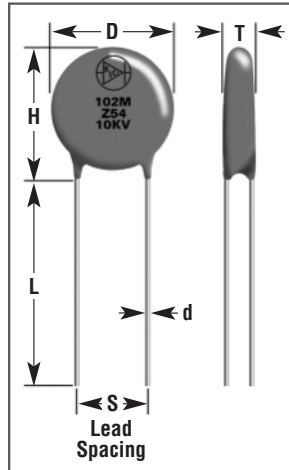


Introduction

The NY2 series Class II high voltage capacitor line from Dean Technology uses high dielectric constant ferroelectric materials based on Barium or Strontium Titanate.¹ Some key features of this capacitor series include stable temperature characteristics, excellent voltage coefficient behavior, reliable voltage and frequency performance with predictable change of capacitance over time. Many different dielectric materials are available and include Y5P, Y5R, Y5T, Y5U, Y5V, Z5P, Z5U, T3M and BXN.¹

The CK1 series, Class I stable high voltage capacitor line incorporates the features well known to this class of capacitor. Excellent temperature stability, superb voltage vs capacitance performance with low dissipation factor, high Q and low ESR.

Catalog listings are limited to radial lead style components with standard leads but these capacitors are available in many case and lead styles including axial, axial egress and other formats. Contact Dean Technology sales for more information.



Specifications

Capacitance and Dissipation Factor Measurement Methods:

Capacitance and Dissipation Factor are measured at a standard frequency of 1 KHz. A temperature of 25°C is used with an applied test voltage of less than 2 Volts AC. The allowable dissipation factor will be no greater than 2.5%.

Voltage Ratings:

Rated Voltages are available for standard product from 1kV to 15kV. Higher voltages available by special request.

Capacitance Tolerances Available:

| Tolerance | Code Letter |
|-----------|-------------|
| ±5% | J |
| ±10% | K |
| ±20% | M |
| +80, -20% | Z |
| +100, -0% | P |

Dielectric Withstand Voltage:

Capacitors must meet the original manufacturer's specifications following application of 1.5 times the rated D.C. voltage for 5±1 seconds.

Insulation Resistance:

Insulation resistance shall be 10,000 megohms or greater with a test temperature of 25°C. Measurements are made between component terminals following a 2 minute charge at 100 Volts DC. Charging currents will be limited to no more than 50 milliamperes.

Temperature Characteristics Available:

The temperature characteristics table follows the EIA Standard RS-198-C.

| 1st Letter | Number | Last Letter |
|------------|-----------|---------------|
| Y = -30°C | 5 = +85°C | P = ±10% |
| Z = +10°C | | R = ±15% |
| | | T = +22%/-33% |
| | | U = +22%/-56% |
| | | V = +22%/-82% |

¹ The BxN in the part numbers listed in this section is not an EIA standard temperature characteristic. It is a dielectric material, proprietary to Dean Technology, which responds much like standard Y5P material but with a broader and more stable temperature curve.

Life Testing Method:

These capacitors are designed to withstand voltages of at least 1.5 times the rated DC voltage for at least 1000 hours at 85°C. A change of capacitance of no more than 10% is acceptable when tested 24 hours later. Dissipation Factor changes are limited to 5% with Insulation Resistance values of no less than 1000 megohms.

Temperature Ratings:

Class I and Class II and intended to operate within the temperature limits set forth in EIA RS-198-C but may be stored at temperatures ranging from -55°C to +125°C without harm.

Humidity Resistance:

Capacitors must have a minimum insulation resistance of 1000 megohms and a maximum Dissipation Factor of 5% following exposure to a relative humidity of 95% for 100 hours at 40°C.

Construction

Coating Materials:

All capacitors with 1kVDC ratings are coated with a flame retardant, baked-on phenolic coating applied using the wet-dip method. Those rated 2 KV and above, are coated with a flame retardant, dry process fluid-bed epoxy. Diameter and thickness dimensions shown in the tables apply to epoxy as well as phenolic-coated units.

Lead Coatings:

On straight leads, the coatings shall not extend beyond 1/8 inch below the bottom of the capacitor disc. On bent or formed leads, the coating will not be allowed beyond the kink which is the seating plane of the capacitor.

Lead Wire Material and Configurations:

Lead wire material is tin-plated copper wire of 22 or 20 AWG. Capacitors with diameters of 12 mm or less, or voltage values less than 8 KV will be of the smaller gauge. Standard lead configurations are straight and at least 1 inch long, and formed or cut leads are available on special order (drawings required on special configurations).

Component Marking:

Both inking and laser equipment are used to mark these components. Each capacitor, where space is available, shall bear the letters "HVCA" across the top, followed by the capacitance, tolerance, temperature code and voltage where space permits. When space is limited, the temperature characteristic code may be omitted.

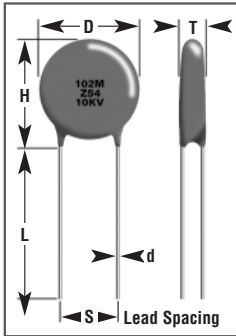
Ordering Information:

Component part numbers, capacitances, dielectrics and rated voltage represent the values presently stocked by Dean Technology, Inc. and typically available for immediate shipment. Many other values, voltages and styles are available by special request. For requirements not shown in the following pages, please contact your sales representative for datasheets, prices and lead times.

| NY2 Manufacturer's Code | Y5P Temperature Characteristics Code | 102 Capacitor Value (pf) | M Capacitance Tolerance Code | 10KV DC Voltage Rating |
|--|--|--|--|---------------------------------|
| CK1 or NY2 for Class II Capacitors | From Temperature Characteristics Table to the Left | 3 Digits Total 1st two are Significant Third is Multiplier 0=X1 1=X10 2=X100 3=X1000 9=X10000 | K=±10% M=±20% Z=+80, -20% P=+100, -0% | As Required |

Example: CK1Z5U471K5KV

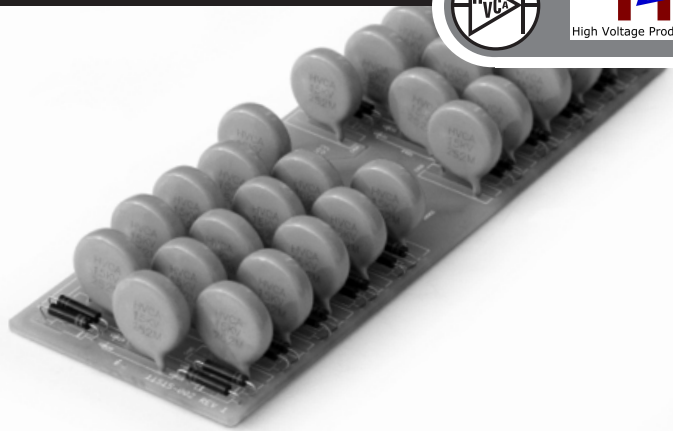
This is a capacitor with Z5U temperature characteristics, a capacitance of 470 pf, a capacitance tolerance of ±10% with a rated DC voltage of 5 KV.

**Key Features:**

- Low Loss
- High Stability
- RoHS Compliant

Applications

- High Voltage Multipliers
- High Voltage Noise filters
- High Voltage Power Supplies
- RF Coupling
- RF Bypass



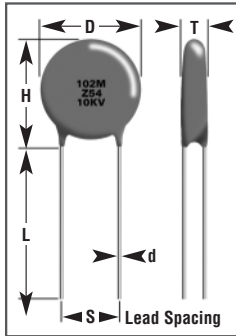
| Part Number | Capacitance Value | Dielectric Material | Rated Voltage | Dielectric Withstand Voltage | Capacitor Dimensions | | | | |
|-----------------------------|-------------------|---------------------|---------------|------------------------------|----------------------|------|--------|-----------|--------------|
| | pF | | | | V | V | Dia mm | Height mm | Thickness mm |
| NY2 Series - Y5P Dielectric | | | | | Radial Lead Style¹ | | | | |
| NY2Y5P101M3KV | 100 | Y5P | 3000 | 4500 | 7.5 | 10.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P221M3KV | 220 | Y5P | 3000 | 4500 | 7.0 | 8.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P331M3KV | 330 | Y5P | 3000 | 4500 | 7.0 | 9.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P471M3KV | 470 | Y5P | 3000 | 4500 | 8.0 | 9.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P561M3KV | 560 | Y5P | 3000 | 4500 | 8.0 | 9.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P102M3KV | 1000 | Y5P | 3000 | 4500 | 9.0 | 11.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P152M3KV | 1500 | Y5P | 3000 | 4500 | 11.0 | 12.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5P242M3KV | 2400 | Y5P | 3000 | 4500 | 16.0 | 19.0 | 4.0 | 7.5 | 0.7 |
| NY2Y5P101M6KV | 100 | Y5P | 6000 | 9000 | 8.0 | 11.0 | 7.0 | 7.5 | 0.6 |
| NY2Y5P221M6KV | 220 | Y5P | 6000 | 9000 | 8.0 | 11.0 | 7.0 | 10.0 | 0.6 |
| NY2Y5P331M6KV | 330 | Y5P | 6000 | 9000 | 9.0 | 10.0 | 7.0 | 10.0 | 0.6 |
| NY2Y5P471M6KV | 470 | Y5P | 6000 | 9000 | 10.0 | 11.0 | 7.0 | 10.0 | 0.6 |
| NY2Y5P561M6KV | 560 | Y5P | 6000 | 9000 | 9.0 | 11.0 | 7.0 | 10.0 | 0.6 |
| NY2Y5P102M6KV | 1000 | Y5P | 6000 | 9000 | 12.0 | 14.0 | 7.0 | 10.0 | 0.7 |
| NY2Y5P152M6KV | 1500 | Y5P | 6000 | 9000 | 14.0 | 16.0 | 7.0 | 10.0 | 0.7 |
| NY2Y5P242M6KV | 2400 | Y5P | 6000 | 9000 | 18.0 | 19.0 | 7.0 | 10.0 | 0.7 |
| NY2Y5P101M10KV | 100 | Y5P | 10000 | 15000 | 8.0 | 10.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P221M10KV | 220 | Y5P | 10000 | 15000 | 10.0 | 11.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P331M10KV | 330 | Y5P | 10000 | 15000 | 11.0 | 13.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P471M10KV | 470 | Y5P | 10000 | 15000 | 12.0 | 14.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P561M10KV | 560 | Y5P | 10000 | 15000 | 12.5 | 15.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P102M10KV | 1000 | Y5P | 10000 | 15000 | 17.0 | 20.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P152M10KV | 1500 | Y5P | 10000 | 15000 | 18.0 | 21.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5P101M15KV | 100 | Y5P | 15000 | 22500 | 9.0 | 12.0 | 9.0 | 10.0 | 0.7 |
| NY2Y5P221M15KV | 220 | Y5P | 15000 | 22500 | 10.0 | 13.0 | 9.0 | 10.0 | 0.7 |
| NY2Y5P331M15KV | 330 | Y5P | 15000 | 22500 | 13.0 | 15.0 | 9.0 | 12.5 | 0.7 |
| NY2Y5P561M15KV | 560 | Y5P | 15000 | 22500 | 15.0 | 17.0 | 9.0 | 12.5 | 0.7 |
| NY2Y5P102M15KV | 1000 | Y5P | 15000 | 22500 | 18.5 | 21.5 | 9.0 | 12.5 | 0.7 |
| NY2Y5P152M15KV | 1500 | Y5P | 15000 | 22500 | 22.0 | 25.0 | 9.0 | 12.5 | 0.7 |
| NY2Y5P242M15KV | 2400 | Y5P | 15000 | 22500 | 24.0 | 26.0 | 9.0 | 12.5 | 0.7 |
| NY2 Series - Y5T Dielectric | | | | | Radial Lead Style¹ | | | | |
| NY2Y5T102M3KV | 1000 | Y5T | 3000 | 4500 | 7.0 | 8.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5T152M3KV | 1500 | Y5T | 3000 | 4500 | 8.0 | 10.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5T222M3KV | 2200 | Y5T | 3000 | 4500 | 11.0 | 13.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5T332M3KV | 3300 | Y5T | 3000 | 4500 | 14.0 | 16.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5T472M3KV | 4700 | Y5T | 3000 | 4500 | 14.5 | 16.0 | 4.0 | 7.5 | 0.6 |
| NY2Y5T561M6KV | 560 | Y5T | 6000 | 9000 | 9.0 | 11.0 | 5.0 | 10.0 | 0.6 |
| NY2Y5T102M6KV | 1000 | Y5T | 6000 | 9000 | 10.0 | 12.0 | 5.0 | 10.0 | 0.6 |
| NY2Y5T152M6KV | 1500 | Y5T | 6000 | 9000 | 13.0 | 14.0 | 5.0 | 10.0 | 0.7 |
| NY2Y5T222M6KV | 2200 | Y5T | 6000 | 9000 | 13.0 | 16.0 | 5.0 | 10.0 | 0.7 |
| NY2Y5T561M10KV | 560 | Y5T | 10000 | 15000 | 10.5 | 13.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5T102M10KV | 1000 | Y5T | 10000 | 15000 | 14.0 | 16.0 | 8.0 | 10.0 | 0.7 |
| NY2Y5T331M15KV | 330 | Y5T | 15000 | 22500 | 10.0 | 12.0 | 9.0 | 12.5 | 0.7 |
| NY2Y5T471M15KV | 470 | Y5T | 15000 | 22500 | 11.0 | 13.0 | 9.0 | 12.5 | 0.7 |
| NY2Y5T561M15KV | 560 | Y5T | 15000 | 22500 | 11.0 | 14.0 | 9.0 | 12.5 | 0.7 |

Notes:

Standard lead length – 25mm typical

See page 23 for notes regarding package applicability at specified voltage rating.

All devices listed are RoHS compliant. Performance curves for products listed here can be found on page 29.



Key Features:

- Low Loss
- High Stability
- RoHS Compliant

Applications

- High Voltage Multipliers
- High Voltage Noise filters
- High Voltage Power Supplies
- RF Coupling
- RF Bypass



| Part Number | Capacitance Value | Dielectric Material | Rated Voltage | Dielectric Withstand Voltage | Capacitor Dimensions | | | | |
|-----------------------------|-------------------|---------------------|---------------|------------------------------|----------------------|-----------|--------------|-----------------|-----------------|
| | pF | | V | V | Dia mm | Height mm | Thickness mm | Lead Spacing mm | Lead Dia mm±10% |
| NY2 Series - BxN Dielectric | | | | | Radial Lead Style¹ | | | | |
| NY2BxN331M3KV | 330 | BxN | 3000 | 4500 | 7.0 | 9.0 | 4.0 | 7.5 | 0.6 |
| NY2BxN471M3KV | 470 | BxN | 3000 | 4500 | 8.0 | 9.0 | 4.0 | 7.5 | 0.6 |
| NY2BxN561M3KV | 560 | BxN | 3000 | 4500 | 8.0 | 9.0 | 4.0 | 7.5 | 0.6 |
| NY2BxN102M3KV | 1000 | BxN | 3000 | 4500 | 9.0 | 11.0 | 4.0 | 7.5 | 0.6 |
| NY2BxN152M3KV | 1500 | BxN | 3000 | 4500 | 11.0 | 12.0 | 4.0 | 7.5 | 0.6 |
| NY2BxN242M3KV | 2400 | BxN | 3000 | 4500 | 16.0 | 19.0 | 4.0 | 7.5 | 0.7 |
| NY2BxN331M6KV | 330 | BxN | 6000 | 9000 | 9.0 | 10.0 | 7.0 | 10.0 | 0.6 |
| NY2BxN471M6KV | 470 | BxN | 6000 | 9000 | 10.0 | 11.0 | 7.0 | 10.0 | 0.6 |
| NY2BxN561M6KV | 560 | BxN | 6000 | 9000 | 9.0 | 11.0 | 7.0 | 10.0 | 0.6 |
| NY2BxN102M6KV | 1000 | BxN | 6000 | 9000 | 12.0 | 14.0 | 7.0 | 10.0 | 0.7 |
| NY2BxN152M6KV | 1500 | BxN | 6000 | 9000 | 14.0 | 16.0 | 7.0 | 10.0 | 0.7 |
| NY2BxN242M6KV | 2400 | BxN | 6000 | 9000 | 18.0 | 19.0 | 7.0 | 10.0 | 0.7 |
| NY2BxN331M10KV | 330 | BxN | 10000 | 15000 | 11.0 | 13.0 | 8.0 | 10.0 | 0.7 |
| NY2BxN471M10KV | 470 | BxN | 10000 | 15000 | 12.0 | 14.0 | 8.0 | 10.0 | 0.7 |
| NY2BxN561M10KV | 560 | BxN | 10000 | 15000 | 12.5 | 15.0 | 8.0 | 10.0 | 0.7 |
| NY2BxN102M10KV | 1000 | BxN | 10000 | 15000 | 17.0 | 20.0 | 8.0 | 10.0 | 0.7 |
| NY2BxN152M10KV | 1500 | BxN | 10000 | 15000 | 18.0 | 21.0 | 8.0 | 10.0 | 0.7 |
| NY2BxN221M15KV | 220 | BxN | 15000 | 22500 | 10.0 | 13.0 | 9.0 | 10.0 | 0.7 |
| NY2BxN331M15KV | 330 | BxN | 15000 | 22500 | 13.0 | 15.0 | 9.0 | 10.0 | 0.7 |
| NY2BxN561M15KV | 560 | BxN | 15000 | 22500 | 15.0 | 17.0 | 9.0 | 12.5 | 0.7 |
| NY2BxN102M15KV | 1000 | BxN | 15000 | 22500 | 18.5 | 21.5 | 9.0 | 12.5 | 0.7 |
| NY2BxN152M15KV | 1500 | BxN | 15000 | 22500 | 22.0 | 25.0 | 9.0 | 12.5 | 0.7 |
| NY2 Series - Z5U Dielectric | | | | | Radial Lead Style¹ | | | | |
| NY2Z5U102M3KV | 1000 | Z5U | 3000 | 4500 | 6.0 | 9.0 | 4.0 | 5.0 | 0.6 |
| NY2Z5U152M3KV | 1500 | Z5U | 3000 | 4500 | 8.0 | 10.0 | 4.0 | 7.5 | 0.6 |
| NY2Z5U222M3KV | 2200 | Z5U | 3000 | 4500 | 10.0 | 11.0 | 4.0 | 7.5 | 0.6 |
| NY2Z5U332M3KV | 3300 | Z5U | 3000 | 4500 | 10.0 | 11.0 | 4.0 | 7.5 | 0.6 |
| NY2Z5U472M3KV | 4700 | Z5U | 3000 | 4500 | 12.0 | 13.0 | 4.0 | 7.5 | 0.7 |
| NY2Z5U562M3KV | 5600 | Z5U | 3000 | 4500 | 14.0 | 15.0 | 4.0 | 7.5 | 0.7 |
| NY2Z5U471M6KV | 470 | Z5U | 6000 | 9000 | 8.0 | 10.0 | 6.0 | 7.5 | 0.6 |
| NY2Z5U561M6KV | 560 | Z5U | 6000 | 9000 | 8.0 | 10.0 | 6.0 | 7.5 | 0.6 |
| NY2Z5U102M6KV | 1000 | Z5U | 6000 | 9000 | 9.0 | 11.0 | 6.0 | 10.0 | 0.6 |
| NY2Z5U152M6KV | 1500 | Z5U | 6000 | 9000 | 10.0 | 12.0 | 6.0 | 10.0 | 0.6 |
| NY2Z5U222M6KV | 2200 | Z5U | 6000 | 9000 | 11.5 | 13.0 | 6.0 | 10.0 | 0.7 |
| NY2Z5U332M6KV | 3300 | Z5U | 6000 | 9000 | 14.0 | 16.0 | 6.0 | 10.0 | 0.7 |
| NY2Z5U471M10KV | 470 | Z5U | 10000 | 15000 | 9.5 | 12.0 | 7.0 | 10.0 | 0.7 |
| NY2Z5U561M10KV | 560 | Z5U | 10000 | 15000 | 9.0 | 12.0 | 7.0 | 10.0 | 0.7 |
| NY2Z5U102M10KV | 1000 | Z5U | 10000 | 15000 | 11.0 | 13.0 | 8.0 | 10.0 | 0.7 |
| NY2Z5U152M10KV | 1500 | Z5U | 10000 | 15000 | 13.0 | 16.0 | 8.0 | 10.0 | 0.7 |
| NY2Z5U222M10KV | 2200 | Z5U | 10000 | 15000 | 16.0 | 18.0 | 8.0 | 10.0 | 0.7 |
| NY2Z5U332M10KV | 3300 | Z5U | 10000 | 15000 | 17.5 | 20.0 | 8.0 | 10.0 | 0.7 |
| NY2Z5U471M15KV | 470 | Z5U | 15000 | 22500 | 11.0 | 12.0 | 10.0 | 12.5 | 0.7 |
| NY2Z5U561M15KV | 560 | Z5U | 15000 | 22500 | 12.0 | 14.0 | 10.0 | 12.5 | 0.7 |
| NY2Z5U102M15KV | 1000 | Z5U | 15000 | 22500 | 12.0 | 15.0 | 10.0 | 12.5 | 0.7 |
| NY2Z5U152M15KV | 1500 | Z5U | 15000 | 22500 | 15.0 | 17.0 | 10.0 | 12.5 | 0.7 |
| NY2Z5U202M15KV | 2000 | Z5U | 15000 | 22500 | 17.0 | 20.5 | 10.0 | 12.5 | 0.7 |

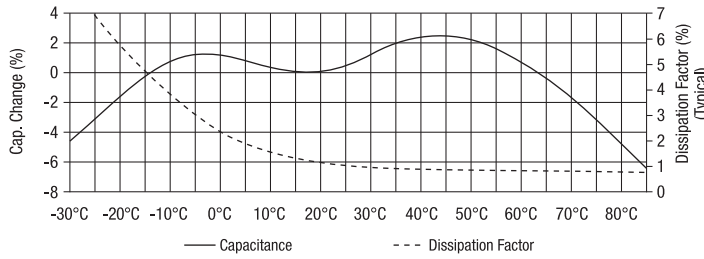
Notes:

Standard lead length – 25mm typical. See page 23 for notes regarding package applicability at specified voltage rating.

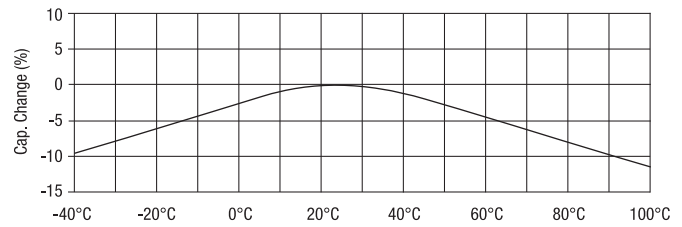
All devices listed are RoHS compliant. BxN is a dielectric material proprietary to DTI. This material is similar to Y5P but has a better temperature range which makes it an ideal replacement for X5R and X7R materials in many applications. Capacitor datasheets available upon request.



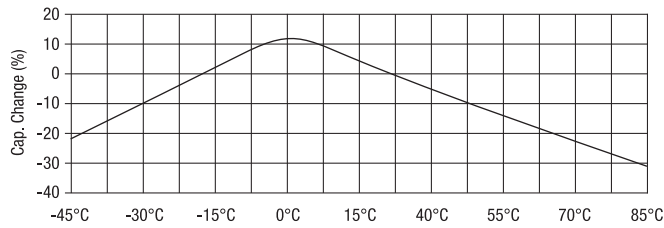
BXN Typical Temperature Characteristics Curve



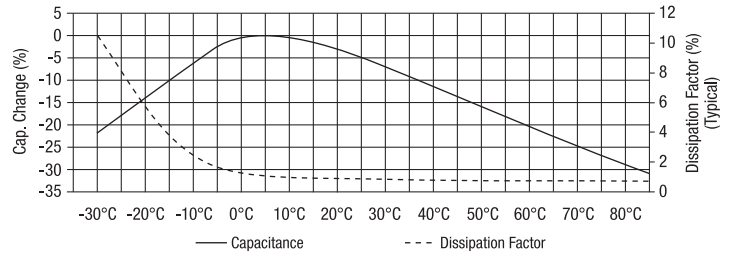
Y5P Typical Temperature Characteristics Curve



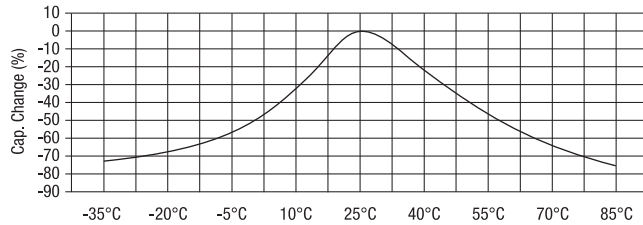
Y5T Typical Temperature Characteristics Curve



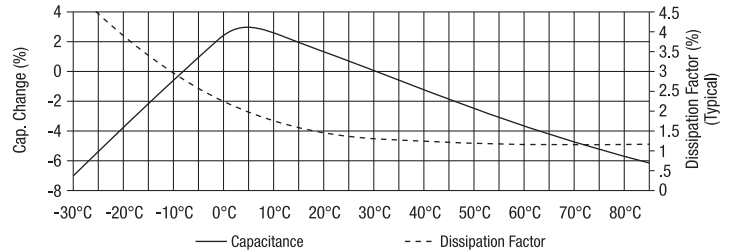
Z5U Typical Temperature Characteristics Curve



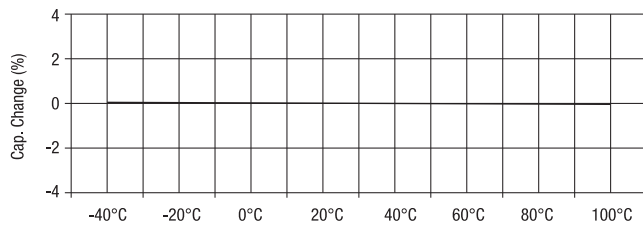
Y5V Typical Temperature Characteristics Curve



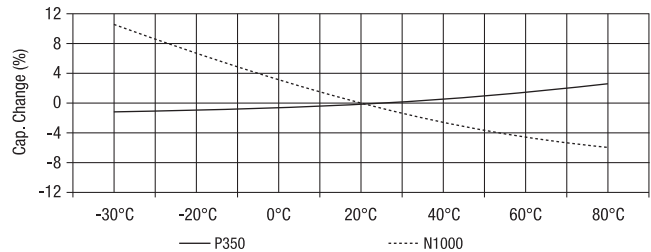
Z5P Typical Temperature Characteristics Curve



NP0 Typical Temperature Characteristics Curve

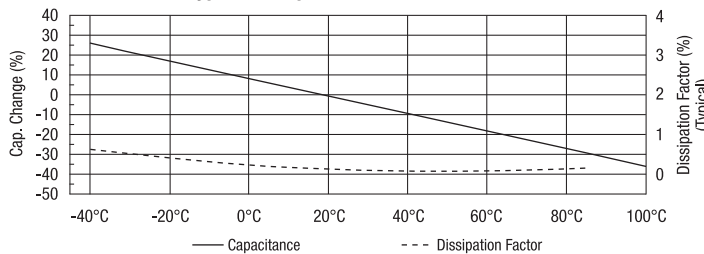


SL Typical Temperature Characteristics Curve

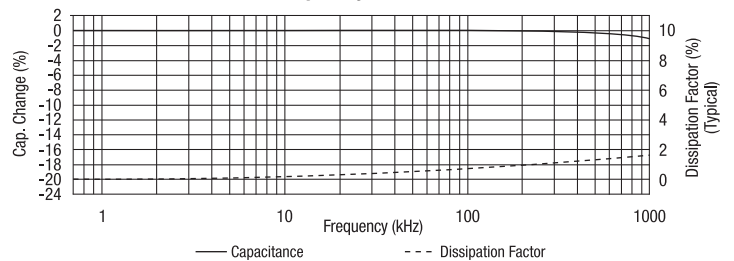


Door Knob Capacitor Characteristic Curves

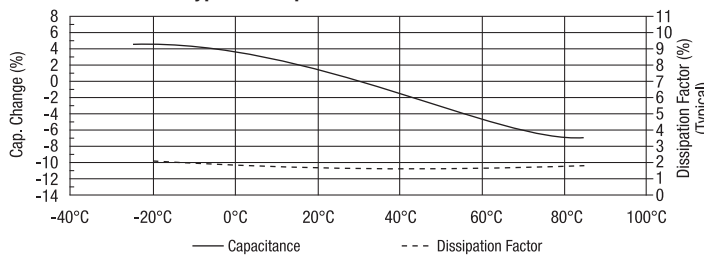
T3M Typical Temperature Characteristics Curve



T3M Frequency Characteristic



Y5P Typical Temperature Characteristics Curve



Y5P Frequency Characteristic

