

STANDARD/EXTENDED RATINGS: CLR69*, M39006/21-XXXX

| CAPACITANCE (μ F) | CASE CODE | CAP. TOL. (\pm %) | PART NO. M39006/21- FAILURE RATE LEVEL (%/1000 h) | | | | MAX. DCL (μ A) at | | MAX. DF at | MAX. IMP. at | MAX. CAPACITANCE CHANGE (%) at | | |
|---|--------------|----------------------------|--|----------|----------|-----------|---------------------------|---------------------|------------------|-------------------------|-----------------------------------|---------|----------|
| | | | L 2.0 | M 1.0 | P 0.1 | R 0.01 | + 25 °C | + 85 °C + 125 °C | + 25 °C | - 55 °C (Ω) | - 55 °C | + 85 °C | + 125 °C |
| 6 WVDC at + 85 °C . . . 4 WVDC at + 125 °C | | | | | | | | | | | | | |
| 220.0 | T1 | 20 | 0001 | 0089 | 0177 | 0265 | 2.0 | 9.0 | 50 | 36 | - 64 | + 13 | + 16 |
| 220.0 | T1 | 10 | 0002 | 0090 | 0178 | 0266 | 2.0 | 9.0 | 50 | 36 | - 64 | + 13 | + 16 |
| 820.0 | T2 | 20 | 0003 | 0091 | 0179 | 0267 | 3.0 | 14.0 | 155 | 18 | - 88 | + 16 | + 20 |
| 820.0 | T2 | 10 | 0004 | 0092 | 0180 | 0268 | 3.0 | 14.0 | 155 | 18 | - 88 | + 16 | + 20 |
| 1500.0 | T3 | 20 | 0005 | 0093 | 0181 | 0269 | 5.0 | 20.0 | 172 | 18 | - 90 | + 20 | + 25 |
| 1500.0 | T3 | 10 | 0006 | 0094 | 0182 | 0270 | 5.0 | 20.0 | 172 | 18 | - 90 | + 20 | + 25 |
| 2200.0 | T4 | 20 | 0007 | 0095 | 0183 | 0271 | 6.0 | 24.0 | 170 | 13 | - 90 | + 25 | + 30 |
| 2200.0 | T4 | 10 | 0008 | 0096 | 0184 | 0272 | 6.0 | 24.0 | 170 | 13 | - 90 | + 25 | + 30 |
| 8 WVDC at + 85 °C . . . 5 WVDC at + 125 °C | | | | | | | | | | | | | |
| 180.0 | T1 | 20 | 0009 | 0097 | 0185 | 0273 | 2.0 | 9.0 | 41 | 45 | - 60 | + 13 | + 16 |
| 180.0 | T1 | 10 | 0010 | 0098 | 0186 | 0274 | 2.0 | 9.0 | 41 | 45 | - 60 | + 13 | + 16 |
| 680.0 | T2 | 20 | 0011 | 0099 | 0187 | 0275 | 3.0 | 14.0 | 130 | 22 | - 83 | + 16 | + 20 |
| 680.0 | T2 | 10 | 0012 | 0100 | 0188 | 0276 | 3.0 | 14.0 | 130 | 22 | - 83 | + 16 | + 20 |
| 1500.0 | T3 | 20 | 0013 | 0101 | 0189 | 0277 | 5.0 | 20.0 | 170 | 18 | - 90 | + 20 | + 25 |
| 1500.0 | T3 | 10 | 0014 | 0102 | 0190 | 0278 | 5.0 | 20.0 | 170 | 18 | - 90 | + 20 | + 25 |
| 1800.0 | T4 | 20 | 0015 | 0103 | 0191 | 0279 | 7.0 | 25.0 | 138 | 14 | - 90 | + 25 | + 30 |
| 1800.0 | T4 | 10 | 0016 | 0104 | 0192 | 0280 | 7.0 | 25.0 | 138 | 14 | - 90 | + 25 | + 30 |
| 10 WVDC at + 85 °C . . . 7 WVDC at + 125 °C | | | | | | | | | | | | | |
| 150.0 | T1 | 20 | 0017 | 0105 | 0193 | 0281 | 2.0 | 9.0 | 34 | 54 | - 55 | + 13 | + 16 |
| 150.0 | T1 | 10 | 0018 | 0106 | 0194 | 0282 | 2.0 | 9.0 | 34 | 54 | - 55 | + 13 | + 16 |
| 560.0 | T2 | 20 | 0019 | 0107 | 0195 | 0283 | 3.0 | 16.0 | 106 | 27 | - 77 | + 16 | + 20 |
| 560.0 | T2 | 10 | 0020 | 0108 | 0196 | 0284 | 3.0 | 16.0 | 106 | 27 | - 77 | + 16 | + 20 |
| 1200.0 | T3 | 20 | 0021 | 0109 | 0197 | 0285 | 5.0 | 20.0 | 137 | 18 | - 88 | + 20 | + 25 |
| 1200.0 | T3 | 10 | 0022 | 0110 | 0198 | 0286 | 5.0 | 20.0 | 137 | 18 | - 88 | + 20 | + 25 |
| 1500.0 | T4 | 20 | 0023 | 0111 | 0199 | 0287 | 7.0 | 25.0 | 114 | 15 | - 88 | + 25 | + 30 |
| 1500.0 | T4 | 10 | 0024 | 0112 | 0200 | 0288 | 7.0 | 25.0 | 114 | 15 | - 88 | + 25 | + 30 |
| 15 WVDC at + 85 °C . . . 10 WVDC at + 125 °C | | | | | | | | | | | | | |
| 100.0 | T1 | 20 | 0025 | 0113 | 0201 | 0289 | 2.0 | 9.0 | 30 | 72 | - 44 | + 13 | + 16 |
| 100.0 | T1 | 10 | 0026 | 0114 | 0202 | 0290 | 2.0 | 9.0 | 30 | 72 | - 44 | + 13 | + 16 |
| 390.0 | T2 | 20 | 0027 | 0115 | 0203 | 0291 | 3.0 | 16.0 | 74 | 31 | - 66 | + 16 | + 20 |
| 390.0 | T2 | 10 | 0028 | 0116 | 0204 | 0292 | 3.0 | 16.0 | 74 | 31 | - 66 | + 16 | + 20 |
| 820.0 | T3 | 20 | 0029 | 0117 | 0205 | 0293 | 6.0 | 24.0 | 111 | 22 | - 77 | + 20 | + 25 |
| 820.0 | T3 | 10 | 0030 | 0118 | 0206 | 0294 | 6.0 | 24.0 | 111 | 22 | - 77 | + 20 | + 25 |
| 1000.0 | T4 | 20 | 0031 | 0119 | 0207 | 0295 | 8.0 | 32.0 | 92 | 17 | - 77 | + 25 | + 30 |
| 1000.0 | T4 | 10 | 0032 | 0120 | 0208 | 0296 | 8.0 | 32.0 | 92 | 17 | - 77 | + 25 | + 30 |
| 25 WVDC at + 85 °C . . . 15 WVDC at + 125 °C | | | | | | | | | | | | | |
| 68.0 | T1 | 20 | 0033 | 0121 | 0209 | 0297 | 2.0 | 9.0 | 22 | 90 | - 40 | + 12 | + 15 |
| 68.0 | T1 | 10 | 0034 | 0122 | 0210 | 0298 | 2.0 | 9.0 | 22 | 90 | - 40 | + 12 | + 15 |
| 270.0 | T2 | 20 | 0035 | 0123 | 0211 | 0299 | 3.0 | 16.0 | 55 | 33 | - 62 | + 13 | + 16 |
| 270.0 | T2 | 10 | 0036 | 0124 | 0212 | 0300 | 3.0 | 16.0 | 55 | 33 | - 62 | + 13 | + 16 |
| 560.0 | T3 | 20 | 0037 | 0125 | 0213 | 0301 | 7.0 | 28.0 | 76 | 24 | - 72 | + 20 | + 25 |
| 560.0 | T3 | 10 | 0038 | 0126 | 0214 | 0302 | 7.0 | 28.0 | 76 | 24 | - 72 | + 20 | + 25 |
| 680.0 | T4 | 20 | 0039 | 0127 | 0215 | 0303 | 8.0 | 32.0 | 63 | 19 | - 72 | + 25 | + 30 |
| 680.0 | T4 | 10 | 0040 | 0128 | 0216 | 0304 | 8.0 | 32.0 | 63 | 19 | - 72 | + 25 | + 30 |
| 30 WVDC at + 85 °C . . . 20 WVDC at + 125 °C | | | | | | | | | | | | | |
| 56.0 | T1 | 20 | 0041 | 0129 | 0217 | 0305 | 2.0 | 9.0 | 22 | 100 | - 38 | + 12 | + 15 |
| 56.0 | T1 | 10 | 0042 | 0130 | 0218 | 0306 | 2.0 | 9.0 | 22 | 100 | - 38 | + 12 | + 15 |
| 220.0 | T2 | 20 | 0043 | 0131 | 0219 | 0307 | 3.0 | 16.0 | 42 | 36 | - 60 | + 13 | + 16 |
| 220.0 | T2 | 10 | 0044 | 0132 | 0220 | 0308 | 3.0 | 16.0 | 42 | 36 | - 60 | + 13 | + 16 |
| 470.0 | T3 | 20 | 0045 | 0133 | 0221 | 0309 | 8.0 | 32.0 | 64 | 25 | - 65 | + 20 | + 25 |
| 470.0 | T3 | 10 | 0046 | 0134 | 0222 | 0310 | 8.0 | 32.0 | 64 | 25 | - 65 | + 20 | + 25 |
| 560.0 | T4 | 20 | 0047 | 0135 | 0223 | 0311 | 9.0 | 36.0 | 55 | 20 | - 65 | + 25 | + 30 |
| 560.0 | T4 | 10 | 0048 | 0136 | 0224 | 0312 | 9.0 | 36.0 | 55 | 20 | - 65 | + 25 | + 30 |

Note

* Style CLR65 is inactive for new military design. For new design use Style CLR81.



M39006/09/21/22/25/30/31

Wet Tantalum Capacitors, Military Established Reliability,
MIL-PRF-39006 Qualified Styles CLR65, 79, 81, 90, 91

Vishay

| STANDARD/EXTENDED RATINGS: CLR69*, M39006/21-XXXX | | | | | | | | | | | | | |
|--|--------------|----------------------------|--|----------|----------|-----------|---------------------------|---------------------|------------------------------------|---|-----------------------------------|---------|---------|
| CAPACITANCE (μ F) | CASE CODE | CAP. TOL. (\pm %) | PART NO. M39006/21- FAILURE RATE LEVEL (%/1000 h) | | | | MAX. DCL (μ A) at | | MAX. DF at + 25 °C (%) | MAX. IMP. at - 55 °C (Ω) | MAX. CAPACITANCE CHANGE (%) at | | |
| | | | L 2.0 | M 1.0 | P 0.1 | R 0.01 | + 25 °C | + 85 °C + 125 °C | | | - 55 °C | - 55 °C | + 85 °C |
| 50 WVDC at + 85 °C . . . 30 WVDC at + 125 °C | | | | | | | | | | | | | |
| 33.0 | T1 | 20 | 0049 | 0137 | 0225 | 0313 | 2.0 | 9.0 | 12.3 | 135 | - 29 | + 10 | + 12 |
| 33.0 | T1 | 10 | 0050 | 0138 | 0226 | 0314 | 2.0 | 9.0 | 12.3 | 135 | - 29 | + 10 | + 12 |
| 120.0 | T2 | 20 | 0051 | 0139 | 0227 | 0315 | 4.0 | 24.0 | 22.5 | 49 | - 42 | + 12 | + 15 |
| 120.0 | T2 | 10 | 0052 | 0140 | 0228 | 0316 | 4.0 | 24.0 | 22.5 | 49 | - 42 | + 12 | + 15 |
| 270.0 | T3 | 20 | 0053 | 0141 | 0229 | 0317 | 8.0 | 32.0 | 37 | 29 | - 46 | + 20 | + 25 |
| 270.0 | T3 | 10 | 0054 | 0142 | 0230 | 0318 | 8.0 | 32.0 | 37 | 29 | - 46 | + 20 | + 25 |
| 330.0 | T4 | 20 | 0055 | 0143 | 0231 | 0319 | 9.0 | 36.0 | 38 | 22 | - 46 | + 25 | + 30 |
| 330.0 | T4 | 10 | 0056 | 0144 | 0232 | 0320 | 9.0 | 36.0 | 38 | 22 | - 46 | + 25 | + 30 |
| 60 WVDC at + 85 °C . . . 40 WVDC at + 125 °C | | | | | | | | | | | | | |
| 27.0 | T1 | 20 | 0057 | 0145 | 0233 | 0321 | 3.0 | 12.0 | 10.2 | 144 | - 24 | + 10 | + 12 |
| 27.0 | T1 | 10 | 0058 | 0146 | 0234 | 0322 | 3.0 | 12.0 | 10.2 | 144 | - 24 | + 10 | + 12 |
| 100.0 | T2 | 20 | 0059 | 0147 | 0235 | 0323 | 4.0 | 20.0 | 19 | 54 | - 36 | + 12 | + 15 |
| 100.0 | T2 | 10 | 0060 | 0148 | 0236 | 0324 | 4.0 | 20.0 | 19 | 54 | - 36 | + 12 | + 15 |
| 220.0 | T3 | 20 | 0061 | 0149 | 0237 | 0325 | 8.0 | 32.0 | 30 | 29 | - 40 | + 16 | + 20 |
| 220.0 | T3 | 10 | 0062 | 0150 | 0238 | 0326 | 8.0 | 32.0 | 30 | 29 | - 40 | + 16 | + 20 |
| 270.0 | T4 | 20 | 0063 | 0151 | 0239 | 0327 | 9.0 | 36.0 | 27 | 23 | - 45 | + 20 | + 25 |
| 270.0 | T4 | 10 | 0064 | 0152 | 0240 | 0328 | 9.0 | 36.0 | 27 | 23 | - 45 | + 20 | + 25 |
| 75 WVDC at + 85 °C . . . 50 WVDC at + 125 °C | | | | | | | | | | | | | |
| 22.0 | T1 | 20 | 0065 | 0153 | 0241 | 0329 | 3.0 | 12.0 | 8.5 | 157 | - 19 | + 10 | + 12 |
| 22.0 | T1 | 10 | 0066 | 0154 | 0242 | 0330 | 3.0 | 12.0 | 8.5 | 157 | - 19 | + 10 | + 12 |
| 82.0 | T2 | 20 | 0067 | 0155 | 0243 | 0331 | 4.0 | 24.0 | 15.2 | 63 | - 30 | + 12 | + 15 |
| 82.0 | T2 | 10 | 0068 | 0156 | 0244 | 0332 | 4.0 | 24.0 | 15.2 | 63 | - 30 | + 12 | + 15 |
| 180.0 | T3 | 20 | 0069 | 0157 | 0245 | 0333 | 9.0 | 36.0 | 24.4 | 30 | - 35 | + 16 | + 20 |
| 180.0 | T3 | 10 | 0070 | 0158 | 0246 | 0334 | 9.0 | 36.0 | 24.4 | 30 | - 35 | + 16 | + 20 |
| 220.0 | T4 | 20 | 0071 | 0159 | 0247 | 0335 | 10.0 | 40.0 | 37.0 | 24 | - 40 | + 20 | + 25 |
| 220.0 | T4 | 10 | 0072 | 0160 | 0248 | 0336 | 10.0 | 40.0 | 37.0 | 24 | - 40 | + 20 | + 25 |
| 100 WVDC at + 85 °C . . . 65 WVDC at + 125 °C | | | | | | | | | | | | | |
| 10.0 | T1 | 20 | 0073 | 0161 | 0249 | 0337 | 3.0 | 12.0 | 4.5 | 200 | - 17 | + 10 | + 12 |
| 10.0 | T1 | 10 | 0074 | 0162 | 0250 | 0338 | 3.0 | 12.0 | 4.5 | 200 | - 17 | + 10 | + 12 |
| 39.0 | T2 | 20 | 0075 | 0163 | 0251 | 0339 | 5.0 | 24.0 | 10.4 | 80 | - 20 | + 12 | + 15 |
| 39.0 | T2 | 10 | 0076 | 0164 | 0252 | 0340 | 5.0 | 24.0 | 10.4 | 80 | - 20 | + 12 | + 15 |
| 68.0 | T3 | 20 | 0077 | 0165 | 0253 | 0341 | 10.0 | 40.0 | 11.3 | 40 | - 30 | + 14 | + 16 |
| 68.0 | T3 | 10 | 0078 | 0166 | 0254 | 0342 | 10.0 | 40.0 | 11.3 | 40 | - 30 | + 14 | + 16 |
| 120.0 | T4 | 20 | 0079 | 0167 | 0255 | 0343 | 12.0 | 48.0 | 25 | 30 | - 35 | + 15 | + 17 |
| 120.0 | T4 | 10 | 0080 | 0168 | 0256 | 0344 | 12.0 | 48.0 | 25 | 30 | - 35 | + 15 | + 17 |
| 125 WVDC at + 85 °C . . . 85 WVDC at + 125 °C | | | | | | | | | | | | | |
| 6.8 | T1 | 20 | 0081 | 0169 | 0257 | 0345 | 3.0 | 12.0 | 6.0 | 300 | - 14 | + 10 | + 12 |
| 6.8 | T1 | 10 | 0082 | 0170 | 0258 | 0346 | 3.0 | 12.0 | 6.0 | 300 | - 14 | + 10 | + 12 |
| 27.0 | T2 | 20 | 0083 | 0171 | 0259 | 0347 | 5.0 | 24.0 | 7.2 | 90 | - 18 | + 12 | + 15 |
| 27.0 | T2 | 10 | 0084 | 0172 | 0260 | 0348 | 5.0 | 24.0 | 7.2 | 90 | - 18 | + 12 | + 15 |
| 47.0 | T3 | 20 | 0085 | 0173 | 0261 | 0349 | 10.0 | 40.0 | 7.9 | 50 | - 26 | + 14 | + 16 |
| 47.0 | T3 | 10 | 0086 | 0174 | 0262 | 0350 | 10.0 | 40.0 | 7.9 | 50 | - 26 | + 14 | + 16 |
| 82.0 | T4 | 20 | 0087 | 0175 | 0263 | 0351 | 12.0 | 48.0 | 17.4 | 32 | - 30 | + 15 | + 17 |
| 82.0 | T4 | 10 | 0088 | 0176 | 0264 | 0352 | 12.0 | 48.0 | 17.4 | 32 | - 30 | + 15 | + 17 |

Note

* Style CLR65 is inactive for new military design. For new design use Style CLR81.