



**THE DATASHEET OF
M39003/01-6272/TR**



Solid-Electrolyte TANTALEX™ Capacitors, Military MIL-PRF-39003/01 Qualified, Style CSR13



FEATURES

- Hermetically sealed
- Metal cased
- Axial lead
- Weibull failure rates G, B, C, D
- Exponential failure rates M, P, R, S
- Tape and reel available per EIA-296 standard

STYLE, MILITARY SPECIFICATION SHEET

Style CSR13, M39003/01 MIL-PRF-39003/1

PERFORMANCE CHARACTERISTICS

Operating Temperature: -55 °C to +125 °C
(above 85 °C, voltage derating is required)

Capacitance Range: 0.033 µF to 330 µF

Capacitance Tolerance: ± 5 %, ± 10 %, ± 20 %

Voltage Rating: 6 V_{DC} to 100 V_{DC}

DESCRIPTION

Solid-Electrolyte TANTALEX capacitors to military specification MIL-PRF-39003 - Exponential and Weibull Distribution: hermetically sealed, metal cased, axial leaded tubular capacitors manufactured as military style CSR13. These capacitors are furnished to the requirements of the military specification, including marking, testing and inspection.

In accordance with the specification, all capacitors are marked with the military part number (M39003/xx-xxxx) rather than the older style designation (CSRxxxxxxx) and should be ordered as such. All capacitors covered by MIL-PRF-39003 are now ordered with the military part number as illustrated in the Part Numbering System chart. Capacitors must not be ordered using the style number identification.

MIL-PRF-39003 establishes failure rates (expressed in percent per 1000 h) based on exponential and Weibull distribution. Care must be exercised in ordering to insure the part number correctly identifies the desired failure rate level.

In addition, each order for military style CSR13, CSR21, CSR23 capacitors requiring government inspection must state whether inspection is to be at the destination or at the Vishay plant. Orders requiring source inspection cannot be shipped until this has been accomplished.

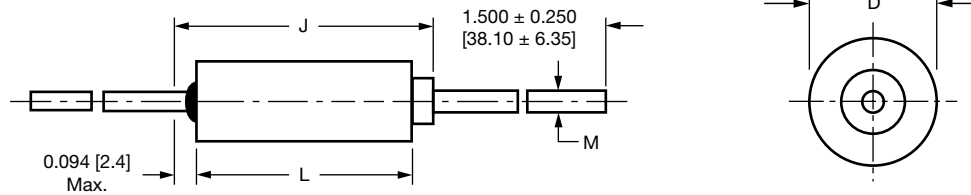
Style CS13 capacitors previously shown in MIL-C-26655 are directly replaced by style CSR13 and style CSR23 capacitors are extended capacitance range versions of military style CSR13.

For information on the performance characteristics of these capacitors, please refer to the latest issue of the military specification.

| ORDERING INFORMATION | | | | |
|---|--|---|---|--|
| <u>M39003</u> | <u>/01</u> | <u>-2254</u> | <u>A</u> | <u>/TR</u> |
| BASIC DOCUMENT NUMBER | SLASH SHEET | DASH NUMBER | SURGE CURRENT OPTION LETTER | PACKAGING OPTION ⁽¹⁾ |
| Indicates the Basic Specification; in this case MIL-PRF-39003 | Indicates the Specification Sheet of the Basic Military Specification | Taken from Ratings table of the Specification Sheet | Blank = standard (no surge current) A = +25 °C, after Weibull B = -55 °C and +85 °C, after Weibull C = -55 °C and +85 °C, before Weibull D = +25 °C, after Weibull, high temperature solder E = -55 °C and +85 °C, after Weibull, high temperature solder F = -55 °C and +85 °C, before Weibull, high temperature solder H = high temperature solder only (no surge) | Blank = bulk /TR = tape and reel /HR = tape and reel, half reel /PR = tape and reel, partial reel /RR = tape and reel, option R /WR = tape and reel, option W |

Note

(1) See detailed packaging information following the Standard Ratings table

DIMENSIONS in inches [millimeters]


| CASE CODE | L ± 0.031 [0.79] | D + 0.016 [0.41] - 0.015 [0.38] | M ± 0.002 [0.05] | J (MAX.) |
|-----------|---------------------|---------------------------------------|---------------------|---------------|
| A | 0.286 [7.26] | 0.135 [3.43] | 0.020 [0.51] | 0.422 [10.72] |
| B | 0.474 [12.04] | 0.185 [4.70] | 0.020 [0.51] | 0.610 [15.49] |
| C | 0.686 [17.42] | 0.289 [7.34] | 0.025 [0.64] | 0.822 [20.88] |
| D | 0.786 [19.96] | 0.351 [8.92] | 0.025 [0.64] | 0.922 [23.42] |

Notes

- The case insulation shall extend 0.015" [0.38 mm] minimum beyond each end. However, when a shrink-fitted insulation is used, it shall lap over the ends of the capacitor body
- A minimum lead length of 1.0" [2.54 mm] for use with tape and reel automatic insertion equipment is available upon request

RATINGS AND CASE CODES

| µF | 6 V | 10 V | 15 V | 20 V | 35 V | 50 V | 75 V | 100 V |
|-------|-----|------|------|------|------|------|------|-------|
| 0.033 | | | | | | A | | A |
| 0.039 | | | | | | A | | A |
| 0.047 | | | | | | A | | A |
| 0.056 | | | | | | A | | A |
| 0.068 | | | | | | A | | A |
| 0.082 | | | | | | A | | A |
| 0.10 | | | | | | A | A | A |
| 0.12 | | | | | | A | A | A |
| 0.15 | | | | | | A | A | A |
| 0.18 | | | | | | A | A | A |
| 0.22 | | | | | | A | A | A |
| 0.27 | | | | | | A | A | A |
| 0.33 | | | | | | A | A | A |
| 0.39 | | | | | | A | A | A |
| 0.47 | | | | | | A | A | A |
| 0.56 | | | | | | A | A | A |
| 0.68 | | | | | | A | A | B |
| 0.82 | | | | | | A | B | B |
| 1.0 | | | | | | A | B | B |
| 1.2 | | | | A | | B | B | B |
| 1.5 | | | | A | | B | B | B |
| 1.8 | | | | A | | B | B | B |
| 2.2 | | | | A | | B | B | B |
| 2.7 | | | A | | | B | B | B |
| 3.3 | | | A | | | B | B | C |
| 3.9 | | A | | | | B | B | C |
| 4.7 | | A | | | | B | C | C |
| 5.6 | A | | | | B | C | C | C |



| RATINGS AND CASE CODES | | | | | | | | |
|------------------------|-----|------|------|------|------|------|------|-------|
| µF | 6 V | 10 V | 15 V | 20 V | 35 V | 50 V | 75 V | 100 V |
| 6.8 | A | | | | B | C | C | C |
| 8.2 | | | | B | | C | C | |
| 10 | | | | B | | C | C | |
| 12 | | | | B | | C | D | |
| 15 | | | | B | | C | D | |
| 18 | | | B | | | C | | |
| 22 | | | B | | C | D | | |
| 27 | | B | | C | D | | | |
| 33 | | B | | C | D | | | |
| 39 | | B | | C | D | | | |
| 47 | B | | | C | D | | | |
| 56 | B | | C | D | | | | |
| 68 | | | C | D | | | | |
| 82 | | C | | D | | | | |
| 100 | | C | | D | | | | |
| 120 | | C | D | | | | | |
| 150 | C | | D | | | | | |
| 180 | C | D | | | | | | |
| 220 | | D | | | | | | |
| 270 | D | | | | | | | |
| 330 | D | | | | | | | |

| STANDARD RATINGS | | | | | | | | | | | | | | | |
|---|-----------|-----------------|--|------|------|-------|------|------|------|-------|------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (µF) | CASE CODE | CAP. TOL. (± %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (µA) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 6 V_{DC} AT +85 °C, SURGE = 8 V; 4 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 5.6 | A | 5 | 5001 | 5201 | 5401 | 5601 | 4001 | 6001 | 7001 | 8001 | 0.3 | 6 | 7.5 | 4 | 4 |
| 5.6 | A | 10 | 2241 | 2481 | 2721 | 2961 | 4002 | 6002 | 7002 | 8002 | 0.3 | 6 | 7.5 | 4 | 4 |
| 6.8 | A | 5 | 5002 | 5202 | 5402 | 5602 | 4003 | 6003 | 7003 | 8003 | 0.3 | 6 | 7.5 | 6 | 6 |
| 6.8 | A | 10 | 2242 | 2482 | 2722 | 2962 | 4004 | 6004 | 7004 | 8004 | 0.3 | 6 | 7.5 | 6 | 6 |
| 6.8 | A | 20 | 2243 | 2483 | 2723 | 2963 | 4005 | 6005 | 7005 | 8005 | 0.3 | 6 | 7.5 | 6 | 6 |
| 47 | B | 5 | 5003 | 5203 | 5403 | 5603 | 4006 | 6006 | 7006 | 8006 | 1.5 | 24 | 30 | 6 | 6 |
| 47 | B | 10 | 2244 | 2484 | 2724 | 2964 | 4007 | 6007 | 7007 | 8007 | 1.5 | 24 | 30 | 6 | 6 |
| 47 | B | 20 | 2245 | 2485 | 2725 | 2965 | 4008 | 6008 | 7008 | 8008 | 1.5 | 24 | 30 | 6 | 6 |
| 56 | B | 5 | 5004 | 5204 | 5404 | 5604 | 4009 | 6009 | 7009 | 8009 | 1.5 | 24 | 30 | 6 | 6 |
| 56 | B | 10 | 2246 | 2486 | 2726 | 2966 | 4010 | 6010 | 7010 | 8010 | 1.5 | 24 | 30 | 6 | 6 |
| 150 | C | 5 | 5005 | 5205 | 5405 | 5605 | 4011 | 6011 | 7011 | 8011 | 4.5 | 90 | 113 | 8 | 8 |
| 150 | C | 10 | 2247 | 2487 | 2727 | 2967 | 4012 | 6012 | 7012 | 8012 | 4.5 | 90 | 113 | 8 | 8 |
| 150 | C | 20 | 2248 | 2488 | 2728 | 2968 | 4013 | 6013 | 7013 | 8013 | 4.5 | 90 | 113 | 8 | 8 |
| 180 | C | 5 | 5006 | 5206 | 5406 | 5606 | 4014 | 6014 | 7014 | 8014 | 5.5 | 110 | 138 | 8 | 8 |
| 180 | C | 10 | 2249 | 2489 | 2729 | 2969 | 4015 | 6015 | 7015 | 8015 | 5.5 | 110 | 138 | 8 | 8 |
| 270 | D | 5 | 5007 | 5207 | 5407 | 5607 | 4016 | 6016 | 7016 | 8016 | 6.5 | 130 | 163 | 8 | 8 |
| 270 | D | 10 | 2250 | 2490 | 2730 | 2970 | 4017 | 6017 | 7017 | 8017 | 6.5 | 130 | 163 | 8 | 8 |
| 330 | D | 5 | 5008 | 5208 | 5408 | 5608 | 4018 | 6018 | 7018 | 8018 | 7.5 | 150 | 188 | 8 | 8 |
| 330 | D | 10 | 2251 | 2491 | 2731 | 2971 | 4019 | 6019 | 7019 | 8019 | 7.5 | 150 | 188 | 8 | 8 |
| 330 | D | 20 | 2252 | 2492 | 2732 | 2972 | 4020 | 6020 | 7020 | 8020 | 7.5 | 150 | 188 | 8 | 8 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|----------------------------|--|------|------|-------|------|------|------|-------|------------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (μ F) | CASE CODE | CAP. TOL. (\pm %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (μ A) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 10 V_{DC} AT +85 °C, SURGE = 13 V; 7 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 3.9 | A | 5 | 5009 | 5209 | 5409 | 5609 | 4021 | 6021 | 7021 | 8021 | 0.3 | 6 | 7.5 | 4 | 4 |
| 3.9 | A | 10 | 2253 | 2493 | 2733 | 2973 | 4022 | 6022 | 7022 | 8022 | 0.3 | 6 | 7.5 | 4 | 4 |
| 4.7 | A | 5 | 5010 | 5210 | 5410 | 5610 | 4023 | 6023 | 7023 | 8023 | 0.4 | 7 | 8.8 | 4 | 4 |
| 4.7 | A | 10 | 2254 | 2494 | 2734 | 2974 | 4024 | 6024 | 7024 | 8024 | 0.4 | 7 | 8.8 | 4 | 4 |
| 4.7 | A | 20 | 2255 | 2495 | 2735 | 2975 | 4025 | 6025 | 7025 | 8025 | 0.4 | 7 | 8.8 | 4 | 4 |
| 27 | B | 5 | 5011 | 5211 | 5411 | 5611 | 4026 | 6026 | 7026 | 8026 | 2 | 40 | 50 | 6 | 6 |
| 27 | B | 10 | 2256 | 2496 | 2736 | 2976 | 4027 | 6027 | 7027 | 8027 | 2 | 40 | 50 | 6 | 6 |
| 33 | B | 5 | 5012 | 5212 | 5412 | 5612 | 4028 | 6028 | 7028 | 8028 | 2.5 | 50 | 63 | 6 | 6 |
| 33 | B | 10 | 2257 | 2497 | 2737 | 2977 | 4029 | 6029 | 7029 | 8029 | 2.5 | 50 | 63 | 6 | 6 |
| 33 | B | 20 | 2258 | 2498 | 2738 | 2978 | 4030 | 6030 | 7030 | 8030 | 2.5 | 50 | 63 | 6 | 6 |
| 39 | B | 5 | 5013 | 5213 | 5413 | 5613 | 4031 | 6031 | 7031 | 8031 | 2.5 | 50 | 63 | 6 | 6 |
| 39 | B | 10 | 2259 | 2499 | 2739 | 2979 | 4032 | 6032 | 7032 | 8032 | 2.5 | 50 | 63 | 6 | 6 |
| 82 | C | 5 | 5014 | 5214 | 5414 | 5614 | 4033 | 6033 | 7033 | 8033 | 4 | 80 | 100 | 6 | 6 |
| 82 | C | 10 | 2260 | 2500 | 2740 | 2980 | 4034 | 6034 | 7034 | 8034 | 4 | 80 | 100 | 6 | 6 |
| 100 | C | 5 | 5015 | 5215 | 5415 | 5615 | 4035 | 6035 | 7035 | 8035 | 5 | 100 | 125 | 8 | 8 |
| 100 | C | 10 | 2261 | 2501 | 2741 | 2981 | 4036 | 6036 | 7036 | 8036 | 5 | 100 | 125 | 8 | 8 |
| 100 | C | 20 | 2262 | 2502 | 2742 | 2982 | 4037 | 6037 | 7037 | 8037 | 5 | 100 | 125 | 8 | 8 |
| 120 | C | 5 | 5016 | 5216 | 5416 | 5616 | 4038 | 6038 | 7038 | 8038 | 6 | 120 | 150 | 8 | 8 |
| 120 | C | 10 | 2263 | 2503 | 2743 | 2983 | 4039 | 6039 | 7039 | 8039 | 6 | 120 | 150 | 8 | 8 |
| 180 | D | 5 | 5017 | 5217 | 5417 | 5617 | 4040 | 6040 | 7040 | 8040 | 9 | 180 | 226 | 8 | 8 |
| 180 | D | 10 | 2264 | 2504 | 2744 | 2984 | 4041 | 6041 | 7041 | 8041 | 9 | 180 | 226 | 8 | 8 |
| 220 | D | 5 | 5018 | 5218 | 5418 | 5618 | 4042 | 6042 | 7042 | 8042 | 10 | 200 | 250 | 8 | 8 |
| 220 | D | 10 | 2265 | 2505 | 2745 | 2985 | 4043 | 6043 | 7043 | 8043 | 10 | 200 | 250 | 8 | 8 |
| 220 | D | 20 | 2266 | 2506 | 2746 | 2986 | 4044 | 6044 | 7044 | 8044 | 10 | 200 | 250 | 8 | 8 |
| 15 V_{DC} AT +85 °C, SURGE = 20 V; 10 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 2.7 | A | 5 | 5019 | 5219 | 5419 | 5619 | 4045 | 6045 | 7045 | 8045 | 0.3 | 6 | 7.5 | 4 | 4 |
| 2.7 | A | 10 | 2267 | 2507 | 2747 | 2987 | 4046 | 6046 | 7046 | 8046 | 0.3 | 6 | 7.5 | 4 | 4 |
| 3.3 | A | 5 | 5020 | 5220 | 5420 | 5620 | 4047 | 6047 | 7047 | 8047 | 0.4 | 8 | 10 | 4 | 4 |
| 3.3 | A | 10 | 2268 | 2508 | 2748 | 2988 | 4048 | 6048 | 7048 | 8048 | 0.4 | 8 | 10 | 4 | 4 |
| 3.3 | A | 20 | 2269 | 2509 | 2749 | 2989 | 4049 | 6049 | 7049 | 8049 | 0.4 | 8 | 10 | 4 | 4 |
| 18 | B | 5 | 5021 | 5221 | 5421 | 5621 | 4050 | 6050 | 7050 | 8050 | 2 | 35 | 44 | 6 | 6 |
| 18 | B | 10 | 2270 | 2510 | 2750 | 2990 | 4051 | 6051 | 7051 | 8051 | 2 | 35 | 44 | 6 | 6 |
| 22 | B | 5 | 5022 | 5222 | 5422 | 5622 | 4052 | 6052 | 7052 | 8052 | 2 | 40 | 50 | 6 | 6 |
| 22 | B | 10 | 2271 | 2511 | 2751 | 2991 | 4053 | 6053 | 7053 | 8053 | 2 | 40 | 50 | 6 | 6 |
| 22 | B | 20 | 2272 | 2512 | 2752 | 2992 | 4054 | 6054 | 7054 | 8054 | 2 | 40 | 50 | 6 | 6 |
| 56 | C | 5 | 5023 | 5223 | 5423 | 5623 | 4055 | 6055 | 7055 | 8055 | 4 | 80 | 100 | 6 | 6 |
| 56 | C | 10 | 2273 | 2513 | 2753 | 2993 | 4056 | 6056 | 7056 | 8056 | 4 | 80 | 100 | 6 | 6 |
| 68 | C | 5 | 5024 | 5224 | 5424 | 5624 | 4057 | 6057 | 7057 | 8057 | 5 | 100 | 125 | 6 | 6 |
| 68 | C | 10 | 2274 | 2514 | 2754 | 2994 | 4058 | 6058 | 7058 | 8058 | 5 | 100 | 125 | 6 | 6 |
| 68 | C | 20 | 2275 | 2515 | 2755 | 2995 | 4059 | 6059 | 7059 | 8059 | 5 | 100 | 125 | 6 | 6 |
| 120 | D | 5 | 5025 | 5225 | 5425 | 5625 | 4060 | 6060 | 7060 | 8060 | 9 | 180 | 226 | 8 | 8 |
| 120 | D | 10 | 2276 | 2516 | 2756 | 2996 | 4061 | 6061 | 7061 | 8061 | 9 | 180 | 226 | 8 | 8 |
| 150 | D | 5 | 5026 | 5226 | 5426 | 5626 | 4062 | 6062 | 7062 | 8062 | 10 | 200 | 250 | 8 | 8 |
| 150 | D | 10 | 2277 | 2517 | 2757 | 2997 | 4063 | 6063 | 7063 | 8063 | 10 | 200 | 250 | 8 | 8 |
| 150 | D | 20 | 2278 | 2518 | 2758 | 2998 | 4064 | 6064 | 7064 | 8064 | 10 | 200 | 250 | 8 | 8 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|-----------------------|--|------|------|-------|------|------|------|-------|------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (µF) | CASE CODE | CAP. TOL. (± %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (µA) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 20 V_{DC} AT +85 °C, SURGE = 26 V; 13 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 1.2 | A | 5 | 5027 | 5227 | 5427 | 5627 | 4065 | 6065 | 7065 | 8065 | 0.3 | 6 | 7.5 | 4 | 4 |
| 1.2 | A | 10 | 2279 | 2519 | 2759 | 2999 | 4066 | 6066 | 7066 | 8066 | 0.3 | 6 | 7.5 | 4 | 4 |
| 1.5 | A | 5 | 5028 | 5228 | 5428 | 5628 | 4067 | 6067 | 7067 | 8067 | 0.3 | 6 | 7.5 | 4 | 4 |
| 1.5 | A | 10 | 2280 | 2520 | 2760 | 3000 | 4068 | 6068 | 7068 | 8068 | 0.3 | 6 | 7.5 | 4 | 4 |
| 1.5 | A | 20 | 2281 | 2521 | 2761 | 3001 | 4069 | 6069 | 7069 | 8069 | 0.3 | 6 | 7.5 | 4 | 4 |
| 1.5 | A | 5 | 5029 | 5229 | 5429 | 5629 | 4070 | 6070 | 7070 | 8070 | 0.3 | 6 | 7.5 | 4 | 4 |
| 1.8 | A | 10 | 2282 | 2522 | 2762 | 3002 | 4071 | 6071 | 7071 | 8071 | 0.3 | 6 | 7.5 | 4 | 4 |
| 2.2 | A | 5 | 5030 | 5230 | 5430 | 5630 | 4072 | 6072 | 7072 | 8072 | 0.4 | 8 | 10 | 4 | 4 |
| 2.2 | A | 10 | 2283 | 2523 | 2763 | 3003 | 4073 | 6073 | 7073 | 8073 | 0.4 | 8 | 10 | 4 | 4 |
| 2.2 | A | 20 | 2284 | 2524 | 2764 | 3004 | 4074 | 6074 | 7074 | 8074 | 0.4 | 8 | 10 | 4 | 4 |
| 8.2 | B | 5 | 5031 | 5231 | 5431 | 5631 | 4075 | 6075 | 7075 | 8075 | 1 | 20 | 25 | 6 | 6 |
| 8.2 | B | 10 | 2285 | 2525 | 2765 | 3005 | 4076 | 6076 | 7076 | 8076 | 1 | 20 | 25 | 6 | 6 |
| 10 | B | 5 | 5032 | 5232 | 5432 | 5632 | 4077 | 6077 | 7077 | 8077 | 1.5 | 30 | 38 | 6 | 6 |
| 10 | B | 10 | 2286 | 2526 | 2766 | 3006 | 4078 | 6078 | 7078 | 8078 | 1.5 | 30 | 38 | 6 | 6 |
| 10 | B | 20 | 2287 | 2527 | 2767 | 3007 | 4079 | 6079 | 7079 | 8079 | 1.5 | 30 | 38 | 6 | 6 |
| 12 | B | 5 | 5033 | 5233 | 5433 | 5633 | 4080 | 6080 | 7080 | 8080 | 1.8 | 35 | 44 | 6 | 6 |
| 12 | B | 10 | 2288 | 2528 | 2768 | 3008 | 4081 | 6081 | 7081 | 8081 | 1.8 | 35 | 44 | 6 | 6 |
| 15 | B | 5 | 5034 | 5234 | 5434 | 5634 | 4082 | 6082 | 7082 | 8082 | 2 | 40 | 50 | 6 | 6 |
| 15 | B | 10 | 2289 | 2529 | 2769 | 3009 | 4083 | 6083 | 7083 | 8083 | 2 | 40 | 50 | 6 | 6 |
| 15 | B | 20 | 2290 | 2530 | 2770 | 3010 | 4084 | 6084 | 7084 | 8084 | 2 | 40 | 50 | 6 | 6 |
| 27 | C | 5 | 5035 | 5235 | 5435 | 5635 | 4085 | 6085 | 7085 | 8085 | 2.5 | 50 | 63 | 6 | 6 |
| 27 | C | 10 | 2291 | 2531 | 2771 | 3011 | 4086 | 6086 | 7086 | 8086 | 2.5 | 50 | 63 | 6 | 6 |
| 33 | C | 5 | 5036 | 5236 | 5436 | 5636 | 4087 | 6087 | 7087 | 8087 | 3.5 | 70 | 88 | 6 | 6 |
| 33 | C | 10 | 2292 | 2532 | 2772 | 3012 | 4088 | 6088 | 7088 | 8088 | 3.5 | 70 | 88 | 6 | 6 |
| 33 | C | 20 | 2293 | 2533 | 2773 | 3013 | 4089 | 6089 | 7089 | 8089 | 3.5 | 70 | 88 | 6 | 6 |
| 39 | C | 5 | 5037 | 5237 | 5437 | 5637 | 4090 | 6090 | 7090 | 8090 | 4 | 80 | 100 | 6 | 6 |
| 39 | C | 10 | 2294 | 2534 | 2774 | 3014 | 4091 | 6091 | 7091 | 8091 | 4 | 80 | 100 | 6 | 6 |
| 47 | C | 5 | 5038 | 5238 | 5438 | 5638 | 4092 | 6092 | 7092 | 8092 | 4.5 | 90 | 113 | 6 | 6 |
| 47 | C | 10 | 2295 | 2535 | 2775 | 3015 | 4093 | 6093 | 7093 | 8093 | 4.5 | 90 | 113 | 6 | 6 |
| 47 | C | 20 | 2296 | 2536 | 2776 | 3016 | 4094 | 6094 | 7094 | 8094 | 4.5 | 90 | 113 | 6 | 6 |
| 56 | D | 5 | 5039 | 5239 | 5439 | 5639 | 4095 | 6095 | 7095 | 8095 | 5.5 | 110 | 138 | 6 | 6 |
| 56 | D | 10 | 2297 | 2537 | 2777 | 3017 | 4096 | 6096 | 7096 | 8096 | 5.5 | 110 | 138 | 6 | 6 |
| 68 | D | 5 | 5040 | 5240 | 5440 | 5640 | 4097 | 6097 | 7097 | 8097 | 7 | 140 | 175 | 6 | 6 |
| 68 | D | 10 | 2298 | 2538 | 2778 | 3018 | 4098 | 6098 | 7098 | 8098 | 7 | 140 | 175 | 6 | 6 |
| 68 | D | 20 | 2299 | 2539 | 2779 | 3019 | 4099 | 6099 | 7099 | 8099 | 7 | 140 | 175 | 6 | 6 |
| 82 | D | 5 | 5041 | 5241 | 5441 | 5641 | 4100 | 6100 | 7100 | 8100 | 8 | 160 | 200 | 6 | 6 |
| 82 | D | 10 | 2300 | 2540 | 2780 | 3020 | 4101 | 6101 | 7101 | 8101 | 8 | 160 | 200 | 6 | 6 |
| 100 | D | 5 | 5042 | 5242 | 5442 | 5642 | 4102 | 6102 | 7102 | 8102 | 10 | 200 | 250 | 8 | 8 |
| 100 | D | 10 | 2301 | 2541 | 2781 | 3021 | 4103 | 6103 | 7103 | 8103 | 10 | 200 | 250 | 8 | 8 |
| 100 | D | 20 | 2302 | 2542 | 2782 | 3022 | 4104 | 6104 | 7104 | 8104 | 10 | 200 | 250 | 8 | 8 |
| 35 V_{DC} AT +85 °C, SURGE = 46 V; 23 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 5.6 | B | 5 | 5043 | 5243 | 5443 | 5643 | 4105 | 6105 | 7105 | 8105 | 1.3 | 25 | 32 | 4 | 4 |
| 5.6 | B | 10 | 2303 | 2543 | 2783 | 3023 | 4106 | 6106 | 7106 | 8106 | 1.3 | 25 | 32 | 4 | 4 |
| 6.8 | B | 5 | 5044 | 5244 | 5444 | 5644 | 4107 | 6107 | 7107 | 8107 | 1.5 | 30 | 38 | 6 | 6 |
| 6.8 | B | 10 | 2304 | 2544 | 2784 | 3024 | 4108 | 6108 | 7108 | 8108 | 1.5 | 30 | 38 | 6 | 6 |
| 6.8 | B | 20 | 2305 | 2545 | 2785 | 3025 | 4109 | 6109 | 7109 | 8109 | 1.5 | 30 | 38 | 6 | 6 |
| 22 | C | 5 | 5045 | 5245 | 5445 | 5645 | 4110 | 6110 | 7110 | 8110 | 4 | 80 | 100 | 6 | 6 |
| 22 | C | 10 | 2306 | 2546 | 2786 | 3026 | 4111 | 6111 | 7111 | 8111 | 4 | 80 | 100 | 6 | 6 |
| 22 | C | 20 | 2307 | 2547 | 2787 | 3027 | 4112 | 6112 | 7112 | 8112 | 4 | 80 | 100 | 6 | 6 |
| 27 | D | 5 | 5046 | 5246 | 5446 | 5646 | 4113 | 6113 | 7113 | 8113 | 4.5 | 90 | 113 | 6 | 6 |
| 27 | D | 10 | 2308 | 2548 | 2788 | 3028 | 4114 | 6114 | 7114 | 8114 | 4.5 | 90 | 113 | 6 | 6 |
| 33 | D | 5 | 5047 | 5247 | 5447 | 5647 | 4115 | 6115 | 7115 | 8115 | 5.5 | 110 | 138 | 6 | 6 |
| 33 | D | 10 | 2309 | 2549 | 2789 | 3029 | 4116 | 6116 | 7116 | 8116 | 5.5 | 110 | 138 | 6 | 6 |
| 33 | D | 20 | 2310 | 2550 | 2790 | 3030 | 4117 | 6117 | 7117 | 8117 | 5.5 | 110 | 138 | 6 | 6 |
| 39 | D | 5 | 5048 | 5248 | 5448 | 5648 | 4118 | 6118 | 7118 | 8118 | 7 | 140 | 175 | 6 | 6 |
| 39 | D | 10 | 2311 | 2551 | 2791 | 3031 | 4119 | 6119 | 7119 | 8119 | 7 | 140 | 175 | 6 | 6 |
| 47 | D | 5 | 5049 | 5249 | 5449 | 5649 | 4120 | 6120 | 7120 | 8120 | 8 | 160 | 200 | 6 | 6 |
| 47 | D | 10 | 2312 | 2552 | 2792 | 3032 | 4121 | 6121 | 7121 | 8121 | 8 | 160 | 200 | 6 | 6 |
| 47 | D | 20 | 2313 | 2553 | 2793 | 3033 | 4122 | 6122 | 7122 | 8122 | 8 | 160 | 200 | 6 | 6 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|-----------------------|--|------|------|-------|------|------|------|-------|------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (µF) | CASE CODE | CAP. TOL. (± %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (µA) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 50 V_{DC} AT +85 °C, SURGE = 65 V; 33 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 0.033 | A | 5 | 5060 | 5260 | 5460 | 5660 | 4148 | 6148 | 7148 | 8148 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.033 | A | 10 | 2329 | 2569 | 2809 | 3049 | 4149 | 6149 | 7149 | 8149 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.033 | A | 20 | 2330 | 2570 | 2810 | 3050 | 4150 | 6150 | 7150 | 8150 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.039 | A | 5 | 5061 | 5261 | 5461 | 5661 | 4151 | 6151 | 7151 | 8151 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.039 | A | 10 | 2331 | 2571 | 2811 | 3051 | 4152 | 6152 | 7152 | 8152 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.047 | A | 5 | 5062 | 5262 | 5462 | 5662 | 4153 | 6153 | 7153 | 8153 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.047 | A | 10 | 2332 | 2572 | 2812 | 3052 | 4154 | 6154 | 7154 | 8154 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.047 | A | 20 | 2333 | 2573 | 2813 | 3053 | 4155 | 6155 | 7155 | 8155 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.056 | A | 5 | 5063 | 5263 | 5463 | 5663 | 4156 | 6156 | 7156 | 8156 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.056 | A | 10 | 2334 | 2574 | 2814 | 3054 | 4157 | 6157 | 7157 | 8157 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.068 | A | 5 | 5064 | 5264 | 5464 | 5664 | 4158 | 6158 | 7158 | 8158 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.068 | A | 10 | 2335 | 2575 | 2815 | 3055 | 4159 | 6159 | 7159 | 8159 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.068 | A | 20 | 2336 | 2576 | 2816 | 3056 | 4160 | 6160 | 7160 | 8160 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.082 | A | 5 | 5065 | 5265 | 5465 | 5665 | 4161 | 6161 | 7161 | 8161 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.082 | A | 10 | 2337 | 2577 | 2817 | 3057 | 4162 | 6162 | 7162 | 8162 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 5 | 5066 | 5266 | 5466 | 5666 | 4163 | 6163 | 7163 | 8163 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 10 | 2338 | 2578 | 2818 | 3058 | 4164 | 6164 | 7164 | 8164 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 20 | 2339 | 2579 | 2819 | 3059 | 4165 | 6165 | 7165 | 8165 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.12 | A | 5 | 5067 | 5267 | 5467 | 5667 | 4166 | 6166 | 7166 | 8166 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.12 | A | 10 | 2340 | 2580 | 2820 | 3060 | 4167 | 6167 | 7167 | 8167 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 5 | 5068 | 5268 | 5468 | 5668 | 4168 | 6168 | 7168 | 8168 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 10 | 2341 | 2581 | 2821 | 3061 | 4169 | 6169 | 7169 | 8169 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 20 | 2342 | 2582 | 2822 | 3062 | 4170 | 6170 | 7170 | 8170 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.18 | A | 5 | 5069 | 5269 | 5469 | 5669 | 4171 | 6171 | 7171 | 8171 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.18 | A | 10 | 2343 | 2583 | 2823 | 3063 | 4172 | 6172 | 7172 | 8172 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 5 | 5070 | 5270 | 5470 | 5670 | 4173 | 6173 | 7173 | 8173 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 10 | 2344 | 2584 | 2824 | 3064 | 4174 | 6174 | 7174 | 8174 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 20 | 2345 | 2585 | 2825 | 3065 | 4175 | 6175 | 7175 | 8175 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.27 | A | 5 | 5071 | 5271 | 5471 | 5671 | 4176 | 6176 | 7176 | 8176 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.27 | A | 10 | 2346 | 2586 | 2826 | 3066 | 4177 | 6177 | 7177 | 8177 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 5 | 5072 | 5272 | 5472 | 5672 | 4178 | 6178 | 7178 | 8178 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 10 | 2347 | 2587 | 2827 | 3067 | 4179 | 6179 | 7179 | 8179 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 20 | 2348 | 2588 | 2828 | 3068 | 4180 | 6180 | 7180 | 8180 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.39 | A | 5 | 5073 | 5273 | 5473 | 5673 | 4181 | 6181 | 7181 | 8181 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.39 | A | 10 | 2349 | 2589 | 2829 | 3069 | 4182 | 6182 | 7182 | 8182 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 5 | 5074 | 5274 | 5474 | 5674 | 4183 | 6183 | 7183 | 8183 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 10 | 2350 | 2590 | 2830 | 3070 | 4184 | 6184 | 7184 | 8184 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 20 | 2351 | 2591 | 2831 | 3071 | 4185 | 6185 | 7185 | 8185 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.56 | A | 5 | 5075 | 5275 | 5475 | 5675 | 4186 | 6186 | 7186 | 8186 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.56 | A | 10 | 2352 | 2592 | 2832 | 3072 | 4187 | 6187 | 7187 | 8187 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | A | 5 | 5076 | 5276 | 5476 | 5676 | 4188 | 6188 | 7188 | 8188 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | A | 10 | 2353 | 2593 | 2833 | 3073 | 4189 | 6189 | 7189 | 8189 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | A | 20 | 2354 | 2594 | 2834 | 3074 | 4190 | 6190 | 7190 | 8190 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.82 | A | 5 | 5077 | 5277 | 5477 | 5677 | 4191 | 6191 | 7191 | 8191 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.82 | A | 10 | 2355 | 2595 | 2835 | 3075 | 4192 | 6192 | 7192 | 8192 | 0.3 | 5 | 6.3 | 2 | 4 |
| 1.0 | A | 5 | 5078 | 5278 | 5478 | 5678 | 4193 | 6193 | 7193 | 8193 | 0.4 | 8 | 10 | 2 | 4 |
| 1.0 | A | 10 | 2356 | 2596 | 2836 | 3076 | 4194 | 6194 | 7194 | 8194 | 0.4 | 8 | 10 | 2 | 4 |
| 1.0 | A | 20 | 2357 | 2597 | 2837 | 3077 | 4195 | 6195 | 7195 | 8195 | 0.4 | 8 | 10 | 2 | 4 |
| 1.2 | B | 5 | 5079 | 5279 | 5479 | 5679 | 4196 | 6196 | 7196 | 8196 | 0.4 | 9 | 11 | 4 | 4 |
| 1.2 | B | 10 | 2358 | 2598 | 2838 | 3078 | 4197 | 6197 | 7197 | 8197 | 0.4 | 9 | 11 | 4 | 4 |
| 1.5 | B | 5 | 5080 | 5280 | 5480 | 5680 | 4198 | 6198 | 7198 | 8198 | 0.6 | 12 | 15 | 4 | 4 |
| 1.5 | B | 10 | 2359 | 2599 | 2839 | 3079 | 4199 | 6199 | 7199 | 8199 | 0.6 | 12 | 15 | 4 | 4 |
| 1.5 | B | 20 | 2360 | 2600 | 2840 | 3080 | 4200 | 6200 | 7200 | 8200 | 0.6 | 12 | 15 | 4 | 4 |
| 1.8 | B | 5 | 5081 | 5281 | 5481 | 5681 | 4201 | 6201 | 7201 | 8201 | 0.7 | 14 | 18 | 4 | 4 |
| 1.8 | B | 10 | 2361 | 2601 | 2841 | 3081 | 4202 | 6202 | 7202 | 8202 | 0.7 | 14 | 18 | 4 | 4 |
| 2.2 | B | 5 | 5082 | 5282 | 5482 | 5682 | 4203 | 6203 | 7203 | 8203 | 0.8 | 17 | 22 | 4 | 4 |
| 2.2 | B | 10 | 2362 | 2602 | 2842 | 3082 | 4204 | 6204 | 7204 | 8204 | 0.8 | 17 | 22 | 4 | 4 |
| 2.2 | B | 20 | 2363 | 2603 | 2843 | 3083 | 4205 | 6205 | 7205 | 8205 | 0.8 | 17 | 22 | 4 | 4 |
| 2.7 | B | 5 | 5083 | 5283 | 5483 | 5683 | 4206 | 6206 | 7206 | 8206 | 1 | 20 | 25 | 4 | 4 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|----------------------------|--|------|------|-------|------|------|------|-------|------------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (μ F) | CASE CODE | CAP. TOL. (\pm %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (μ A) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 50 V_{DC} AT +85 °C, SURGE = 65 V; 33 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 2.7 | B | 10 | 2364 | 2604 | 2844 | 3084 | 4207 | 6207 | 7207 | 8207 | 1 | 20 | 25 | 4 | 4 |
| 3.3 | B | 5 | 5084 | 5284 | 5484 | 5684 | 4208 | 6208 | 7208 | 8208 | 1.2 | 25 | 32 | 4 | 4 |
| 3.3 | B | 10 | 2365 | 2605 | 2845 | 3085 | 4209 | 6209 | 7209 | 8209 | 1.2 | 25 | 32 | 4 | 4 |
| 3.3 | B | 20 | 2366 | 2606 | 2846 | 3086 | 4210 | 6210 | 7210 | 8210 | 1.2 | 25 | 32 | 4 | 4 |
| 3.9 | B | 5 | 5085 | 5285 | 5485 | 5685 | 4211 | 6211 | 7211 | 8211 | 1.5 | 30 | 38 | 4 | 4 |
| 3.9 | B | 10 | 2367 | 2607 | 2847 | 3087 | 4212 | 6212 | 7212 | 8212 | 1.5 | 30 | 38 | 4 | 4 |
| 4.7 | B | 5 | 5086 | 5286 | 5486 | 5686 | 4213 | 6213 | 7213 | 8213 | 1.7 | 35 | 44 | 4 | 4 |
| 4.7 | B | 10 | 2368 | 2608 | 2848 | 3088 | 4214 | 6214 | 7214 | 8214 | 1.7 | 35 | 44 | 4 | 4 |
| 4.7 | B | 20 | 2369 | 2609 | 2849 | 3089 | 4215 | 6215 | 7215 | 8215 | 1.7 | 35 | 44 | 4 | 4 |
| 5.6 | C | 5 | 5087 | 5287 | 5487 | 5687 | 4216 | 6216 | 7216 | 8216 | 2.2 | 45 | 56 | 4 | 4 |
| 5.6 | C | 10 | 2370 | 2610 | 2850 | 3090 | 4217 | 6217 | 7217 | 8217 | 2.2 | 45 | 56 | 4 | 4 |
| 6.8 | C | 5 | 5088 | 5288 | 5488 | 5688 | 4218 | 6218 | 7218 | 8218 | 2.2 | 45 | 56 | 6 | 6 |
| 6.8 | C | 10 | 2371 | 2611 | 2851 | 3091 | 4219 | 6219 | 7219 | 8219 | 2.2 | 45 | 56 | 6 | 6 |
| 6.8 | C | 20 | 2372 | 2612 | 2852 | 3092 | 4220 | 6220 | 7220 | 8220 | 2.2 | 45 | 56 | 6 | 6 |
| 8.2 | C | 5 | 5089 | 5289 | 5489 | 5689 | 4221 | 6221 | 7221 | 8221 | 2.5 | 50 | 63 | 6 | 6 |
| 8.2 | C | 10 | 2373 | 2613 | 2853 | 3093 | 4222 | 6222 | 7222 | 8222 | 2.5 | 50 | 63 | 6 | 6 |
| 10 | C | 5 | 5090 | 5290 | 5490 | 5690 | 4223 | 6223 | 7223 | 8223 | 2.5 | 50 | 63 | 6 | 6 |
| 10 | C | 10 | 2374 | 2614 | 2854 | 3094 | 4224 | 6224 | 7224 | 8224 | 2.5 | 50 | 63 | 6 | 6 |
| 10 | C | 20 | 2375 | 2615 | 2855 | 3095 | 4225 | 6225 | 7225 | 8225 | 2.5 | 50 | 63 | 6 | 6 |
| 12 | C | 5 | 5091 | 5291 | 5491 | 5691 | 4226 | 6226 | 7226 | 8226 | 3 | 60 | 75 | 6 | 6 |
| 12 | C | 10 | 2376 | 2616 | 2856 | 3096 | 4227 | 6227 | 7227 | 8227 | 3 | 60 | 75 | 6 | 6 |
| 15 | C | 5 | 5092 | 5292 | 5492 | 5692 | 4228 | 6228 | 7228 | 8228 | 4 | 80 | 100 | 6 | 6 |
| 15 | C | 10 | 2377 | 2617 | 2857 | 3097 | 4229 | 6229 | 7229 | 8229 | 4 | 80 | 100 | 6 | 6 |
| 15 | C | 20 | 2378 | 2618 | 2858 | 3098 | 4230 | 6230 | 7230 | 8230 | 4 | 80 | 100 | 6 | 6 |
| 18 | C | 5 | 5093 | 5293 | 5493 | 5693 | 4231 | 6231 | 7231 | 8231 | 4.5 | 90 | 113 | 6 | 6 |
| 18 | C | 10 | 2379 | 2619 | 2859 | 3099 | 4232 | 6232 | 7232 | 8232 | 4.5 | 90 | 113 | 6 | 6 |
| 22 | D | 5 | 5094 | 5294 | 5494 | 5694 | 4233 | 6233 | 7233 | 8233 | 5.5 | 110 | 138 | 6 | 6 |
| 22 | D | 10 | 2380 | 2620 | 2860 | 3100 | 4234 | 6234 | 7234 | 8234 | 5.5 | 110 | 138 | 6 | 6 |
| 22 | D | 20 | 2381 | 2621 | 2861 | 3101 | 4235 | 6235 | 7235 | 8235 | 5.5 | 110 | 138 | 6 | 6 |
| 75 V_{DC} AT +85 °C, SURGE = 98 V; 50 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 0.10 | A | 5 | 5095 | 5295 | 5495 | 5695 | 4236 | 6236 | 7236 | 8236 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 10 | 2382 | 2622 | 2862 | 3102 | 4237 | 6237 | 7237 | 8237 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 20 | 2383 | 2623 | 2863 | 3103 | 4238 | 6238 | 7238 | 8238 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.12 | A | 5 | 5096 | 5296 | 5496 | 5696 | 4239 | 6239 | 7239 | 8239 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.12 | A | 10 | 2384 | 2624 | 2864 | 3104 | 4240 | 6240 | 7240 | 8240 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 5 | 5097 | 5297 | 5497 | 5697 | 4241 | 6241 | 7241 | 8241 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 10 | 2385 | 2625 | 2865 | 3105 | 4242 | 6242 | 7242 | 8242 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 20 | 2386 | 2626 | 2866 | 3106 | 4243 | 6243 | 7243 | 8243 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.18 | A | 5 | 5098 | 5298 | 5498 | 5698 | 4244 | 6244 | 7244 | 8244 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.18 | A | 10 | 2387 | 2627 | 2867 | 3107 | 4245 | 6245 | 7245 | 8245 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 5 | 5099 | 5299 | 5499 | 5699 | 4246 | 6246 | 7246 | 8246 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 10 | 2388 | 2628 | 2868 | 3108 | 4247 | 6247 | 7247 | 8247 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 20 | 2389 | 2629 | 2869 | 3109 | 4248 | 6248 | 7248 | 8248 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.27 | A | 5 | 5100 | 5300 | 5500 | 5700 | 4249 | 6249 | 7249 | 8249 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.27 | A | 10 | 2390 | 2630 | 2870 | 3110 | 4250 | 6250 | 7250 | 8250 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 5 | 5101 | 5301 | 5501 | 5701 | 4251 | 6251 | 7251 | 8251 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 10 | 2391 | 2631 | 2871 | 3111 | 4252 | 6252 | 7252 | 8252 | 0.3 | 5 | 6.3 | 2 | 4 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|-----------------------|--|------|------|-------|------|------|------|-------|------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (µF) | CASE CODE | CAP. TOL. (± %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (µA) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 75 V_{DC} AT +85 °C, SURGE = 98 V; 50 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 0.33 | A | 20 | 2392 | 2632 | 2872 | 3112 | 4253 | 6253 | 7253 | 8253 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.39 | A | 5 | 5102 | 5302 | 5502 | 5702 | 4254 | 6254 | 7254 | 8254 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.39 | A | 10 | 2393 | 2633 | 2873 | 3113 | 4255 | 6255 | 7255 | 8255 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 5 | 5103 | 5303 | 5503 | 5703 | 4256 | 6256 | 7256 | 8256 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 10 | 2394 | 2634 | 2874 | 3114 | 4257 | 6257 | 7257 | 8257 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 20 | 2395 | 2635 | 2875 | 3115 | 4258 | 6258 | 7258 | 8258 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.56 | A | 5 | 5104 | 5304 | 5504 | 5704 | 4259 | 6259 | 7259 | 8259 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.56 | A | 10 | 2396 | 2636 | 2876 | 3116 | 4260 | 6260 | 7260 | 8260 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | A | 5 | 5105 | 5305 | 5505 | 5705 | 4261 | 6261 | 7261 | 8261 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | A | 10 | 2397 | 2637 | 2877 | 3117 | 4262 | 6262 | 7262 | 8262 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | A | 20 | 2398 | 2638 | 2878 | 3118 | 4263 | 6263 | 7263 | 8263 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.82 | B | 5 | 5106 | 5306 | 5506 | 5706 | 4264 | 6264 | 7264 | 8264 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.82 | B | 10 | 2399 | 2639 | 2879 | 3119 | 4265 | 6265 | 7265 | 8265 | 0.3 | 5 | 6.3 | 2 | 4 |
| 1.0 | B | 5 | 5107 | 5307 | 5507 | 5707 | 4266 | 6266 | 7266 | 8266 | 0.3 | 5 | 6.3 | 2 | 4 |
| 1.0 | B | 10 | 2400 | 2640 | 2880 | 3120 | 4267 | 6267 | 7267 | 8267 | 0.3 | 5 | 6.3 | 2 | 4 |
| 1.0 | B | 20 | 2401 | 2641 | 2881 | 3121 | 4268 | 6268 | 7268 | 8268 | 0.3 | 5 | 6.3 | 2 | 4 |
| 1.2 | B | 5 | 5108 | 5308 | 5508 | 5708 | 4269 | 6269 | 7269 | 8269 | 0.3 | 5 | 6.3 | 4 | 4 |
| 1.2 | B | 10 | 2402 | 2642 | 2882 | 3122 | 4270 | 6270 | 7270 | 8270 | 0.3 | 5 | 6.3 | 4 | 4 |
| 1.5 | B | 5 | 5109 | 5309 | 5509 | 5709 | 4271 | 6271 | 7271 | 8271 | 0.6 | 10 | 13 | 4 | 4 |
| 1.5 | B | 10 | 2403 | 2643 | 2883 | 3123 | 4272 | 6272 | 7272 | 8272 | 0.6 | 10 | 13 | 4 | 4 |
| 1.5 | B | 20 | 2404 | 2644 | 2884 | 3124 | 4273 | 6273 | 7273 | 8273 | 0.6 | 10 | 13 | 4 | 4 |
| 1.8 | B | 5 | 5110 | 5310 | 5510 | 5710 | 4274 | 6274 | 7274 | 8274 | 0.7 | 10 | 13 | 4 | 4 |
| 1.8 | B | 10 | 2405 | 2645 | 2885 | 3125 | 4275 | 6275 | 7275 | 8275 | 0.7 | 10 | 13 | 4 | 4 |
| 2.2 | B | 5 | 5111 | 5311 | 5511 | 5711 | 4276 | 6276 | 7276 | 8276 | 0.8 | 15 | 19 | 4 | 4 |
| 2.2 | B | 10 | 2406 | 2646 | 2886 | 3126 | 4277 | 6277 | 7277 | 8277 | 0.8 | 15 | 19 | 4 | 4 |
| 2.2 | B | 20 | 2407 | 2647 | 2887 | 3127 | 4278 | 6278 | 7278 | 8278 | 0.8 | 15 | 19 | 4 | 4 |
| 2.7 | B | 5 | 5112 | 5312 | 5512 | 5712 | 4279 | 6279 | 7279 | 8279 | 1 | 15 | 19 | 4 | 4 |
| 2.7 | B | 10 | 2408 | 2648 | 2888 | 3128 | 4280 | 6280 | 7280 | 8280 | 1 | 15 | 19 | 4 | 4 |
| 3.3 | B | 5 | 5113 | 5313 | 5513 | 5713 | 4281 | 6281 | 7281 | 8281 | 1.2 | 20 | 25 | 4 | 4 |
| 3.3 | B | 10 | 2409 | 2649 | 2889 | 3129 | 4282 | 6282 | 7282 | 8282 | 1.2 | 20 | 25 | 4 | 4 |
| 3.3 | B | 20 | 2410 | 2650 | 2890 | 3130 | 4283 | 6283 | 7283 | 8283 | 1.2 | 20 | 25 | 4 | 4 |
| 3.9 | B | 5 | 5114 | 5314 | 5514 | 5714 | 4284 | 6284 | 7284 | 8284 | 1.5 | 20 | 25 | 4 | 4 |
| 3.9 | B | 10 | 2411 | 2651 | 2891 | 3131 | 4285 | 6285 | 7285 | 8285 | 1.5 | 20 | 25 | 4 | 4 |
| 4.7 | C | 5 | 5115 | 5315 | 5515 | 5715 | 4286 | 6286 | 7286 | 8286 | 3 | 60 | 75 | 4 | 4 |
| 4.7 | C | 10 | 2412 | 2652 | 2892 | 3132 | 4287 | 6287 | 7287 | 8287 | 3 | 60 | 75 | 4 | 4 |
| 4.7 | C | 20 | 2413 | 2653 | 2893 | 3133 | 4288 | 6288 | 7288 | 8288 | 3 | 60 | 75 | 4 | 4 |
| 5.6 | C | 5 | 5116 | 5316 | 5516 | 5716 | 4289 | 6289 | 7289 | 8289 | 3 | 60 | 75 | 4 | 4 |
| 5.6 | C | 10 | 2414 | 2654 | 2894 | 3134 | 4290 | 6290 | 7290 | 8290 | 3 | 60 | 75 | 4 | 4 |
| 6.8 | C | 5 | 5117 | 5317 | 5517 | 5717 | 4291 | 6291 | 7291 | 8291 | 5 | 100 | 125 | 6 | 6 |
| 6.8 | C | 10 | 2415 | 2655 | 2895 | 3135 | 4292 | 6292 | 7292 | 8292 | 5 | 100 | 125 | 6 | 6 |
| 6.8 | C | 20 | 2416 | 2656 | 2896 | 3136 | 4293 | 6293 | 7293 | 8293 | 5 | 100 | 125 | 6 | 6 |
| 8.2 | C | 5 | 5118 | 5318 | 5518 | 5718 | 4294 | 6294 | 7294 | 8294 | 5 | 100 | 125 | 6 | 6 |
| 8.2 | C | 10 | 2417 | 2657 | 2897 | 3137 | 4295 | 6295 | 7295 | 8295 | 5 | 100 | 125 | 6 | 6 |
| 10 | C | 5 | 5119 | 5319 | 5519 | 5719 | 4296 | 6296 | 7296 | 8296 | 5 | 100 | 125 | 6 | 6 |
| 10 | C | 10 | 2418 | 2658 | 2898 | 3138 | 4297 | 6297 | 7297 | 8297 | 5 | 100 | 125 | 6 | 6 |
| 10 | C | 20 | 2419 | 2659 | 2899 | 3139 | 4298 | 6298 | 7298 | 8298 | 5 | 100 | 125 | 6 | 6 |
| 12 | D | 5 | 5120 | 5320 | 5520 | 5720 | 4299 | 6299 | 7299 | 8299 | 5 | 100 | 125 | 6 | 6 |
| 12 | D | 10 | 2420 | 2660 | 2900 | 3140 | 4300 | 6300 | 7300 | 8300 | 5 | 100 | 125 | 6 | 6 |
| 15 | D | 5 | 5121 | 5321 | 5521 | 5721 | 4301 | 6301 | 7301 | 8301 | 7 | 140 | 175 | 6 | 6 |
| 15 | D | 10 | 2421 | 2661 | 2901 | 3141 | 4302 | 6302 | 7302 | 8302 | 7 | 140 | 175 | 6 | 6 |
| 15 | D | 20 | 2422 | 2662 | 2902 | 3142 | 4303 | 6303 | 7303 | 8303 | 7 | 140 | 175 | 6 | 6 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|-----------------------|--|------|------|-------|------|------|------|-------|------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (µF) | CASE CODE | CAP. TOL. (± %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (µA) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 100 V_{DC} AT +85 °C, SURGE = 130 V; 67 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 0.033 | A | 5 | 5132 | 5332 | 5532 | 5732 | 4329 | 6329 | 7329 | 8329 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.033 | A | 10 | 2438 | 2678 | 2918 | 3158 | 4330 | 6330 | 7330 | 8330 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.033 | A | 20 | 2439 | 2679 | 2919 | 3159 | 4331 | 6331 | 7331 | 8331 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.039 | A | 5 | 5133 | 5333 | 5533 | 5733 | 4332 | 6332 | 7332 | 8332 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.039 | A | 10 | 2440 | 2680 | 2920 | 3160 | 4333 | 6333 | 7333 | 8333 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.047 | A | 5 | 5134 | 5334 | 5534 | 5734 | 4334 | 6334 | 7334 | 8334 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.047 | A | 10 | 2441 | 2681 | 2921 | 3161 | 4335 | 6335 | 7335 | 8335 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.047 | A | 20 | 2442 | 2682 | 2922 | 3162 | 4336 | 6336 | 7336 | 8336 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.056 | A | 5 | 5135 | 5335 | 5535 | 5735 | 4337 | 6337 | 7337 | 8337 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.056 | A | 10 | 2443 | 2683 | 2923 | 3163 | 4338 | 6338 | 7338 | 8338 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.068 | A | 5 | 5136 | 5336 | 5536 | 5736 | 4339 | 6339 | 7339 | 8339 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.068 | A | 10 | 2444 | 2684 | 2924 | 3164 | 4340 | 6340 | 7340 | 8340 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.068 | A | 20 | 2445 | 2685 | 2925 | 3165 | 4341 | 6341 | 7341 | 8341 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.082 | A | 5 | 5137 | 5337 | 5537 | 5737 | 4342 | 6342 | 7342 | 8342 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.082 | A | 10 | 2446 | 2686 | 2926 | 3166 | 4343 | 6343 | 7343 | 8343 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 5 | 5138 | 5338 | 5538 | 5738 | 4344 | 6344 | 7344 | 8344 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 10 | 2447 | 2687 | 2927 | 3167 | 4345 | 6345 | 7345 | 8345 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.10 | A | 20 | 2448 | 2688 | 2928 | 3168 | 4346 | 6346 | 7346 | 8346 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.12 | A | 5 | 5139 | 5339 | 5539 | 5739 | 4347 | 6347 | 7347 | 8347 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.12 | A | 10 | 2449 | 2689 | 2929 | 3169 | 4348 | 6348 | 7348 | 8348 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 5 | 5140 | 5340 | 5540 | 5740 | 4349 | 6349 | 7349 | 8349 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 10 | 2450 | 2690 | 2930 | 3170 | 4350 | 6350 | 7350 | 8350 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.15 | A | 20 | 2451 | 2691 | 2931 | 3171 | 4351 | 6351 | 7351 | 8351 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.18 | A | 5 | 5141 | 5341 | 5541 | 5741 | 4352 | 6352 | 7352 | 8352 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.18 | A | 10 | 2452 | 2692 | 2932 | 3172 | 4353 | 6353 | 7353 | 8353 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 5 | 5142 | 5342 | 5542 | 5742 | 4354 | 6354 | 7354 | 8354 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 10 | 2453 | 2693 | 2933 | 3173 | 4355 | 6355 | 7355 | 8355 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.22 | A | 20 | 2454 | 2694 | 2934 | 3174 | 4356 | 6356 | 7356 | 8356 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.27 | A | 5 | 5143 | 5343 | 5543 | 5743 | 4357 | 6357 | 7357 | 8357 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.27 | A | 10 | 2455 | 2695 | 2935 | 3175 | 4358 | 6358 | 7358 | 8358 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 5 | 5144 | 5344 | 5544 | 5744 | 4359 | 6359 | 7359 | 8359 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 10 | 2456 | 2696 | 2936 | 3176 | 4360 | 6360 | 7360 | 8360 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.33 | A | 20 | 2457 | 2697 | 2937 | 3177 | 4361 | 6361 | 7361 | 8361 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.39 | A | 5 | 5145 | 5345 | 5545 | 5745 | 4362 | 6362 | 7362 | 8362 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.39 | A | 10 | 2458 | 2698 | 2938 | 3178 | 4363 | 6363 | 7363 | 8363 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 5 | 5146 | 5346 | 5546 | 5746 | 4364 | 6364 | 7364 | 8364 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 10 | 2459 | 2699 | 2939 | 3179 | 4365 | 6365 | 7365 | 8365 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.47 | A | 20 | 2460 | 2700 | 2940 | 3180 | 4366 | 6366 | 7366 | 8366 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.56 | A | 5 | 5147 | 5347 | 5547 | 5747 | 4367 | 6367 | 7367 | 8367 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.56 | A | 10 | 2461 | 2701 | 2941 | 3181 | 4368 | 6368 | 7368 | 8368 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | B | 5 | 5148 | 5348 | 5548 | 5748 | 4369 | 6369 | 7369 | 8369 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | B | 10 | 2462 | 2702 | 2942 | 3182 | 4370 | 6370 | 7370 | 8370 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.68 | B | 20 | 2463 | 2703 | 2943 | 3183 | 4371 | 6371 | 7371 | 8371 | 0.3 | 5 | 6.3 | 2 | 4 |
| 0.82 | B | 5 | 5149 | 5349 | 5549 | 5749 | 4372 | 6372 | 7372 | 8372 | 0.4 | 5 | 6.3 | 2 | 4 |
| 0.82 | B | 10 | 2464 | 2704 | 2944 | 3184 | 4373 | 6373 | 7373 | 8373 | 0.4 | 5 | 6.3 | 2 | 4 |
| 1.0 | B | 5 | 5150 | 5350 | 5550 | 5750 | 4374 | 6374 | 7374 | 8374 | 0.5 | 5 | 6.3 | 2 | 4 |



| STANDARD RATINGS | | | | | | | | | | | | | | | |
|--|--------------|----------------------------|--|------|------|-------|------|------|------------|------------|------------------------|--------|---------|------------------|-------------------|
| CAPACITANCE (μ F) | CASE CODE | CAP. TOL. (\pm %) | PART NO. M39003/01- FAILURE RATE LEVEL (%/1000 h) | | | | | | | | MAX. DCL (μ A) AT | | | MAX. DF (%) AT | |
| | | | M | P | R | S | G | B | C | D | +25 °C | +85 °C | +125 °C | -55 °C +25 °C | +85 °C +125 °C |
| | | | 1.0 | 0.1 | 0.01 | 0.001 | 1.0 | 0.1 | 0.01 | 0.001 | | | | | |
| 100 V_{DC} AT +85 °C, SURGE = 130 V; 67 V_{DC} AT +125 °C | | | | | | | | | | | | | | | |
| 1.0 | B | 10 | 2465 | 2705 | 2945 | 3185 | 4375 | 6375 | 7375 | 8375 | 0.5 | 5 | 6.3 | 2 | 4 |
| 1.0 | B | 20 | 2466 | 2706 | 2946 | 3186 | 4376 | 6376 | 7376 | 8376 | 0.5 | 5 | 6.3 | 2 | 4 |
| 1.2 | B | 5 | 5151 | 5351 | 5551 | 5751 | 4377 | 6377 | 7377 | 8377 | 0.5 | 5 | 6.3 | 4 | 4 |
| 1.2 | B | 10 | 2467 | 2707 | 2947 | 3187 | 4378 | 6378 | 7378 | 8378 | 0.5 | 5 | 6.3 | 4 | 4 |
| 1.5 | B | 5 | 5152 | 5352 | 5552 | 5752 | 4379 | 6379 | 7379 | 8379 | 0.7 | 10 | 13 | 4 | 4 |
| 1.5 | B | 10 | 2468 | 2708 | 2948 | 3188 | 4380 | 6380 | 7380 | 8380 | 0.7 | 10 | 13 | 4 | 4 |
| 1.5 | B | 20 | 2469 | 2709 | 2949 | 3189 | 4381 | 6381 | 7381 | 8381 | 0.7 | 10 | 13 | 4 | 4 |
| 1.8 | B | 5 | 5153 | 5353 | 5553 | 5753 | 4382 | 6382 | 7382 | 8382 | 0.7 | 10 | 13 | 4 | 4 |
| 1.8 | B | 10 | 2470 | 2710 | 2950 | 3190 | 4383 | 6383 | 7383 | 8383 | 0.7 | 10 | 13 | 4 | 4 |
| 2.2 | B | 5 | 5154 | 5354 | 5554 | 5754 | 4384 | 6384 | 7384 | 8384 | 0.9 | 15 | 19 | 4 | 4 |
| 2.2 | B | 10 | 2471 | 2711 | 2951 | 3191 | 4385 | 6385 | 7385 | 8385 | 0.9 | 15 | 19 | 4 | 4 |
| 2.2 | B | 20 | 2472 | 2712 | 2952 | 3192 | 4386 | 6386 | 7386 | 8386 | 0.9 | 15 | 19 | 4 | 4 |
| 2.7 | B | 5 | 5155 | 5355 | 5555 | 5755 | 4387 | 6387 | 7387 | 8387 | 1.1 | 15 | 19 | 4 | 4 |
| 2.7 | B | 10 | 2473 | 2713 | 2953 | 3193 | 4388 | 6388 | 7388 | 8388 | 1.1 | 15 | 19 | 4 | 4 |
| 3.3 | C | 5 | 5156 | 5356 | 5556 | 5756 | 4389 | 6389 | Not QPL | Not QPL | 1.5 | 30 | 38 | 6 | 6 |
| 3.3 | C | 10 | 5157 | 5357 | 5557 | 5757 | 4390 | 6390 | Not QPL | Not QPL | 1.5 | 30 | 38 | 6 | 6 |
| 3.3 | C | 20 | 5158 | 5358 | 5558 | 5758 | 4391 | 6391 | Not QPL | Not QPL | 1.5 | 30 | 38 | 6 | 6 |
| 3.9 | C | 5 | 5159 | 5359 | 5559 | 5759 | 4392 | 6392 | Not QPL | Not QPL | 1.5 | 30 | 38 | 6 | 6 |
| 3.9 | C | 10 | 5160 | 5360 | 5560 | 5760 | 4393 | 6393 | Not QPL | Not QPL | 1.5 | 30 | 38 | 6 | 6 |
| 4.7 | C | 5 | 5161 | 5361 | 5561 | 5761 | 4394 | 6394 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 4.7 | C | 10 | 5162 | 5362 | 5562 | 5762 | 4395 | 6395 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 4.7 | C | 20 | 5163 | 5363 | 5563 | 5763 | 4396 | 6396 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 5.6 | C | 5 | 5164 | 5364 | 5564 | 5764 | 4397 | 6397 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 5.6 | C | 10 | 5165 | 5365 | 5565 | 5765 | 4398 | 6398 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 6.8 | C | 5 | 5166 | 5366 | 5566 | 5766 | 4399 | 6399 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 6.8 | C | 10 | 5167 | 5367 | 5567 | 5767 | 4400 | 6400 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |
| 6.8 | C | 20 | 5168 | 5368 | 5568 | 5768 | 4401 | 6401 | Not QPL | Not QPL | 2.5 | 50 | 63 | 6 | 6 |



| STANDARD PACKAGING QUANTITY | | | | | |
|-----------------------------|---------------------|-----------|--------------|---------------|---------|
| CASE CODE | QUANTITY (pcs/reel) | | | BULK QUANTITY | |
| | FULL REEL | HALF REEL | PARTIAL REEL | PER TRAY | PER BOX |
| A | 1000 | 500 | 100 | n/a | 100 |
| B | 1000 | 500 | 100 | 20 | 100 |
| C | 500 | 250 | 100 | 20 | 100 |
| D | 500 | 250 | 100 | 20 | 80 |

| INSIDE TAPE SPACING | | |
|---------------------|-----------|------------------------------|
| PACKAGING OPTION | CASE CODE | TAPE SPACING |
| /TR; /HR; /PR | A, B | 2.47 ± 0.02 [62.7 ± 0.51] |
| | C, D | 2.88 ± 0.02 [73.0 ± 0.51] |
| /RR | A, B | 2.05 ± 0.02 [52.1 ± 0.51] |
| | C, D | 2.47 ± 0.02 [62.7 ± 0.51] |
| /WR | A, B | - |
| | C, D | 2.05 ± 0.02 [52.1 ± 0.51] |

| PRODUCT INFORMATION | |
|-------------------------------------|--|
| Quick Reference Guide | www.vishay.com/doc?40037 |
| Selector Guide | www.vishay.com/doc?49054 |
| Parameter Comparison Guide | www.vishay.com/doc?40033 |
| Mounting of Through-Hole Components | www.vishay.com/doc?40108 |
| Frequently Asked Questions | www.vishay.com/doc?40110 |



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