Non-magnetic Chip Capacitors General Specifications

ELECTRICAL PARAMETERS

Quality Factor	Exceeds MIL-C- 55681
Resonant Frequency	Exceeds MIL-C- 55681
Max. Dissipation Factor	.05% at 1 MHz

Insulation Resistance

Capacitance Range	+25°C	+125°C
0.1-470 pF	>10^6 megohms	>10^5 megohms
510-5100 pF	>10^5 megohms	>10^4 megohms

Dielectric Withstanding Voltage	Capable of withstanding 2.5 x Rated Voltage
Capacitance Drift	±0.2% or .02 pF, whichever is greater
Aging Effect	None
Piezoelectric Effect	None
Dielectric Absorption	None

MECHANICAL & ENVIRONMENTAL PARAMETERS

Parameters	MIL-STD-202- Method	Condition
Thermal Shock	107	A
Immersion	104	B
Moisture Resistance	106	-
Solderability	208	-
Resistance to Solder Heat	210	C
Burn In	108	A
Barometric Pressure	105	B
Shock	213	I
Vibration	204	A
Terminal Strength	211	A

	Nail Head	Ribbon Lead
• Series 11 >	10 lbs. min.	5 lbs. min.
25 >	10 lbs. min.	10 lbs. min.
38 >	20 lbs. min.	20 lbs. min.

The quality system is approved to MIL-I-45208 & ISO9001. All parts are 100% thermal stress tested.

ATTACHMENT METHODS

All parts are constructed to be compatible with commonly used industry methods. Reflow soldering, wave soldering, vapor phase soldering (“S” termination) and conductive epoxy (“R” termination) may be used.

CLEANING

Chip capacitors can withstand commonly used cleaning agents such as water, alcohol, and degreaser solvents. Ascertain that no flux residues are left on the chip surfaces and no flux is trapped under the chip. Flux residue will degrade Q, insulation resistance and reliability.

SHELF LIFE

Capacitors will be solderable for a minimum of one year from date of shipment if properly stored in the original packaging. Dry nitrogen storage is preferable for longer periods.

PRECAUTIONS

The rate of heating and cooling must be controlled to preclude thermal cracking of the devices. Processes, heating or cooling, should not exceed a rate of 200°C per minute. Spikes must not exceed 100°C maximum for any solder operation. Avoid forced cooling or contact with heat sinks, such as conveyor belts, metal tables or cleaning solutions, before the chips reach ambient temperatures.

WHY ROUNDED CORNERS?

Rounded corners provide uniform termination on these MLC products. The greater surface area improves solder attachment and provides a more uniform adhesion to the board. Rounded corners also reduce the chance of tomb-stoning and mechanical thermal shock types of stress.

Voltronics CORPORATION
The Trimmer Capacitor Company
100 FORD ROAD • SUITE 100-10 • DENVILLE, NEW JERSEY 07834 • PHONE: 973-586-8585 • FAX: 973-586-3404
www.voltronicscorp.com • e-mail: info@voltronicscorp.com

Non-magnetic Chip Capacitors General Specifications

RECOMMENDED PROCEDURE FOR HAND SOLDERING CHIP CAPACITORS

Equipment: Weller Ec-2001 soldering system (42 watt) or equivalent (1/8" tip) for 11 Series, (1/4" tip) for 25 Series or (3/8" tip) for 38 Series 310 ± 10 degrees C tip temperature

Solder: Sn60/Sn62/Sn63

Flux: Alpha 611 type RMA or equivalent

Cleaning Solvents: 2-propanol or commercial defluxing solvent

Procedure:

1. Preheat chip and stripline to 100-120°C for a minimum of one minute. If solder other than the above is used, preheat to within 50-70°C of reflow temperature.
2. Dip chip in flux for 2-3 seconds, or apply flux to chip and stripline area. Apply solder paste if necessary.
3. Place iron on stripline for three seconds to preheat, then move slowly to contact chip for approximately four seconds to effect reflow.
4. When reflow is achieved, withdraw iron slowly, allow to cool naturally.
5. Clean area thoroughly, with 2-propanol or other defluxing solvent. If possible, use ultrasonic cleaning for these steps.
6. Inspect solder fillet for coverage and defects.

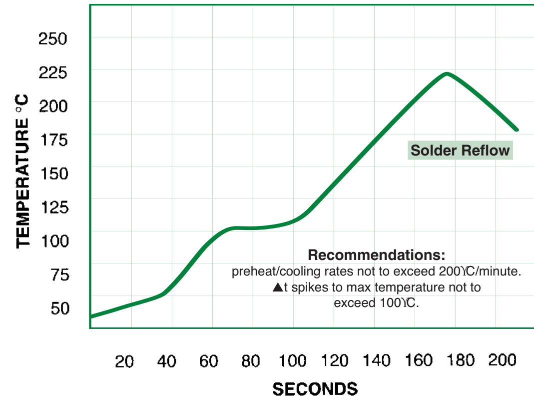
TERMINATION GUIDE

New (RoHS)	-	"M"	Flexible polimer / Ag layer, 400-500μ-in Cu barrier, 200 μ-in Sn plate.
New	-	"R"	Ag layer, 400-500μ-in Cu barrier, 10,000-12,000μ-in 90/10 Sn/Pb plate
Original	-	"S"	PdAg plate
New	-	"V"	Ag layer, 400-500μ-in Cu barrier, 100-150μ-in 90/10 Sn/Pb plate
New (RoHS)	-	"W"	Ag layer, 400-500μ-in Cu barrier, 200μ-in Sn plate

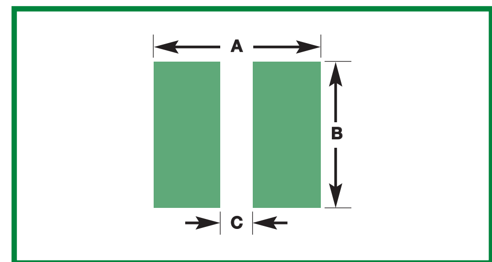
MATERIAL GUIDE / Temp. coefficient

	"AH" +90 +/- 20ppm/ °C
	"CF" 0+/- l5ppm/ °C
Lower ESR	"UL" 0+/- 30ppm/ °C

RECOMMENDED SOLDER REFLOW PROFILE



SOLDER PAD LAYOUT



RECOMMENDED PAD SPACING DIMENSIONS IN INCHES

Case Style	Internal Electrode Orientation	Reflow Soldering			Wave Soldering		
		A	B	C	A	B	C
11 Series	Horizontal	.160	.135	.050	.190	.135	.050
11 Series	Vertical	.160	.110	.050	.190	.110	.050
25 Series	Horizontal	.270	.275	.110	.300	.275	.110
38 Series	Horizontal	.425	.400	.290	.455	.400	.290

PACKAGING

Style	Package	Option
11 Series	Bulk in plastic bags	Tape & Reel – 2,350 pcs.
25 Series	Bulk in plastic bags	Tape & Reel – 500 pcs.
38 Series	Bulk in plastic bags	Tape & Reel – 250 pcs.

Note: Ribbon leaded parts packaged in foam padded plastic box.