



Aluminum Capacitors Radial Style



FEATURES

- Polarized aluminum electrolytic capacitors, non-solid electrolyte
- Radial leads, cylindrical aluminum case
- Miniaturized, high CV-product per unit volume
- Low impedance
- Long lifetime
- Temperature range up to 105 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

APPLICATIONS

- General purpose, industrial, telecommunications, power supplies and audio-video
- Coupling, decoupling, timing, smoothing, filtering and buffering
- Portable and mobile units

| QUICK REFERENCE DATA | | | |
|--|------|-------------------------------|-------------------------------|
| DESCRIPTION | UNIT | VALUE | |
| Nominal case size (Ø D x L) | mm | 5 x 11 to 18 x 40 | |
| Rated capacitance range C _R | µF | 0.22 to 15 000 | |
| Capacitance tolerance | % | ± 20 | |
| Rated voltage range | V | 6.3 to 450 | |
| Category temperature range | °C | 6.3 V to 350 V -40 to +105 | 400 V to 450 V -25 to +105 |
| Load Life | h | 5 x 11 to 6.3 x 11 | 8 x 11.5 |
| U _R ≤ 100 V | | 2000 | 3000 |
| U _R > 100 V | | 2000 | |
| Based on sectional specification | | IEC 60384-4 / EN 130300 | |
| Climatic category IEC 60068 | | 40 / 105 / 56 | 25 / 105 / 56 |

| SELECTION CHART FOR C _R , U _R , AND RELEVANT NOMINAL CASE SIZES (Ø D x L in mm) | | | | | | | | |
|---|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| C _R (µF) | RATED VOLTAGE (V) (continuation see next page) | | | | | | | |
| | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| 0.22 | → | → | → | → | → | 5 x 11 | - | - |
| 0.47 | → | → | → | → | → | 5 x 11 | - | - |
| 1.0 | → | → | → | → | → | 5 x 11 | - | - |
| 2.2 | → | → | → | → | → | 5 x 11 | - | 5 x 11 |
| 3.3 | → | → | → | → | → | 5 x 11 | 5 x 11 | 5 x 11 |
| 4.7 | → | → | → | → | 5 x 11 | 5 x 11 | 5 x 11 | 5 x 11 |
| 10 | → | → | → | → | 5 x 11 | 5 x 11 | 5 x 11 | 6.3 x 11 |
| 22 | → | → | → | → | 5 x 11 | 5 x 11 | 6.3 x 11 | 8 x 11.5 |
| 33 | → | → | → | → | 5 x 11 | → | 6.3 x 11 | 10 x 12.5 |
| 47 | → | → | → | 5 x 11 | 6.3 x 11 | 6.3 x 11 | 8 x 11.5 | 10 x 16 |
| 100 | → | 5 x 11 | → | 6.3 x 11 | 8 x 11.5 | 8 x 11.5 | 10 x 16 | 12.5 x 20 |
| 150 | → | → | 6.3 x 11 | → | 8 x 11.5 | 10 x 12.5 | 10 x 20 | 12.5 x 25 |
| 220 | → | 6.3 x 11 | → | 8 x 11.5 | 10 x 12.5 | 10 x 16 | 10 x 25 | 16 x 25 |
| 330 | 6.3 x 11 | → | 8 x 11.5 | 10 x 12.5 | 10 x 16 | 10 x 20 | 12.5 x 20 | 16 x 31.5 |
| 470 | → | 8 x 11.5 | 10 x 12.5 | 10 x 16 | 10 x 20 | 12.5 x 20 | 16 x 20 | 18 x 40 |
| 1000 | 10 x 12.5 | 10 x 16 | 10 x 20 | 12.5 x 20 | 12.5 x 25 | 16 x 25 | 16 x 35.5 | - |
| 1500 | → | 10 x 20 | 12.5 x 20 | 16 x 20 | 16 x 25 | 16 x 31.5 | - | - |
| 2200 | → | 12.5 x 20 | 12.5 x 25 | 16 x 25 | 16 x 31.5 | 18 x 35.5 | - | - |
| 3300 | 12.5 x 20 | 12.5 x 25 | 16 x 25 | 16 x 31.5 | 18 x 35.5 | - | - | - |
| 4700 | → | 16 x 25 | 16 x 31.5 | 18 x 35.5 | - | - | - | - |
| 6800 | 16 x 25 | 16 x 31.5 | 18 x 35.5 | - | - | - | - | - |
| 10 000 | 16 x 31.5 | 18 x 35.5 | - | - | - | - | - | - |
| 15 000 | 18 x 35.5 | - | - | - | - | - | - | - |



| SELECTION CHART FOR C_R , U_R , AND RELEVANT NOMINAL CASE SIZES ($\varnothing D \times L$ in mm) | | | | | |
|---|-------------------|-----------|-----------|-----------|-----------|
| C_R (μF) | RATED VOLTAGE (V) | | | | |
| | 160 | 200 | 250 | 400 | 450 |
| 3.3 | → | → | → | → | 10 x 20 |
| 4.7 | → | → | → | → | 12.5 x 20 |
| 10 | → | → | → | 10 x 20 | 12.5 x 25 |
| 22 | → | 10 x 20 | 12.5 x 20 | 12.5 x 25 | 16 x 25 |
| 33 | 10 x 20 | 12.5 x 20 | 12.5 x 25 | 16 x 20 | 16 x 31.5 |
| 47 | → | 12.5 x 20 | 12.5 x 25 | 16 x 25 | 18 x 31.5 |
| 100 | → | 16 x 25 | 16 x 31.5 | 18 x 40 | - |
| 150 | 16 x 31.5 | 18 x 25 | 18 x 31.5 | - | - |
| 220 | 16 x 31.5 | 18 x 31.5 | 18 x 40 | - | - |
| 330 | 18 x 31.5 | - | - | - | - |

| RADIAL STYLE: DIMENSIONS in millimeters | | | | | | | | | |
|---|-----|-----|-----|-----|------|-----|-----|------|------|
| | | | | | | | | | |
| $\varnothing D$ | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 22 | 25 |
| S | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 | 12.5 |
| $\varnothing d$ | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 1.0 | 1.0 |
| β | 1.5 | | | 2.0 | | | | | |
| α | 0.5 | | | | | | | 1.0 | |

| DIMENSIONS in millimeters AND AVAILABLE FORMS | |
|---|---|
| <p>$\varnothing D \leq 18$ long leads MALREKE00...</p> | <p>$\varnothing D \leq 18$ shortened leads MALREKE05... (S = 2 mm/2.5 mm/3.5 mm/5 mm/7.5 mm)</p> |

GENERAL NOTE

- For Minimum Package Quantity (MPQ) and Minimum Order Quantity (MOQ) please refer to our price list or contact customer service.
- For other packaging forms please refer to Vishay Roederstein General Information.



| ELECTRICAL DATA | |
|-----------------|---|
| SYMBOL | DESCRIPTION |
| U_R | Rated voltage |
| C_R | Rated capacitance at 120 Hz |
| $\tan \delta$ | Max. dissipation factor at 120 Hz |
| R_{ESR} | Calculated equivalent series resistance at 120 Hz |
| I_R | Rated ripple current (RMS) |
| Z | Max. impedance |

Note

- Unless otherwise specified, all electrical values at $T_a = 20^\circ\text{C}$, $P = 80\text{ kPa}$ to 120 kPa , $RH = 45\%$ to 75% .

ORDERING EXAMPLEEKE 470 μF / 35 V, $\pm 20\%$, size: 10 mm x 20 mm

Leads: long

Ordering code: MALREKE00DE347F00K

Leads: short

Ordering code: MALREKE05...

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|--------------------------------------|--|-------------------------|--|---|--------------------------------------|---------------|--------------------------------|
| U_R (V) | C_R 120 Hz (μF) | DIMENSIONS $\varnothing D \times L$ (mm) | $\tan \delta$ 120 Hz | R_{ESR} 120 Hz / 20 °C (Ω) | Z 100 kHz / 20 °C (Ω) | I_R 100 kHz / 105 °C (mA) | WEIGHT (g) | CATALOG NUMBER (Long Leads) |
| 6.3 | 330 | 6.3 x 11 | 0.22 | 0.884 | 0.30 | 280 | 0.43 | MALREKE00BA333B00K |
| | 1000 | 10 x 12.5 | 0.22 | 0.292 | 0.10 | 660 | 1.90 | MALREKE00DC410B00K |
| | 3300 | 12.5 x 20 | 0.28 | 0.113 | 0.050 | 1400 | 4.50 | MALREKE00FE433B00K |
| | 6800 | 16 x 25 | 0.34 | 0.066 | 0.030 | 2100 | 6.60 | MALREKE00JG468B00K |
| | 10 000 | 16 x 31.5 | 0.40 | 0.053 | 0.025 | 2600 | 9.00 | MALREKE00JS510B00K |
| | 15 000 | 18 x 35.5 | 0.50 | 0.044 | 0.022 | 3000 | 11.5 | MALREKE00KL515B00K |
| 10 | 100 | 5 x 11 | 0.19 | 2.520 | 0.65 | 180 | 0.42 | MALREKE00AA310C00K |
| | 220 | 6.3 x 11 | 0.19 | 1.145 | 0.30 | 280 | 0.43 | MALREKE00BA322C00K |
| | 470 | 8 x 11.5 | 0.19 | 0.536 | 0.14 | 450 | 1.05 | MALREKE00PB347C00K |
| | 1000 | 10 x 16 | 0.19 | 0.252 | 0.080 | 850 | 2.40 | MALREKE00DD410C00K |
| | 1500 | 10 x 20 | 0.21 | 0.186 | 0.054 | 1100 | 3.00 | MALREKE00DE415C00K |
| | 2200 | 12.5 x 20 | 0.23 | 0.139 | 0.050 | 1400 | 4.50 | MALREKE00FE422C00K |
| | 3300 | 12.5 x 25 | 0.25 | 0.100 | 0.038 | 1700 | 4.70 | MALREKE00FG433C00K |
| | 4700 | 16 x 25 | 0.27 | 0.076 | 0.030 | 2100 | 6.60 | MALREKE00JG447C00K |
| | 6800 | 16 x 31.5 | 0.31 | 0.060 | 0.025 | 2600 | 9.00 | MALREKE00JS468C00K |
| | 10 000 | 18 x 35.5 | 0.37 | 0.049 | 0.022 | 3000 | 11.5 | MALREKE00KL510C00K |
| 16 | 150 | 6.3 x 11 | 0.16 | 1.415 | 0.30 | 280 | 0.43 | MALREKE00BA315D00K |
| | 330 | 8 x 11.5 | 0.16 | 0.643 | 0.14 | 450 | 1.05 | MALREKE00PB333D00K |
| | 470 | 10 x 12.5 | 0.16 | 0.452 | 0.10 | 660 | 1.90 | MALREKE00DC347D00K |
| | 1000 | 10 x 20 | 0.16 | 0.212 | 0.054 | 1100 | 3.00 | MALREKE00DE410D00K |
| | 1500 | 12.5 x 20 | 0.18 | 0.159 | 0.050 | 1400 | 4.50 | MALREKE00FE415D00K |
| | 2200 | 12.5 x 25 | 0.20 | 0.121 | 0.038 | 1700 | 4.70 | MALREKE00FG422D00K |
| | 3300 | 16 x 25 | 0.22 | 0.088 | 0.030 | 2100 | 6.60 | MALREKE00JG433D00K |
| | 4700 | 16 x 31.5 | 0.24 | 0.068 | 0.025 | 2600 | 9.00 | MALREKE00JS447D00K |
| | 6800 | 18 x 35.5 | 0.28 | 0.055 | 0.022 | 3000 | 11.5 | MALREKE00KL468D00K |
| 25 | 47 | 5 x 11 | 0.14 | 3.951 | 0.65 | 180 | 0.42 | MALREKE00AA247E00K |
| | 100 | 6.3 x 11 | 0.14 | 1.857 | 0.30 | 280 | 0.43 | MALREKE00BA310E00K |
| | 220 | 8 x 11.5 | 0.14 | 0.844 | 0.14 | 450 | 1.05 | MALREKE00PB322E00K |
| | 330 | 10 x 12.5 | 0.14 | 0.563 | 0.10 | 660 | 1.90 | MALREKE00DC333E00K |
| | 470 | 10 x 16 | 0.14 | 0.395 | 0.080 | 850 | 2.40 | MALREKE00DD347E00K |
| | 1000 | 12.5 x 20 | 0.14 | 0.186 | 0.050 | 1400 | 4.50 | MALREKE00FE410E00K |
| | 1500 | 16 x 20 | 0.16 | 0.141 | 0.030 | 2100 | 5.80 | MALREKE00JE415E00K |
| | 2200 | 16 x 25 | 0.18 | 0.109 | 0.030 | 2100 | 6.60 | MALREKE00JG422E00K |
| | 3300 | 16 x 31.5 | 0.20 | 0.080 | 0.025 | 2600 | 9.00 | MALREKE00JS433E00K |
| | 4700 | 18 x 35.5 | 0.22 | 0.062 | 0.022 | 3000 | 11.5 | MALREKE00KL447E00K |



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|-------------------------------|--|-------------------------|--|---|--------------------------------------|--------------------|--------------------------------|
| U_R (V) | C_R 120 Hz (μ F) | DIMENSIONS $\varnothing D \times L$ (mm) | $\tan \delta$ 120 Hz | R_{ESR} 120 Hz / 20 °C (Ω) | Z 100 kHz / 20 °C (Ω) | I_R 100 kHz / 105 °C (mA) | WEIGHT (g) | CATALOG NUMBER (Long Leads) |
| 35 | 4.7 | 5 x 11 | 0.12 | 33.86 | 0.70 | 180 | 0.42 | MALREKE00AA147F00K |
| | 10 | 5 x 11 | 0.12 | 15.92 | 0.70 | 180 | 0.42 | MALREKE00AA210F00K |
| | 22 | 5 x 11 | 0.12 | 7.235 | 0.70 | 180 | 0.42 | MALREKE00AA222F00K |
| | 33 | 5 x 11 | 0.12 | 4.823 | 0.65 | 180 | 0.42 | MALREKE00AA233F00K |
| | 47 | 6.3 x 11 | 0.12 | 3.386 | 0.30 | 280 | 0.43 | MALREKE00BA247F00K |
| | 100 | 8 x 11.5 | 0.12 | 1.592 | 0.14 | 450 | 1.05 | MALREKE00PB310F00K |
| | 150 | 8 x 11.5 | 0.12 | 1.061 | 0.14 | 450 | 1.05 | MALREKE00PB315F00K |
| | 220 | 10 x 12.5 | 0.12 | 0.723 | 0.10 | 660 | 1.90 | MALREKE00DC322F00K |
| | 330 | 10 x 16 | 0.12 | 0.482 | 0.080 | 850 | 2.40 | MALREKE00DD333F00K |
| | 470 | 10 x 20 | 0.12 | 0.339 | 0.054 | 1100 | 3.00 | MALREKE00DE347F00K |
| | 1000 | 12.5 x 25 | 0.12 | 0.159 | 0.038 | 1700 | 4.70 | MALREKE00FG410F00K |
| | 1500 | 16 x 25 | 0.14 | 0.124 | 0.030 | 2100 | 6.60 | MALREKE00JG415F00K |
| | 2200 | 16 x 31.5 | 0.16 | 0.096 | 0.025 | 2600 | 9.00 | MALREKE00JS422F00K |
| | 3300 | 18 x 35.5 | 0.18 | 0.072 | 0.022 | 3000 | 11.5 | MALREKE00KL433F00K |
| 50 | 0.22 | 5 x 11 | 0.10 | 602.9 | 8.00 | 18 | 0.42 | MALREKE00AA022H00K |
| | 0.47 | 5 x 11 | 0.10 | 282.2 | 5.00 | 25 | 0.42 | MALREKE00AA047H00K |
| | 1.0 | 5 x 11 | 0.10 | 132.6 | 3.50 | 40 | 0.42 | MALREKE00AA110H00K |
| | 2.2 | 5 x 11 | 0.10 | 60.29 | 3.00 | 55 | 0.42 | MALREKE00AA122H00K |
| | 3.3 | 5 x 11 | 0.10 | 40.19 | 2.60 | 65 | 0.42 | MALREKE00AA133H00K |
| | 4.7 | 5 x 11 | 0.10 | 28.22 | 2.30 | 90 | 0.42 | MALREKE00AA147H00K |
| | 10 | 5 x 11 | 0.10 | 13.26 | 1.40 | 120 | 0.42 | MALREKE00AA210H00K |
| | 22 | 5 x 11 | 0.10 | 6.029 | 1.20 | 150 | 0.42 | MALREKE00AA222H00K |
| | 47 | 6.3 x 11 | 0.10 | 2.822 | 0.43 | 250 | 0.43 | MALREKE00BA247H00K |
| | 100 | 8 x 11.5 | 0.10 | 1.326 | 0.24 | 340 | 1.05 | MALREKE00PB310H00K |
| | 150 | 10 x 12.5 | 0.10 | 0.884 | 0.17 | 490 | 1.90 | MALREKE00DC315H00K |
| | 220 | 10 x 16 | 0.10 | 0.603 | 0.12 | 650 | 2.40 | MALREKE00DD322H00K |
| | 330 | 10 x 20 | 0.10 | 0.402 | 0.10 | 810 | 3.00 | MALREKE00DE333H00K |
| | 470 | 12.5 x 20 | 0.10 | 0.282 | 0.085 | 1100 | 4.50 | MALREKE00FE347H00K |
| 1000 | 16 x 25 | 0.10 | 0.133 | 0.043 | 1600 | 6.60 | MALREKE00JG410H00K | |
| 1500 | 16 x 31.5 | 0.12 | 0.106 | 0.038 | 2000 | 9.00 | MALREKE00JS415H00K | |
| 2200 | 18 x 35.5 | 0.14 | 0.084 | 0.034 | 2300 | 11.5 | MALREKE00KL422H00K | |
| 63 | 3.3 | 5 x 11 | 0.09 | 36.17 | 2.00 | 64 | 0.42 | MALREKE00AA133J00K |
| | 4.7 | 5 x 11 | 0.09 | 25.40 | 2.00 | 76 | 0.42 | MALREKE00AA147J00K |
| | 10 | 5 x 11 | 0.09 | 11.94 | 2.00 | 111 | 0.42 | MALREKE00AA210J00K |
| | 22 | 6.3 x 11 | 0.09 | 5.426 | 0.60 | 190 | 0.43 | MALREKE00BA222J00K |
| | 33 | 6.3 x 11 | 0.09 | 3.617 | 0.60 | 233 | 0.43 | MALREKE00BA233J00K |
| | 47 | 8 x 11.5 | 0.09 | 2.540 | 0.50 | 328 | 1.05 | MALREKE00PB247J00K |
| | 100 | 10 x 16 | 0.09 | 1.194 | 0.12 | 456 | 2.40 | MALREKE00DD310J00K |
| | 150 | 10 x 20 | 0.09 | 0.796 | 0.10 | 610 | 3.00 | MALREKE00DE315J00K |
| | 220 | 10 x 25 | 0.09 | 0.543 | 0.090 | 809 | 3.20 | MALREKE00DG322J00K |
| | 330 | 12.5 x 20 | 0.09 | 0.362 | 0.085 | 1036 | 4.50 | MALREKE00FE333J00K |
| | 470 | 16 x 20 | 0.09 | 0.254 | 0.050 | 1411 | 5.80 | MALREKE00JE347J00K |
| 1000 | 16 x 35.5 | 0.09 | 0.119 | 0.025 | 1967 | 10.0 | MALREKE00JL410J00K | |



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | | | | |
|--|-------------------------------|--|-------------------------|--|---|--------------------------------------|---------------|--------------------------------|
| U_R (V) | C_R 120 Hz (μ F) | DIMENSIONS $\varnothing D \times L$ (mm) | $\tan \delta$ 120 Hz | R_{ESR} 120 Hz / 20 °C (Ω) | Z 100 kHz / 20 °C (Ω) | I_R 100 kHz / 105 °C (mA) | WEIGHT (g) | CATALOG NUMBER (Long Leads) |
| 100 | 2.2 | 5 x 11 | 0.08 | 48.23 | 2.50 | 52 | 0.42 | MALREKE00AA122L00K |
| | 3.3 | 5 x 11 | 0.08 | 32.15 | 2.50 | 64 | 0.42 | MALREKE00AA133L00K |
| | 4.7 | 5 x 11 | 0.08 | 22.58 | 2.50 | 76 | 0.42 | MALREKE00AA147L00K |
| | 10 | 6.3 x 11 | 0.08 | 10.61 | 1.00 | 128 | 0.43 | MALREKE00BA210L00K |
| | 22 | 8 x 11.5 | 0.08 | 4.823 | 0.60 | 224 | 1.05 | MALREKE00PB222L00K |
| | 33 | 10 x 12.5 | 0.08 | 3.215 | 0.40 | 319 | 1.90 | MALREKE00DC233L00K |
| | 47 | 10 x 16 | 0.08 | 2.258 | 0.30 | 417 | 2.40 | MALREKE00DD247L00K |
| | 100 | 12.5 x 20 | 0.08 | 1.061 | 0.15 | 570 | 4.50 | MALREKE00FE310L00K |
| | 150 | 12.5 x 25 | 0.08 | 0.707 | 0.12 | 762 | 4.70 | MALREKE00FG315L00K |
| | 220 | 16 x 25 | 0.08 | 0.482 | 0.070 | 1250 | 6.60 | MALREKE00JG322L00K |
| 160 | 33 | 10 x 20 | 0.15 | 6.029 | 1.30 | 565 | 3.00 | MALREKE00DE233M00K |
| | 150 | 16 x 31.5 | 0.15 | 1.326 | 0.22 | 1300 | 9.00 | MALREKE00JS315M00K |
| | 220 | 16 x 31.5 | 0.15 | 0.904 | 0.22 | 1300 | 9.00 | MALREKE00JS322M00K |
| | 330 | 18 x 31.5 | 0.15 | 0.603 | 0.22 | 1700 | 11.0 | MALREKE00KS333M00K |
| 200 | 22 | 10 x 20 | 0.15 | 9.043 | 1.50 | 440 | 3.00 | MALREKE00DE222S00K |
| | 33 | 12.5 x 20 | 0.15 | 6.029 | 0.91 | 590 | 4.50 | MALREKE00FE233S00K |
| | 47 | 12.5 x 20 | 0.15 | 4.233 | 0.91 | 780 | 4.50 | MALREKE00FE247S00K |
| | 100 | 16 x 25 | 0.15 | 1.989 | 0.27 | 1280 | 6.60 | MALREKE00JG310S00K |
| | 150 | 18 x 25 | 0.15 | 1.326 | 0.27 | 1500 | 9.00 | MALREKE00KG315S00K |
| | 220 | 18 x 31.5 | 0.15 | 0.904 | 0.22 | 1700 | 11.0 | MALREKE00KS322S00K |
| 250 | 22 | 12.5 x 20 | 0.15 | 9.043 | 2.30 | 480 | 4.50 | MALREKE00FE222N00K |
| | 33 | 12.5 x 25 | 0.15 | 6.029 | 1.70 | 630 | 4.70 | MALREKE00FG233N00K |
| | 47 | 12.5 x 25 | 0.15 | 4.233 | 1.70 | 630 | 4.70 | MALREKE00FG247N00K |
| | 100 | 16 x 31.5 | 0.15 | 1.989 | 0.63 | 1400 | 9.00 | MALREKE00JS310N00K |
| | 150 | 18 x 31.5 | 0.15 | 1.326 | 0.42 | 1450 | 11.0 | MALREKE00KS315N00K |
| | 220 | 18 x 40 | 0.15 | 0.904 | 0.35 | 1485 | 15.0 | MALREKE00KK322N00K |
| 400 | 10 | 10 x 20 | 0.20 | 26.53 | 2.90 | 180 | 3.00 | MALREKE00DE210X00K |
| | 22 | 12.5 x 25 | 0.20 | 12.06 | 1.30 | 300 | 4.70 | MALREKE00FG222X00K |
| | 33 | 16 x 20 | 0.20 | 8.038 | 0.91 | 600 | 5.80 | MALREKE00JE233X00K |
| | 47 | 16 x 25 | 0.20 | 5.644 | 0.73 | 700 | 6.60 | MALREKE00JG247X00K |
| | 100 | 18 x 40 | 0.20 | 2.653 | 0.34 | 1250 | 15.0 | MALREKE00KK310X00K |
| 450 | 3.3 | 10 x 20 | 0.20 | 80.38 | 6.50 | 150 | 3.00 | MALREKE00DE133P00K |
| | 4.7 | 12.5 x 20 | 0.20 | 56.44 | 3.60 | 200 | 4.50 | MALREKE00FE147P00K |
| | 10 | 12.5 x 25 | 0.20 | 26.53 | 2.50 | 315 | 4.70 | MALREKE00FG210P00K |
| | 22 | 16 x 25 | 0.20 | 12.06 | 1.70 | 570 | 6.60 | MALREKE00JG222P00K |
| | 33 | 16 x 31.5 | 0.20 | 8.038 | 1.10 | 620 | 9.00 | MALREKE00JS233P00K |
| | 47 | 18 x 31.5 | 0.20 | 5.644 | 0.93 | 900 | 11.0 | MALREKE00KS247P00K |

| LOW TEMPERATURE BEHAVIOR (at 120 Hz) | | | | | | |
|--------------------------------------|----------------------|----|----|----------|-----------|-----------|
| IMPEDANCE RATIO $Z(T_2) / Z(T_1)$ | RATED VOLTAGE (V) | | | | | |
| T_2 / T_1 | 6.3 | 10 | 16 | 25 ~ 100 | 160 ~ 250 | 350 ~ 450 |
| -25 °C / +20 °C | 4 | 3 | 2 | 2 | 3 | 8 |
| -40 °C / +20 °C | 8 | 6 | 4 | 3 | 4 | - |



| ADDITIONAL ELECTRICAL DATA | | |
|---|--|---|
| PARAMETER | CONDITIONS | VALUE |
| Current | | |
| Leakage current (test conditions: U_R , 20 °C) | After 1 min at U_R | $I_{L1} \leq 0.03 \times C_R \times U_R$ or 4 μ A for $U_R \leq 100$ V (whichever is greater) |
| | After 2 min at U_R | $I_{L2} \leq 0.01 \times C_R \times U_R$ or 3 μ A for $U_R \leq 100$ V (whichever is greater) |
| | After 5 min at U_R | $I_{L5} \leq 0.02 \times C_R \times U_R$ + 15 μ A for $U_R > 100$ V |
| Resistance | | |
| Equivalent series resistance (ESR) | Calculated from $\tan \delta_{max.}$ and C_R | $ESR = \tan \delta / 2 \pi f C_R$ |

| MULTIPLIER OF RIPPLE CURRENT (I_R) AS A FUNCTION OF FREQUENCY | | | |
|---|---------------------------------------|---------------------------------|-----------------------|
| FREQUENCY (Hz) | I_R MULTIPLIER FOR $U_R \leq 100$ V | | |
| | $C_R \leq 47 \mu$ F | $C_R = 68 \mu$ F to 680 μ F | $C_R \geq 1000 \mu$ F |
| 50 | 0.34 | 0.47 | 0.65 |
| 120 | 0.45 | 0.59 | 0.77 |
| 300 | 0.61 | 0.74 | 0.85 |
| 1000 | 0.70 | 0.79 | 0.88 |
| 10 000 | 0.91 | 0.88 | 0.88 |
| 100 000 | 1.00 | 1.00 | 1.00 |

| MULTIPLIER OF RIPPLE CURRENT (I_R) AS A FUNCTION OF FREQUENCY | | |
|---|------------------------------------|----------------------|
| FREQUENCY (Hz) | I_R MULTIPLIER FOR $U_R > 100$ V | |
| | $C_R = 0.47 \mu$ F to 220 μ F | $C_R \geq 330 \mu$ F |
| 50 | 0.44 | 0.69 |
| 120 | 0.56 | 0.77 |
| 300 | 0.69 | 0.87 |
| 1000 | 0.78 | 0.87 |
| 10 000 | 0.89 | 0.88 |
| 100 000 | 1.00 | 1.00 |

| TEST PROCEDURES AND REQUIREMENTS | | |
|----------------------------------|---|--|
| TEST | PROCEDURE (quick reference) | REQUIREMENTS |
| Load life | $T_{amb} = 105$ °C U_R and I_R applied After specified hours | $\Delta C/C: \pm 25$ % of initial value $I_L \leq$ spec. limit $\tan \delta \leq 2 \times$ spec. limit |
| Shelf life | $T_{amb} = 105$ °C No voltage applied After 1000 h After test: U_R to be applied for 30 min 24 h to 48 h before measurement | $\Delta C/C: \pm 25$ % of initial value $I_L \leq$ spec. limit $\tan \delta \leq 2 \times$ spec. limit |

Statements about product lifetime are based on calculations and internal testing. They should only be interpreted as estimations. Also due to external factors, the lifetime in the field application may deviate from the calculated lifetime. In general, nothing stated herein shall be construed as a guarantee of durability.



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