



# DIELECTRIC CHARACTERISTICS



NOVACAP produces capacitors with dielectric characteristics COG (NPO), X7R, BX, Z5U and Y5V, per EIA RS 198, as outlined in the text and graphs following. High temperature versions of COG and X7R dielectrics are described in separate data sheets for those products. Also available are dielectrics with positive voltage and temperature characteristics such as PLZT Pulse Power.

NOVACAP performs sample testing on production representative products, for all dielectric materials, as verification of conformance to the General Specifications. Following the guidelines of MIL-PRF-55681; periodic Group C inspections are performed on capacitor lots manufactured, with qualified materials, according to documented procedures. The inspection data is generated following Electrical, Mechanical and Environmental test methods and specifications of MIL-STD-202 and EIA-198. The data records are maintained and utilized as assurance of our capability to meet the stated performance requirements.

## GENERAL SPECIFICATIONS - ENVIRONMENTAL

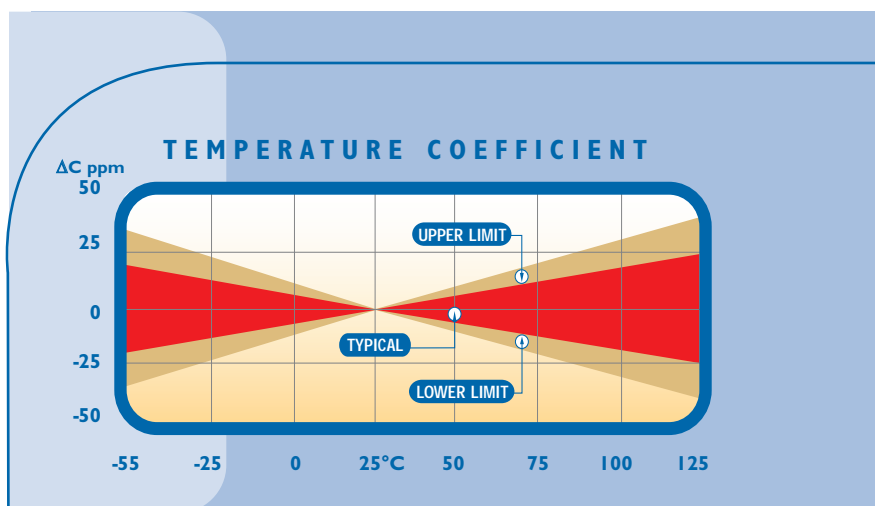
<b>Thermal Shock:</b>	MIL-STD-202, Method 107, Condition A (125°C)
<b>Immersion:</b>	MIL-STD-202, Method 104, Condition B
<b>Humidity Steady State (Low Voltage):</b>	MIL-STD-202, Method 103, Condition A 85°C, 85% RH, DC bias 1.3 +/- 0.25 Vdc.
<b>Life:</b>	MIL-STD-202, Method 108 Condition F (2000 hours)

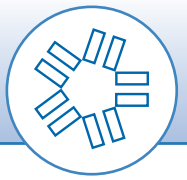
## GENERAL SPECIFICATIONS - MECHANICAL

<b>Terminal Strength:</b>	MIL-STD-202, Method 211 Condition A. Force 4 lbs Min. Adhesion
<b>Resistance to Soldering Heat:</b>	MIL-STD-202, Method 210, Test Condition B 260°C

## DIELECTRIC CHARACTERISTICS - COG

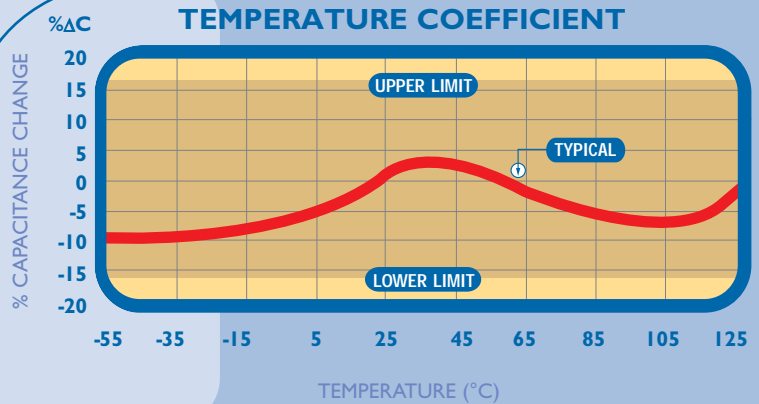
OPERATING TEMPERATURE RANGE:	-55 °C to 125 °C
TEMPERATURE COEFFICIENT:	0 +/- 30 ppm/°C
DISSIPATION FACTOR:	.001 (0.1%) max @ 25°C
INSULATION RESISTANCE, 25°C	> 100GΩ or >1000ΩF
125°C	> 10GΩ or >100ΩF
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250% 201-500V, 150% or 500V* > 500V, 120%, or 750V* *WHICHEVER IS GREATER
AGING RATE:	0% per decade
TEST PARAMETERS:	1KHz, 1.0 +/- 0.2 VRMS, 25°C 1MHZ for Capacitance <100pF





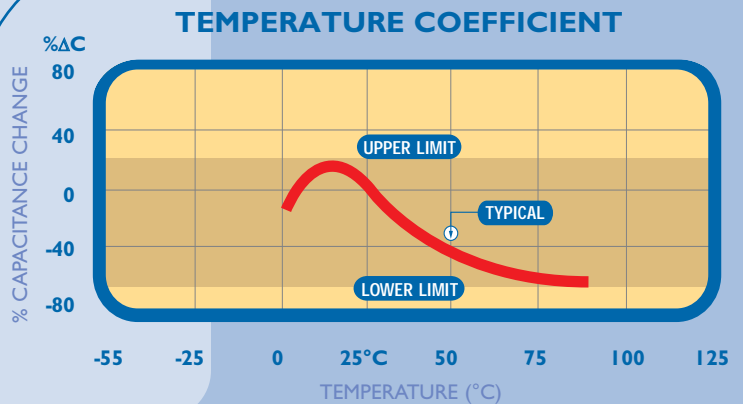
## DIELECTRIC CHARACTERISTICS - X7R/BX

OPERATING TEMPERATURE RANGE:	-55°C to 125°C
TEMPERATURE COEFFICIENT (X7R):	+/-15% ΔC Max.
TEMP-VOLTAGE COEFFICIENT (BX):	+15% -25% ΔC Max.
DISSIPATION FACTOR:	2.5% max @ >25V rating 3.5% max @ ≤25V rating
INSULATION RESISTANCE, 25°C 125°C	> 100GΩ or >1000ΩF > 10GΩ or >100ΩF
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250% 201-500V, 150% or 500V* > 500V, 120%, or 750V* *WHICHEVER IS GREATER
AGING RATE:	< 2.0% per decade
TEST PARAMETERS:	1KHz, 1.0 +/- 0.2 VRMS, 25°C



## DIELECTRIC CHARACTERISTICS - Z5U

OPERATING TEMPERATURE RANGE:	+ 10°C to 85°C
TEMPERATURE COEFFICIENT:	+ 22%-56% ΔC Max.
DISSIPATION FACTOR:	4.0% max @ 25°C
INSULATION RESISTANCE, 25°C	> 10GΩ or >100ΩF
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250% 250V, 150%
AGING RATE:	~ 2.0% per decade
TEST PARAMETERS:	1KHz, 0.5 +/- 0.2 VRMS, 25°C



## DIELECTRIC CHARACTERISTICS - Y5V

OPERATING TEMPERATURE RANGE:	-30°C to 85°C
TEMPERATURE COEFFICIENT:	+ 22%-82% ΔC Max.
DISSIPATION FACTOR:	5.0% max @ >25V rating 7.0% max @ ≤25V rating
INSULATION RESISTANCE, 25°C	> 10GΩ or >100ΩF
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250% 250V, 150%
AGING RATE:	~ 2.0% per decade
TEST PARAMETERS:	1KHz, 1.0 +/- 0.2 VRMS, 25°C

