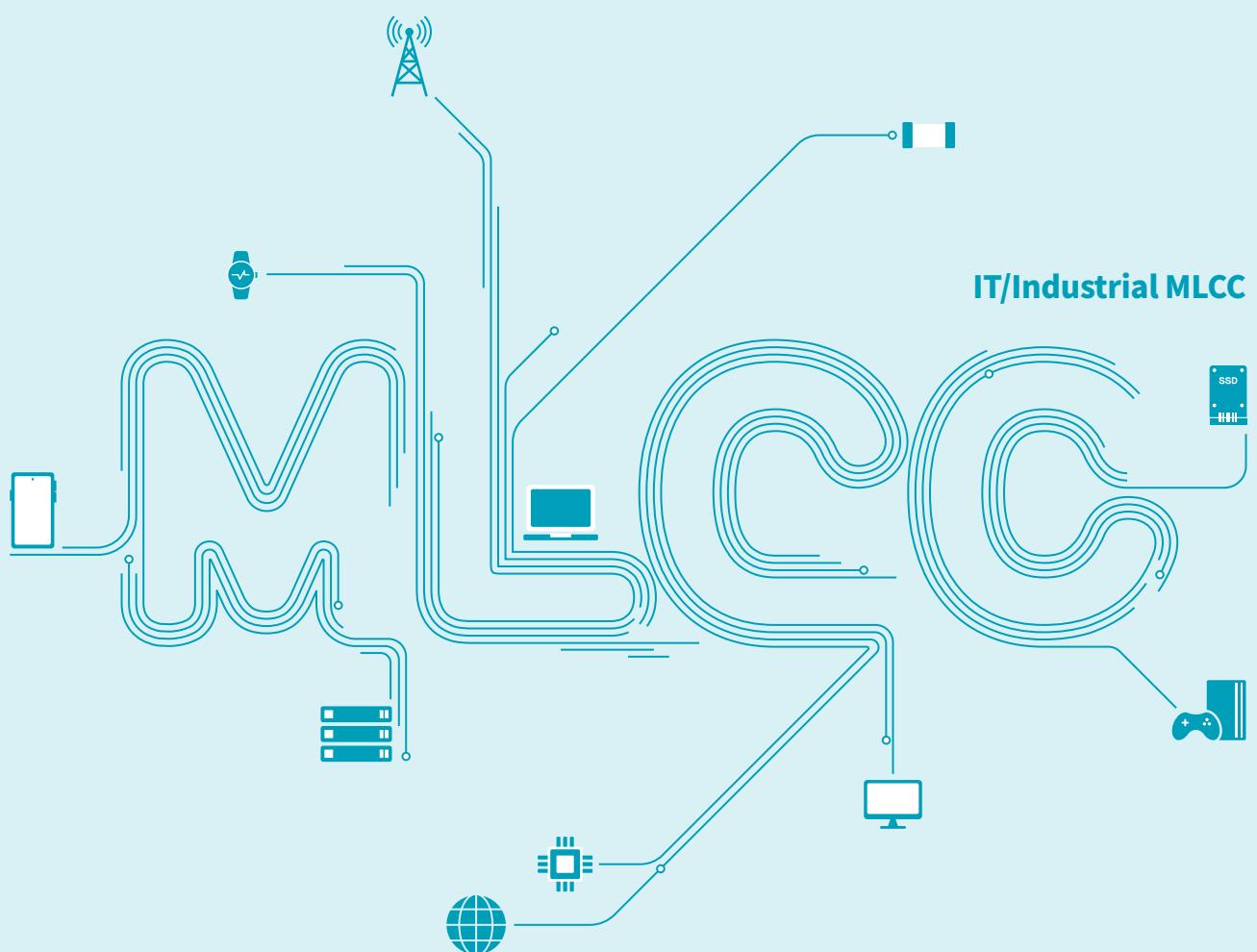


PRODUCT LINEUP OF IT/INDUSTRIAL MLCC

August 2024



SAMSUNG
ELECTRO-MECHANICS



C O N T E N T S

Normal Capacitors_Standard	03
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Molded Frame Capacitors (MFC)	16
Land Side Capacitors (LSC)	17
High Bending Strength Capacitors	18
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Normal Capacitors_Standard

Normal
Standard

Features

MLCC for Wide Range Implementation

A general MLCC temporarily charges and removes noise in electronic circuits and is the most widely available chip-type capacitor. The product line allows for realization of various sizes and a wide range of capacitance. It also has the structural capacity to mount chips on a PCB at a high speed.

■ Wide Selection of Size & Wide Capacitance Range

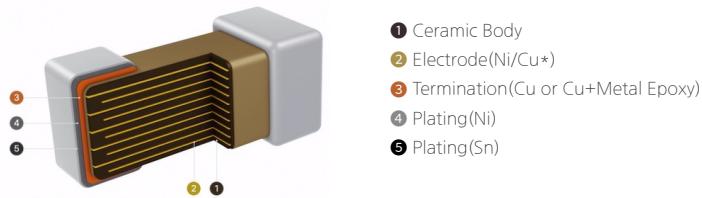
Product that can be Implemented in a Variety of Sizes and Over a Wide Range of Capacitance

■ Excellent DC Bias Characteristics

Capacitor with Excellent DC Bias Characteristics

■ High Speed Automatic Chip Placement on PCBs

Product that Enables High-Speed Mounting of Chips on PCBs



* Cu internal electrodes are only applicable to select products.

Application

- Computer, Solid State Drive, Display, Mobile Phone, Tablet, Network, Server, Game Console, DC-DC Converter

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF				nF			uF		
				0.1	1	10	100	1	10	100	1	10	100
Normal	COG (125°C)	008004/0201	16										0.2pF - 56pF
			25										0.2pF - 56pF
		01005/0402	6.3					100					100pF - 180pF
			10					100					56pF - 150pF
			16					100					8.2pF - 180pF
			25					100					1pF - 220pF
			50					100					10pF - 100pF
		0201/0603	25					100					0.2pF - 100pF
			50					100					1pF - 100pF
			100					100					47pF - 100pF
			16					100					100pF - 1nF
		0402/1005	25					100					20pF - 1nF
			50					100					1pF - 4.7nF
			100					100					12pF - 1nF
			16					100					1nF - 2.2nF
		0603/1608	25					100					560pF - 4.7nF
			50					100					4.7pF - 10nF
			100					100					10pF - 5nF
			200					100					220pF - 220pF
			250					100					470pF - 470pF
			25					100					3.3nF - 10nF
		0805/2012	50					100					10pF - 15nF
			100					100					12pF - 3.9nF
			200					100					18pF - 1nF
			250					100					1nF - 10nF

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	1	10	100	1	10	100	
Normal	COG (125°C)	1206/3216	16						10	100			15nF - 120nF
			25						10	100			10nF - 100nF
			50		10	100							10pF - 47nF
			100		100	100							20pF - 22nF
			200		100	100							220pF - 1nF
			250			10	100						2.2nF - 22nF
			500		100	100							10pF - 2.2nF
			630		100	100							10pF - 10nF
			1000		100	100							10pF - 1nF
			2000		100	100							15pF - 100pF
X5R (85°C)	X5R (85°C)	1210/3225	25						10	100			10nF - 10nF
			50					100	100	100			1.8nF - 22nF
			100					100	100	100			33nF - 47nF
			500				100	100	100				680pF - 1.8nF
			630				100	100	100				1.8nF - 33nF
			1000				100	100	100				12nF - 12nF
			2000				100	100	100				100pF - 100pF
			008004/0201	6.3			100	100	100				1nF - 10nF
			4				100	100	100				15nF - 1uF
			01005/0402	6.3			100	100	100				1nF - 1uF
Normal	Normal	0201/0603	10			100	100	100					470pF - 10nF
			015008/0502	6.3					100	100			1uF - 1uF
			4						100	100			1uF - 4.9uF
			6.3					100	100	100			15nF - 4.7uF
			10				100	100	100				2.2nF - 2.2uF
			16				100	100	100				33nF - 2.2uF
			25				100	100	100				330pF - 330nF
			35					100	100	100			100nF - 330nF
			0302/0805	6.3					100	100			4.7uF - 4.7uF
			4						100	100			2.2uF - 27uF
X5R (85°C)	X5R (85°C)	0402/1005	6.3				100	100	100				100nF - 22uF
			10				100	100	100				100nF - 10uF
			16				100	100	100				100nF - 4.7uF
			25				100	100	100				100nF - 4.7uF
			35					100	100	100			1uF - 2.2uF
			50					100	100	100			100nF - 100nF
			4						100	100			22uF - 47uF
			6.3					100	100	100			1uF - 47uF
			10				100	100	100				220nF - 22uF
			16				100	100	100				470nF - 22uF
Normal	Normal	0603/1608	25				100	100	100				100nF - 10uF
			35				100	100	100				1uF - 10uF
			50				100	100	100				220nF - 2.2uF
			4						100	100			47uF - 100uF
			6.3					100	100	100			4.7uF - 47uF
			10				100	100	100				1uF - 47uF
			16				100	100	100				1uF - 22uF
			25				100	100	100				1uF - 22uF
			35				100	100	100				4.7uF - 10uF
			50				100	100	100				1uF - 10uF
X5R (85°C)	X5R (85°C)	0805/2012	4						100	100			47uF - 100uF
			6.3					100	100	100			4.7uF - 47uF
			10				100	100	100				1uF - 47uF
			16				100	100	100				1uF - 22uF
			25				100	100	100				1uF - 22uF
			35				100	100	100				4.7uF - 10uF
			50				100	100	100				1uF - 10uF
			4						100	100			47uF - 100uF
			6.3					100	100	100			4.7uF - 47uF
			10				100	100	100				1uF - 47uF

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range
				pF			nF			uF		
				0.1	1	10	100	1	10	100	1	10
Normal	X5R (85°C)	1206/3216	6.3									10uF - 100uF
			10									10uF - 47uF
			16									2.2uF - 22uF
			25									3.3uF - 22uF
			35									4.7uF - 4.7uF
			50									1uF - 10uF
			100									2.2uF - 2.2uF
		1210/3225	6.3									22uF - 220uF
			10									10uF - 100uF
			16									10uF - 47uF
			25									2.2uF - 22uF
			35									4.7uF - 10uF
			50									10uF - 10uF
			100									
	X6S (105°C)	01005/0402	4									100nF - 470nF
			6.3									10nF - 10nF
			2.5									2.2uF - 2.2uF
		0201/0603	4									1uF - 2.2uF
			6.3									100nF - 470nF
			10									100nF - 220nF
	X7R (125°C)	0402/1005	25									100nF - 100nF
			2.5									2.2uF - 2.2uF
			4									2.2uF - 22uF
			6.3									1uF - 10uF
			10									1uF - 2.2uF
			16									1uF - 1uF
		0603/1608	25									1uF - 2.2uF
			4									10uF - 22uF
			6.3									4.7uF - 22uF
			10									2.2uF - 10uF
	X6T (105°C)	0805/2012	16									1uF - 10uF
			25									2.2uF - 10uF
			2.5									4.7uF - 22uF
		1206/3216	4									47uF - 47uF
			6.3									22uF - 47uF
			10									22uF - 22uF
	X7R (125°C)	1210/3225	16									22uF - 22uF
			25									10uF - 22uF
			6.3									100uF - 100uF
		01005/0402	10									47uF - 47uF
			16									47uF - 47uF
	X6T (105°C)	0201/0603	4									47uF - 47uF
		0402/1005	2.5									2.2uF - 20uF
	X7R (125°C)	01005/0402	10									100pF - 1nF
		16										330pF - 330pF

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1	10	100
Normal	X7R (125°C)	0201/0603	6.3					1	10				2.2nF - 10nF
			10					1	10	100			1nF - 100nF
			16			100							150pF - 10nF
			25			10							120pF - 1.8nF
		0402/1005	6.3						100				100nF - 1uF
			10					10	10	100			22nF - 470nF
			16					100					820pF - 220nF
			25					100					560pF - 220nF
			50					100					150pF - 100nF
			100			10							220pF - 220pF
		0603/1608	6.3						100				470nF - 10uF
			10					10	10	100			220nF - 2.2uF
			16					100					10nF - 1uF
			25					100					4.7nF - 1uF
			50					100					100pF - 1uF
			100					100					1nF - 100nF
		0805/2012	6.3						100				10uF - 10uF
			10					100					680nF - 10uF
			16					100					100nF - 10uF
			25					100					1nF - 4.7uF
			50					100					100pF - 1uF
			100					100					220pF - 220nF
			200					100					220pF - 10nF
			250					100					1nF - 10nF
		1206/3216	6.3							10			10uF - 22uF
			10						10	10	100		1.2uF - 22uF
			16						100				330nF - 10uF
			25						100				220nF - 10uF
			35							100			10uF - 10uF
			50						100				220pF - 10uF
			100					100					2.2nF - 2.2uF
			200					100					470pF - 100nF
			250					100					33nF - 100nF
			350					100					33nF - 33nF
			500					100					220pF - 33nF
			630					100					330pF - 33nF
			1000					100	10	100			680pF - 2.2nF
			2000					100	10	100			1nF - 1nF
		1210/3225	6.3							10			47uF - 47uF
			10						10	10	100		10uF - 47uF
			16						100				10uF - 22uF
			25						100				1uF - 22uF
			35							100			10uF - 10uF
			50						100				150nF - 10uF
			100						100				1uF - 2.2uF
			250						100				100nF - 100nF
			500						100				10nF - 10nF
X7R(S) (125°C)	0603/1608	16								10			10uF - 10uF
X7R(S) (125°C)	0805/2012	25								10			10uF - 10uF
X7S (125°C)	0201/0603	10							10				100nF - 100nF
		16							10				100nF - 100nF
	0603/1608	6.3							10				10uF - 10uF
	0805/2012	25							10				4.7uF - 4.7uF

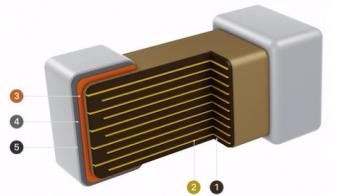
Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1	10	100
Normal	X7T (125°C)	0201/0603	6.3						100				220nF - 220nF
		0402/1005	4							100			10uF - 10uF
		0805/2012	6.3							100			22uF - 22uF
			25							100			10uF - 10uF
		1206/3216	35							100			10uF - 10uF
			50							100			10uF - 10uF
	Y5V (85°C)	0402/1005	6.3						100	100			1uF - 1uF
			10					100	100				330nF - 470nF
			16				100	100					22nF - 100nF
			25				100	100					22nF - 33nF
			50				100	100					15nF - 15nF
		0603/1608	6.3						100				2.2uF - 2.2uF
			10					100					2.2uF - 2.2uF
			16				100	100					100nF - 330nF
			25				100	100					100nF - 470nF
			50				100	100					10nF - 100nF
	1206/3216	0805/2012	6.3						100				10uF - 10uF
			10					100	100				2.2uF - 4.7uF
			16				100	100					680nF - 2.2uF
			25				100	100					100nF - 470nF
			50				100	100					10nF - 1uF
		1210/3225	10						100				10uF - 10uF
			16					100	100				1uF - 4.7uF
			25					100	100				1uF - 2.2uF
			50				100	100	100				100nF - 1uF
Normal (Epoxy)	X5R(85°C)	0805/2012	25							100			10uF - 10uF
	X7R(S) (125°C)		25							100			10uF - 10uF
	X7S (125°C)	1206/3216	100							100			4.7uF - 4.7uF

Normal Capacitors_High Level I

Normal
High Level I

Features

- A High Level I MLCC is a chip-type capacitor suitable for industrial applications, with greater reliability than a general MLCC.
- It has improved the moisture resistance characteristics.
- In the outgoing inspection, proceed with the bending strength evaluation strengthen.



- ① Ceramic Body
- ② Electrode(Ni/Cu*)
- ③ Termination(Cu or Cu+Metal Epoxy)
- ④ Plating(Ni)
- ⑤ Plating(Sn)

High Level I

Improved Reliability
(65°C, 90%RH, 1Vr, 500H)

High Level II

Reinforced Reliability
(85°C, 85%RH, 1Vr, 1000H)

* Cu internal electrodes are only applicable to select products.

Application

- Server, Network, Base station, Solar Inverter, DC-DC Converter

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1		
High Level I	COG (125°C)	008004/0201	16									0.2pF - 10pF	
			25									0.2pF - 10pF	
		01005/0402	6.3									100pF - 100pF	
			16									10pF - 100pF	
			25									10pF - 100pF	
			50									100pF - 100pF	
		0201/0603	25									0.2pF - 100pF	
			50									0.5pF - 100pF	
			100									100pF - 100pF	
			16									27pF - 1nF	
		0402/1005	25									0.1pF - 1nF	
			50									0.1pF - 1nF	
			100									12pF - 220pF	
			16									1nF - 2.2nF	
		0603/1608	25									560pF - 10nF	
			50									1pF - 5.6nF	
			100									1.2pF - 4.7nF	
			200									220pF - 220pF	
			250									470pF - 470pF	
			25									3.3nF - 10nF	
		0805/2012	50									10pF - 15nF	
			100									12pF - 10nF	
			200									18pF - 1nF	
			250									10pF - 2.2nF	
			630									10pF - 470pF	

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1	10	100
COG (125°C)		1206/3216	16					10	100				15nF - 120nF
			25					10	100				10nF - 100nF
			50		10	100		10	100				10pF - 100nF
			100		100			10	100				20pF - 33nF
			200		100			10	100				68pF - 1nF
			250			10	100		10	100			2.2nF - 8.2nF
			500		100			10	100				10pF - 2.2nF
			630		100			10	100				10pF - 10nF
			1000		100			10	100				10pF - 1nF
			2000		100			10	100				15pF - 100pF
High Level I		1210/3225	25					10	100				10nF - 10nF
			50					100					1.8nF - 22nF
			100					10	100				33nF - 47nF
			500					10	100				680pF - 1.8nF
			630					10	100				8.2nF - 33nF
			1000					10	100				10nF - 22nF
			2000					10	100				100pF - 100pF
			008004/0201	6.3				10	100				10nF - 10nF
			4					100					100nF - 100nF
			01005/0402	6.3		100		100					1nF - 100nF
X5R (85°C)		0201/0603	10		100			10	100				1nF - 10nF
			25			100		10	100				10nF - 10nF
			4					10	100				220nF - 220nF
			6.3		100	100		100					2.2nF - 2.2uF
			10		100			100					1.5nF - 220nF
			16		100	100		100					1.2nF - 1uF
			25		100	100		100					100pF - 100nF
			35					10	100				100nF - 100nF
			2.5						10	100			4.7uF - 4.7uF
			4					100	100				680nF - 22uF
		0402/1005	6.3		100	100		100					1nF - 10uF
			10		100	100		100					1nF - 10uF
			16		100	100		100					1nF - 2.2uF
			25		100	100		100					1nF - 2.2uF
			35					10	100				1uF - 1uF
			50					100					1nF - 100nF
			2.5						10	100			4.7uF - 4.7uF
			4					100	100				680nF - 22uF
			6.3		100	100		100					1nF - 10uF
			10		100	100		100					1nF - 10uF
		0603/1608	16		100	100		100					1nF - 2.2uF
			25		100	100		100					100nF - 10uF
			35					10	100				1uF - 4.7uF
			50					100					220nF - 2.2uF
			4						100	100			4.7uF - 47uF
			6.3					100	100				330nF - 47uF
			10		100	100		100					150nF - 22uF
			16		100	100		100					220nF - 10uF
			25		100	100		100					100nF - 10uF
			35					10	100				1uF - 4.7uF
		0805/2012	50					100					220nF - 2.2uF
			2.5								100	100	100uF - 100uF
			4							100	100		22uF - 100uF
			6.3						100	100			1.5uF - 100uF
			10					100	100				330nF - 47uF
			16					100	100				330nF - 22uF
			25					100	100				470nF - 22uF
			35						10	100			4.7uF - 4.7uF
			50						100				1uF - 4.7uF
			100						10	100			18nF - 18nF

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1	10	100
High Level I	X5R (85°C)	1206/3216	4									100uF - 100uF	
			6.3									4.7uF - 100uF	
			10									1uF - 100uF	
			16									680nF - 47uF	
			25									1uF - 22uF	
			35									4.7uF - 4.7uF	
			50									1uF - 10uF	
	X6S (105°C)	1210/3225	6.3									22uF - 220uF	
			10									10uF - 100uF	
			16									4.7uF - 47uF	
			25									4.7uF - 22uF	
			35									4.7uF - 10uF	
			50									1uF - 10uF	
			01005/0402	6.3					10				10nF - 10nF
High Level II	X7R (125°C)	0201/0603	4										15nF - 1uF
			6.3										15nF - 1uF
			10										100nF - 1uF
			16										100nF - 100nF
			25										100nF - 100nF
			0402/1005	2.5									2.2uF - 22uF
			4										100nF - 22uF
	X7S (125°C)	0603/1608	6.3										150nF - 10uF
			10										150nF - 2.2uF
			16										470nF - 2.2uF
			25										68nF - 2.2uF
			35										220nF - 220nF
			0805/2012	2.5									4.7uF - 47uF
			4										1uF - 47uF
High Level III	X8R (150°C)	1206/3216	6.3										1uF - 22uF
			10										1uF - 10uF
			16										470nF - 10uF
			25										470nF - 4.7uF
			35										2.2uF - 2.2uF
			50										1uF - 1uF
			0805/2012	2.5									22uF - 100uF
	X8S (150°C)	1210/3225	4										10uF - 100uF
			6.3										4.7uF - 47uF
			10										22uF - 22uF
			16										4.7uF - 22uF
			25										10uF - 22uF
			35										100uF - 100uF
			50										47uF - 100uF

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1		
High Level I	X6T (105°C)	0201/0603	4							1	1	2.2uF - 2.2uF	
			4							1	1	470nF - 2.2uF	
		0402/1005	16							1	1	2.2uF - 2.2uF	
			2.5							1	1	47uF - 47uF	
		0805/2012	4							1	1	47uF - 47uF	
			4							1	1	47uF - 100uF	
	X7R (125°C)	1206/3216	6.3									100uF - 100uF	
		01005/0402	10				1	1				100pF - 1nF	
			16			1						330pF - 330pF	
		0201/0603	6.3			1	1	1	1			1.5nF - 10nF	
			10			1	1	1	1			330pF - 100nF	
		0402/1005	16			1	1	1	1			100pF - 10nF	
			25			1	1	1	1			100pF - 10nF	
		0603/1608	4							1	1	1uF - 1uF	
			6.3							1	1	1nF - 1uF	
		0805/2012	10							1	1	10nF - 470nF	
			16							1	1	820pF - 220nF	
		1206/3216	25							1	1	220pF - 220nF	
			50							1	1	150pF - 100nF	
	X7R (125°C)	0603/1608	6.3							1	1	220nF - 4.7uF	
			10							1	1	5.6nF - 2.2uF	
		0805/2012	16							1	1	5.6nF - 1uF	
			25							1	1	4.7nF - 1uF	
		1206/3216	35							1	1	470nF - 470nF	
			50							1	1	100pF - 1uF	
		0603/1608	100							1	1	220pF - 100nF	
		0805/2012	6.3							1	1	2.2uF - 10uF	
			10							1	1	220nF - 10uF	
		1206/3216	16							1	1	100nF - 10uF	
			25							1	1	1nF - 4.7uF	
		0603/1608	50							1	1	100pF - 2.2uF	
		0805/2012	100							1	1	220pF - 470nF	
			200							1	1	150pF - 10nF	
		1206/3216	250							1	1	1nF - 10nF	
	X7R (125°C)	0603/1608	6.3							1	1	22uF - 22uF	
			10							1	1	1uF - 22uF	
		0805/2012	16							1	1	220nF - 10uF	
			25							1	1	220nF - 10uF	
		1206/3216	35							1	1	10uF - 10uF	
			50							1	1	220pF - 10uF	
		0603/1608	100							1	1	220pF - 2.2uF	
		0805/2012	200							1	1	470pF - 100nF	
			250							1	1	33nF - 100nF	
		1206/3216	350							1	1	33nF - 33nF	
			500							1	1	220pF - 33nF	
		0603/1608	630							1	1	330pF - 33nF	
		0805/2012	1000							1	1	680pF - 10nF	
			2000							1	1	1nF - 1nF	

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range
				pF			nF			uF		
				0.1	1	10	100	1	10	100	1	10
High Level I	X7R (125°C)	1210/3225	6.3									47uF - 47uF
			10									10uF - 47uF
			16									2.2uF - 22uF
			25									1uF - 22uF
			35									10uF - 10uF
			50									150nF - 10uF
			100									220nF - 4.7uF
			200					1				22nF - 22nF
			250					10				100nF - 100nF
			500					1				10nF - 22nF
			630					10				22nF - 47nF
			1000					1				22nF - 22nF
			2000						1			1nF - 1nF
	X7R(S) (125°C)	0603/1608	6.3									10uF - 10uF
			10									10uF - 10uF
		0805/2012	10									22uF - 22uF
	X7S (125°C)	0201/0603	6.3									100nF - 100nF
			10									100nF - 100nF
			16									100nF - 100nF
		0402/1005	6.3									1uF - 1uF
			10									1uF - 1uF
			16									1uF - 1uF
			25									1uF - 1uF
			50									33nF - 100nF
		0603/1608	6.3									1uF - 1uF
			10									1uF - 1uF
			16									680nF - 4.7uF
			25									2.2uF - 2.2uF
		0805/2012	16									4.7uF - 10uF
			25									2.2uF - 10uF
			100									1uF - 1uF
		1206/3216	4									47uF - 47uF
			25									10uF - 10uF
	X7T (125°C)	1210/3225	4									100uF - 100uF
			6.3									100uF - 100uF
			25									22uF - 22uF
			50									10uF - 10uF
			100									4.7uF - 10uF
		01005/0402	2.5									470nF - 470nF
			6.3									220nF - 220nF
		0201/0603	10									10nF - 10nF
			2.5									100nF - 220nF
		0402/1005	4									10uF - 10uF
			10									2.2uF - 2.2uF
			16									2.2uF - 2.2uF
			2.5									47uF - 47uF
		0603/1608	6.3									4.7uF - 10uF
			10									1uF - 10uF
			6.3									22uF - 22uF
		0805/2012	6.3									22uF - 22uF
			10									22uF - 22uF
		1206/3216	35									10uF - 10uF
		1210/3225	6.3									22uF - 47uF

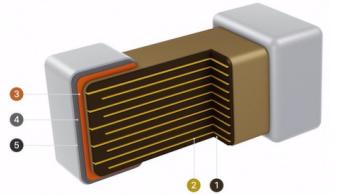
Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1		
High Level I (Epoxy)	X5R(85°C)	0603/1608	50							1	1	2.2uF - 2.2uF	
	X6S (105°C)	1206/3216	16							10	10	22uF - 22uF	
			25							100	100	22uF - 22uF	
	X7R (125°C)	0805/2012	200					10	10			15nF - 15nF	
			35							100	100	10uF - 10uF	
			100				10	10		100	100	18nF - 18nF	
			500				100	100		100	100	47nF - 47nF	
			630				10	10		100	100	22nF - 22nF	
		1206/3216	250				100	100		100	100	100nF - 100nF	
			500				100	100		100	100	100nF - 100nF	
		1812/4532	500				100	100		100	100	220nF - 220nF	
	X7R(S) (125°C)	0805/2012	25							10	10	10uF - 10uF	
	25								100	100	10uF - 10uF		
	X7S (125°C)	1206/3216	16							100	100	22uF - 22uF	
			25							100	100	22uF - 22uF	
		1210/3225	100							100	100	4.7uF - 4.7uF	
			100							100	100	10uF - 10uF	
	X7T (125°C)	1206/3216	25							100	100	22uF - 22uF	

Normal Capacitors_High Level II

Normal
High Level II

Features

- A High Level II MLCC is a chip-type capacitor designed to be suitable for outdoor industrial applications.
- Reliability for moisture resistance and temperature change has been strengthened, and the bending strength characteristic is excellent.



- ① Ceramic Body
- ② Electrode(Ni/Cu*)
- ③ Termination(Cu or Cu+Metal Epoxy)
- ④ Plating(Ni)
- ⑤ Plating(Sn)

High Level I

Improved Reliability
(65°C, 90%RH, 1Vr, 500H)

High Level II

Reinforced Reliability
(85°C, 85%RH, 1Vr, 1000H)

* Cu internal electrodes are only applicable to select products.

Application

- Base station, Solar Inverter, DC-DC Converter

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range			
				pF			nF			uF					
0.1		1		100		1		100		1		10		100	
High Level II	COG (125°C)	0402/1005	50											3.3pF - 1nF	
			25											1nF - 6.8nF	
		0603/1608	50											22pF - 3.3nF	
			100											100pF - 4.7nF	
		1206/3216	50											47nF - 100nF	
			630											10nF - 10nF	
		1210/3225	1000											680pF - 1nF	
			630											22nF - 33nF	
		1210/3225	1000											10nF - 22nF	
		0603/1608	6.3											4.7uF - 4.7uF	
	X5R (85°C)		10											1uF - 10uF	
			16											1uF - 1uF	
			25											1uF - 1uF	
		0805/2012	6.3											22uF - 22uF	
		1210/3225	6.3											220uF - 220uF	
	X6S (105°C)	0805/2012	4											47uF - 47uF	
			25											4.7uF - 4.7uF	
		1206/3216	6.3											100uF - 100uF	
		1210/3225	2.5											330uF - 330uF	
	X7R (125°C)	0201/0603	10											100nF - 100nF	
		0402/1005	25											100nF - 100nF	
			50											4.7nF - 100nF	
		0603/1608	10											1uF - 2.2uF	
			16											1uF - 1uF	
			25											8.2nF - 1uF	
			50											270pF - 47nF	
			100											100nF - 100nF	

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance										Capacitance Range	
				pF			nF			uF					
				0.1	1	10	100	1	10	100	1	10	100		
High Level II	X7R (125°C)	0805/2012	16											10uF - 10uF	
		1206/3216	25											10uF - 10uF	
			50											1uF - 1uF	
		1210/3225	10											47uF - 47uF	
	X7S (125°C)	0201/0603	10							■				100nF - 100nF	
		0402/1005	10							■				1uF - 1uF	
		0603/1608	10							■				4.7uF - 4.7uF	
			16							■				4.7uF - 4.7uF	
		0805/2012	25							■				4.7uF - 4.7uF	
		1206/3216	4							■				47uF - 47uF	
		1210/3225	6.3								■			100uF - 100uF	
	X7T (125°C)	0603/1608	6.3							■				10uF - 10uF	
			10							■				10uF - 10uF	
		1206/3216	4								■			100uF - 100uF	
			6.3								■			47uF - 47uF	

Molded Frame Capacitors (MFC)

MFC

Features

MLCC with a High Tolerance to Cracking

A capacitor with a molded frame structure that reduces audible noise, reduces the mounting area for the same capacitance when using a stacked structure, and is more resistant to cracking caused by PCB bending.

■ Reducing Audible Noise

A Solution to Reduce the Noise of Mechanical Vibrations Caused by Piezoelectric Properties

■ High Performance & Space Saving

High Performance Product with Stacked Structure to Reduce Mounting Space

■ Bending Crack Prevention

Absorbs Deformation Stress to Prevent Bending Cracks from Occurring due to PCB Deformation



Application

- Power, DC-DC Converter where bending stress is high and high reliability is necessary.

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance										Capacitance Range	
				pF			nF			uF					
				0.1	1	10	100	1	10	100	1	10	100		
High Level I Molded Frame Capacitor	X7R (125°C)	1210/3225	100								1			2.2uF - 2.2uF	
	X7S (125°C)		100								1			4.7uF - 4.7uF	

Land Side Capacitors (LSC)

Land Side

Features

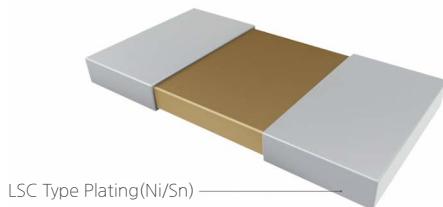
MLCC for Thin Devices and Modules

To accommodate thin devices or modules, this can be mounted between the solder balls to reduce module thickness or secure the mounting area. It can supply current quickly in a stable manner to high-speed APs of mobile devices and is less susceptible to external environmental stress thanks to high-frequency noise removal.

- **Thin in terms of Thickness**

Thin enough to Support Thin Devices and Modules

- **Removing High Frequency Noise**



Application

- Mobile Phone, Wearable, IC Package, Module Products

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance										Capacitance Range	
				pF			nF			uF					
				0.1	1	10	100	1	10	100	1	10	100		
High Level I Reverse (Low ESL)	X5R (85°C)	0102/0306	25								10			22nF - 22nF	
		01005/0402	6.3											51pF - 1nF	
		0402/1005	6.3											220nF - 220nF	
		0102/0306	25							10				22nF - 33nF	
Reverse (Low ESL)	X7T (125°C)	0204/0510	2.5									1	10	1uF - 1uF	

High Bending Strength Capacitors

High Bending Strength

Features

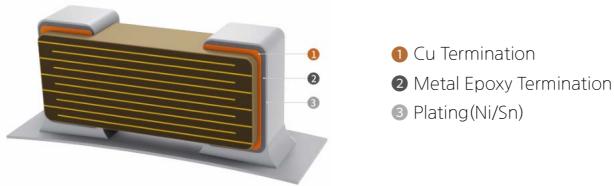
MLCC with a High Tolerance to Mechanical Stress

Thermal and mechanical stress on the chip can be reduced by the ductile properties of soft termination, which is resistant to stresses caused by board bending.

■ Relax The Applied External Stress

Products that can Reduce Thermal and Mechanical Stress on the Chip

■ Excellent Bending Strength



Application

- Mobile Phone, Computer, Solid State Drive, Tablet, Display, SMPS, DC-DC Converter

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1	100	
High Level I	COG (125°C)	1206/3216	630				100	100					220pF - 1nF
			1000			100	100						15pF - 470pF
	X7R (125°C)	1210/3225	1000					10	10				10nF - 10nF
			630					10	10				47nF - 47nF
High Level I Soft Termination	X6S (105°C)	0603/1608	16								1		47uF - 47uF
			50										100nF - 100nF
			250					1	1				1nF - 1nF
			25								1		4.7uF - 10uF
			250					10	10				100nF - 100nF
	X7R (125°C)	1206/3216	630				10	10	10				1nF - 10nF
			1000				10	10	10				1nF - 10nF
			50								1		4.7uF - 10uF
			100							1	1		2.2uF - 2.2uF
			100							1	1		220nF - 220nF
High Level II	X7R (125°C)	1206/3216	630				100	100	100				33nF - 47nF
			630					100	100	100			100nF - 100nF
	X7S (125°C)	1206/3216	16								1		22uF - 22uF
			25								1		22uF - 22uF
			100								1		10uF - 10uF

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance										Capacitance Range	
				pF				nF				uF			
				0.1	1	10	100	1	10	100	1	10	100		
High Level II Soft Termination	X7R (125°C)	0402/1005	10							100	1			220nF - 470nF	
			16						10	100	1			22nF - 100nF	
			50					1	10					1nF - 15nF	
		0603/1608	25							100	1			100nF - 1uF	
			50					1	10	100	1			1nF - 1uF	
			100						1					1nF - 1nF	
		0805/2012	25								1			1uF - 2.2uF	
			50								1			4.7uF - 4.7uF	
			100					1	10	100	1			10nF - 1uF	
			250						1					22nF - 22nF	
		1206/3216	6.3								1			22uF - 22uF	
			10								1			10uF - 22uF	
			16								1			10uF - 10uF	
			100							1				1uF - 2.2uF	
			630						1					22nF - 22nF	
			1000						1					10nF - 10nF	
		1210/3225	50								1			10uF - 10uF	
			100							1				2.2uF - 4.7uF	
			250						1					220nF - 220nF	
			1000						1					22nF - 22nF	
	X7S (125°C)	0805/2012	16								1			10uF - 10uF	
		100								1				1uF - 1uF	
		1206/3216	100							1				2.2uF - 4.7uF	
		1210/3225	100							1				4.7uF - 10uF	
	X8L (150°C)		100											4.7uF - 4.7uF	
Normal	Soft Termination	X5R(85°C)	0603/1608	50							1			4.7uF - 4.7uF	
			0201/0603	10						100	1			100nF - 1uF	
			0402/1005	6.3							1			4.7uF - 22uF	
			10								1			2.2uF - 10uF	
		1206/3216	6.3								1			10uF - 10uF	
			10								1			22uF - 22uF	
	X7R (125°C)		35									1		10uF - 10uF	

Low Acoustic Noise Capacitors

Low Acoustic
Noise

Features

Noise-Reducing MLCC

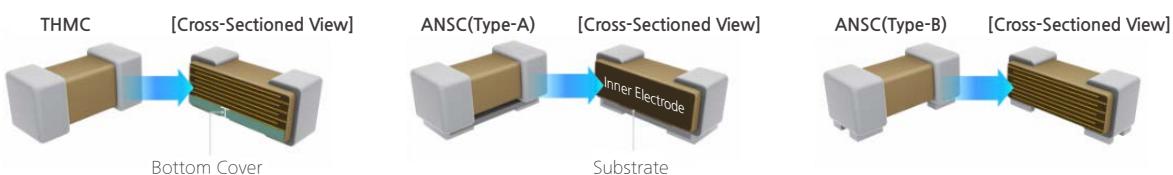
MLCC tremors can occur due to piezoelectric phenomena in electronic devices. These tremors are transmitted to the substrate, causing the substrate to tremble, producing audible noise (20Hz~20kHz). Low Acoustic Noise products are a solution that can effectively reduce this noise.

■ Reducing Audible Noise

A Solution to Reduce the Noise of Mechanical Vibrations Caused by Piezoelectric Properties

■ Pin to Pin Solution

A Solution that can Immediately Replace Existing Products to Reduce Noise



Application

- PAM(GSM / TD-SCDMA / TDD-LTE), PMIC, DC-DC Converter

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1		
ANSC-A (Low Acoustic)	X5R (85°C)	0805/2012	25									10uF - 10uF	
ANSC-B (Low Acoustic)	X6S (105°C)	0603/1608	25									10uF - 10uF	
T-HMC (Low Acoustic)	X5R (85°C)	0402/1005	6.3									10uF - 10uF	
			10									2.2uF - 10uF	
			16									2.2uF - 2.2uF	
			25									2.2uF - 2.2uF	
		0603/1608	6.3									10uF - 47uF	
			10									4.7uF - 22uF	
	X6S (105°C)	0805/2012	25									10uF - 10uF	
		0402/1005	2.5									20uF - 20uF	

Low ESL Capacitors

Low ESL

Features

MLCC with Low Equivalent Series Inductance

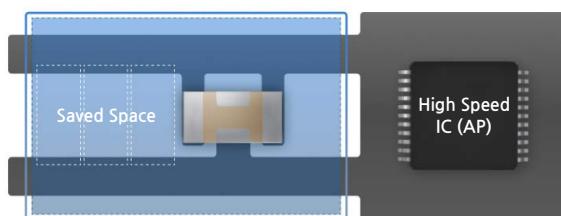
MLCC with low equivalent series inductance (ESL) can be used in circuits with limited mounting area, as a small quantity of MLCCs can sufficiently replace high-speed IC MLCCs.

■ Faster Energy Transfer

Faster Energy Transfer with Stable Performance

■ Saving Space by One Chip

Save Space by Substituting with Less Quantity



Application

■ Mobile Phone, Wearable, Computer, IC Package

Category	TCC	Size Code (inch/mm)	Rated Voltage (Vdc)	Capacitance								Capacitance Range	
				pF			nF			uF			
				0.1	1	10	100	1	10	100	1		
High Level I 3T (Low ESL)	X5R(85°C)	05035/1209	4									22uF - 22uF	
	X6S (105°C)	0402/1005	2.5									4.3uF - 4.3uF	
	X5R (85°C)		4									4.3uF - 15uF	
	05035/1209		4									15uF - 22uF	
	0805/2012		4									47uF - 47uF	
	X6S (105°C)	0402/1005	2.5									4.3uF - 4.3uF	
3T (Low ESL)	05035/1209	2.5										22uF - 22uF	
	X6T (105°C)	0402/1005	2.5									6.7uF - 6.7uF	
	X7S (125°C)	0603/1608	4									2.2uF - 2.2uF	
	X5R (85°C)	0204/0510	2.5									550nF - 550nF	
	4											220nF - 220nF	
	X6S (105°C)		2.5									470nF - 470nF	
	4											1uF - 1uF	
8T (Low ESL)	X7S (125°C)	0306/0816	4									1uF - 1uF	
Reverse (Low ESL)	X5R (85°C)	0204/0510	2.5										
	4												
	X6S (105°C)		2.5										
	4												
	X7S (125°C)												



Product Search (samsungsem.com)