

Materials Declaration

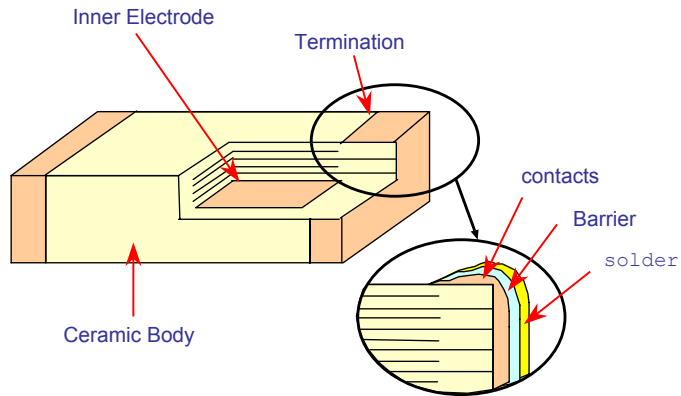
Capacitor(MLCC)

Type / Size

GMC02 C0G Series (0201)

Weight (mg)

0.223 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.04	21.51	17.88	7440-02-0
	dielectric	CaTiO3	0.15	78.49	65.23	12032-30-3 7439-95-4 12049-50-2
subtotal			0.19	100.00	83.11	
Termination	Contact With Ceramic	Cu	0.006	16.259	2.746	7440-50-8
	Barrier layer	Ni	0.008	20.964	3.541	7440-02-0
	solder plating	Sn	0.024	62.777	10.603	7440-31-5
subtotal			0.04	100.00	16.89	
All parts total			0.223		100	

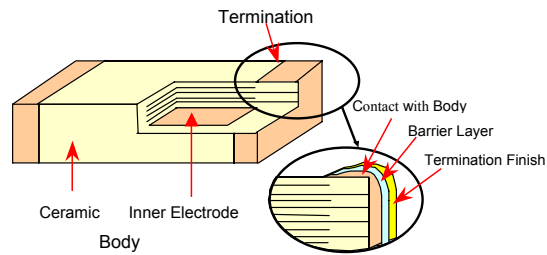
Materials Declaration Capacitor(MLCC)

Type / Size

GMC02 X7R Series (0201)

Weight (mg)

0.25 (max)

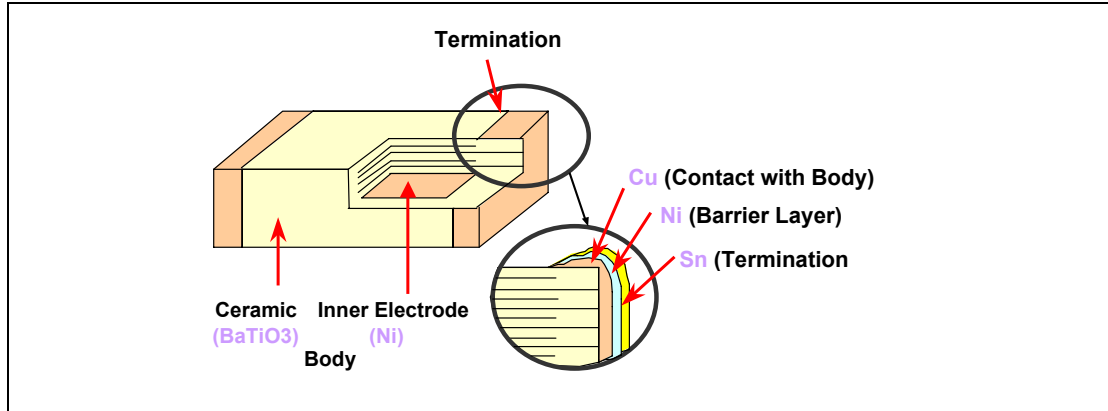


Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.05	24.53	20.80	7440-02-0
	dielectric	BaTiO3	0.16	75.47	64.00	12047-27-7
subtotal			0.21	100	84.80	
Termination	Contact With Ceramic	Cu	0.006	15.79	2.40	7440-50-8
	Barrier layer	Ni	0.008	21.05	3.20	7440-02-0
	solder plating	Sn	0.024	63.16	9.60	7440-31-5
subtotal			0.04		15.20	
All parts total			0.25		100	

Materials Declaration Capacitor(MLCC)

Type / Size
Weight (

GMC02 X5R Series (0201)
0.90 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.01	1.33	1.25	7440-02-0
	dielectric	BaTiO3	0.83	98.67	92.54	12047-27-7
subtotal			0.84	100	93.79	
Termination	Contact With Cerami	Cu	0.025	44.24	2.75	7440-50-8
	Barrier layer	Ni	0.013	22.34	1.39	7440-02-0
	solder plating	Sn	0.019	33.42	2.08	7440-31-5
subtotal			0.06	100	6.22	
All parts total			0.90		100	

Several additives are included in ceramic body. Any environmentally prohibited material is not included in additive. It is difficult to reveal the precise chemical composition and content of each additive due to each MLCC maker's proprietary information.

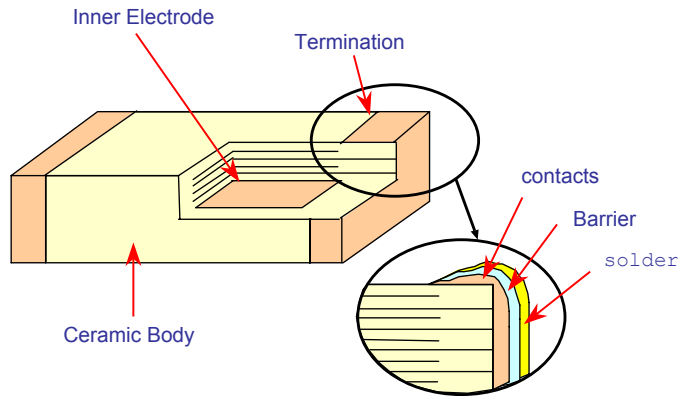
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Materials Declaration

Capacitor(MLCC)

Type / Size
Weight (mg)

GMC04 C0G Series (0402)
1.32 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.13	10.09	9.66	7440-02-0
	dielectric	Calcium Magnesium Titanate	1.14	89.91	86.08	12032-30-3 7439-95-4 12049-50-2
subtotal			1.26	100.00	95.74	
Termination	Contact With Ceramic	Cu	0.025	44.004	1.875	7440-50-8
	Barrier layer	Ni	0.013	22.754	0.970	7440-02-0
	solder plating	Sn	0.019	33.242	1.417	7440-31-5
subtotal			0.06	100.00	4.26	
All parts total			1.32		100	

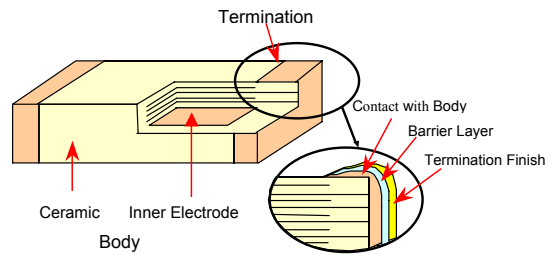
Materials Declaration Capacitor(MLCC)

Type / Size

GMC04 X7R Series (0402)

Weight (mg)

1.4 (max)

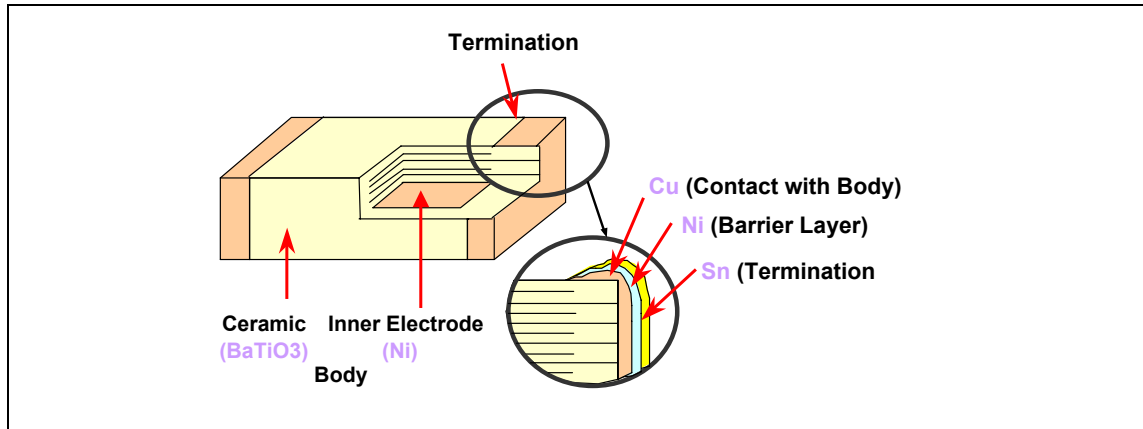


Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.24	18.05	17.33	7440-02-0
	dielectric	BaTiO3	1.10	81.95	78.65	12047-27-7
subtotal			1.34	100	95.98	
Termination	Contact With Ceramic	Cu	0.025	44.00	1.77	7440-50-8
	Barrier layer	Ni	0.013	22.75	0.91	7440-02-0
	solder plating	Sn	0.019	33.24	1.34	7440-31-5
subtotal			0.06	100	4.02	
All parts total			1.4		100	

Materials Declaration Capacitor(MLCC)

Type / Size
Weight (g)

GMC04 X5R Series (0402)
1.6 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.21	13.36	12.89	7440-02-0
	dielectric	BaTiO3	1.34	86.64	83.59	12047-27-7
subtotal			1.54	100	96.48	
Termination	Contact With Cerami	Cu	0.025	44.00	1.55	7440-50-8
	Barrier layer	Ni	0.013	22.75	0.80	7440-02-0
	solder plating	Sn	0.019	33.24	1.17	7440-31-5
subtotal			0.06	100	3.52	
All parts total			1.6		100	

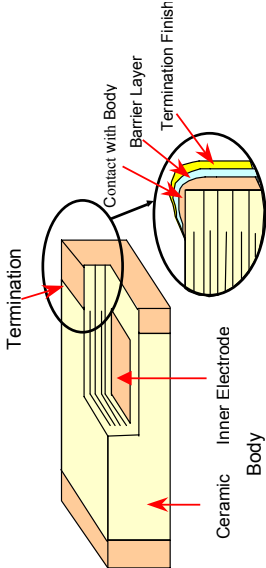
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Materials Declaration
Capacitor(MLCC)

Type / Size
Weight (mg)

GMC04 Y5V Series (0402)
1.8(max)

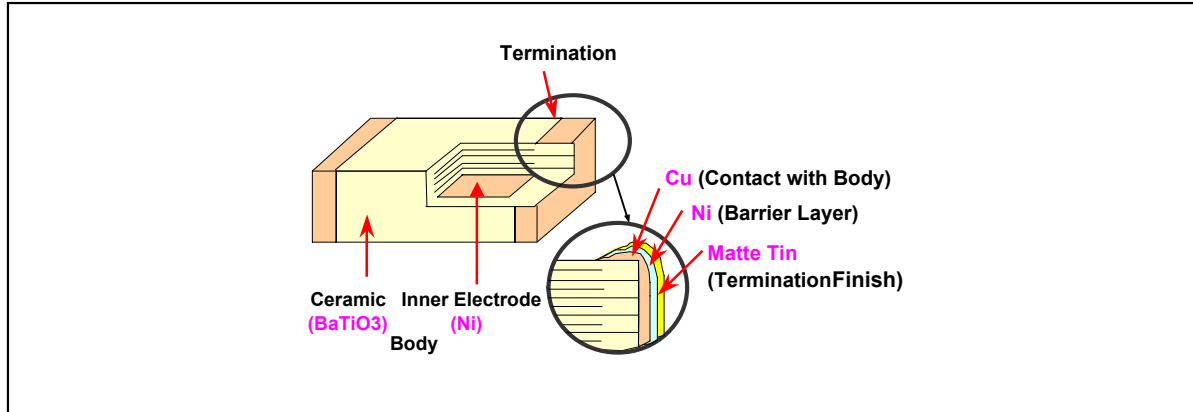


Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.18	10.32	10.00	7440-02-0
	dielectric	BaTiO3	1.56	89.68	86.87	12047-27-7
subtotal			1.74	100	96.87	
Termination	Contact With Ceramic	Cu	0.025	44.00	1.38	7440-50-8
	Barrier layer	Ni	0.013	22.75	0.71	7440-02-0
	solder plating	Sn	0.019	33.24	1.04	7440-31-5
subtotal			0.06	100	3.13	
All parts total			1.8		100	

Materials Declaration Capacitor(MLCC)

Inch/Size
Weight (mg)

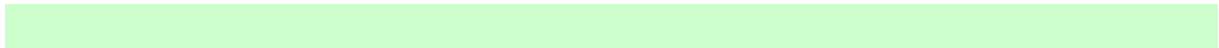
GMC10 CG Series (0603)
4.7 Max.



Part	Material		Weight(mg)	% of part	% of component	CAS NO.	
Body	inner electrode	Ni	0.38	8.44	8.17	7440-02-0	
	dielectric	BaTiO3	4.16	91.56	88.61	12047-27-7	
subtotal			4.55	100	96.78		
Termination	Contact With Ceramic	Cu	0.109	72.03	2.32	7440-50-8	
	Barrier layer	Ni	0.021	14.21	0.46	7440-02-0	
	solder plating	Sn	0.021	13.76	0.44	7440-31-5	
subtotal			0.15	100	3.22		
All parts total			4.70		100		

Several additives are included in ceramic body. any environmentally prohibited material is not included in additives.
It is difficult to reveal the precise chemical composition and content of each additive due to each MLCC maker's know-how.

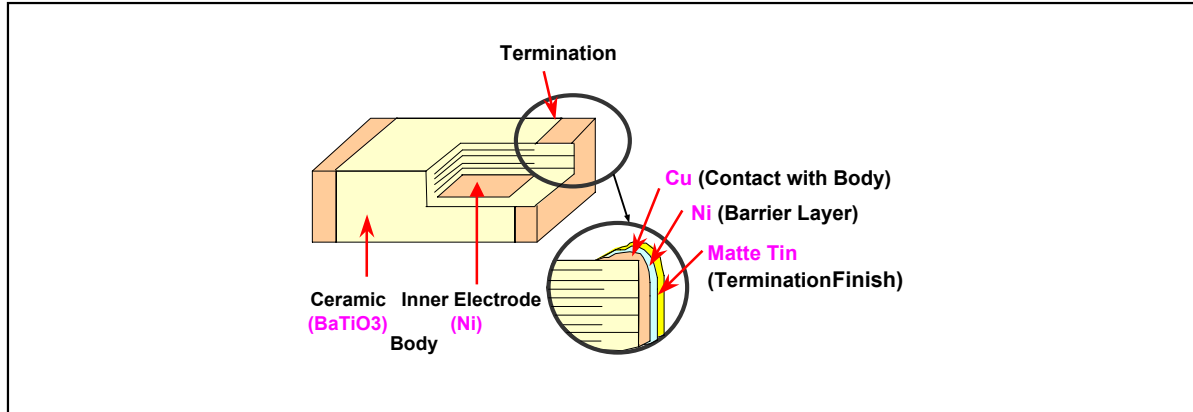
Written Date : February , 2006



Materials Declaration Capacitor(MLCC)

Inch/Size
Weight (mg)

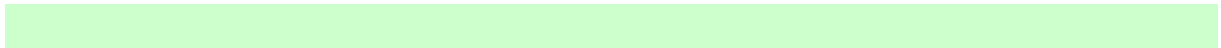
GMC10 X7R Series (0603)
6.1 Max.



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	1.51	25.34	24.71	7440-02-0
	dielectric	BaTiO3	4.44	74.66	72.81	12047-27-7
subtotal			5.95	100	97.52	
Termination	Contact With Ceramic	Cu	0.109	72.03	1.78	7440-50-8
	Barrier layer	Ni	0.021	14.21	0.35	7440-02-0
	solder plating	Sn	0.021	13.76	0.34	7440-31-5
subtotal			0.15	100	2.48	
All parts total			6.10		100	

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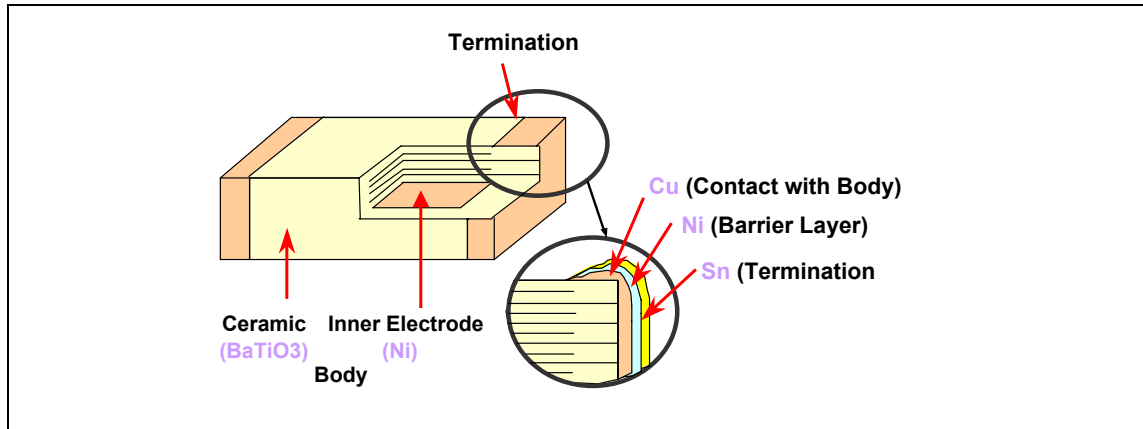
Written Date : February , 2006



Materials Declaration Capacitor(MLCC)

Type / Size
Weight (g)

GMC10 X5R Series (0603)
6.6 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	1.30	20.10	19.64	7440-02-0
	dielectric	BaTiO3	5.15	79.90	78.07	12047-27-7
subtotal			6.45	100	97.71	
Termination	Contact With Cerami	Cu	0.109	72.03	1.65	7440-50-8
	Barrier layer	Ni	0.021	14.21	0.33	7440-02-0
	solder plating	Sn	0.021	13.76	0.32	7440-31-5
subtotal			0.15	100	2.29	
All parts total			6.6		100	

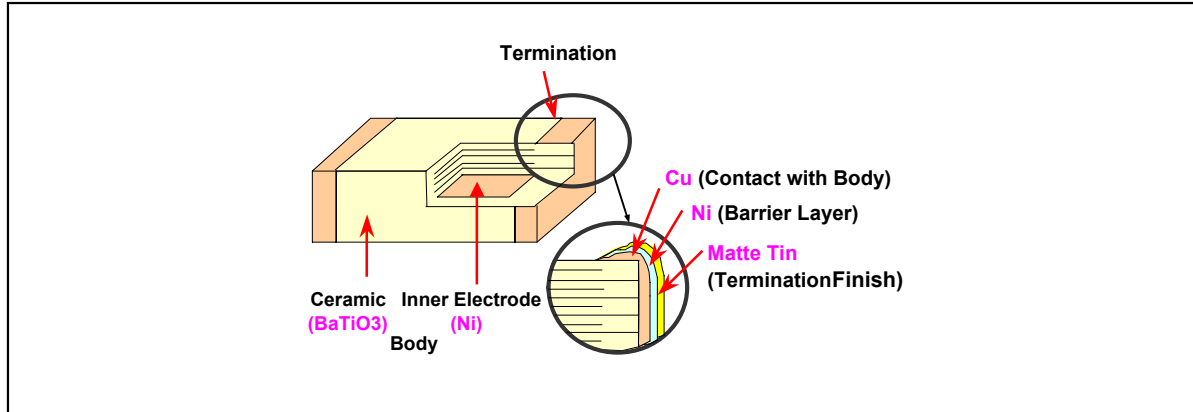
Several additives are included in ceramic body. Any environmentally prohibited material is not included in additive. It is difficult to reveal the precise chemical composition and content of each additive due to each MLCC maker's knowledge.

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Materials Declaration Capacitor(MLCC)

Inch/Size
Weight (mg)

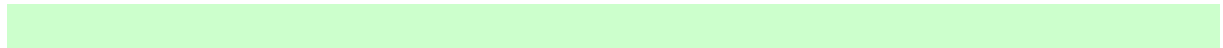
GMC10 Y5V Series (0603)
5.6 Max.



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.10	17.43	16.96	7440-02-0
	dielectric	BaTiO3	4.50	82.57	80.34	12047-27-7
subtotal			5.45	100	97.30	
Termination	Contact With Ceramic	Cu	0.109	72.03	1.94	7440-50-8
	Barrier layer	Ni	0.021	14.21	0.38	7440-02-0
	solder plating	Sn	0.021	13.76	0.37	7440-31-5
subtotal			0.15	100	2.70	
All parts total			5.60		100	

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Materials Declaration

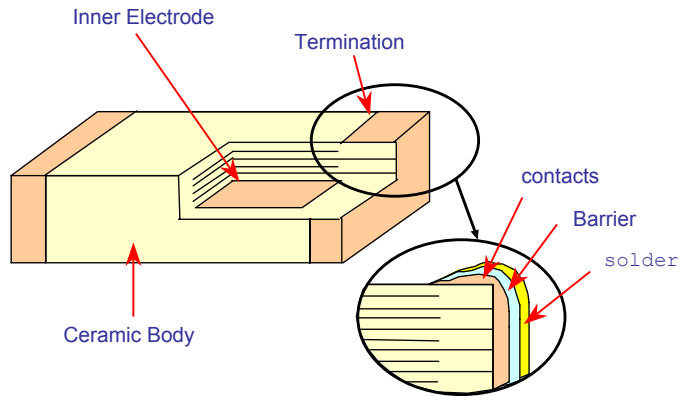
Capacitor(MLCC)

Type / Size

GMC21 C0G Series (0805)

Weight (mg)

7.1 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.14	2.15	2.03	7440-02-0
	dielectric	Calcium Magnesium Titanate	6.56	97.85	92.40	12032-30-3 7439-95-4 12049-50-2
subtotal			6.70	100.00	94.42	
Termination	Contact With Ceramic	Cu	0.261	65.829	3.674	7440-50-8
	Barrier layer	Ni	0.017	4.290	0.239	7440-02-0
	solder plating	Sn	0.118	29.881	1.668	7440-31-5
subtotal			0.40	100.00	5.58	
All parts total			7.1		100.00	

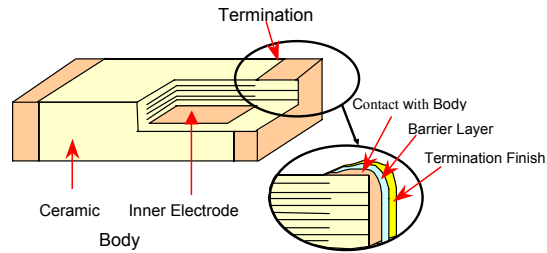
Materials Declaration Capacitor(MLCC)

Type / Size

GMC21 X7R Series (0805)

Weight (mg)

16.8 (max)

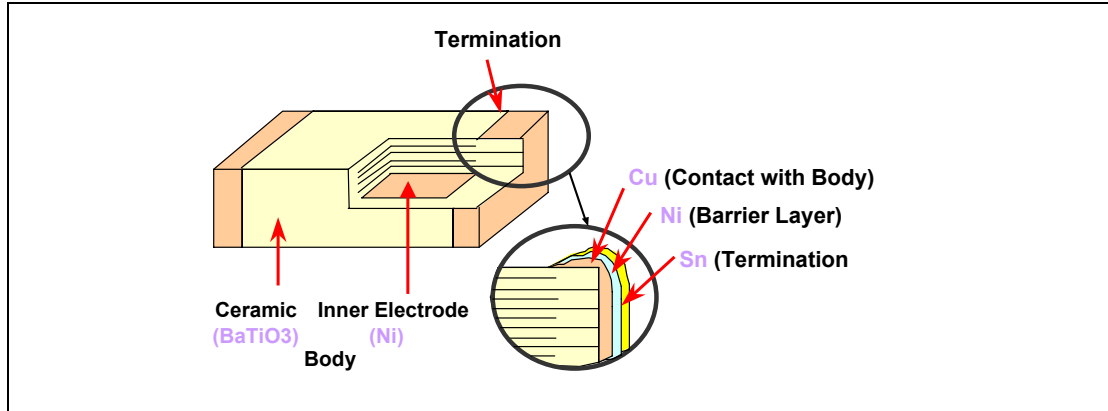


Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.67	4.06	3.96	7440-02-0
	dielectric	BaTiO3	15.75	95.94	93.78	12047-27-7
subtotal			16.42	100	97.74	
Termination	Contact With Ceramic	Cu	0.261	68.81	1.55	7440-50-8
	Barrier layer	Ni	0.017	4.48	0.10	7440-02-0
	solder plating	Sn	0.101	26.71	0.60	7440-31-5
subtotal			0.38	100	2.26	
All parts total			16.8		100	

Materials Declaration Capacitor(MLCC)

Type / Size
Weight (g)

GMC21 X5R Series (0805)
19.8 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	5.76	29.79	29.09	7440-02-0
	dielectric	BaTiO3	13.58	70.21	68.57	12047-27-7
subtotal			19.34	100	97.66	
Termination	Contact With Cerami	Cu	0.327	70.75	1.65	7440-50-8
	Barrier layer	Ni	0.017	3.67	0.09	7440-02-0
	solder plating	Sn	0.118	25.58	0.60	7440-31-5
subtotal			0.46	100	2.34	
All parts total			19.8		100	

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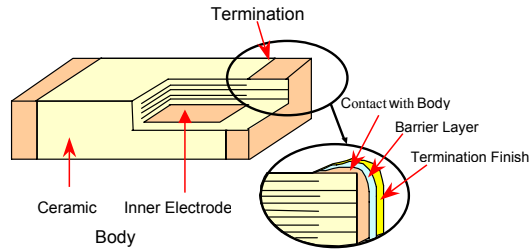
Materials Declaration Capacitor(MLCC)

Type / Size

GMC21 Y5V Series (0805)

Weight (mg)

10.9(max)



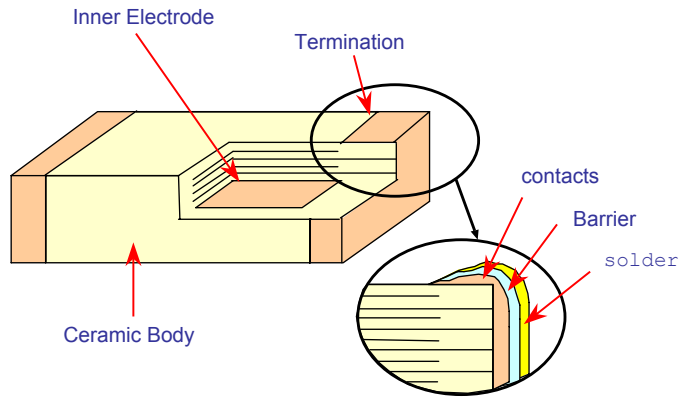
Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.36	3.42	3.30	7440-02-0
	dielectric	BaTiO3	10.16	96.58	93.22	12047-27-7
subtotal			10.52	100	96.52	
Termination	Contact With Ceramic	Cu	0.261	68.80	2.39	7440-50-8
	Barrier layer	Ni	0.017	4.48	0.16	7440-02-0
	solder plating	Sn	0.101	26.72	0.93	7440-31-5
subtotal			0.38	100	3.48	
All parts total			10.9		100	

Materials Declaration

Capacitor(MLCC)

Type / Size
Weight (mg)

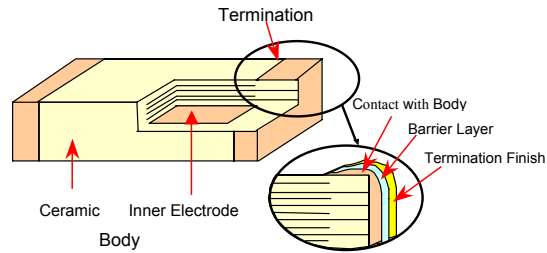
GMC31 C0G Series (1206)
19.1 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.27	1.45	1.41	7440-02-0
	dielectric	Calcium Magnesium Titanate	18.32	98.55	95.91	12032-30-3 7439-95-4 12049-50-2
subtotal			18.59	100	97.31	
Termination	Contact With Ceramic	Cu	0.337	65.70	1.77	7440-50-8
	Barrier layer	Ni	0.035	6.82	0.18	7440-02-0
	solder plating	Sn	0.141	27.48	0.74	7440-31-5
subtotal			0.51	100	2.69	
All parts total			19.1		100	

Materials Declaration Capacitor(MLCC)

Type / Size **GMC31 X7R Series (1206)**
Weight (mg) **21.5 (max)**

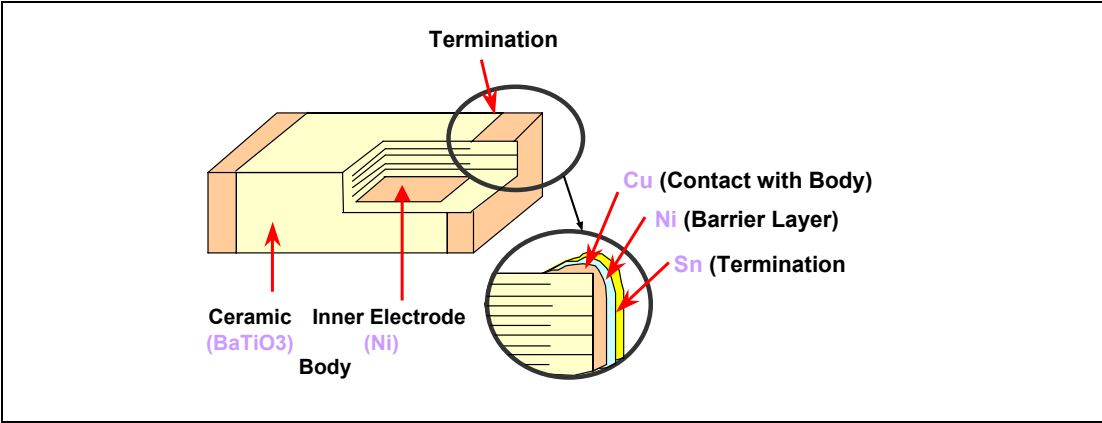


Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	0.96	4.57	4.47	7440-02-0
	dielectric	BaTiO ₃	20.03	95.43	93.14	12047-27-7
subtotal			20.99	100	97.61	
Termination	Contact With Ceramic	Cu	0.337	65.45	1.57	7440-50-8
	Barrier layer	Ni	0.037	7.18	0.17	7440-02-0
	solder plating	Sn	0.141	27.37	0.66	7440-31-5
subtotal			0.52	100	2.40	
All parts total			21.5		100	

Materials Declaration Capacitor(MLCC)

Type / Size
Weight

GMC31 X5R Series (1206)
51.1 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	14.98	29.76	29.31	7440-02-0
	dielectric	BaTiO3	35.34	70.24	69.16	12047-27-7
subtotal			50.32	100	98.47	
Termination	Contact With Ceram	Cu	0.603	77.21	1.18	7440-50-8
	Barrier layer	Ni	0.037	4.74	0.07	7440-02-0
	solder plating	Sn	0.141	18.05	0.28	7440-31-5
subtotal			0.78	100	1.53	
All parts total			51.1		100	

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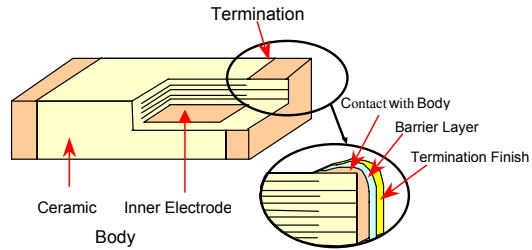
Materials Declaration Capacitor(MLCC)

Type / Size

GMC31 Y5V Series (1206)

Weight (mg)

21.53(max)



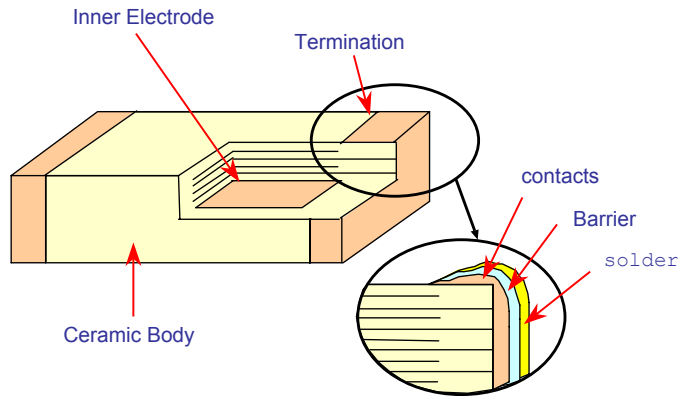
Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	3.76	18.02	17.48	7440-02-0
	dielectric	BaTiO3	17.12	81.98	79.53	12047-27-7
subtotal			20.89	100	97.01	
Termination	Contact With Ceramic	Cu	0.445	68.97	2.06	7440-50-8
	Barrier layer	Ni	0.059	9.15	0.27	7440-02-0
	solder plating	Sn	0.141	21.88	0.65	7440-31-5
subtotal			0.64	100	2.99	
All parts total			21.53		100	

Materials Declaration

Capacitor(MLCC)

Type / Size
Weight (mg)

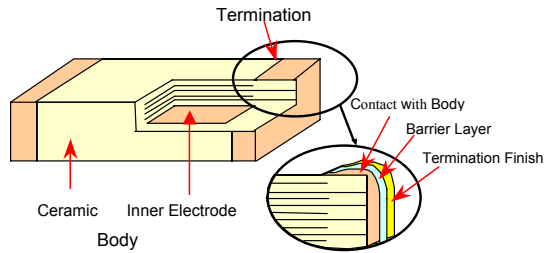
GMC32 C0G Series (1210)
43.80 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	3.60	8.41	8.22	7440-02-0
	dielectric	Calcium Magnesium Titanate	39.19	91.59	89.47	12032-30-3 7439-95-4 12049-50-2
subtotal			42.79	100.00	97.69	
Termination	Contact With Ceramic	Cu	0.810	79.897	1.849	7440-50-8
	Barrier layer	Ni	0.048	4.759	0.110	7440-02-0
	solder plating	Sn	0.156	15.344	0.355	7440-31-5
subtotal			1.01	100.00	2.31	
All parts total			43.8		100.00	

Materials Declaration Capacitor(MLCC)

Type / Size **GMC32 X7R Series (1210)**
Weight (mg) **118.5 (max)**



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	5.88	5.00	4.96	7440-02-0
	dielectric	BaTiO3	111.60	95.00	94.18	12047-27-7
subtotal			117.48	100	99.14	
Termination	Contact With Ceramic	Cu	0.810	79.90	0.68	7440-50-8
	Barrier layer	Ni	0.048	4.76	0.04	7440-02-0
	solder plating	Sn	0.156	15.34	0.13	7440-31-5
subtotal			1.01	100	0.86	
All parts total			118.5		100	

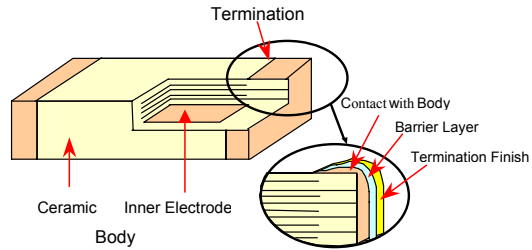
Materials Declaration Capacitor(MLCC)

Type / Size

GMC32 Y5V Series (1210)

Weight (mg)

118.4(max)



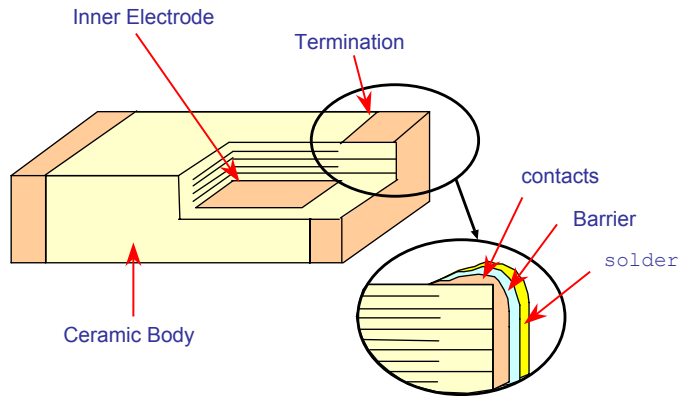
Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	27.60	23.66	23.31	7440-02-0
	dielectric	BaTiO ₃	89.05	76.34	75.21	12047-27-7
subtotal			116.65	100	98.52	
Termination	Contact With Ceramic	Cu	1.546	88.35	1.31	7440-50-8
	Barrier layer	Ni	0.048	2.76	0.04	7440-02-0
	solder plating	Sn	0.156	8.89	0.13	7440-31-5
subtotal			1.75	100	1.48	
All parts total			118.4		100	

Materials Declaration

Capacitor(MLCC)

Type / Size
Weight (mg)

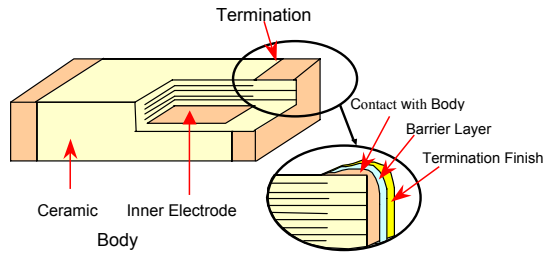
GMC43 C0G Series (1812)
78.7 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	4.33	5.56	5.50	7440-02-0
	dielectric	Calcium Magnesium Titanate	73.44	94.44	93.32	12032-30-3 7439-95-4 12049-50-2
subtotal			77.77	100.00	98.82	
Termination	Contact With Ceramic	Cu	0.718	77.265	0.912	7440-50-8
	Barrier layer	Ni	0.069	7.393	0.087	7440-02-0
	solder plating	Sn	0.143	15.343	0.181	7440-31-5
subtotal			0.93	100.00	1.18	
All parts total			78.7		100.00	

Materials Declaration Capacitor(MLCC)

Type / Size **GMC43 X7R Series (1812)**
Weight (mg) **195.2 (max)**



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	68.02	34.97	34.84	7440-02-0
	dielectric	BaTiO ₃	126.49	65.03	64.80	12047-27-7
subtotal			194.51	100	99.65	
Termination	Contact With Ceramic	Cu	0.477	69.20	0.24	7440-50-8
	Barrier layer	Ni	0.070	10.11	0.04	7440-02-0
	solder plating	Sn	0.143	20.69	0.07	7440-31-5
subtotal			0.69	100	0.35	
All parts total			195.2		100	

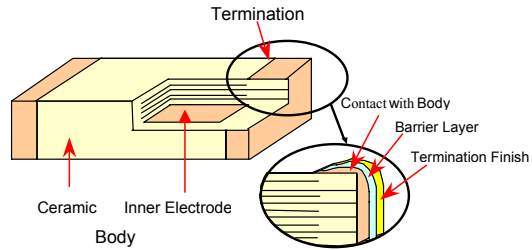
Materials Declaration Capacitor(MLCC)

Type / Size

GMC43 Y5V Series (1812)

Weight (mg)

193.9(max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	14.82	7.67	7.64	7440-02-0
	dielectric	BaTiO3	178.38	92.33	92.00	12047-27-7
subtotal			193.20	100	99.64	
Termination	Contact With Ceramic	Cu	0.477	68.21	0.25	7440-50-8
	Barrier layer	Ni	0.070	9.97	0.04	7440-02-0
	solder plating	Sn	0.153	21.82	0.08	7440-31-5
subtotal			0.70	100	0.36	
All parts total			193.900		100	

Materials Declaration

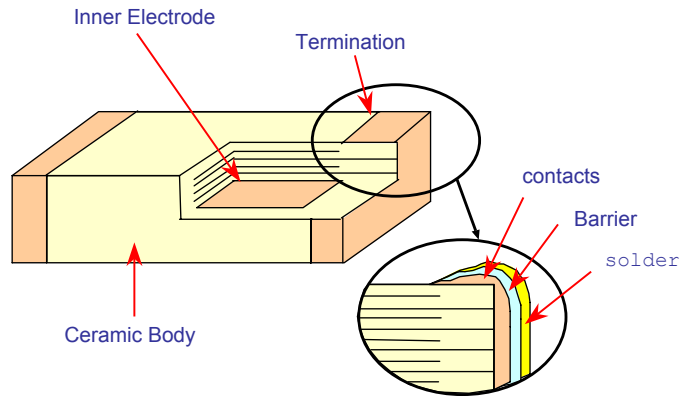
Capacitor(MLCC)

Type / Size

GMC55 C0G Series (2220)

Weight (mg)

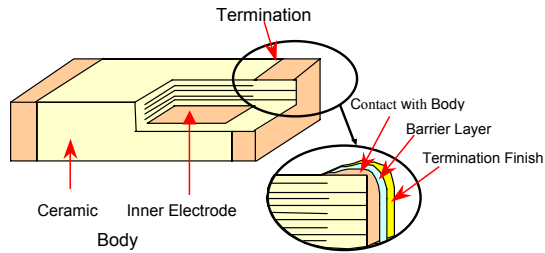
241.8 (max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	10.97	4.56	4.54	7440-02-0
	dielectric	Calcium Magnesium Titanate	229.60	95.44	94.96	12032-30-3 7439-95-4 12049-50-2
subtotal			240.58	100.00	99.49	
Termination	Contact With Ceramic	Cu	0.897	73.356	0.371	7440-50-8
	Barrier layer	Ni	0.059	4.831	0.024	7440-02-0
	solder plating	Sn	0.267	21.813	0.110	7440-31-5
subtotal			1.22	100.00	0.51	
All parts total			241.800		100.00	

Materials Declaration Capacitor(MLCC)

Type / Size **GMC55 X7R Series (2220)**
Weight (mg) **395.8 (max)**



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	130.39	33.06	32.94	7440-02-0
	dielectric	BaTiO3	263.97	66.94	66.69	12047-27-7
subtotal			394.37	100	99.64	
Termination	Contact With Ceramic	Cu	0.897	62.61	0.23	7440-50-8
	Barrier layer	Ni	0.069	4.81	0.02	7440-02-0
	solder plating	Sn	0.467	32.58	0.12	7440-31-5
subtotal			1.43	100	0.36	
All parts total			395.8		100	

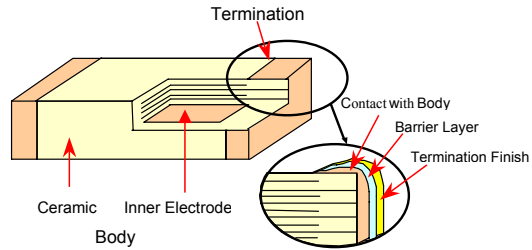
Materials Declaration Capacitor(MLCC)

Type / Size

GMC55 Y5V Series (2220)

Weight (mg)

297.9(max)



Part	Material		Weight(mg)	% of part	% of component	CAS NO.
Body	inner electrode	Ni	28.99	9.78	9.73	7440-02-0
	dielectric	BaTiO3	267.49	90.22	89.79	12047-27-7
subtotal			296.48	100	99.52	
Termination	Contact With Ceramic	Cu	0.897	63.05	0.30	7440-50-8
	Barrier layer	Ni	0.059	4.14	0.02	7440-02-0
	solder plating	Sn	0.467	32.81	0.16	7440-31-5
subtotal			1.42	100	0.48	
All parts total			297.9		100	