Surface Mount Chip Capacitors

Stacked Chip Capacitors

C0G/X7R

Introduction

These ranges of both High Capacitance and High Voltage Multilayer ceramic capacitor assemblies are designed for use in high frequency switched mode power supplies, DC-DC converters and similar applications.
Low ESR and low ESL are inherent in the design giving the assemblies a high current capability up to 1MHz and offer far superior performance than either aluminium or tantalum electrolytic capacitors.Various lead options are available, making them suitable for mounting on ceramic substrate or epoxy printed circuit boards.

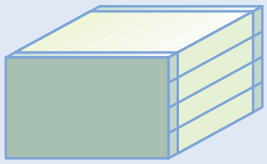
Summary of Standard Range

Chip sizes covered	1812; 2220; 2225; 3640; 5550; 8060.
Working Voltages	50V to 2kV as standard.
Capacitance Range	39pF to 1.8µF in Ultra Stable COG Dielectric 820pF to 68µF in Stable X7R Dielectric.

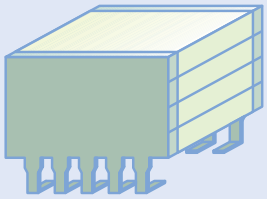
Special chip sizes, working voltages, capacitance values and specific custom requirements will be considered. Please refer all enquiries to the Sales Office.

Available Lead Options

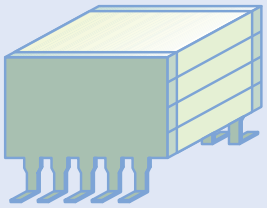
'N' Lead



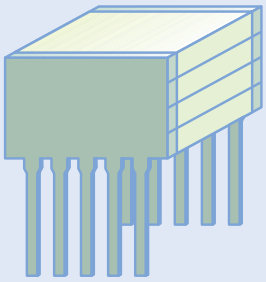
'J' Lead



'L' Lead



'S' Lead
(DIL Package)



Note: Not all lead options are available with all chip sizes.
Check specific assembly drawings for available options.

Leaded assembly dimensions

	Dimensions (mm)		
	3640	**5550**	**8060**
W max	11.5	14.0	16.5
C nom	9.2	14.0	20.3
L max	11.7	16.5	22.8
No. of leads per side	4	5	6

Max Stack Height (H)

No. of Chips	Range (size)	'N' Unleaded Assemblies	'J' & 'L' leaded Assemblies	'S' leaded Assemblies
1	≤ 2225	N/A	4.5	N/A
	≥ 3640	N/A	5.5	3.25
2	≤ 2225	5.25	7.0	N/A
	≥ 3640	N/A	8.75	6.75
3	≤ 2225	7.75	9.5	N/A
	≥ 3640	N/A	12.0	10.0
4	≤ 2225	10.25	12.0	N/A
	≥ 3640	N/A	15.25	13.25
5	≤ 2225	12.75	14.5	N/A
	≥ 3640	N/A	18.5	16.5

Stacked Chip Capacitors

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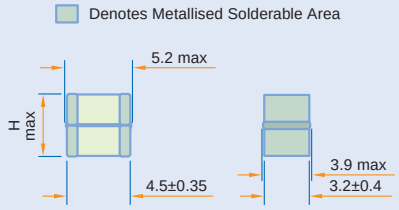
Available Options and Dimensions (mm)

Chip Size 1812

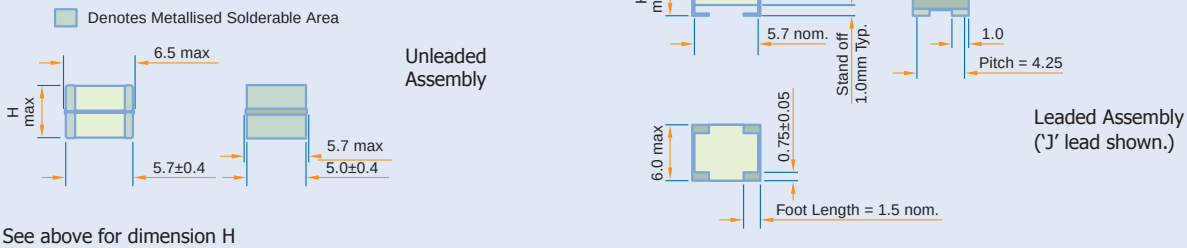
Unleaded assembly only ('N' lead option)



See above for dimension H

Chip Size 2220

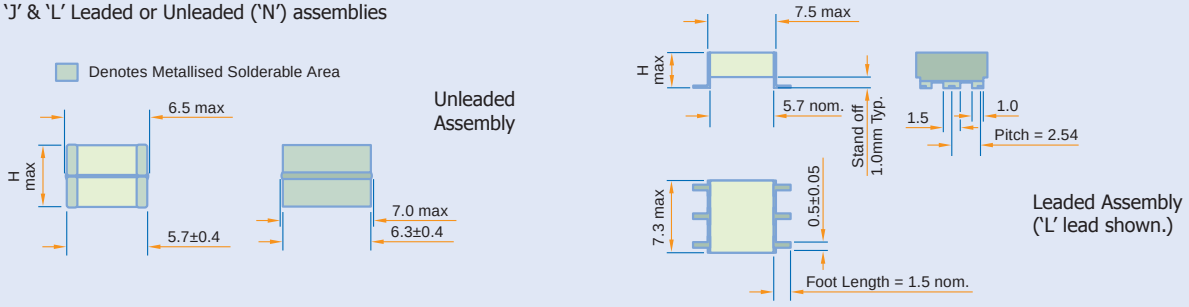
'J' & 'L' Leaded or Unleaded ('N') assemblies



See above for dimension H

Chip Size 2225

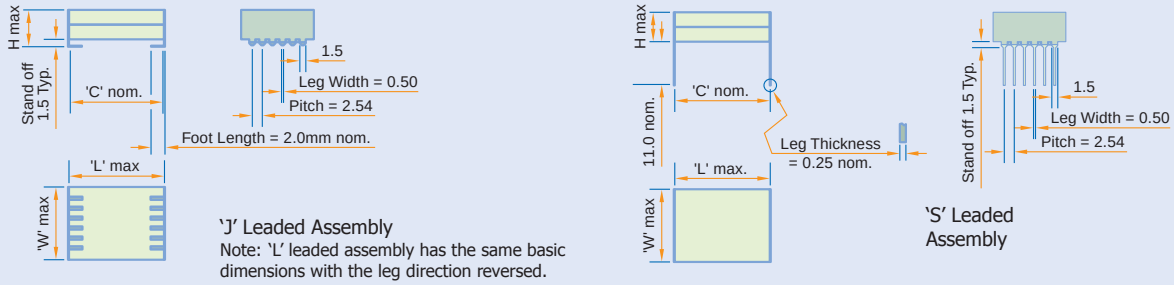
'J' & 'L' Leaded or Unleaded ('N') assemblies



See above for dimension H

Chip Size 3640, 5550, 8060

'J', 'L' & 'S' Leaded assemblies



See above for dimension H

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Stacked Chip Capacitors

COG

Capacitance	Code	1812 ('N' Lead only)						2220 ('N', 'J' & 'L' Lead)						2225 ('N', 'J' & 'L' Lead)					
Rated Voltage d.c.		50	100	200	500	1K	2K	50	100	200	500	1K	2K	50	100	200	500	1K	2K
39pF	390						1						1						1
47	470						1						1						1
56	560						1						1						1
68	680						1						1						1
82	820						1						1						1
100	101						1						1						1
120	121						1						1						1
150	151						1						1						1
180	181						1						1						1
220	221						1						1						1
270	271						1						1						1
330	331						1						1						1
390	391						1						1						1
470	471						1						1						1
560	561						1						1						1
680	681						1						1						1
820	821					1	2						1						1
1.0nF	102					1	2						1						1
1.2	122					1	2						1						1
1.5	152					1	3						1						1
1.8	182					1	3					1	2						1
2.2	222					1	3					1	2						1
2.7	272					1	4					1	2					1	2
3.3	332			1	1	2	5					1	2					1	2
3.9	392			1	1	2	5					1	3					1	2
4.7	472			1	1	2						1	3					1	3
5.6	562			1	1	3						1	4					1	3
6.8	682			1	1	3				1	1	2	4					1	4
8.2	822			2	2	3				1	1	2	5					1	4
10	103		1	2	2	4				1	1	2					1	2	5
12	123		1	2	2	5				1	1	2					1	2	
15	153		1	3	3					1	1	3					1	2	
18	183		1	3	3				1	2	2	3					1	3	
22	223	1	2	3	4				1	2	2	4				1	2	3	
27	273	1	2	4	4				1	2	2	5			1	2	2	4	
33	333	2	2	5	5				1	3	3				1	2	2	4	
39	393	2	2	5					1	3	3				1	2	2	5	
47	473	2	3					1	2	3	3				1	3	3		
56	563	2	3					1	2	4	4				1	3	3		
68	683	3	4					2	2	5	5			1	2	4	4		
82	823	3	4					2	2	5				1	2	4	4		
100	104	4	5					2	3					2	2	5	5		
120	124	4						3	3					2	2				
150	154	5						3	4					2	3				
180	184							4	5					3	3				
220	224							4						3	4				
270	274							5						4	5				
330	334													4					
390	394													5					
470	474																		
560	564																		
680	684																		
820	824																		
1.0µF	105																		
1.2	125																		
1.5	155																		
1.8	185																		

notes

1. The table above indicates the number of chips required to achieve the capacitance value.
2. Higher voltages (To 5kV max) may be available on request

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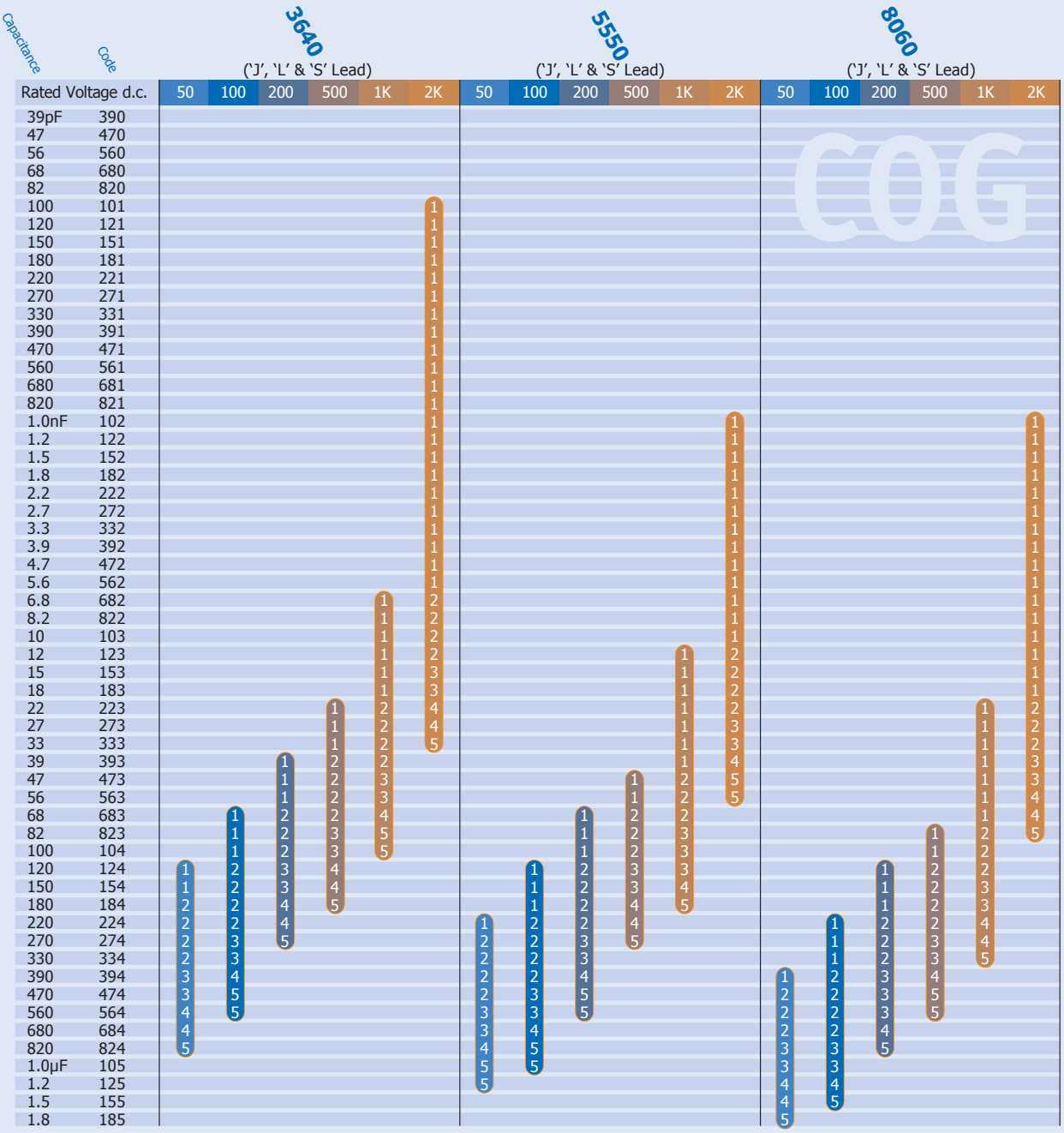
Surface Mount Chip Capacitors

Stacked Chip Capacitors

C0G



notes

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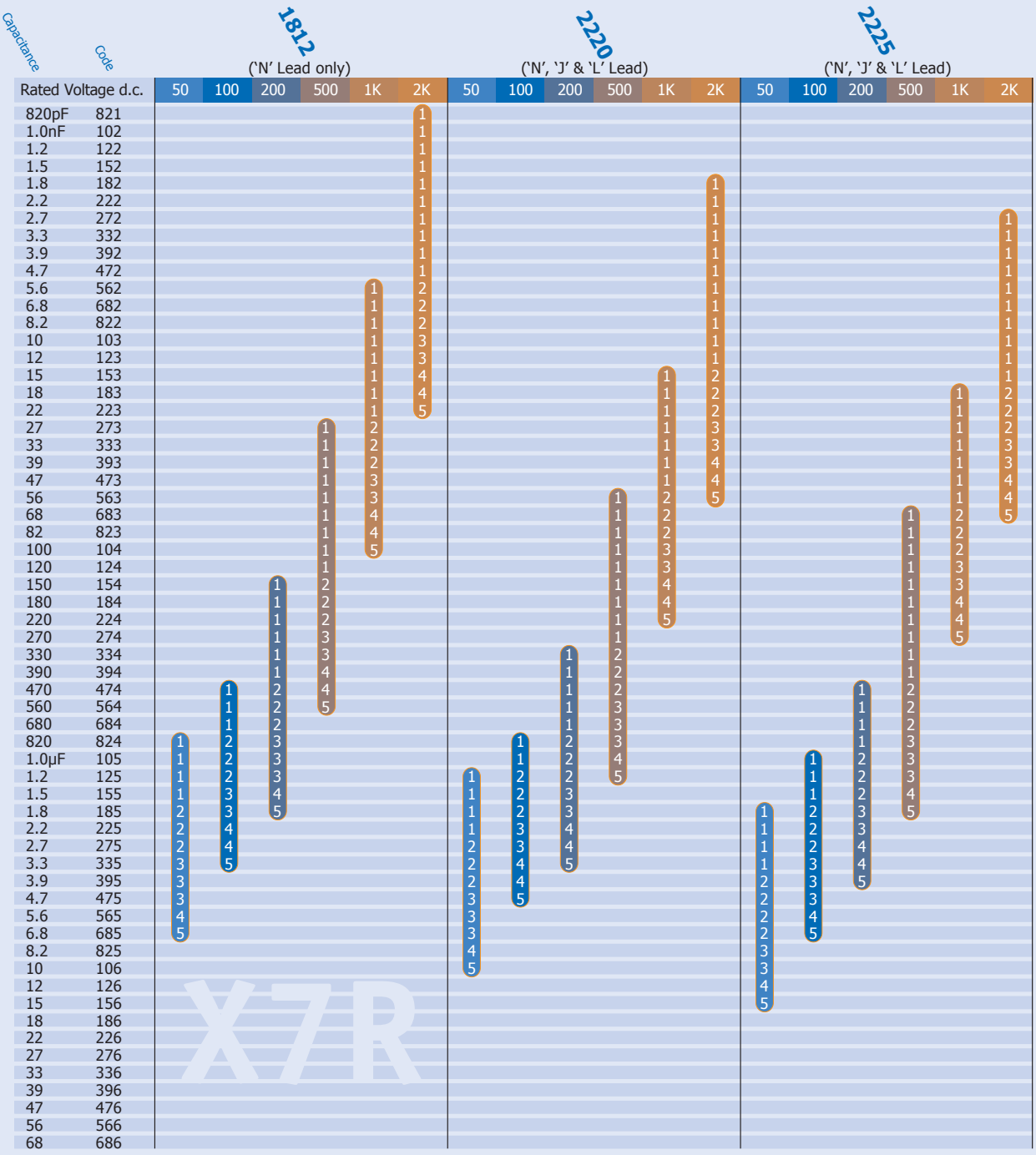
Surface Mount Chip Capacitors

Stacked Chip Capacitors

X7R



notes

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STACKCHIPS.ver1

Surface Mount Chip Capacitors

Stacked Chip Capacitors

X7R

Capacitance	Code	3640 ('J', 'L' & 'S' Lead)						5550 ('J', 'L' & 'S' Lead)						8060 ('J', 'L' & 'S' Lead)					
Rated Voltage d.c.		50	100	200	500	1K	2K	50	100	200	500	1K	2K	50	100	200	500	1K	2K
820pF	821																		
1.0nF	102																		
1.2	122																		
1.5	152																		
1.8	182																		
2.2	222																		
2.7	272																		
3.3	332																		
3.9	392																		
4.7	472																		
5.6	562																		
6.8	682						11111111122233455												
8.2	822																		
10	103																		
12	123												11111111122233445						
15	153																		
18	183																		
22	223																		11111111111222233445
27	273																		
33	333																		
39	393																		
47	473					11111111122233455						11111111122233445							
56	563																		
68	683																		
82	823																		
100	104				11111111122233455													11111111122233445	
120	124																		
150	154																		
180	184										11111111122233455								
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330	334																		
390	394																		
470	474																		
560	564																		
680	684																		
820	824			11122233455													11111122233445		
1.0µF	105																		
1.2	125																		
1.5	155																		
1.8	185																		
2.2	225																		
2.7	275		11122233455																
3.3	335																		
3.9	395																		
4.7	475																		
5.6	565																		
6.8	685																		
8.2	825																		
10	106																		
12	126																		
15	156																		
18	186																		
22	226																		
27	276																		
33	336																		
39	396																		
47	476																		
56	566																		
68	686																		

notes

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2. Higher voltages (To 5kV max) may be available on request

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Surface Mount Chip Capacitors

Stacked Chip Capacitors

C0G/X7R

Ordering Information

8060	B	500	0126	K	X	B	J	W00	5
Chip Size	**Finish** B = Bare Chip Assembly	**Voltage** 050 = 50V 100 = 100V 200 = 200V 500 = 500V 1K0 = 1000V 2K0 = 2000V	**Capacitance** Expressed in picofarads (pF). First digit is 0. Second and third digits are significant figures of capacitance code. The fourth digit is number of zeros following. eg: 0126=12µF.	**Tolerance** M = ±20% Standard K = ±10% Optional	**Dielectric** C = C0G X = X7R	**Packaging** R = 330mm (13") reel B = Bulk	**Mounting Style** N = Bare Chip SM Assembly J = J leaded SM Assembly L = L leaded SM Assembly S = Straight leaded DIL Assembly	**Customer Special Requirements**	**No. of Chips**

Notes

1. Other capacitance tolerances may also be available.
2. Tape and reel packing is available on 2220 & 2225 single chip 'J' and 'L' leaded products and 1812, 2220, 2225 2-stack unleaded ('N' leaded) products. All other products will be supplied bulk packed in protective foam. Special waffle packing requirements can be considered.
3. Higher working voltages and alternative chip sizes are also available by special request.

Materials

In all cases, leadframes, where fitted, will be silver plated copper alloy.

Chip to chip attachment, and chip to leadframe attachment will be by either high melting point solder (M.Pt. 300ºC typ.) or high conductivity silver loaded epoxy adhesive depending on product.

Design Notes

When specifying these components, consideration must be given to their physical size, aspect ratio and mass with particular reference to thermal mismatch, mechanical shock and vibration characteristics.

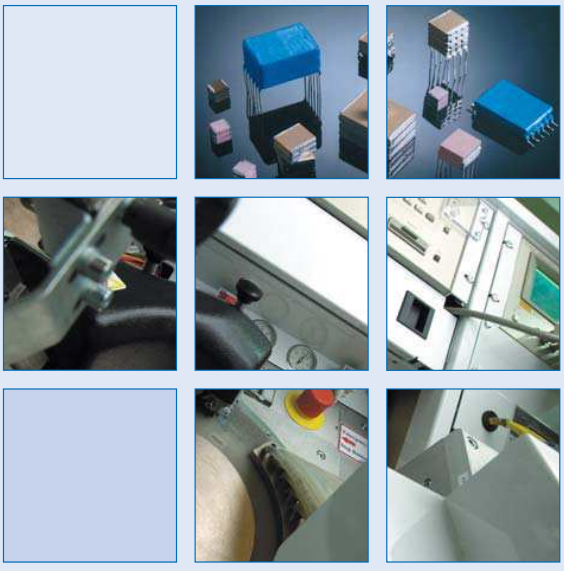
Stack sizes greater than or equal to 3640 should not be mounted directly to the board without the use of a stand off. For SM products, specify 'J' or 'L' leads. For through hole mounting specify 'S' leads.

Where possible, using a larger size chip with less chips in the stack will result in a more stable product when placed on the board, as the result of an improved aspect ratio.

A general handling recommendations sheet covering these, and other points, is available upon request from our Sales Office.

A data sheet covering recommended pad designs is available on request from our Sales Office.

Please refer all specific enquiries to the Sales Office.



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