

Lumimax Optoelectronic Technology

MonoCap GP Series

Monolithic Ceramic Capacitor

Product Features

- High capacitance with small size.
- Products with lead-free terminations meet EU RoHS and China RoHS requirements
- All general purpose, temperature compensation and coupling and decoupling applications
- Crimp and straight lead styles.



GENERAL SPECIFICATION OF LEADED MULTI-LAYER CERAMIC CAPACITOR

DIELECTRIC MATERIAL	NPO (N)	Y7R (B)	Y5U (E)	Y5V (Y)
DIELECTRIC TYPE	STABLE CLASS I DIELECTRIC	STABLE CLASS II DIELECTRIC		
ELECTRICAL PROPERTIES	WITH NEGLIGIBLE DEPENDENCE OF ELECTRICAL PROPERTIES ON TEMPERATURE, VOLTAGE, FREQUENCY AND TIME	WITH PREDICTABLE CHANGE OF PROPERTIES WITH TEMPERATURE, VOLTAGE, FREQUENCY AND TIME, THIS DIELECTRIC IS FERRO-ELECTRIC AND OFFERS HIGHER CAPACITANCE RANGES THAN CLASS I	WITH HIGH TEST DIELECTRIC CONSTANT AND GREATER VARIATION OF PROPERTIES WITH TEMPERATURE AND TEST CONDITIONS, VERY HIGH CAPACITANCE PER UNIT VOLUME	
APPLICATION	USE IN CIRCUITS REQUIRING STABLE PERFORMANCE	USE AS BLOCKING, COUPLING, BY-PASSING DISCRIMINATING ELEMENT	SUITED FOR BY-PASSING AND COUPLING APPLICATION SUCH AS STORE POWER AND MEMORY CIRCUIT	
CAPACITANCE RANGE	1pF~10nF	100pF~10uF	1nF~14.7uF	
OPERATING TEMPERATURE	0±30ppm/°C -55°C~+125°C	±15% -55°C~+125°C	+30%~-56% -30°C~+85°C	+30%~-80% -30°C~+85°C

THE STANDARD OF ELECTRONIC PROPERTIES

ITEM	TEST STANDARD		
	NPO (N)	X7R (B)	Y5V (Y)
CAPACITANCE	WITHIN THE TOLERANCE	WITHIN THE TOLERANCE	WITHIN THE TOLERANCE
DISSIPATION FACTOR	≤0.15%	≤3.5%	≤7.0% (220nF below) ≤10.0% (220~470nF) ≤12.5% (470~1000nF)
INSULATION RESISTANCE	C≤10nF IR>1000MΩ C>10nF R. C>100MΩ. μF	C≤25nF 1R>4000MΩ	C>25nF R. C>100MΩ. μF
TEST CONDITION			
FREQUENCY	1MHZ (C>1000pF, 1KHZ)	1KHZ	
TEST VOLTAGE	1±0.2VDC		C<1μF, V: 0.3 ±0.2VDC C≥1uF, V: 1.0±0.2VDC
TEST VOLTAGE OF IR	The measuring voltage is equal to the rated voltage. The charging current may not exceed 50 mA		
STANDARD ATMOSPHERES CONDITIONS	<p>Unless otherwise specified, the standard range of atmospheric conditions for measuring and testing is as follow:</p> <p>Ambient temperature 15°C~35°C Relative humidity 45%~75% Air Pressure 86Kpa~106Kpa (860-1060mbar)</p> <p>If there may be any doubt on the results, measurements shall be made within the following limits:</p> <p>Ambient temperature 25°C±1°C Relative humidity 48%~52% Air Pressure 86Kpa~106Kpa (860-1060mbar)</p>		
OPERATING TEMPERATURE RANGE	<p>The operating temperature range is the range of ambient temperature at which the capacitor can be operated continuously at rated voltage.</p> <p>Temperature compensation use:</p> <p>NPO -55°C~+125°C X7R -55°C~+125°C Y5V -25°C~+85°C Z5U -10°C~+85°C</p>		

ITEM AND REQUIREMENT OF RELIABILITY TEST

ITEM	PROPERTIES REQUEST			TEST CONDITION AND REQUEST
Appearance	No abnormality, sign in focus			Eyeballing
Capacitance	In permissible tolerance			Test Condition Class I: Voltage: 1±0.2V Frequency: 1MHz±10% (C≤1000pF) 1KHz±10% (C>1000pF) Class II: Voltage: 1±0.2V Frequency: 1KHz±10%
Insulation Resistance	In permissible tolerance			Voltage: rated voltage Duration: 60±5s Charge/discharge current is less than 50 mA.
Withstanding Voltage	Between terminals		There shall be no evidence of damage or flash over during the test.	Voltage: 2.5 times related voltage T=2s Charge/discharge current is less than 50 mA.
	Between terminals and body			
Withstanding Solder heat	There shall be no visible defacing and sign in focus			Tin review: 260 ± 5°C Duration: 10s Recovery time: 24 ± 2 h
	Temp. Char.	Δ C/C≤		
	CG/CH/RH	±0.5% OR ± 0.5pF		
	UJ/SL	±1% OR ± 1pF		
	B	±10%		
	F	±30%		
Solderability	Leads shall excellently be covered with a new coating			Tin review: 230±5°C Duration: 2s
Life test	There shall be no visible defacing and sign in focus			
	Temp. Char.	Δ C/C≤	DF≤	TR≥ (MIN)
	CG/UJ	±3% or ±1pF	1.5tgδ _o	Ri ≥ 4000MΩ OR Ri.C≥40s
	CH/RH/SL	±5% or ±1pF		
	B	±20%	5%	Ri ≥ 2000MΩ OR Ri.C≥50s
	F	±30%	10% (≤100000pF) 12.5% (220000~470000pF) 17.5% (≥1000000pF)	
				Voltage: 1.5U Temperature: upper category temperature Charge/discharge current is less than 50 mA. Duration: 1000---- (+48h~-0h) Recovery time: 24±2 h

Ordering Code Information

MC1 - 0805 Y 104 M 500 BF3

PRODUCT TYPE		UNIT: inch		CAPACITANCE TOLERANCE	
CODE	TYPE	SIZE (LxW)		Tolerance	
MC1	Class I Dielectric Radial Leads	CODE	CHIP	J	±5.0%
MC2	Class II Dielectric Radial Leads	0805	0.08x0.05	K	±10%
		1206	0.12x0.06	M	±20%
		1210	0.12x0.10	Z	+80%~-20%
		1812	0.18x0.12		

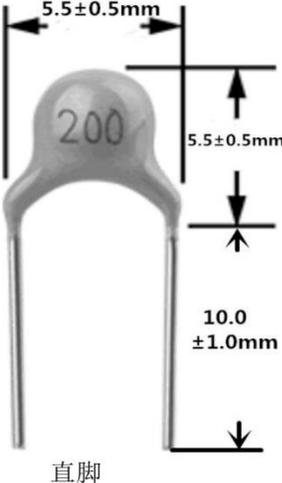
DIELECTRIC		CAPACITANCE		RATED VOLTAGE	
N	NP0	Capacitance (pF)		THE CODE MEANING IS SME AS CAPACITANCE. For Example:	
B	X7R	The first two digits are the significant figures of capacitance and the last digit is a multiplier as follows:			
Y	Y5V	0 = *1		250 = 25V	
E	Y5U	1 = *10		500 = 50V	
		2 = *100		101 = 100V	
		3 = *1000			
		4 = *10 000			
		5 = *100 000			
		For Example:			
		5R6 = 5.6pF			
		104 = 100000pF			
		100nF			

PACKAGING STYLE		
Bulk	F3	5.08mm
For Example: Bulk = B		

Note: Bulk package: Qty=100pcs, 250pcs, 500pcs or 1000pcs in one bag.

Dimension Specification:

0603 and 0805 size



1206 size

