

HIGH TEMPERATURE, EXTENDED LOAD LIFE, RADIAL LEADS, POLARIZED

FEATURES

- IMPROVED ENDURANCE AT HIGH TEMPERATURE (up to 10,000HRS @ 105°C)
- LOW IMPEDANCE & HIGH RIPPLE CURRENT RATINGS
- NEW REDUCED SIZES

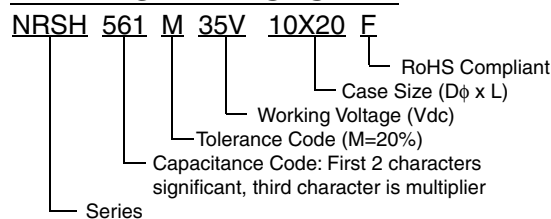
RoHS Compliant
includes all homogeneous materials
*See Part Number System for Details



CHARACTERISTICS

| | | | | | | | |
|---|------------------------|---|------|------|------|------|------|
| Rated Voltage Range | | 6.3 ~ 50VDC | | | | | |
| Capacitance Range | | 27 ~ 8,200 μ F | | | | | |
| Operating Temperature Range | | -40°C ~ +105°C | | | | | |
| Capacitance Tolerance | | \pm 20% (M) | | | | | |
| Maximum Leakage Current After 2 minutes | | 0.01CV or 3 μ A whichever is greater | | | | | |
| Max. Tan δ at 120Hz/20°C | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | S.V. (Vdc) | 8 | 13 | 20 | 32 | 44 | 63 |
| | C \leq 1,000 μ F | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 |
| | C = 1,200 μ F | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | - |
| | C = 1,500 μ F | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | - |
| | C = 2,200 μ F | 0.24 | 0.21 | 0.18 | 0.16 | 0.14 | - |
| | C = 2,700 μ F | 0.24 | 0.21 | 0.18 | 0.16 | - | - |
| | C = 3,300 μ F | 0.26 | 0.23 | 0.20 | 0.18 | - | - |
| | C = 3,900 μ F | 0.26 | 0.23 | 0.20 | - | - | - |
| | C = 4,700 μ F | 0.28 | 0.25 | 0.22 | - | - | - |
| | C = 5,600 μ F | 0.30 | 0.27 | - | - | - | - |
| Low Temperature Stability Impedance Ratio @ 120Hz | Z-25°C/Z+20°C | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z-40°C/Z+20°C | 3 | 3 | 3 | 3 | 3 | 3 |
| Load Life Test @ 105°C | Duration | ϕ D = 6.3: 6,000 hours, ϕ D = 8: 8,000 hours, ϕ D = 10 \geq : 10,000 hours | | | | | |
| | Δ Capacitance | Within \pm 25% of initial measured value | | | | | |
| | Δ Tan δ | Less than 200% of specified value | | | | | |
| | Δ LC | Less than specified value | | | | | |

PART NUMBER SYSTEM



MAXIMUM RIPPLE CURRENT (mA rms AT 100KHz & 105°C)

| Capacitance (μF) | Working Voltage (Vdc) | | | | | |
|------------------|-----------------------|--------------|--------------|--------------|--------------|--------------|
| | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 27 | - | - | - | - | - | 238 |
| 47 | - | - | - | - | 345 | - |
| 56 | - | - | - | - | - | 385 |
| 68 | - | - | - | 345 | - | - |
| 100 | - | - | 345 | - | 540 | 724 |
| 120 | - | - | - | - | - | 950 |
| 150 | - | 345 | - | 540 | - | 979 |
| 180 | - | - | - | - | - | 1190 |
| 220 | 345 | - | 540 | - | 945 | 1370 |
| 270 | - | - | - | - | 1250 | 1580 |
| 330 | - | 540 | - | 945 | 1330 | 1870 |
| 390 | - | - | - | 1250 | 1500 | - |
| 470 | 540 | - | 945 | 1330 | 1760 | 2050 |
| 560 | - | - | - | 1500 | 1960 | 2410 |
| 680 | - | 945 | 1250 1330 | 1760 | 2250 | 2860 |
| 820 | 945 | - | - | 1960 | - | 2960 2730 |
| 1,000 | - | 1250 1330 | 1500 1760 | 2250 | 2480 | 3010 |
| 1,200 | 1250 1330 | - | - | - | 2900 | - |
| 1,500 | 1500 | 1500 1760 | 1960 | 2480 | 3450 3250 | - |
| 1,800 | 1760 | 1960 | 2250 | 2900 | 3570 | - |
| 2,200 | 1960 | 2250 | 2480 | 3450 3250 | 3630 | - |
| 2,700 | 2250 | - | 2900 | 3570 | - | - |
| 3,300 | - | 2480 | 3450 3250 | 3630 | - | - |
| 3,900 | 2480 | 2900 | 3570 | - | - | - |
| 4,700 | 2900 | 3450 3250 | 3630 | - | - | - |
| 5,600 | 3450 | 3570 | - | - | - | - |
| 6,800 | 3250 3570 | 3630 | - | - | - | - |
| 8,200 | 3630 | - | - | - | - | - |

MAXIMUM IMPEDANCE (Ω AT 100KHz & 20°C)

| Capacitance (μF) | Working Voltage (Vdc) | | | | | |
|------------------|-----------------------|----------------|----------------|----------------|----------------|----------------|
| | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 27 | - | - | - | - | - | 0.340 |
| 47 | - | - | - | - | 0.220 | - |
| 56 | - | - | - | - | - | 0.140 |
| 68 | - | - | - | 0.220 | - | - |
| 100 | - | - | 0.220 | - | 0.094 | 0.074 |
| 120 | - | - | - | - | - | 0.061 |
| 150 | - | 0.220 | - | 0.094 | - | 0.061 |
| 180 | - | - | - | - | - | 0.046 |
| 220 | 0.220 | - | 0.094 | - | 0.056 | 0.042 |
| 270 | - | - | - | - | 0.045 | 0.030 |
| 330 | - | 0.094 | - | 0.056 | 0.039 | 0.028 |
| 390 | - | - | - | 0.045 | 0.029 | - |
| 470 | 0.094 | - | 0.056 | 0.039 | 0.028 | 0.027 |
| 560 | - | - | - | 0.029 | 0.020 | 0.023 |
| 680 | - | 0.056 | 0.045 0.039 | 0.028 | 0.018 | 0.021 |
| 820 | 0.056 | - | - | 0.020 | - | 0.019 0.023 |
| 1,000 | - | 0.045 0.039 | 0.029 0.028 | 0.018 | 0.017 | 0.021 |
| 1,200 | 0.045 0.039 | - | - | - | 0.015 | - |
| 1,500 | 0.029 | 0.029 0.028 | 0.020 | 0.017 | 0.013 0.015 | - |
| 1,800 | 0.028 | 0.020 | 0.018 | 0.015 | 0.012 | - |
| 2,200 | 0.020 | 0.018 | 0.017 | 0.013 0.015 | 0.013 | - |
| 2,700 | 0.018 | - | 0.015 | 0.012 | - | - |
| 3,300 | - | 0.017 | 0.013 0.015 | 0.013 | - | - |
| 3,900 | 0.017 | 0.015 | 0.012 | - | - | - |
| 4,700 | 0.015 | 0.013 0.015 | 0.013 | - | - | - |
| 5,600 | 0.013 | 0.012 | - | - | - | - |
| 6,800 | 0.015 0.012 | 0.013 | - | - | - | - |
| 8,200 | 0.013 | - | - | - | - | - |

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

| Frequency (Hz) | 120 | 1K | 10K | ≤100K |
|----------------|------|------|------|-------|
| 27μF | 0.42 | 0.70 | 0.90 | 1.00 |
| 47 ~ 270μF | 0.50 | 0.73 | 0.92 | 1.00 |
| 330 ~ 680μF | 0.55 | 0.77 | 0.94 | 1.00 |
| 820 ~ 1800μF | 0.60 | 0.80 | 0.96 | 1.00 |
| 2200 ~ 8200μF | 0.70 | 0.85 | 0.98 | 1.00 |

STANDARD PRODUCT AND CASE SIZE TABLE D ϕ x L (mm)

| Capacitance (μ F) | Code | Working Voltage (Vdc) | | | | | |
|------------------------|------|-----------------------|-----------|-----------|-----------|-----------|-----------|
| | | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 27 | 270 | - | - | - | - | - | 5 x 11 |
| 47 | 470 | - | - | - | - | 5 x 11 | - |
| 56 | 560 | - | - | - | - | - | 6.3 x 11 |
| 68 | 680 | - | - | - | 5 x 11 | - | - |
| 100 | 101 | - | - | 5 x 11 | - | 6.3 x 11 | 8 x 11.5 |
| 120 | 121 | - | - | - | - | - | 8 x 16 |
| 150 | 151 | - | 5 x 11 | - | 6.3 x 11 | - | 10 x 12.5 |
| 180 | 181 | - | - | - | - | - | 8 x 20 |
| 220 | 221 | 5 x 11 | - | 6.3 x 11 | - | 8 x 11.5 | 10 x 16 |
| 270 | 271 | - | - | - | - | 8 x 16 | 10 x 20 |
| 330 | 331 | - | 6.3 x 11 | - | 8 x 11.5 | 10 x 12.5 | 10 x 23 |
| 390 | 391 | - | - | - | 8 x 16 | 8 x 20 | - |
| 470 | 471 | 6.3 x 11 | - | 8 x 11.5 | 10 x 12.5 | 10 x 16 | 12.5 x 20 |
| 560 | 561 | - | - | - | 8 x 20 | 10 x 20 | 12.5 x 25 |
| 680 | 681 | - | 8 x 11.5 | 8 x 16 | 10 x 16 | 10 x 23 | 12.5 x 30 |
| | | | | 10 x 12.5 | | | |
| 820 | 821 | 8 x 11.5 | - | - | 10 x 20 | - | 12.5 x 35 |
| | | | | | | - | 16 x 20 |
| 1,000 | 102 | | 8 x 16 | 8 x 20 | 10 x 23 | 12.5 x 20 | 16 x 25 |
| | | | 10 x 12.5 | 10 x 16 | | | |
| 1,200 | 122 | 8 x 16 | - | - | - | 12.5 x 25 | - |
| | | 10 x 12.5 | | | | | |
| 1,500 | 152 | 8 x 20 | 8 x 20 | 10 x 20 | 12.5 x 20 | 12.5 x 30 | - |
| | | | 10 x 16 | | | 16 x 20 | |
| 1,800 | 182 | 10 x 16 | 10 x 20 | 10 x 23 | 12.5 x 25 | 12.5 x 35 | - |
| 2,200 | 222 | 10 x 20 | 10 x 23 | 12.5 x 20 | 12.5 x 30 | 16 x 25 | - |
| | | | | | 16 x 20 | | |
| 2,700 | 272 | 10 x 23 | - | 12.5 x 25 | 12.5 x 35 | - | - |
| 3,300 | 332 | - | 12.5 x 20 | 12.5 x 30 | 16 x 25 | - | - |
| | | | | 16 x 20 | | | |
| 3,900 | 392 | 12.5 x 20 | 12.5 x 25 | 12.5 x 35 | - | - | - |
| 4,700 | 472 | 12.5 x 25 | 12.5 x 30 | 16 x 25 | - | - | - |
| | | | 16 x 20 | | | | |
| 5,600 | 562 | 12.5 x 30 | 12.5 x 35 | - | - | - | - |
| 6,800 | 682 | 16 x 20 | 16 x 25 | - | - | - | - |
| | | 12.5 x 35 | | | | | |
| 8,200 | 822 | 16 x 25 | - | - | - | - | - |



LEAD SPACING AND DIAMETER (mm)

| Case Dia. (D ϕ) | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|------------------------|-----|-----|-----|-----|------|-----|-----|
| Leads Dia. (d ϕ) | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| Lead Spacing (F) | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| Dim. α | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

$\beta = L \leq 16\text{mm} = 1.5\text{mm}, L \geq 20\text{mm} = 2.0\text{mm}$