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Chip Monolithic Ceramic Capacitors

muRata

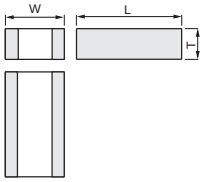
Low ESL LLL/LLA/LLM Series

■ Features (Reversed geometry Low ESL Type)

1. Low ESL, good for noise reduction for high frequency
2. Small, high cap

■ Applications

1. High speed micro processor
2. High frequency digital equipment



Part Number	Dimensions (mm)		
	L	W	T
LLL185	1.6 ±0.1	0.8 ±0.1	0.6 max.
LLL216	2.0 ±0.1	1.25 ±0.1	0.6 ±0.1
LLL219			0.85 ±0.1
LLL317	3.2 ±0.15	1.6 ±0.15	0.7 ±0.1
LLL31M			1.15 ±0.1

Reversed geometry Low ESL Type

Part Number	LLL18						LLL21						LLL31					
L x W	1.6x0.8						2.0x1.25						3.2x1.6					
TC	X7R (**R7**)					X7S (**C7**)	X7R (**R7**)					X7S (**C7**)	X7R (**R7**)					X5R (**R6**)
Rated Volt.	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)																		
2200pF (**222**)	0.5 (**5**)																	
3300pF (**332**)	0.5 (**5**)																	
4700pF (**472**)	0.5 (**5**)						0.6 (**6**)											
6800pF (**682**)		0.5 (**5**)					0.6 (**6**)											
10000pF (**103**)		0.5 (**5**)	0.5 (**5**)				0.6 (**6**)						0.7 (**7**)					
15000pF (**153**)		0.5 (**5**)	0.5 (**5**)				0.6 (**6**)						0.7 (**7**)	0.7 (**7**)				
22000pF (**223**)		0.5 (**5**)	0.5 (**5**)				0.6 (**6**)	0.6 (**6**)					0.7 (**7**)	0.7 (**7**)				
33000pF (**333**)			0.5 (**5**)				0.85 (**9**)	0.6 (**6**)	0.6 (**6**)				0.7 (**7**)	0.7 (**7**)				
47000pF (**473**)			0.5 (**5**)					0.6 (**6**)	0.6 (**6**)				0.7 (**7**)	0.7 (**7**)				
68000pF (**683**)			0.5 (**5**)					0.6 (**6**)	0.6 (**6**)				0.7 (**7**)	0.7 (**7**)				
0.10µF (**104**)				0.5 (**5**)				0.6 (**6**)	0.6 (**6**)				1.15 (**M**)	0.7 (**7**)				
0.15µF (**154**)					0.5 (**5**)			0.85 (**9**)	0.6 (**6**)				1.15 (**M**)	0.7 (**7**)				
0.22µF (**224**)					0.5 (**5**)					0.6 (**6**)				1.15 (**M**)				
0.33µF (**334**)						0.5 (**5**)				0.6 (**6**)				1.15 (**M**)	0.7 (**7**)			
0.47µF (**474**)						0.5 (**5**)				0.85 (**9**)				1.15 (**M**)	0.7 (**7**)			

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12

muRata

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Part Number	LLL18						LLL21						LLL31					
L x W	1.6x0.8						2.0x1.25						3.2x1.6					
TC	X7R (**R7**)					X7S (**C7**)	X7R (**R7**)					X7S (**C7**)	X7R (**R7**)					X5R (**R6**)
Rated Volt.	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)																		
0.68µF (**684**)											0.85 (**9**)				1.15 (**M**)	0.7 (**7**)		
1.0µF (**105**)						0.5 (**5**)					0.85 (**9**)				1.15 (**M**)	0.7 (**7**)		
1.5µF (**155**)											0.85 (**9**)					1.15 (**M**)	0.7 (**7**)	
2.2µF (**225**)												0.85 (**9**)				1.15 (**M**)	0.7 (**7**)	
4.7µF (**475**)																	1.15 (**M**)	
10µF (**106**)																		1.25 (**B**)

The part numbering code is shown in ( ).
Dimensions are shown in mm and Rated Voltage in Vdc.

Reversed geometry Low ESL Type Low Profile

Part Number	LLL18				LLL21						LLL31			
L x W	1.6x0.8				2.0x1.25						3.2x1.6			
TC	X7R (**R7**)			X7S (**C7**)	X7R (**R7**)					X7S (**C7**)	X7R (**R7**)			
Rated Volt.	25 (**1E**)	16 (**1C**)	10 (**1A**)	4 (**0G**)	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	50 (**1H**)	25 (**1E**)	16 (**1C**)	10 (**1A**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)														
680pF(**681**)					0.5(**5**)									
1000pF(**102**)					0.5(**5**)									
1500pF(**152**)					0.5(**5**)									
2200pF(**222**)					0.5(**5**)									
3300pF(**332**)					0.5(**5**)									
4700pF(**472**)					0.5(**5**)									
6800pF(**682**)					0.5(**5**)									
10000pF(**103**)	0.5(**5**)	0.5(**5**)			0.5(**5**)	0.5(**5**)					0.5(**5**)			
15000pF(**153**)	0.5(**5**)	0.5(**5**)			0.5(**5**)	0.5(**5**)					0.5(**5**)	0.5(**5**)		
22000pF(**223**)		0.5(**5**)				0.5(**5**)	0.5(**5**)				0.5(**5**)	0.5(**5**)		
33000pF(**333**)		0.5(**5**)				0.5(**5**)	0.5(**5**)				0.5(**5**)	0.5(**5**)		
47000pF(**473**)		0.5(**5**)					0.5(**5**)					0.5(**5**)	0.5(**5**)	
68000pF(**683**)			0.5(**5**)				0.5(**5**)					0.5(**5**)	0.5(**5**)	
0.10µF(**104**)			0.5(**5**)				0.5(**5**)					0.5(**5**)	0.5(**5**)	
0.15µF(**154**)								0.5(**5**)					0.5(**5**)	
0.22µF(**224**)				0.5(**5**)				0.5(**5**)					0.5(**5**)	
0.33µF(**334**)				0.5(**5**)				0.5(**5**)					0.5(**5**)	
0.47µF(**474**)									0.5(**5**)					0.5(**5**)
0.68µF(**684**)														0.5(**5**)
1.0µF(**105**)										0.5(**5**)				

The part numbering code is shown in ( ).
Dimensions are shown in mm and Rated Voltage in Vdc.

12

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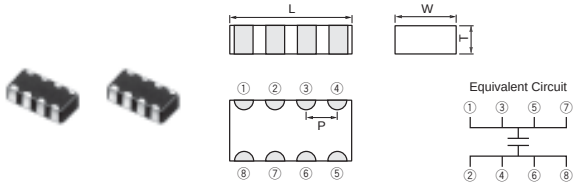
■ Features (Eight Terminals Low ESL Type)

1. Low ESL (100pH) , suitable to decoupling capacitor for 1GHz clock speed IC.
2. Small, large cap

■ APPLICATIONS

1. High speed micro processor
2. High frequency digital equipment.



Part Number	Dimensions (mm)			
	L	W	T	P
LLA185	1.6 ±0.1	0.8 ±0.1	0.5 +0.05/-0.1	0.4 ±0.1
LLA215	2.0 ±0.1	1.25 ±0.1	0.5 +0.05/-0.1	0.5 ±0.05
LLA219	2.0 ±0.1	1.25 ±0.1	0.85 ±0.1	0.5 ±0.05
LLA315	3.2 ±0.15	1.6 ±0.15	0.5 +0.05/-0.1	0.8 ±0.1
LLA319	3.2 ±0.15	1.6 ±0.15	0.85 ±0.1	0.8 ±0.1
LLA31M	3.2 ±0.15	1.6 ±0.15	1.15±0.1	0.8 ±0.1

Eight Terminals Low ESL Type

Part Number	**LLA18**	**LLA21**					**LLA31**		
L x W	1.6x0.8	2.0x1.25					3.2x1.6		
TC	X7S (**C7**)	X7R (**R7**)				X7S (**C7**)	X7R (**R7**)		
Rated Volt.	4 (**0G**)	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	16 (**1C**)	10 (**1A**)	4 (**0G**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)									
10000pF(**103**)		0.85(**9**)							
15000pF(**153**)		0.85(**9**)							
22000pF(**223**)		0.85(**9**)							
33000pF(**333**)		0.85(**9**)							
47000pF(**473**)		0.85(**9**)							
68000pF(**683**)			0.85(**9**)						
0.10µF(**104**)			0.85(**9**)				0.85(**9**)		
0.15µF(**154**)			0.85(**9**)				1.15(**M**)		
0.22µF(**224**)			0.85(**9**)				0.85(**9**)		
0.33µF(**334**)	0.5(**5**)			0.85(**9**)			0.85(**9**)		
0.47µF(**474**)	0.5(**5**)			0.85(**9**)			0.85(**9**)		
0.68µF(**684**)				0.85(**9**)			0.85(**9**)		
1.0µF(**105**)	0.5(**5**)				0.85(**9**)			0.85(**9**)	
1.5µF(**155**)					0.85(**9**)			0.85(**9**)	
2.2µF(**225**)						0.85(**9**)			0.85(**9**)
4.7µF(**475**)						0.85(**9**)			

The part numbering code is shown in ( ).
Dimensions are shown in mm and Rated Voltage in Vdc.

Eight Terminals Low ESL Type Low Profile

Part Number	**LLA21**					**LLA31**		
L x W	2.0x1.25					3.2x1.6		
TC	X7R (**R7**)				X7S (**C7**)	X7R (**R7**)		
Rated Volt.	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)								
10000pF(**103**)	0.5(**5**)							
15000pF(**153**)	0.5(**5**)							
22000pF(**223**)	0.5(**5**)							
33000pF(**333**)		0.5(**5**)						
47000pF(**473**)		0.5(**5**)						
68000pF(**683**)		0.5(**5**)						
0.10µF(**104**)		0.5(**5**)				0.5(**5**)		
0.15µF(**154**)			0.5(**5**)	0.5(**5**)		0.5(**5**)		
0.22µF(**224**)			0.5(**5**)	0.5(**5**)		0.5(**5**)		

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Part Number	LLA21					LLA31		
L x W	2.0x1.25					3.2x1.6		
TC	X7R (**R7**)				X7S (**C7**)	X7R (**R7**)		
Rated Volt.	25 (**1E**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)	4 (**0G**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)								
0.33µF(**334**)			0.5(**5**)	0.5(**5**)			0.5(**5**)	
0.47µF(**474**)				0.5(**5**)			0.5(**5**)	
0.68µF(**684**)				0.5(**5**)			0.5(**5**)	
1.0µF(**105**)					0.5(**5**)			0.5(**5**)
1.5µF(**155**)					0.5(**5**)			0.5(**5**)
2.2µF(**225**)					0.5(**5**)			0.5(**5**)

The part numbering code is shown in ( ).
Dimensions are shown in mm and Rated Voltage in Vdc.

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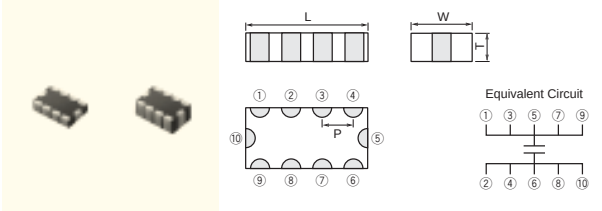
■ Features (Ten Terminals Low ESL Type)

1. Low ESL (45pH), suitable to decoupling capacitor for 2GHz clock speed IC.
2. Small, large cap

■ APPLICATIONS

1. High speed micro processor
2. High frequency digital equipment



Part Number	Dimensions (mm)			
	L	W	T	P
LLM215	2.0 ±0.1	1.25 ±0.1	0.5 +0.05/-0.1	0.5 ±0.05
LLM219	2.0 ±0.1	1.25 ±0.1	0.85 ±0.1	0.5 ±0.05
LLM315	3.2 ±0.15	1.6 ±0.15	0.5 +0.05/-0.1	0.8 ±0.1
LLM31M	3.2 ±0.15	1.6 ±0.15	1.15±0.1	0.8 ±0.1

Ten Terminals Low ESL Type

Part Number	LLM21				LLM31		
L x W	2.0x1.25				3.2x1.6		
TC	X7R (**R7**)			X7S (**C7**)	X7R (**R7**)		
Rated Volt.	25 (**1E**)	16 (**1C**)	6.3 (**0J**)	4 (**0G**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)							
10000pF(**103**)	0.85(**9**)						
15000pF(**153**)	0.85(**9**)						
22000pF(**223**)	0.85(**9**)						
33000pF(**333**)	0.85(**9**)						
47000pF(**473**)	0.85(**9**)						
68000pF(**683**)		0.85(**9**)					
0.10µF(**104**)		0.85(**9**)			1.15(**M**)		
0.15µF(**154**)		0.85(**9**)			1.15(**M**)		
0.22µF(**224**)		0.85(**9**)			1.15(**M**)		
0.33µF(**334**)			0.85(**9**)		1.15(**M**)		
0.47µF(**474**)			0.85(**9**)		1.15(**M**)		
0.68µF(**684**)			0.85(**9**)		1.15(**M**)		
1.0µF(**105**)			0.85(**9**)		1.15(**M**)		
1.5µF(**155**)			0.85(**9**)			1.15(**M**)	
2.2µF(**225**)				0.85(**9**)		1.15(**M**)	
3.3µF(**335**)							1.15(**M**)
4.7µF(**475**)							1.15(**M**)

The part numbering code is shown in ( ).
Dimensions are shown in mm and Rated Voltage in Vdc.

Ten Terminals Low ESL Type Low Profile

Part Number	LLM21				LLM31		
L x W	2.0x1.25				3.2x1.6		
TC	X7R (**R7**)			X7S (**C7**)	X7R (**R7**)		
Rated Volt.	25 (**1E**)	16 (**1C**)	6.3 (**0J**)	4 (**0G**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)							
10000pF(**103**)	0.5(**5**)						
15000pF(**153**)	0.5(**5**)						
22000pF(**223**)	0.5(**5**)						
33000pF(**333**)		0.5(**5**)					
47000pF(**473**)		0.5(**5**)					
68000pF(**683**)		0.5(**5**)					
0.10µF(**104**)		0.5(**5**)			0.5(**5**)		
0.15µF(**154**)			0.5(**5**)		0.5(**5**)		

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Part Number	LLM21				LLM31		
L x W	2.0x1.25				3.2x1.6		
TC	X7R (**R7**)			X7S (**C7**)	X7R (**R7**)		
Rated Volt.	25 (**1E**)	16 (**1C**)	6.3 (**0J**)	4 (**0G**)	16 (**1C**)	10 (**1A**)	6.3 (**0J**)
Capacitance (Capacitance part numbering code) and T (mm) Dimension (T Dimension part numbering code)							
0.22µF(**224**)			0.5(**5**)		0.5(**5**)		
0.33µF(**334**)			0.5(**5**)			0.5(**5**)	
0.47µF(**474**)			0.5(**5**)			0.5(**5**)	
0.68µF(**684**)			0.5(**5**)			0.5(**5**)	
1.0µF(**105**)				0.5(**5**)			
1.5µF(**155**)				0.5(**5**)			
2.2µF(**225**)				0.5(**5**)			0.5(**5**)

The part numbering code is shown in ( ).
Dimensions are shown in mm and Rated Voltage in Vdc.