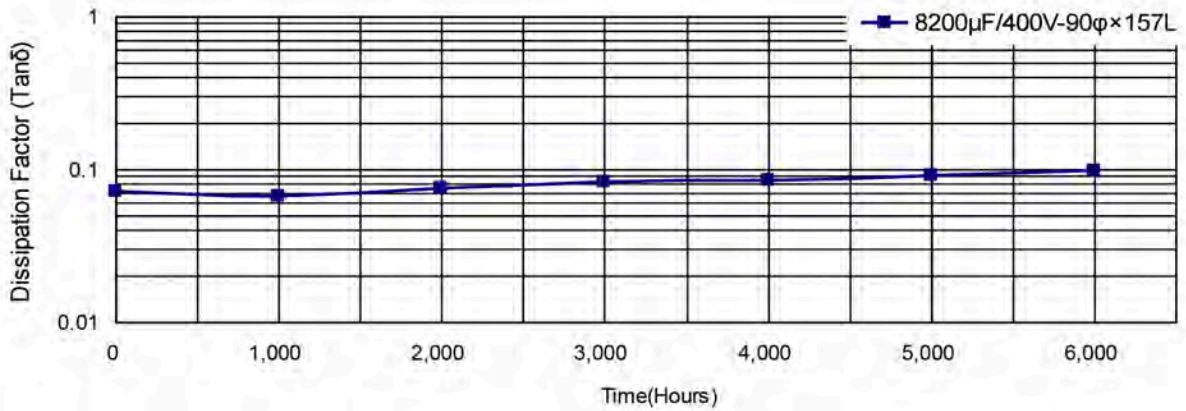
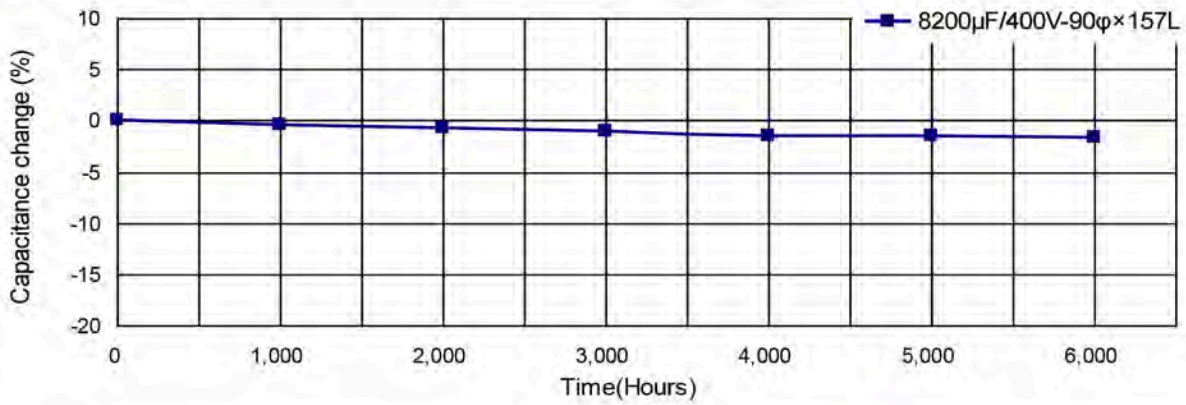
| Working Voltage V. DC | Capacitance 120Hz, 20°C μF | φ D×L mm | Ripple Current 120 Hz, 105°C A/rms | Tan δ at 120Hz, 20°C | ESR 120Hz, 20°C mΩ | LC 5 minutes mA | Part Number |
|--------------------------|----------------------------------|-------------|--|-------------------------|--------------------------|-----------------------|-----------------|
| 350 | 1,000 | 51 × 75 | 3.9 | 0.15 | 199 | 1.77 | MGK102M2V--B075 |
| | 1,200 | 51 × 75 | 4.2 | 0.15 | 166 | 1.94 | MGK122M2V--B075 |
| | 1,500 | 51 × 96 | 5.2 | 0.15 | 133 | 2.17 | MGK152M2V--B096 |
| | 1,800 | 51 × 96 | 5.7 | 0.15 | 111 | 2.38 | MGK182M2V--B096 |
| | 2,200 | 51 × 130 | 7.1 | 0.15 | 90.5 | 2.63 | MGK222M2V--B130 |
| | 2,700 | 63.5 × 96 | 7.7 | 0.15 | 73.7 | 2.92 | MGK272M2V--C096 |
| | 3,300 | 63.5 × 115 | 9.1 | 0.15 | 60.3 | 3.22 | MGK332M2V--C115 |
| | 3,900 | 63.5 × 130 | 10.4 | 0.15 | 51.0 | 3.50 | MGK392M2V--C130 |
| | 4,700 | 63.5 × 155 | 12.2 | 0.15 | 42.3 | 3.85 | MGK472M2V--C155 |
| | 4,700 | 76.2 × 115 | 11.5 | 0.15 | 42.3 | 3.85 | MGK472M2V--D115 |
| | 5,600 | 76.2 × 130 | 13.1 | 0.15 | 35.5 | 4.20 | MGK562M2V--D130 |
| | 6,800 | 76.2 × 155 | 15.5 | 0.15 | 29.3 | 4.63 | MGK682M2V--D155 |
| 8,200 | 89 × 157 | 18.1 | 0.15 | 24.3 | 5.00 | MGK822M2V--E157 | |
| 10,000 | 89 × 157 | 19.9 | 0.15 | 19.9 | 5.00 | MGK103M2V--E157 | |
| 400 | 1,000 | 51 × 75 | 3.9 | 0.15 | 199 | 1.90 | MGK102M2G--B075 |
| | 1,200 | 51 × 96 | 4.6 | 0.15 | 166 | 2.08 | MGK122M2G--B096 |
| | 1,500 | 51 × 115 | 5.6 | 0.15 | 133 | 2.32 | MGK152M2G--B115 |
| | 1,800 | 51 × 130 | 6.4 | 0.15 | 111 | 2.55 | MGK182M2G--B130 |
| | 2,200 | 63.5 × 96 | 6.9 | 0.15 | 90.5 | 2.81 | MGK222M2G--C096 |
| | 2,700 | 63.5 × 115 | 8.2 | 0.15 | 73.7 | 3.12 | MGK272M2G--C115 |
| | 3,300 | 63.5 × 130 | 9.5 | 0.15 | 60.3 | 3.45 | MGK332M2G--C130 |
| | 3,900 | 63.5 × 155 | 11.1 | 0.15 | 51.0 | 3.75 | MGK392M2G--C155 |
| | 3,900 | 76.2 × 115 | 10.4 | 0.15 | 51.0 | 3.75 | MGK392M2G--D115 |
| | 4,700 | 76.2 × 130 | 12.0 | 0.15 | 42.3 | 4.11 | MGK472M2G--D130 |
| | 5,600 | 76.2 × 155 | 14.0 | 0.15 | 35.5 | 4.49 | MGK562M2G--D155 |
| | 6,800 | 89 × 157 | 16.5 | 0.15 | 29.3 | 4.95 | MGK682M2G--E157 |
| 8,200 | 89 × 157 | 18.1 | 0.15 | 24.3 | 5.00 | MGK822M2G--E157 | |
| 450 | 1,000 | 51 × 96 | 4.2 | 0.15 | 199 | 2.01 | MGK102M2W--B096 |
| | 1,200 | 51 × 115 | 5.0 | 0.15 | 166 | 2.20 | MGK122M2W--B115 |
| | 1,500 | 51 × 130 | 5.9 | 0.15 | 133 | 2.46 | MGK152M2W--B130 |
| | 1,800 | 63.5 × 96 | 6.3 | 0.15 | 111 | 2.70 | MGK182M2W--C096 |
| | 2,200 | 63.5 × 115 | 7.4 | 0.15 | 90.5 | 2.98 | MGK222M2W--C115 |
| | 2,700 | 63.5 × 130 | 8.6 | 0.15 | 73.7 | 3.31 | MGK272M2W--C130 |
| | 2,700 | 76.2 × 115 | 8.7 | 0.15 | 73.7 | 3.31 | MGK272M2W--D115 |
| | 3,300 | 63.5 × 155 | 10.2 | 0.15 | 60.3 | 3.66 | MGK332M2W--C155 |
| | 3,300 | 76.2 × 130 | 10.1 | 0.15 | 60.3 | 3.66 | MGK332M2W--D130 |
| | 3,900 | 76.2 × 155 | 11.7 | 0.15 | 51.0 | 3.97 | MGK392M2W--D155 |
| | 4,700 | 76.2 × 155 | 12.9 | 0.15 | 42.3 | 4.36 | MGK472M2W--D155 |
| | 5,600 | 89 × 157 | 14.9 | 0.15 | 35.5 | 4.76 | MGK562M2W--E157 |

Part Numbering System

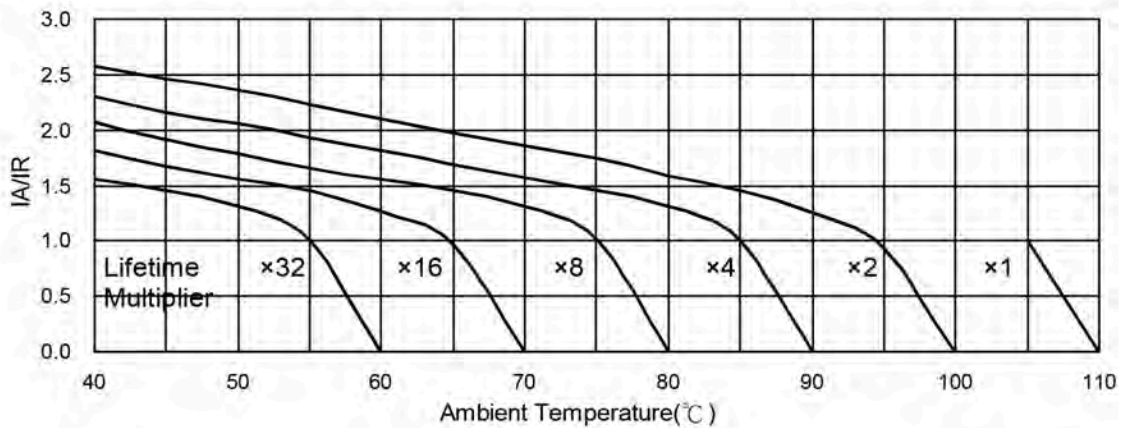
| | | | | | | | |
|-------------|-------------|-----------------------|---------------|--------------------------------|---------------|-------------|----------------------------------|
| MGK Series | 1000μF | ±20% | 350V | Plain case + Mounting clamp | M5 Post | 51 φ x75L | Pb-free Terminal + PVC Sleeve |
| MGK | 102 | M | 2V | - | - | B075 | S |
| Series Name | Capacitance | Capacitance tolerance | Rated voltage | Case Type | Terminal type | Case size | Terminal and Sleeve Type |
| Example: | | M = ±20% K = ±10% | Example: | | | Example: | |
| Cap. | Symbol | | WV | Symbol | | φ D×L | Code |
| 1,000 | 102 | | 350 | 2V | | 63.5×115 | C115 |
| 3,300 | 332 | | 400 | 2G | | 76.2×130 | D130 |
| 10,000 | 103 | | 450 | 2W | | 89×157 | E157 |

Note: For more details, please refer to "Part Numbering System (Screw Type)"

Typical Endurance Curves



Useful Life Chart



IA: Actual ripple current IR: Rated ripple current

All product specifications in the catalog are subject to change without notice. (CAT. 2017E1)