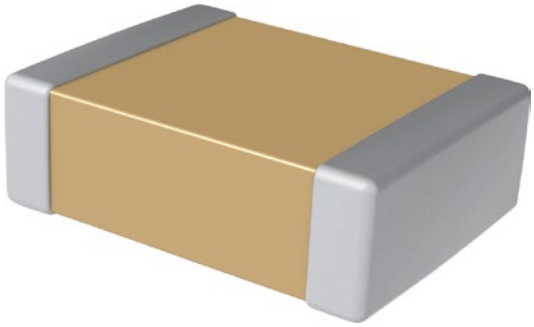
Multilayer Capacitors, SMD

Multilayer Ceramic Capacitors, 0603, NP0



SPECIFICATION:

Construction form	0603
Ceramic type	NP0
Dimensions L x H x W	1.6 x 0.6 x 0.6 mm
Temperature range	-55...+125 °C
Height	0.6 mm
Length	1.6 mm
Width	0.6 mm

PRODUCT RANGE:

Art. Nr.	Capacitance	Rated voltage	Capacitance tolerance
RND 150-0603N0R5C500NT	0.5 pF	50 VDC	±0.25 pF
RND 150-0603N100F101NT	10 pF	100 VDC	±1%
RND 150-0603N100F500NT	10 pF	50 VDC	±1%
RND 150-0603N100J101NT	10 pF	100 VDC	±5%
RND 150-0603N100J201NT	10 pF	200 VDC	±5%
RND 150-0603N100J500NT	10 pF	50 VDC	±5%
RND 150-0603N101F101NT	100 pF	100 VDC	±1%
RND 150-0603N101F500NT	100 pF	50 VDC	±1%
RND 150-0603N101J101NT	100 pF	100 VDC	±5%
RND 150-0603N101J201NT	100 pF	200 VDC	±5%
RND 150-0603N101J500NT	100 pF	50 VDC	±5%
RND 150-0603N102F500NT	1.0 nF	50 VDC	±1%
RND 150-0603N102J500NT	1.0 nF	50 VDC	±5%
RND 150-0603N120J101NT	12 pF	100 VDC	±5%
RND 150-0603N120J500NT	12 pF	50 VDC	±5%
RND 150-0603N121J500NT	120 pF	50 VDC	±5%
RND 150-0603N150F101NT	15 pF	100 VDC	±1%
RND 150-0603N150F500NT	15 pF	50 VDC	±1%
RND 150-0603N150J500NT	15 pF	50 VDC	±5%
RND 150-0603N151F500NT	150 pF	50 VDC	±1%
RND 150-0603N151J101NT	150 pF	100 VDC	±5%
RND 150-0603N151J201NT	150 pF	200 VDC	±5%
RND 150-0603N151J500NT	150 pF	50 VDC	±5%
RND 150-0603N180J101NT	18 pF	100 VDC	±5%
RND 150-0603N180J500NT	18 pF	50 VDC	±5%
RND 150-0603N181J500NT	180 pF	50 VDC	±5%
RND 150-0603N1R0C201NT	1.0 pF	200 VDC	±0.25 pF
RND 150-0603N1R0C500NT	1.0 pF	50 VDC	±0.25 pF
RND 150-0603N1R5C500NT	1.5 pF	50 VDC	±0.25 pF
RND 150-0603N220F500NT	22 pF	50 VDC	±1%
RND 150-0603N220J101NT	22 pF	100 VDC	±5%

Art. Nr.	Capacitance	Rated voltage	Capacitance tolerance
RND 150-0603N220J500NT	22 pF	50 VDC	±5%
RND 150-0603N221F500NT	22 pF	50 VDC	±1%
RND 150-0603N221J101NT	220 pF	100 VDC	±5%
RND 150-0603N221J201NT	220 pF	200 VDC	±5%
RND 150-0603N221J500NT	220 pF	50 VDC	±5%
RND 150-0603N270J101NT	27 pF	100 VDC	±5%
RND 150-0603N270J500NT	27 pF	50 VDC	±5%
RND 150-0603N271J500NT	270 pF	50 VDC	±5%
RND 150-0603N2R0C500NT	2 pF	50 VDC	±0.25 pF
RND 150-0603N2R2C101NT	2.2 pF	100 VDC	±0.25 pF
RND 150-0603N2R2C201NT	2.2 pF	200 VDC	±0.25 pF
RND 150-0603N2R2C500NT	2.2 pF	50 VDC	±0.25 pF
RND 150-0603N330F500NT	33 pF	50 VDC	±1%
RND 150-0603N330J101NT	33 pF	100 VDC	±5%
RND 150-0603N330J201NT	33 pF	200 VDC	±5%
RND 150-0603N330J500NT	33 pF	50 VDC	±5%
RND 150-0603N331F500NT	33 pF	50 VDC	±1%
RND 150-0603N331J101NT	330 pF	100 VDC	±5%
RND 150-0603N331J500NT	330 pF	50 VDC	±5%
RND 150-0603N390J500NT	39 pF	50 VDC	±5%
RND 150-0603N391J500NT	390 pF	50 VDC	±5%
RND 150-0603N3R0C500NT	3 pF	50 VDC	±0.25 pF
RND 150-0603N3R3C201NT	3.3 pF	200 VDC	±0.25 pF
RND 150-0603N3R3C500NT	3.3 pF	50 VDC	±0.25 pF
RND 150-0603N470F101NT	47 pF	100 VDC	±1%
RND 150-0603N470F500NT	47 pF	50 VDC	±1%
RND 150-0603N470J101NT	47 pF	100 VDC	±5%
RND 150-0603N470J201NT	47 pF	200 VDC	±5%
RND 150-0603N470J500NT	47 pF	50 VDC	±5%
RND 150-0603N471F500NT	470 pF	50 VDC	±1%
RND 150-0603N471J500NT	470 pF	50 VDC	±5%
RND 150-0603N4R0C500NT	4 pF	50 VDC	±0.25 pF
RND 150-0603N4R7C101NT	4.7 pF	100 VDC	±0.25 pF
RND 150-0603N4R7C201NT	4.7 pF	200 VDC	±0.25 pF
RND 150-0603N4R7C500NT	4.7 pF	50 VDC	±0.25 pF
RND 150-0603N560J500NT	56 pF	50 VDC	±5%
RND 150-0603N561J500NT	560 pF	50 VDC	±5%
RND 150-0603N5R0C500NT	5 pF	50 VDC	±0.25 pF
RND 150-0603N680F101NT	68 pF	100 VDC	±1%
RND 150-0603N680F500NT	68 pF	50 VDC	±1%
RND 150-0603N680J101NT	68 pF	100 VDC	±5%
RND 150-0603N680J201NT	68 pF	200 VDC	±5%
RND 150-0603N680J500NT	68 pF	50 VDC	±5%
RND 150-0603N681F500NT	680 pF	50 VDC	±1%
RND 150-0603N681J500NT	680 pF	50 VDC	±5%
RND 150-0603N6R0C500NT	6 pF	50 VDC	±0.25 pF
RND 150-0603N6R8C201NT	6.8 pF	100 VDC	±0.25 pF
RND 150-0603N6R8C500NT	6.8 pF	50 VDC	±0.25 pF
RND 150-0603N820J500NT	82 pF	50 VDC	±5%
RND 150-0603N821J500NT	820 pF	50 VDC	±5%
RND 150-0603N8R0D500NT	8 pF	50 VDC	±0.5 pF
RND 150-0603N9R0D500NT	9 pF	50 VDC	±0.5 pF

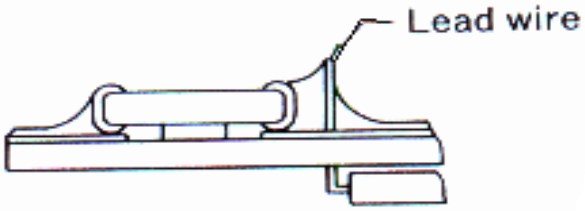
PCB design

Chip components are susceptible to board stress since the component itself is mounted directly on the board. They are also sensitive to mechanical and thermal stress when solder, which may cause chip cracked.
Please take solder form and component layout into consideration to eliminate stress.

Pattern form

(1) Placing of chip components and component.

incorrect



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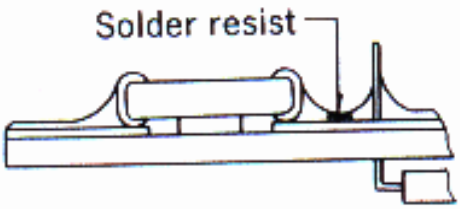
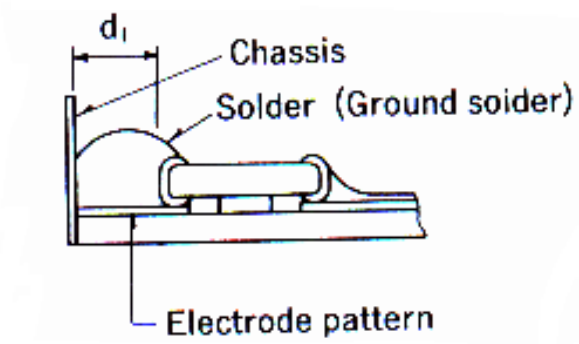


(2) Placing close to chassis.

incorrect



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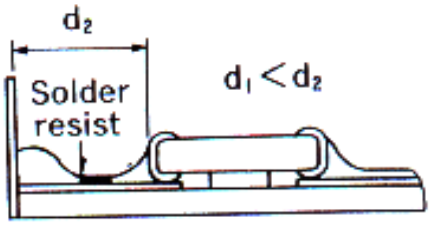
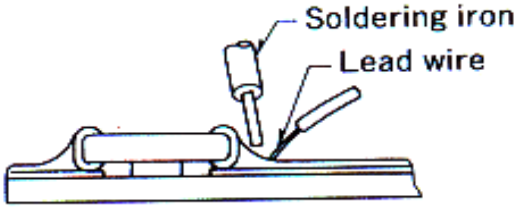


(3) Placing leaded components after chip component.

incorrect



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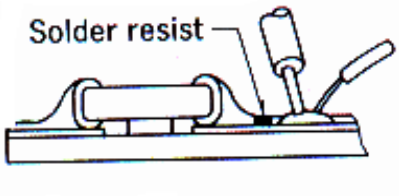
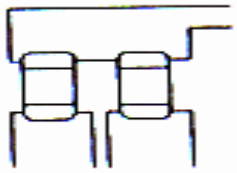


(4) Lateral mounting

incorrect



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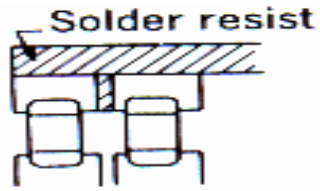
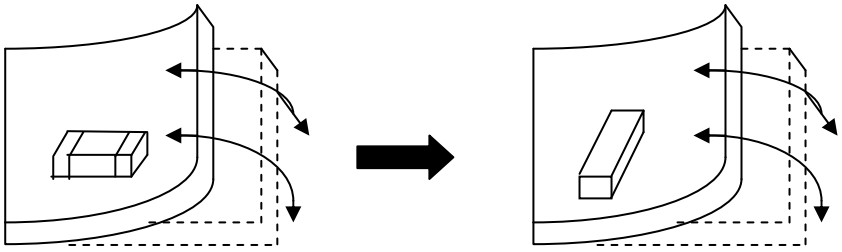


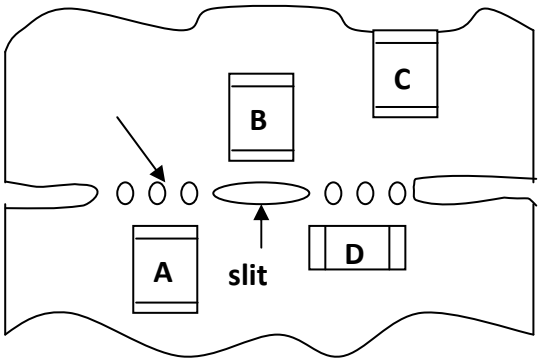
Component direction

To design a mounting position that minimizes the stress imposed on the chip during flexing or bending of the board.

(1) put the component lateral to the direction in which stress acts.



(2) Component layout close to board separation point.
Susceptibility to stress in the order: A＞C＞B＝D



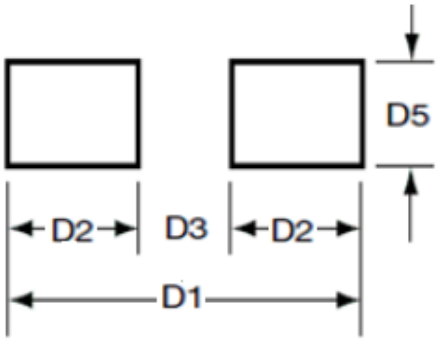
12.3. Land Pattern

When capacitors are mounted on P.C. board, the amount of solder directly affect the performance of capacitors. Therefore, the following items should be carefully considered in the design of solder land pattern.

(1) The greater the amount of solder, the higher the stress on the chip capacitors, and lead to cracking and breaking likely. It is necessary the appropriate size and configuration of the solder pads should be designed to have proper amount of solder on the termination.

(2) When two or more capacitors are soldered together onto the same land or pad, the pad must be designed so that each capacitor's soldering point is separated by solder-resist.

The following diagram and table for recommended pad dimensions.



Dimensions in millimeters

Type	0201	0402	0603	0805	1206	1210	1808	1812	1825	2220	2225
D1	0.65	1.50	2.30	2.80	4.00	4.00	5.40	5.30	5.30	7.00	7.00
D2	0.21	0.50	0.80	0.90	0.90	0.90	1.05	0.90	0.90	1.35	1.35
D3	0.23	0.50	0.70	1.00	2.20	2.20	3.30	3.50	3.50	4.30	4.30
D5	0.30	0.50	0.80	1.30	1.60	2.50	2.30	3.80	6.50	5.00	6.50

Unit: mm