

MIL-PRF-49470 ELECTRICAL AND PERFORMANCE CHARACTERISTICS (ALL CHARACTERISTICS AND TEST METHODS IAW MIL-PRF-49470)

ELECTRICAL CHARACTERISTICS

Rated Voltage: 50/100/200/500 volts.

Temperature Coefficient:

Dielectric Type	Bias = 0 Volt	Bias = Rated Voltage
BP All Voltages	±30PPM	±30PPM
BX 50/100V	±15%	+15, -25%
BR 200V	±15%	+15, -40%
BQ 500V	±15%	+15, -50%

Capacitance: Measured at 1.0 volt (open circuit) and 1KHz. See tables on pages 2 through 5.

Capacitance Tolerance: J = ±5%, K = ±10%, M = ±20%. *

Dissipation Factor: When tested at 1.0 volt (open circuit) and 1KHz, BP characteristic shall be .15% maximum and BX/BR/BQ characteristic shall be 2.5% maximum.

Dielectric Withstanding Voltage: Dielectric withstanding voltage will be tested at 250% of rated voltage except for 500V rated parts which will be tested at 150% of rated voltage.

Insulation Resistance:

At +25°C, rated voltage: 10¹¹Ω or 1000 MΩ-μF, whichever is less.

At +125°C, rated voltage: 10¹⁰Ω or 100 MΩ-μF, whichever is less.

PERFORMANCE CHARACTERISTICS AND TEST METHODS (M49470 PART NUMBERS)

Operating Temperature Range: The operating temperature range is -55°C to +125°C.

Thermal Shock: All parts are cycled between -55°C and +125°C, 5 times.

Voltage Conditioning: All parts are tested for 96 hours at 125°C and 200% of rated voltage except 500V rated parts are tested at 120% of rated voltage. The overall percent defective allowed (PDA) is 10%.

Solderability: Meets Mil-STD-202 and J-STD-001 requirements.

Resistance to Soldering Heat: Parts withstand 260°C for 10 seconds with no degradation in electrical performance or lead attachment.

Terminal Strength: Leads will withstand 5 pounds (4 pounds for case code 5) of applied force without rupturing.

Moisture Resistance: Periodically parts are tested for 20 cycles at 90% RH and between -10°C to +65°C. Bias is applied during the first 10 cycles.

Life: Not required for each lot. Every 3 months, a minimum of 12 pieces are tested for 1000 hours at +125°C and 200% of rated voltage, except 500V rated parts shall be tested at 120% of rated voltage.

Barometric Pressure: Parts will operate at rated voltage (80% of rated voltage for 500 volt parts) at reduced pressure up to 100,000 feet.

Shock, Specified Pulse: Parts remain operational during and after impacts of 100 G's.

Vibration: Parts remain operational during and after operating in high vibration environments of up to 20 G's.

Marking: Marking shall be in accordance with Mil-STD-1285 and Mil-PRF-49470. Minimum marking will be "JB", manufacturer's code (PCI), capacitance and tolerance, and date code. Full marking will be included on the package.

Cage Code 60212: Presidio Components, Inc.

ADDITIONAL REQUIREMENTS (T49470 PART NUMBERS)

Ultrasonic Imaging: All parts are imaged during in-process testing to remove voids and delaminations IAW EIA 469.

Destructive Physical Analysis: A sample of chips is examined prior to assembly for defects in the microstructure. As part of Group A, an additional sample is examined for cracks or assembly defects.

Thermal Shock: Prior to voltage conditioning, all parts are cycled between -55°C and +125°C, 20 times. Prior to life test sample pieces receive 100 cycles under conditions outlined above.

Voltage Conditioning: All parts are tested for 168 - 264 hours at 125°C and 200% of rated voltage except 500V rated parts are tested at 120% of rated voltage. The overall percent defective allowed (PDA) is 5% for case codes 4 and 5 and 8% for all other case codes. The PDA in the last 48 hours of voltage conditioning is .5% for case codes 4 and 5, and 1% for all other case codes, or 1 piece whichever is greater.

Life: For qualification, parts are tested for 4000 hours at +125°C and 200% of rated voltage except 500V rated parts shall be tested at 120% of rated voltage. For each lot, 12 pieces are tested for a 1000 hours under conditions outlined above.

Humidity, Steady State, Low Voltage: Six pieces are tested from each lot at 1.3 volts, 85% RH and 85°C, to ensure the absence of low voltage failure mechanisms. These mechanisms include microcracking.

Marking: Parts will be marked as M49470 parts except "JB" is replaced with "JT".

* Unless otherwise specified.
Customer SCD takes precedence.

MIL-PRF-49470 FREQUENCY RESPONSE CURVES

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10μF, 50 VOLT M49470X01106_A
PRESIDIO PN S405BX106_2_4

