

High Voltage Ceramic Chip Capacitors



Introduction

Cal-Chip Electronics, Incorporated operates a policy of continuous development for its ranges of Multilayer Ceramic Capacitors. Our unique construction process ensures excellent volumetric efficiency and stability of capacitance with temperature. High Voltage Chip MLC's have extended values in the 500V series to those previously offered, together with voltage ranges up to 10kV.

Handling

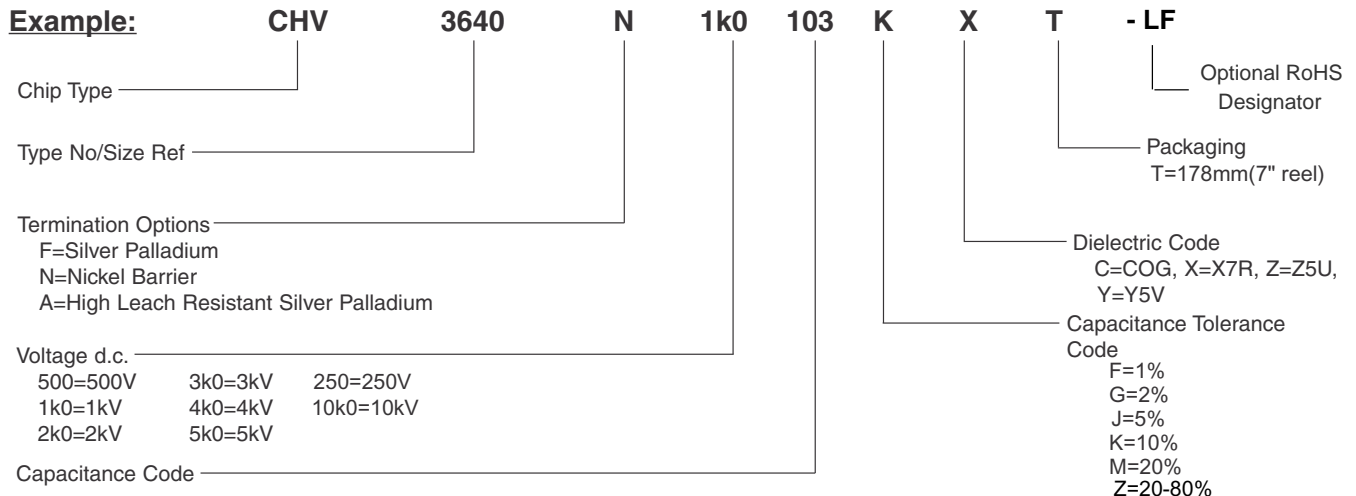
Ceramics are dense, hard, brittle and abrasive materials. They are liable to suffer mechanical damage in the form of chips or cracks, if improperly handled. MLC's should never be handled with metallic instruments.

DIELECTRIC CHARACTERISTICS

	COG / NPO	X7R	Y5V & Z5U
Dielectric classification:	Ultra Stable	Stable	General Purpose
Rated temperature range:	-55°C to +125°C	-55°C to +125°C	+10°C to +85°C
Maximum capacitance change over temperature range	0±30ppm/°C	±15%	+22 to -56%
Tangent of loss angle (tan δ)	Cr>50pF≤0.0015 Cr≤50pF=0.0015 (15+0.7) Cr	≤0.025	≤0.030
Insulation resistance (Ri) Time Constant (Ri X Cr) (whichever is less)	100GΩ or 1000s	100GΩ or 1000s	10GΩ or 100s
Capacitance tolerance	<10pF ±0.25, ±0.5pF ≥10pF ±1, ±2, ±5, ±10%	+5%, ±10%, ±20%	±20%, -20+80%
Proof Voltage 500V ≥1kV	1.5 x rated volts 1.5 x rated volts	1.5 x rated volts 1.25 x rated volts	1.5 x rated volts
Climatic category (IEC)	55/125/56	55/125/56	25/085/56
Aging characteristic (Typ.)	Zero	1% per time decade	6% per time decade

SURFACE MOUNT CHIP CAPACITORS

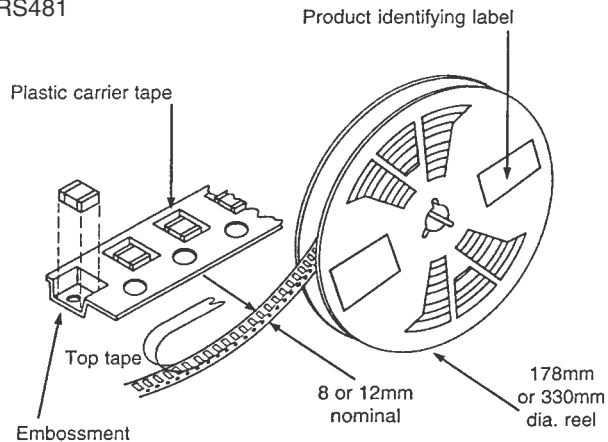
Ordering Information



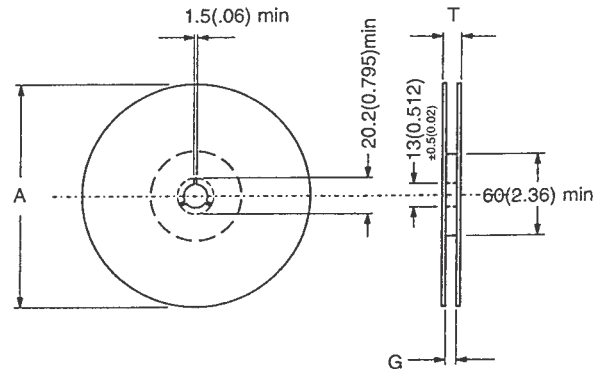
Surface Mount Chip Capacitors: Tape and Reel packaging information



Tape and reel packing of surface mounting chip capacitors for automatic placement are in accordance with IEC286 part 3 and RS481



Reel dimensions mm (inches)

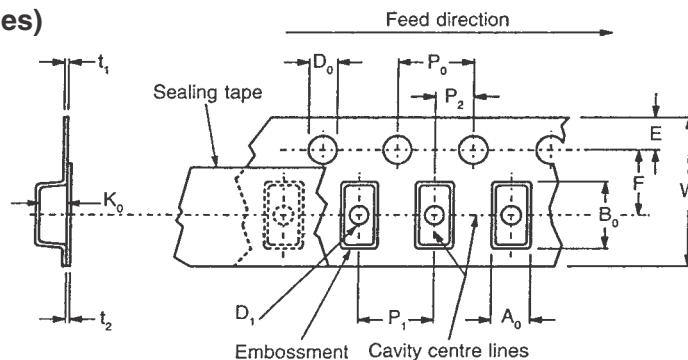


Symbol	Description	178mm reel	330mm reel
A	Reel diameter	178(7) ±2(0.079)	330(13) max
G	Reel inside with	8.4(0.33) ±1.5(0.059)-0	12.4(0.49) ±1.5(0.059)-0
T	Reel outside with	14.4(0.56) max	18.4(0.72) max

Peel force

The peel force of the top sealing tape is between 0.2 and 1.0 Newton at 1800. The breaking force of the carrier and sealing tape in the direction of unreeling is greater than 10 Newtons.

Tape dimensions mm (inches)



Symbol	Description	8mm tape	12mm tape
A ₀	Width of cavity	Dependent on chip size to minimize rotation	
B ₀	Length of cavity		
K ₀	Depth of cavity		
W	Width of tape	8(0.315) ±0.2(0.008)	12(0.472) ±0.2(0.008)
F	Distance between drive hole centres and cavity centres	3.5(0.138) ±0.05(0.002)	5.5(0.213) ±0.05(0.002)
E	Distance between drive hole centres and tape edge	1.75(0.069) ±0.1(0.004)	
P ₁	Distance between cavity centres	4(0.156) ±0.1(0.004)	8(0.315) ±0.1(0.004)
P ₂	Axial distance between drive hole centres and cavity centres	2(0.079) ±0.05(0.002)	
P ₀	Axial distance between drive hole centres	4(0.156) ±0.1(0.004)	
D ₀	Drive hole diameter	1.5(0.059) +0.1(0.004)-0	
D ₁	Diameter of cavity piercing	1(0.039) +0.1(0.004)-0	1.5(0.059) +0.1(0.004)-0
t ₁	Embossed tape thickness	0.3(0.012) ±0.1(0.004)	0.4(0.016) ±0.1(0.004)
t ₂	Top tape thickness	0.1(0.004) max	