

Metallized Polyester Film Capacitors MKT Radial Epoxy Partly Lacquered Type


FEATURES

- Partly lacquered product
- Pitch 10 mm to 22.5 mm available loose in box
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912


**RoHS
COMPLIANT**
APPLICATIONS

- Blocking, coupling and decoupling
- Bypass and energy reservoir

| QUICK REFERENCE DATA | |
|---------------------------------|--|
| Capacitance range (E12 series) | 0.01 μ F to 10 μ F |
| Capacitance tolerance | $\pm 10\%$; $\pm 5\%$ |
| Rated DC voltage | 250 V; 400 V; 630 V |
| Rated AC voltage | 63 V; 100 V; 160 V |
| Rated temperature | 85 °C |
| Climatic category | 55/105/56 |
| Maximum application temperature | 105 °C |
| Leads | Tinned wire |
| Reference specifications | IEC 60384-2 |
| Dielectric | Polyester film |
| Electrodes | Vacuum deposited aluminum |
| Construction | Wound mono construction |
| Coating | Flame retardant epoxy material (UL-class 94 V-0) |
| Performance grade | Grade 1 (long life) |
| Marking | C-value; rated voltage; tolerance |

Note

- For more detailed data and test requirements contact: dc-film@vishay.com

| DIMENSIONS in millimeters |
|---------------------------|
| |

COMPOSITION OF CATALOG NUMBER


| TYPE | PACKAGING | LEAD CONFIGURATION | PREFERRED | | | |
|------|--------------|-----------------------|-------------------------------------|-------|-------|-------|
| | | | C-TOL. | 250 V | 400 V | 630 V |
| 303 | Loose in box | Straight leads 3.5 mm | ± 10 % | 41 | 51 | 61 |
| | | | ± 5 % | 42 | 52 | 62 |
| | | | ON REQUEST | | | |
| 303 | Loose in box | Straight long leads | ± 10 % | 43 | 53 | 63 |
| | | | ± 5 % | 44 | 54 | 64 |
| | | | ON REQUEST (ALTERNATIVE DIMENSIONS) | | | |
| 303 | Loose in box | Straight lead 3.5 mm | ± 10 % | 45 | 55 | 65 |
| | | | ± 5 % | 46 | 56 | 66 |
| | | Straight long leads | ± 10 % | 47 | 57 | 67 |
| | | | ± 5 % | 48 | 58 | 68 |

| SPECIFIC REFERENCE DATA | | | |
|---|-------------------------|--------------------------|--------------------------|
| DESCRIPTION | VALUE | | |
| Tangent of loss angle: C ≤ 0.47 μF C > 0.47 μF | at 1 kHz | at 10 kHz | at 100 kHz |
| | ≤ 75 x 10 ⁻⁴ | ≤ 120 x 10 ⁻⁴ | ≤ 225 x 10 ⁻⁴ |
| | ≤ 75 x 10 ⁻⁴ | ≤ 120 x 10 ⁻⁴ | - |
| Rated voltage pulse slope (dU/dt) _R : l _{max.} = 12.5 mm l _{max.} = 17.5 mm l _{max.} = 26.0 mm | at 250 V _{DC} | at 400 V _{DC} | at 630 V _{DC} |
| | 18 V/μs | 45 V/μs | 137 V/μs |
| | 6 V/μs | 15 V/μs | 44 V/μs |
| | 2 V/μs | 6 V/μs | 17 V/μs |
| R between leads, for C ≤ 0.33 μF at 100 V; 1 min | > 30 000 MΩ | | |
| RC between leads, for C > 0.33 μF at 100 V; 1 min | > 10 000 s | | |
| R between interconnecting leads and casing; 100 V; 1 min | > 30 000 MΩ | | |
| Withstanding (DC) voltage (cut off current 10 mA) ⁽¹⁾ ; rise time 1000 V/s | 400 V; 1 min | 640 V; 1 min | 1008 V; 1 min |
| Withstanding (DC) voltage between leads and case | 500 V; 1 min | 800 V; 1 min | 1260 V; 1 min |

Note

⁽¹⁾ See "Voltage Proof Test for Metallized Film Capacitors": www.vishay.com/doc?28169



| ELECTRICAL DATA AND ORDERING INFORMATION ($U_{RAC} = 63 V$) | | | | | | | | | |
|---|--|---|---------------------------------|---|---------------------|------|---------------------------|---------------------|------|
| U_{RDC} (V) | CAP. ⁽²⁾ (μF) | DIMENSIONS $W_{max} \times H_{max} \times L_{max}$ (mm) | MASS (g) | CATALOG NUMBER 2222 303 AND PACKAGING | | | | | |
| | | | | LOOSE IN BOX | | | | | |
| | | | | $l_t = 3.5 \text{ mm} \pm 0.5 \text{ mm}$ | | | LONG LEADS ⁽¹⁾ | | |
| | | | | C-TOL. = $\pm 10 \%$ | C-TOL. = $\pm 5 \%$ | SPQ | C-TOL. = $\pm 10 \%$ | C-TOL. = $\pm 5 \%$ | SPQ |
| LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | | | | | | |
| 250 | PITCH = 10.0 mm \pm 0.4 mm; $d_t = 0.60 \text{ mm} \pm 0.06 \text{ mm}$; $A \leq 3.5 \text{ mm}$ | | | | | | | | |
| | 0.10 | 4.7 x 9.4 x 12.5 | 0.5 | 41104 | 42104 | 2000 | 43104 | 44104 | 1000 |
| | 0.12 | 4.3 x 9.1 x 12.5 | 0.4 | 41124 | 42124 | 2000 | 43124 | 44124 | 1250 |
| | 0.15 | 4.8 x 9.5 x 12.5 | 0.5 | 41154 | 42154 | 2000 | 43154 | 44154 | 1000 |
| | 0.18 | 5.2 x 9.9 x 12.5 | 0.6 | 41184 | 42184 | 2000 | 43184 | 44184 | 1000 |
| | 0.22 | 4.5 x 9.3 x 12.5 | 0.5 | 41224 | 42224 | 2000 | 43224 | 44224 | 1000 |
| | 0.27 | 5.0 x 9.7 x 12.5 | 0.5 | 41274 | 42274 | 2000 | 43274 | 44274 | 1000 |
| | 0.33 | 4.6 x 9.3 x 12.5 | 0.5 | 41334 | 42334 | 2000 | 43334 | 44334 | 1000 |
| | 0.39 | 4.9 x 9.6 x 12.5 | 0.5 | 41394 | 42394 | 2000 | 43394 | 44394 | 1000 |
| | 0.47 | 5.4 x 10.1 x 12.5 | 0.6 | 41474 | 42474 | 2000 | 43474 | 44474 | 900 |
| | 0.56 | 5.8 x 10.5 x 12.5 | 0.7 | 41564 | 42564 | 2000 | 43564 | 44564 | 900 |
| | PITCH = 15.0 mm \pm 0.4 mm; $d_t = 0.80 \text{ mm} \pm 0.08 \text{ mm}$; $A \leq 4.0 \text{ mm}$ | | | | | | | | |
| | <i>0.39</i> | <i>5.8 x 10.5 x 17.5</i> | 0.9 | 45394 | 46394 | 1500 | 47394 | 48394 | 900 |
| | <i>0.47</i> | <i>6.4 x 11.1 x 17.5</i> | 1.1 | 45474 | 46474 | 1500 | 47474 | 48474 | 800 |
| | <i>0.56</i> | <i>5.5 x 10.2 x 17.5</i> | 0.9 | 45564 | 46564 | 2000 | 47564 | 48564 | 900 |
| | <i>0.68</i> | <i>6.0 x 10.7 x 17.5</i> | 1.0 | 41684 | 42684 | 1500 | 43684 | 44684 | 800 |
| | <i>0.82</i> | <i>5.4 x 10.2 x 17.5</i> | 0.8 | 41824 | 42824 | 2000 | 43824 | 44824 | 1000 |
| | <i>1.0</i> | <i>6.0 x 10.7 x 17.5</i> | 1.0 | 41105 | 42105 | 1500 | 43105 | 44105 | 800 |
| | <i>1.2</i> | <i>6.5 x 11.2 x 17.5</i> | 1.1 | 41125 | 42125 | 1500 | 43125 | 44125 | 750 |
| | <i>1.5</i> | <i>7.3 x 12.0 x 17.5</i> | 1.3 | 41155 | 42155 | 1250 | 43155 | 44155 | 650 |
| | <i>1.8</i> | <i>7.9 x 12.7 x 17.5</i> | 1.5 | 41185 | 42185 | 1250 | 43185 | 44185 | 600 |
| | PITCH = 22.5 mm \pm 0.4 mm; $d_t = 0.80 \text{ mm} \pm 0.08 \text{ mm}$; $A \leq 4.0 \text{ mm}$ | | | | | | | | |
| | <i>1.8</i> | <i>8.7 x 16.5 x 26.0</i> | 3.3 | 45185 | 46185 | 800 | 47185 | 48185 | 500 |
| | <i>2.2</i> | <i>9.7 x 17.5 x 26.0</i> | 3.8 | 41225 | 42225 | 700 | 43225 | 44225 | 500 |
| | <i>2.7</i> | <i>8.3 x 16.1 x 26.0</i> | 3.0 | 41275 | 42275 | 900 | 43275 | 44275 | 600 |
| | <i>3.3</i> | <i>9.2 x 17.1 x 26.0</i> | 3.6 | 41335 | 42335 | 750 | 43335 | 44335 | 500 |
| | <i>3.9</i> | <i>8.2 x 16.0 x 26.0</i> | 3.0 | 41395 | 42395 | 900 | 43395 | 44395 | 600 |
| | <i>4.7</i> | <i>9.0 x 16.9 x 26.0</i> | 3.4 | 41475 | 42475 | 750 | 43475 | 44475 | 500 |
| | <i>5.6</i> | <i>9.9 x 17.7 x 26.0</i> | 4.0 | 41565 | 42565 | 600 | 43565 | 44565 | 500 |

Notes

- (1) Length of long leads:
 - a) $l_t = 19.0 \text{ mm} \pm 4.0 \text{ mm}$ for pitch = 10 mm and 15.0 mm.
 - b) $l_t = 25.0 \text{ mm} \pm 4.0 \text{ mm}$ for pitch = 22.5 mm.
- (2) Values in *Italic* indicate alternative dimensions.



| ELECTRICAL DATA AND ORDERING INFORMATION ($U_{RAC} = 100\text{ V}$) | | | | | | | | | |
|---|---|---|---------------------------------|---|--------------------|------|---------------------------|--------------------|------|
| U_{RDC} (V) | CAP. ⁽²⁾ (μF) | DIMENSIONS $W_{max} \times H_{max} \times L_{max}$ (mm) | MASS (g) | CATALOG NUMBER 2222 303 AND PACKAGING | | | | | |
| | | | | LOOSE IN BOX | | | | | |
| | | | | $l_t = 3.5\text{ mm} \pm 0.5\text{ mm}$ | | | LONG LEADS ⁽¹⁾ | | |
| | | | | C-TOL. = $\pm 10\%$ | C-TOL. = $\pm 5\%$ | SPQ | C-TOL. = $\pm 10\%$ | C-TOL. = $\pm 5\%$ | SPQ |
| LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | | | | | | |
| 400 | PITCH = 10.0 mm \pm 0.4 mm; $d_t = 0.60\text{ mm} \pm 0.06\text{ mm}$; $A \leq 3.5\text{ mm}$ | | | | | | | | |
| | 0.10 | 4.7 x 9.4 x 12.5 | 0.5 | 51104 | 52104 | 2000 | 53104 | 54104 | 1000 |
| | 0.12 | 4.3 x 9.1 x 12.5 | 0.4 | 51124 | 52124 | 2000 | 53124 | 54124 | 1250 |
| | 0.15 | 4.8 x 9.5 x 12.5 | 0.5 | 51154 | 52154 | 2000 | 53154 | 54154 | 1000 |
| | 0.18 | 5.2 x 9.9 x 12.5 | 0.6 | 51184 | 52184 | 2000 | 53184 | 54184 | 1000 |
| | 0.22 | 5.7 x 10.4 x 12.5 | 0.6 | 51224 | 52224 | 2000 | 53224 | 54224 | 900 |
| | PITCH = 15.0 mm \pm 0.4 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$; $A \leq 4.0\text{ mm}$ | | | | | | | | |
| | 0.12 | <i>5.7 x 10.4 x 17.5</i> | 1.1 | 55124 | 56124 | 2000 | 57124 | 58124 | 900 |
| | 0.15 | <i>5.4 x 10.1 x 17.5</i> | 0.8 | 55154 | 56154 | 2000 | 57154 | 58154 | 1000 |
| | 0.18 | <i>5.9 x 10.6 x 17.5</i> | 1.0 | 55184 | 56184 | 1500 | 57184 | 58184 | 800 |
| | 0.22 | <i>5.3 x 10.0 x 17.5</i> | 0.8 | 55224 | 56224 | 2000 | 57224 | 58224 | 1000 |
| | 0.27 | <i>5.8 x 10.5 x 17.5</i> | 0.9 | 51274 | 52274 | 1500 | 53274 | 54274 | 900 |
| | 0.33 | <i>5.4 x 10.1 x 17.5</i> | 0.8 | 51334 | 52334 | 2000 | 53334 | 54334 | 1000 |
| | 0.39 | <i>5.8 x 10.5 x 17.5</i> | 0.9 | 51394 | 52394 | 1500 | 53394 | 54394 | 900 |
| | 0.47 | <i>6.4 x 11.1 x 17.5</i> | 1.1 | 51474 | 52474 | 1500 | 53474 | 54474 | 800 |
| | 0.56 | <i>6.9 x 11.7 x 17.5</i> | 1.2 | 51564 | 52564 | 1500 | 53564 | 54564 | 700 |
| | 0.68 | <i>7.6 x 12.3 x 17.5</i> | 1.4 | 51684 | 52684 | 1250 | 53684 | 54684 | 600 |
| | 0.82 | <i>8.4 x 13.1 x 17.5</i> | 1.7 | 51824 | 52824 | 1000 | 53824 | 54824 | 500 |
| | PITCH = 22.5 mm \pm 0.4 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$; $A \leq 4.0\text{ mm}$ | | | | | | | | |
| | 0.56 | <i>9.9 x 17.7 x 26.0</i> | 4.0 | 55564 | 56564 | 600 | 57564 | 58564 | 500 |
| | 0.68 | <i>7.9 x 15.8 x 26.0</i> | 2.8 | 55684 | 56684 | 900 | 57684 | 58684 | 600 |
| | 0.82 | <i>8.7 x 16.6 x 26.0</i> | 3.3 | 55824 | 56824 | 800 | 57824 | 58824 | 500 |
| | 1.0 | <i>7.7 x 15.5 x 26.0</i> | 2.7 | 51105 | 52105 | 900 | 53105 | 54105 | 600 |
| | 1.2 | <i>8.4 x 16.3 x 26.0</i> | 3.1 | 51125 | 52125 | 800 | 53125 | 54125 | 600 |
| | 1.5 | <i>7.9 x 15.8 x 26.0</i> | 2.8 | 51155 | 52155 | 900 | 53155 | 54155 | 600 |
| | 1.8 | <i>8.7 x 16.6 x 26.0</i> | 3.3 | 51185 | 52185 | 800 | 53185 | 54185 | 500 |
| | 2.2 | <i>9.7 x 17.5 x 26.0</i> | 3.8 | 51225 | 52225 | 700 | 53225 | 54225 | 500 |

Notes

- (1) Length of long leads:
 - a) $l_t = 19.0\text{ mm} \pm 4.0\text{ mm}$ for pitch = 10 mm and 15.0 mm.
 - b) $l_t = 25.0\text{ mm} \pm 4.0\text{ mm}$ for pitch = 22.5 mm.
- (2) Values in *Italic* indicate alternative dimensions.



| ELECTRICAL DATA AND ORDERING INFORMATION ($U_{RAC} = 160 V$) | | | | | | | | | |
|--|------------------------------------|---|---------------------------------|---|---------------------------------|--------------------|---------------------------|---------------------|------|
| U_{RDC} (V) | CAP. ⁽²⁾ (μF) | DIMENSIONS $W_{max} \times H_{max} \times L_{max}$ (mm) | MASS (g) | CATALOG NUMBER 2222 303 AND PACKAGING | | | | | |
| | | | | LOOSE IN BOX | | | | | |
| | | | | $l_t = 3.5 mm \pm 0.5 mm$ | | | LONG LEADS ⁽¹⁾ | | |
| | | | | C-TOL. = $\pm 10\%$ | | C-TOL. = $\pm 5\%$ | SPQ | C-TOL. = $\pm 10\%$ | |
| LAST 5 DIGITS OF CATALOG NUMBER | | LAST 5 DIGITS OF CATALOG NUMBER | LAST 5 DIGITS OF CATALOG NUMBER | | LAST 5 DIGITS OF CATALOG NUMBER | | | | |
| PITCH = 10.0 mm \pm 0.4 mm; $d_t = 0.60 mm \pm 0.06 mm$; $A \leq 3.5 mm$ | | | | | | | | | |
| | 0.010 | 4.1 x 8.8 x 12.5 | 0.4 | 61103 | 62103 | 2000 | 63103 | 64103 | 1250 |
| | 0.012 | 4.5 x 9.3 x 12.5 | 0.5 | 61123 | 62123 | 2000 | 63123 | 64123 | 1000 |
| | 0.015 | 4.9 x 9.6 x 12.5 | 0.5 | 61153 | 62153 | 2000 | 63153 | 64153 | 1000 |
| | 0.018 | 4.4 x 9.1 x 12.5 | 0.4 | 61183 | 62183 | 2000 | 63183 | 64183 | 1250 |
| | 0.022 | 4.8 x 9.5 x 12.5 | 0.5 | 61223 | 62223 | 2000 | 63223 | 64223 | 1000 |
| | 0.027 | 4.2 x 8.9 x 12.5 | 0.4 | 61273 | 62273 | 2000 | 63273 | 64273 | 1250 |
| | 0.033 | 4.0 x 8.7 x 12.5 | 0.4 | 61333 | 62333 | 2000 | 63333 | 64333 | 1250 |
| | 0.039 | 4.3 x 9.0 x 12.5 | 0.4 | 61393 | 62393 | 2000 | 63393 | 64393 | 1250 |
| | 0.047 | 4.7 x 9.4 x 12.5 | 0.5 | 61473 | 62473 | 2000 | 63473 | 64473 | 1000 |
| | 0.056 | 5.1 x 9.8 x 12.5 | 0.5 | 61563 | 62563 | 2000 | 63563 | 64563 | 1000 |
| | 0.068 | 5.5 x 10.3 x 12.5 | 0.6 | 61683 | 62683 | 2000 | 63683 | 64683 | 900 |
| PITCH = 15.0 mm \pm 0.4 mm; $d_t = 0.80 mm \pm 0.08 mm$; $A \leq 4.0 mm$ | | | | | | | | | |
| 630 | 0.056 | 5.9 x 10.6 x 17.5 | 1.0 | 65563 | 66563 | 1500 | 67563 | 68563 | 800 |
| | 0.068 | 6.4 x 11.1 x 17.5 | 1.1 | 65683 | 66683 | 1500 | 67683 | 68683 | 800 |
| | 0.082 | 5.4 x 10.1 x 17.5 | 0.8 | 61823 | 62823 | 2000 | 63823 | 64823 | 1000 |
| | 0.10 | 5.2 x 9.9 x 17.5 | 0.8 | 61104 | 62104 | 2000 | 63104 | 64104 | 1000 |
| | 0.12 | 5.7 x 10.4 x 17.5 | 0.9 | 61124 | 62124 | 2000 | 63124 | 64124 | 900 |
| | 0.15 | 6.3 x 11.0 x 17.5 | 1.1 | 61154 | 62154 | 1500 | 63154 | 64154 | 800 |
| | 0.18 | 6.9 x 11.6 x 17.5 | 1.2 | 61184 | 62184 | 1500 | 63184 | 64184 | 700 |
| | 0.22 | 7.6 x 12.3 x 17.5 | 1.4 | 61224 | 62224 | 1250 | 63224 | 64224 | 600 |
| | 0.27 | 8.4 x 13.1 x 17.5 | 1.7 | 61274 | 62274 | 1000 | 63274 | 64274 | 500 |
| PITCH = 22.5 mm \pm 0.4 mm; $d_t = 0.80 mm \pm 0.08 mm$; $A \leq 4.0 mm$ | | | | | | | | | |
| | 0.27 | 8.9 x 16.8 x 26.0 | 3.4 | 65274 | 66274 | 800 | 67274 | 68274 | 500 |
| | 0.33 | 9.9 x 17.8 x 26.0 | 4.0 | 61334 | 62334 | 600 | 63334 | 64334 | 500 |
| | 0.39 | 8.1 x 16.0 x 26.0 | 2.9 | 61394 | 62394 | 900 | 63394 | 64394 | 600 |
| | 0.47 | 7.7 x 15.6 x 26.0 | 2.7 | 61474 | 62474 | 900 | 63474 | 64474 | 600 |
| | 0.56 | 8.4 x 16.3 x 26.0 | 3.1 | 61564 | 62564 | 800 | 63564 | 64564 | 600 |
| | 0.68 | 9.4 x 17.2 x 26.0 | 3.7 | 61684 | 62684 | 700 | 63684 | 64684 | 500 |

Notes

- (1) Length of long leads:
 - a) $l_t = 19.0 mm \pm 4.0 mm$ for pitch = 10 mm and 15.0 mm.
 - b) $l_t = 25.0 mm \pm 4.0 mm$ for pitch = 22.5 mm.
- (2) Values in *italic* indicate alternative dimensions.



MAXIMUM RMS VOLTAGE (SINEWAVE) AS A FUNCTION OF FREQUENCY





CAPACITANCE



IMPEDANCE





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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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JONHON

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кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А