

Chip Multilayer Ceramic Capacitors for General Purpose
GRM0335C1E330FA01_(0603M(0201), C0G(EIA), 33pF, DC 25V)

_:Packaging Code

Reference Sheet

■ **Scope**

This product specification is applied to Chip Multilayer Ceramic Capacitors used for General Electronic equipment.

■ **MURATA Part No. System**

(Ex.)	GRM	03	3	5C	1E	330	F	A01	D
		①L/W Dimensions	②T Dimensions	③Temperature Characteristics	④Rated Voltage	⑤Nominal Capacitance	⑥Capacitance Tolerance	⑦Murata's Control Code	⑧Packaging Code

■ **Type & Dimensions**

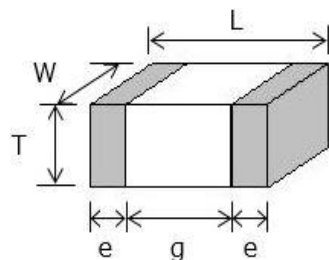


image:Dimensions

Size Code : 0603M(0201) (in mm)

① L	① W	② T	e	g
0.6+/-0.03	0.3+/-0.03	0.3+/-0.03	0.1 to 0.2	0.2 min.

■ **Rated Value**

③Temperature Characteristics [5C](Public STD Code : [C0G(EIA)])			④Rated Voltage	⑤Nominal Capacitance	⑥Capacitance Tolerance	Operating Temp. Range	Mounting Method
Temp. coeff. or Cap. Change	Temp. Range	Ref.Temp.					
0+/-30 ppm/°C	25 to 125°C	25°C	DC 25V	33pF	+/-1%	-55 to 125°C	Reflow

■ **Package**

⑧Code	Packaging	Standard Packing Quantity
D	φ180mm Reel PAPER Tape W8P2	15000 pcs./Reel
W	φ180mm Reel PAPER Tape W8P1	30000 pcs./Reel
J	φ330mm Reel PAPER Tape W8P2	50000 pcs./Reel

Product specifications in this catalog are as of Apr.21,2021, and are subject to change or obsolescence without notice.
Please consult the approval sheet before ordering.
Please read rating and !Cautions first.

■ Specifications and Test Methods

No	Item	Specification	Test Method(Ref. Standard:JIS C 5101, IEC60384)
1	Rated Voltage	Shown in Rated value.	The rated voltage is defined as the maximum voltage which may be applied continuously to the capacitor. When AC voltage is superimposed on DC voltage, V(peak to peak) or V(zero to peak), whichever is larger, should be maintained within the rated voltage range.
2	Appearance	No defects or abnormalities.	Visual inspection.
3	Dimension	Shown in Rated value.	Using Measuring instrument of dimension.
4	Voltage proof	No defects or abnormalities.	Measurement Point Between the terminations Test Voltage 300% of the rated voltage Applied Time 1s to 5s Charge/discharge current 50mA max.
5	Insulation Resistance(I.R.) (Room Temperature)	More than 10000MΩ	Measurement Temperature Room Temperature Measurement Point Between the terminations Measurement Voltage Rated Voltage Charging Time 2min Charge/discharge current 50mA max.
6	Capacitance	Shown in Rated value.	Measurement Temperature Room Temperature Measurement Frequency 1.0+/-0.1MHz Measurement Voltage 0.5 to 5.0Vrms
7	Q or Dissipation Factor (D.F.)	$Q \geq 1000$	Measurement Temperature Room Temperature Measurement Frequency 1.0+/-0.1MHz Measurement Voltage 0.5 to 5.0Vrms
8	Temperature Characteristics of Capacitance	No bias Nominal values of the temperature coefficient is shown in Rated value. But, the Capacitance Change under Reference Temperature is shown in Table A. Capacitance Drift: Within +/-0.2% or +/-0.05pF (Whichever is larger.)	The capacitance change should be measured after 5 min at each specified temp. stage. Capacitance value as a reference is the value in "*" marked step. Capacitance Drift The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1,3 and 5 by the cap. value in step 3. Measurement Voltage Less than 1.0Vrms (Refer to the individual data sheet) Temperature Step

■ Specifications and Test Methods

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No	Item	Specification		Test Method(Ref. Standard:JIS C 5101, IEC60384)																
10	Vibration	Appearance Capacitance Q or D.F.	No defects or abnormalities. Within the specified initial value. Within the specified initial value.	Mounting method Kind of Vibration Vibration Time Total amplitude Vibration directions and time	Solder the capacitor on the test substrate A simple harmonic motion 10Hz to 55Hz to 10Hz 1min 1.5mm This motion should be applied for a period of 2h in each 3 mutually perpendicular directions(total of 6h).															
11	Substrate Bending test	Appearance Capacitance Change	No defects or abnormalities. Within +/-5%	Mounting method Pressurization Method Flexure Holding Time	Reflow solder the capacitor on the test substrate Shown in Fig.2 1mm 5+/-1s															
12	Solderability	95% of the terminations is to be soldered evenly and continuously.		Test Method Flux Preheat Kind of Solder Test Temperature Test Time	Solder bath method Solution of rosin ethanol 25(mass)% 80°C to 120°C、 10s to 30s Sn-3.0Ag-0.5Cu(Lead Free Solder) 245+/-5°C 2+/-0.5s															
13	Resistance to Soldering Heat	Appearance Capacitance Change Q or D.F. I.R. Voltage proof	No defects or abnormalities. Within +/-2.5% Within the specified initial value. Within the specified initial value. No defects or abnormalities.	Test Method Kind of Solder Test Temperature Test Time Preheat Temperature Preheat time Post-treatment	Solder bath method Sn-3.0Ag-0.5Cu(Lead Free Solder) 270+/-5°C 10+/-0.5s 120°C to 150°C 1 min Let sit for 24+/-2h at room temperature, then measure.															
14	Temperature Sudden Change	Appearance Capacitance Change Q or D.F. I.R. Voltage proof	No defects or abnormalities. Within +/-2.5% Within the specified initial value. Within the specified initial value. No defects or abnormalities.	Mounting method Cycles Temperature Cycling Post-treatment	Solder the capacitor on the test substrate 5Cycles <table><tr><td>Step</td><td>Temp. (°C)</td><td>Time(min)</td></tr><tr><td>1</td><td>Min.Operating Temp.+0/-3</td><td>30+/-3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max.Operating Temp.+3/-0</td><td>30+/-3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> Let sit for 24+/-2h at room temperature, then measure.	Step	Temp. (°C)	Time(min)	1	Min.Operating Temp.+0/-3	30+/-3	2	Room Temp.	2 to 3	3	Max.Operating Temp.+3/-0	30+/-3	4	Room Temp.	2 to 3
Step	Temp. (°C)	Time(min)																		
1	Min.Operating Temp.+0/-3	30+/-3																		
2	Room Temp.	2 to 3																		
3	Max.Operating Temp.+3/-0	30+/-3																		
4	Room Temp.	2 to 3																		
15	High Temperature High Humidity (Steady)	Appearance Capacitance Change Q or D.F. I.R.	No defects or abnormalities. Within +/-7.5% Q≥200 More than 500MΩ	Mounting method Test Temperature Test Humidity Test Time Test Voltage Charge/discharge current Post-treatment	Solder the capacitor on the test substrate 40+/-2°C 90%RH to 95%RH 500+/-12h Rated Voltage 50mA max. Let sit for 24+/-2h at room temperature, then measure.															