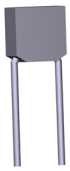
RADIAL CAPACITOR Encapsulated

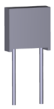
NPO N2T X7R 25V-15KV

SRT MICROCÉRAMIQUE
MLCC CAPACITORS

APPLICATIONS

- Severe environment
- Historical design





FEATURES

- Leaded radial MLCC capacitor, epoxy molded
- Epoxy molded
- High reliability, 100% burn in
- Available in NPO, N2T, BX, 2X1, X7R
- Equivalent to wide range of competitors design
- Custom voltage, package size, capacitance value on request
- Tested in accordance to CECC 32100 and AEC-Q200
- NPO version CECC 30600 et NFC 83-131 compliant
- X7R version CECC 30700 et NFC 83-132 compliant
- 2C1 version NF 83-132 compliant
- High Reliability option : 168 hours burn in

ELECTRICAL PARAMETERS

ELECTRICAL CHARACTERISTICS :
at + 25°C unless otherwise specified

OPERATING TEMPERATURE :
X7R, N2T : - 55°C, + 125°C
NPO : - 55°C, + 125°C

TEMPERATURE COEFFICIENT :
NPO : ± 30ppm
N2T : -2200 ± 350 ppm/C°
X7R : ± 15% with 0Vdc applied

DISSIPATION FACTOR:
NP0 : ≤ 1.10^{-3} at 1Vrms and 1MHz for values ≤ 1000pF
≤ 1.10^{-3} at 1Vrms and 1KHz for values > 1000pF
N2T : ≤ 1.10^{-3} at 1Vrms and 1MHz for values ≤ 1000pF
≤ 1.10^{-3} at 1Vrms and 1KHz for values > 1000pF
X7R : ≤ 0.025 at 1kHz

INSULATION RESISTANCE (IR) :
25°C/Un 10^5 MOhm or 1000 Ohm-Farad whichever is less
125°C/Un 10^4 MOhm or 100 Ohm-Farad whichever is less

DIELECTRIC STRENGTH TEST :
2.5U U≤200V I U+250V 200<U≤500 I 1.5U 500<U<1000 I 1.2U U≥1000
for 5s with 50mA max charging current

BURN IN :
48 hours 125°C 2U U≤500 I 1.5U 500<U<1000 I 1.2U U≥1000

ORDERING INFORMATION

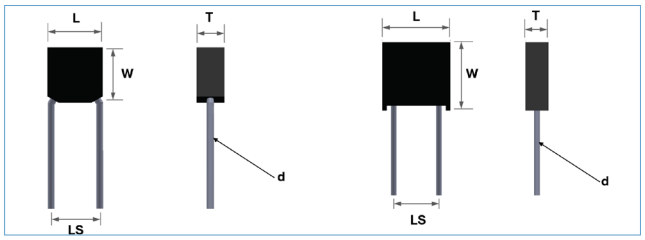
SR	41	Y	102	J	A	-	V	XX
SERIES	SIZE	DIELECTRIC	CAPACITANCE	TOLERANCE	VOLTAGE	TERMINATION	PACKAGING	SPECIAL
SR	41 to 94	A = NP0 P = N2T X = BX Y = X7R BY=2C1	Expressed in picofarads (pF). The first two digits are significant, the third digit give the number of noughts. Example : 102 = 1 000pF	A = ±0.05pF if < 10pF and 0.05% if > 10pF B = ± 0.1pF C = ± 0,25pF D = ± 0,5pF F = ± 1% G = ± 2% J = ± 5% K = ± 10% M = ± 20%	X = 25 V A = 50 V U = 63 V B = 100 V C = 200 V P = 250 V E = 500 V F = 630 V G = 1 KV H = 2 KV I = 3 KV K = 4 KV L = 5 KV 6 = 6 KV 8 = 8 KV 10 = 10 KV 15 = 15 KV	- : Sn C = Non magnetic	V = Bulk	- BM = BME Dxx = Reliability spec Exx = Sorting spec

For other sizes, voltage, tolerance contact us

DIMENSIONS (in millimeters)

SIZE	SR41	SR43	SR45	SR47	SR50	SR60	SR64	SR65
Length (L) max	4.0	5.0	7.5	4.0	5.0	7.5	10.0	10.5
Height (W) max	4.5	5.0	7.5	4.5	5.0	7.5	11.0	9.0
Width (H) max	2.5	2.5	2.5	2.5	2.5	2.5	3.5	6.5
Lead spacing (LS) ± 0,5	2.54	2.54	4.32	5.08	5.08	5.08	5.08	7.62
Lead length	> 10mm							

SIZE	SR68	SR70	SR74	SR78	SR82	SR86	SR90	SR94
Length (L) max	13.0	13.0	18.4	18.0	20.0	28.5	31.0	45.0
Height (W) max	12.0	12.0	12.7	16.0	19.0	19.0	24.0	23.0
Width (H) max	3.5	6.5	8.0	8.0	8.0	8.0	8.0	8.0
Lead spacing (LS) ± 0,5	10.16	10.16	12.20	15.20	17.30	19.80	27.90	40.60
Lead length	> 10 mm							



This document is subject to change without notice.

QUICK REFERENCE DATA (Max capacitance)

	SR41			SR43			SR45			SR47		
	NP0	N2T	X7R	NP0	N2T	X7R	NP0	N2T	X7R	NPO	N2T	X7R
Min	0.1 pF	0.3 pF	2.2 pF	0.4 pF	4.7 pF	10 pF	1.0 pF	10 pF	33 pF	0.1 pF	0.3 pF	2.2 pF
25V	*15 nF*	5.6 nF	39 nF	*220 nF*	56 nF	390 nF	*470 nF*	270 nF	2.2 µF	*15 nF*	5.6 nF	39 nF
50V	*10 nF*	5.6 nF	39 nF	*150 nF*	56 nF	390 nF	*470 nF*	270 nF	2.2 µF	*10 nF*	5.6 nF	39 nF
100V	*10 nF*	5.6 nF	39 nF	*100 nF*	56 nF	390 nF	*330 nF*	270 nF	2.2 µF	*10 nF*	5.6 nF	39 nF
200V	*2.2 nF*	4.7 nF	33 nF	*47 nF*	56 nF	390 nF	*220 nF*	270 nF	2.2 µF	*2.2 nF*	4.7 nF	33 nF
500V	560 pF	1.8 nF	4.7 nF	10 nF	33 nF	100 nF	56 nF	150 nF	470 nF	560 pF	1.8 nF	4.7 nF
630V	330 pF	1.0 nF	2.7 nF	6.8 nF	18 nF	56 nF	33 nF	100 nF	270 nF	330 pF	1.0 nF	2.7 nF
1000V	120 pF	390 pF	820 pF	2.7 nF	8.2 nF	15 nF	12 nF	39 nF	82 nF	120 pF	390 pF	820 pF
2000V				390 pF	1.2 nF	2.7 nF	2.2 nF	6.8 nF	18 nF			

	SR50			SR60			SR64			SR65		
	NP0	N2T	X7R	NP0	N2T	X7R	NPO	N2T	X7R	NPO	N2T	X7R
Min	0.4 pF	4.7 pF	10 pF	1.0 pF	10 pF	33 pF	4.7 pF	10 pF	33 pF	10 pF	47 pF	100 pF
25V	*220 nF*	56 nF	390 nF	*470 nF*	270 nF	2.2 µF	120 nF	470 nF	3.3 µF	150 nF	560 nF	3.9 µF
50V	*150 nF*	56 nF	390 nF	*470 nF*	270 nF	2.2 µF	120 nF	470 nF	3.3 µF	150 nF	560 nF	3.9 µF
100V	*100 nF*	56 nF	390 nF	*330 nF*	270 nF	2.2 µF	120 nF	470 nF	3.3 µF	150 nF	560 nF	3.9 µF
200V	*47 nF*	56 nF	390 nF	*220 nF*	270 nF	2.2 µF	120 nF	470 nF	3.3 µF	150 nF	560 nF	3.9 µF
500V	10 nF	33 nF	100 nF	56 nF	150 nF	470 nF	82 nF	270 nF	1.2 µF	120 nF	390 nF	1.8 µF
630V	6.8 nF	18 nF	56 nF	33 nF	100 nF	270 nF	68 nF	220 nF	820 nF	100 nF	330 nF	1.2 µF
1000V	2.7 nF	8.2 nF	15 nF	12 nF	39 nF	82 nF	47 nF	150 nF	390 nF	68 nF	220 nF	560 nF
2000V	390 pF	1.2 nF	2.7 nF	2.2 nF	6.8 nF	18 nF	8.2 nF	27 nF	82 nF	12 nF	39 nF	120 nF
3000V	180 pF	470 pF	1.0 nF	820 pF	2.2 nF	6.8 nF	3.9 nF	10 nF	33 nF	5.6 nF	15 nF	47 nF
4000V	82 pF	180 pF		470 pF	1.2 nF	3.3 nF	1.8 nF	4.7 nF	18 nF	2.7 nF	6.8 nF	22 nF
5000V				270 pF	680 pF	1.8 nF	1.0 nF	2.7 nF	10 nF	1.2 nF	3.9 nF	15 nF
8000V				82 pF	220 pF	560 pF	390 pF	1.0 nF	3.3 nF	560 pF	1.5 nF	5.6 nF
10000V				47 pF	120 pF	270 pF	270 pF	560 pF	1.8 nF	390 pF	820 pF	2.7 nF
										270 pF	560 pF	1.8 nF

	SR68			SR70			SR74			SR78		
	NP0	N2T	X7R	NP0	N2T	X7R	NP0	N2T	X7R	NPO	N2T	X7R
Min	10 pF	47 pF	100 pF	10 pF	47 pF	100 pF	10 pF	33 pF	100 pF	10 pF	47 pF	100 pF
100V	*820 nF*	820 nF	5.6 µF	220 nF	1.0 µF	6.8 µF	270 nF	1.0 µF	6.8 µF	330 nF	1.2 µF	8.2 µF
200V	*820 nF*	820 nF	5.6 µF	220 nF	1.0 µF	6.8 µF	270 nF	1.0 µF	6.8 µF	330 nF	1.2 µF	8.2 µF
500V	180 nF	560 nF	2.7 µF	220 nF	680 nF	2.7 µF	220 nF	680 nF	3.3 µF	270 nF	820 nF	3.9 µF
630V	150 nF	470 nF	1.8 µF	150 nF	560 nF	2.2 µF	180 nF	560 nF	2.2 µF	220 nF	680 nF	2.7 µF
1KV	100 nF	270 nF	820 nF	100 nF	330 nF	820 nF	120 nF	390 nF	1.0 µF	120 nF	470 nF	1.2 µF
2KV	15 nF	56 nF	180 nF	18 nF	56 nF	180 nF	22 nF	68 nF	220 nF	22 nF	82 nF	270 nF
3KV	8.2 nF	22 nF	68 nF	10 nF	22 nF	82 nF	10 nF	27 nF	82 nF	12 nF	33 nF	100 nF
4KV	3.9 nF	10 nF	33 nF	3.9 nF	10 nF	39 nF	4.7 nF	12 nF	47 nF	5.6 nF	15 nF	56 nF
5KV	1.8 nF	5.6 nF	22 nF	2.2 nF	5.6 nF	22 nF	2.2 nF	6.8 nF	27 nF	2.7 nF	8.2 nF	33 nF
6KV	1.5 nF	3.9 nF	15 nF	1.8 nF	4.7 nF	18 nF	2.2 nF	4.7 nF	18 nF	2.2 nF	5.6 nF	22 nF
8KV	820 pF	2.2 nF	8.2 nF	820 pF	2.2 nF	8.2 nF	1.0 nF	2.7 nF	10 nF	1.2 nF	3.3 nF	12 nF
10KV	560 pF	1.2 nF	3.9 nF	560 pF	1.2 nF	4.7 nF	680 pF	1.5 nF	4.7 nF	820 pF	1.8 nF	5.6 nF
12KV	390 pF	820 pF	2.7 nF	390 pF	820 pF	2.7 nF	470 pF	1.0 nF	3.3 nF	560 pF	1.2 nF	3.9 nF
15KV	220 pF	470 pF		270 pF	560 pF		270 pF	560 pF		330 pF	680 pF	

	SR82			SR86			SR90			SR94		
	NP0	N2T	X7R	NP0	N2T	X7R	NP0	N2T	X7R	NP0	N2T	X7R
Min	10 pF	33 pF	100 pF	10 pF	47 pF	100 pF	22 pF	68 pF	180 pF	22 pF	68 pF	180 pF
100V	560 nF	1.8 µF	15 µF	560 nF	2.2 µF	15 µF	820 nF	2.7 µF	22 µF	1.0 µF	3.9 µF	27 µF
200V	560 nF	1.8 µF	15 µF	560 nF	2.2 µF	15 µF	820 nF	2.7 µF	22 µF	1.0 µF	3.9 µF	27 µF
500V	470 nF	1.5 µF	6.8 µF	560 nF	1.8 µF	8.2 µF	820 nF	2.7 µF	12 µF	1.0 µF	3.9 µF	18 µF
630V	390 nF	1.2 µF	4.7 µF	470 nF	1.5 µF	5.6 µF	680 nF	2.2 µF	8.2 µF	1.0 µF	3.3 µF	12 µF
1KV	220 nF	820 nF	2.2 µF	330 nF	1.0 µF	2.7 µF	390 nF	1.2 µF	3.9 µF	560 nF	1.8 µF	5.6 µF
2KV	47 nF	150 nF	470 nF	56 nF	180 nF	560 nF	68 nF	220 nF	820 nF	100 nF	330 nF	1.2 µF
3KV	22 nF	56 nF	180 nF	27 nF	68 nF	220 nF	39 nF	100 nF	330 nF	56 nF	150 nF	470 nF
4KV	10 nF	27 nF	100 nF	12 nF	33 nF	120 nF	15 nF	47 nF	150 nF	22 nF	68 nF	220 nF
5KV	5.6 nF	15 nF	56 nF	6.8 nF	18 nF	68 nF	8.2 nF	22 nF	100 nF	12 nF	33 nF	150 nF
6KV	4.7 nF	10 nF	39 nF	5.6 nF	12 nF	47 nF	6.8 nF	18 nF	68 nF	10 nF	27 nF	100 nF
8KV	2.2 nF	5.6 nF	22 nF	2.7 nF	6.8 nF	27 nF	3.9 nF	10 nF	33 nF	5.6 nF	15 nF	47 nF
10KV	1.5 nF	3.3 nF	10 nF	1.8 nF	3.9 nF	12 nF	2.2 nF	5.6 nF	18 nF	3.9 nF	8.2 nF	27 nF
12KV	1.0 nF	2.2 nF	6.8 nF	1.2 nF	2.7 nF	8.2 nF	1.8 nF	3.3 nF	12 nF	2.7 nF	4.7 nF	18 nF
15KV	680 pF	1.2 nF		820 pF	1.5 nF		1.0 nF	2.2 nF		1.5 nF	3.3 nF	

1) Max Values in italic obtained with BME part

STORAGE

To prevent the damage of solderability of terminations, the following storage conditions are recommended :
Indoors under 5 ~ 40°C and 20% ~ 70% RH.
No harmful gases containing sulfuric acid, ammonia, hydrogen sulfide or chlorine.
Packaging should not be opened until the capacitors are required for use. If opened, the pack should be re-sealed as soon as possible. Taped products should be stored out of direct sunlight, which might promote deterioration in tape or adhesion performance. The product is recommended to be used within 24 months after shipment. Extended shelf life over this period require a solderability check before use.

HANDLING

Chip capacitors are dense, hard, brittle, and abrasive materials. They are liable to suffer mechanical damage, in the form of cracks or chips. Chip Capacitors should be handled with care to avoid contamination or damage. To use vacuum or plastic tweezers to pick up or plastic tweezers is recommended for manual placement. Tape and reeled packages are suitable for automatic pick and placement machine.

PREHEAT

In order to minimize the risk of thermal shock during soldering, a carefully controlled preheat is required.
The rate of preheat should not exceed 3°C per second.

SOLDERING FLUX

Use mildly activated rosin RA and RMA fluxes, but do not use activated flux. The amount of solder in each solder joint should be controlled to prevent the damage of chip capacitors caused by the stress between solder, chips, and substrate.

SOLDERING TYPE

Lead containing solders, such as Sn60, Sn62 or Sn63 and lead free solders, such as SnAgCu, can all be used with our MLCCs.
In case of non-magnetic termination code “C”, use lead containing or lead (Pb)-free SAC305 solders.

SOLDERING HEIGHT

The solder climbing minimum height is suggesting to 25% of chip thickness or 500um whichever is less.
(Reference from IPC-610E)

COOLING

After soldering, cool the chips and the substrate gradually to room temperature. Natural cooling in air is recommended to minimize stress in the solder joint.

CLEANING

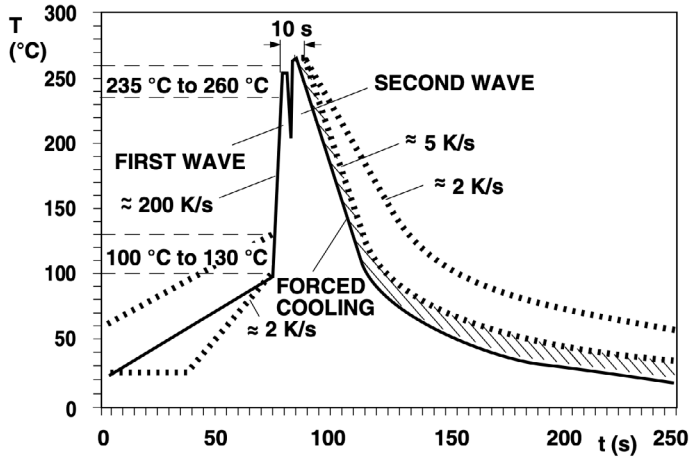
All flux residues must be removed by using suitable electronic-grade vapor-cleaning solvents to eliminate contamination that could cause electrolytic surface corrosion. Good results can be obtained by using ultrasonic cleaning of the solvent. The choice of the proper system is depends upon many factors such as component mix, flux, and solder paste and assembly method. The ability of the cleaning system to remove flux residues and contamination from under the chips is very important.

SOLDERING CONDITIONS

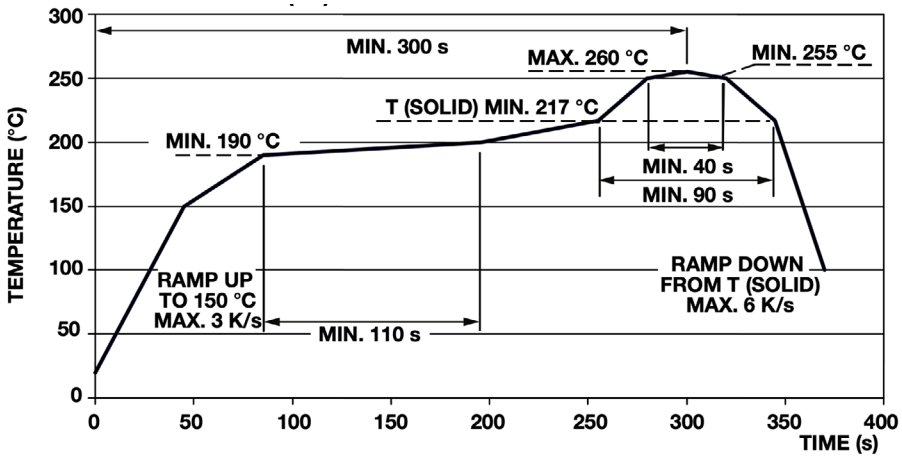
SIZE	THICKNESS	WAVE	REFLOW
0402	All	O	O
0505	All	O	O
0603	All	O	O
0805	< 1.25mm	O	O
0805	≥ 1.25mm		O
1111	< 1.25mm	O	O
1111	≥ 1.25mm		O
1206	< 1.25mm	O	O
1206	≥ 1.25mm		O
1210	< 1.25mm	O	O
1210	≥ 1.25mm		O
larger than 1210	All		O

This document is subject to change without notice.

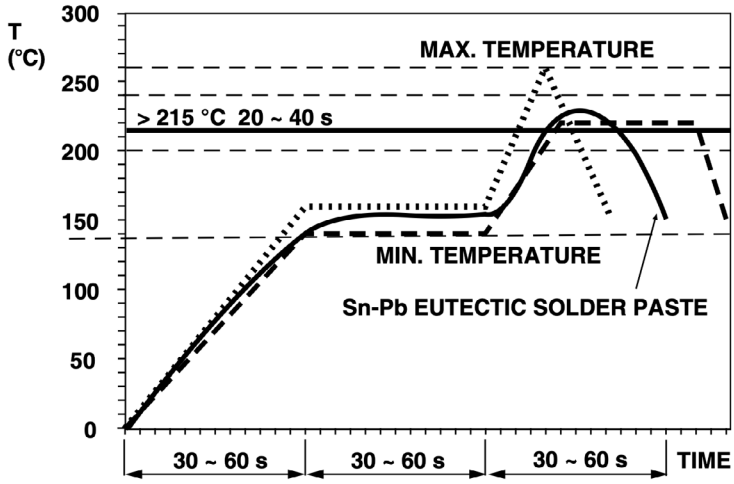
WAVE SOLDERING PROFILE



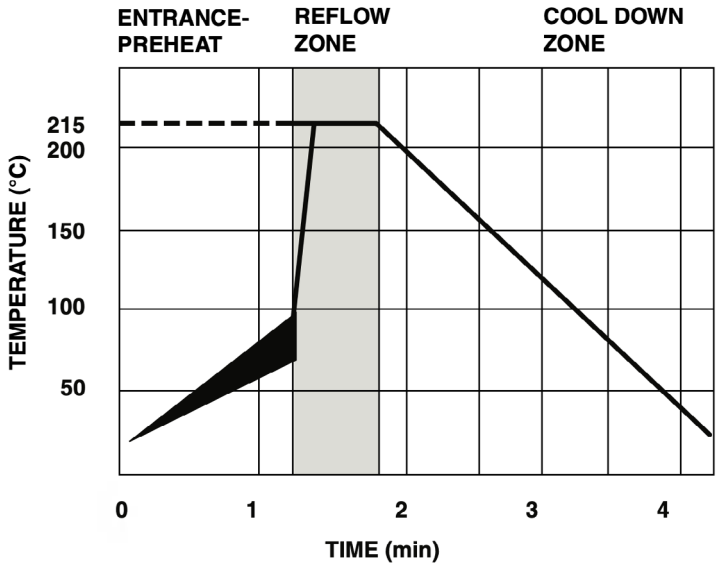
LEADFREE REFLOW SOLDERING PROFILE



SNPB REFLOW SOLDERING PROFILE



VAPOUR PHASE REFLOW PROFILE



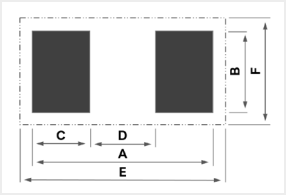
HAND SOLDERING

Hand soldering is not recommanded as the thermal shock may cause a crack, however if used the following recommendations should be taken :

- Soldering iron tip diameter ≤3.0 mm and wattage max. 20W.
- The Capacitors shall be pre-heated to 150°C and that the temperature gradient between the devices and the tip of the soldering iron.
- Tip temperature ≤280°C and should't be applied for more than 5 seconds.
- The required amount of solder shall be melted on the soldering tip.
- The tip of iron should not contact the ceramic body directly.
- The Capacitors shall be cooled gradually at room temperature after soldering.
- Forced air cooling is not allowed.

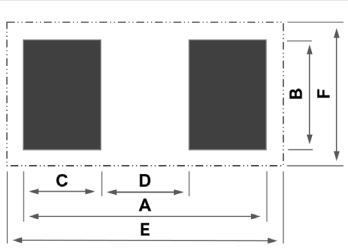
TYPICAL SMD FOOTPRINT WAVE SOLDERING

SIZE	FOOTPRINT DIMENSIONS IN MM					
	A	B	C	D	E	F
0603	2.40	0.80	0.70	1.00	3.10	1.40
0805	3.20	1.30	0.90	1.40	4.10	1.85
1206	4.80	1.70	1.25	2.30	5.90	2.25
1210	4.80	2.60	1.25	2.30	5.90	3.15



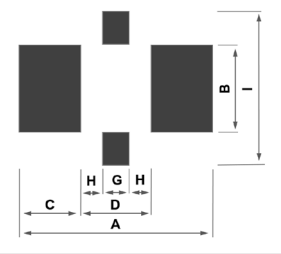
TYPICAL SMD FOOTPRINT REFLOW SOLDERING

SIZE	FOOTPRINT DIMENSIONS IN mm					
	A	B	C	D	E	F
0201	0.65	0.30	0.21	0.23	0.90	0.60
0204	1.00	1.00	0.30	0.40	1.25	1.45
0402	1.50	0.50	0.40	0.70	1.75	0.95
0306	1.30	1.60	0.40	0.50	1.55	2.05
0404	1.50	1.00	0.40	0.70	1.75	1.45
0504	1.90	1.00	0.40	1.10	2.15	1.45
0505	1.90	1.30	0.50	0.80	2.15	1.75
0508	1.90	2.00	0.50	0.90	2.15	2.55
0603	2.30	0.80	0.60	1.10	2.55	1.35
0612	2.30	3.20	0.60	1.10	2.55	3.75
0805	2.90	1.25	0.90	1.10	3.15	1.80
1206	4.10	1.60	0.90	2.30	4.35	2.25
1210	4.10	2.50	1.00	2.10	4.35	3.15
1808	5.50	2.10	1.20	3.10	5.75	2.75
1812	5.50	3.30	1.20	3.10	5.75	3.95
1825	5.50	6.55	1.20	3.10	5.75	7.20
2211	6.80	3.00	1.40	4.00	7.05	3.65
2220	6.80	5.40	1.40	4.00	7.05	6.05
2225	6.80	6.70	1.65	3.50	7.05	7.50
2525	7.70	6.75	1.65	4.40	7.95	7.55
2825	8.40	6.70	1.65	5.10	8.65	7.50
3033	9.00	8.80	1.95	5.10	9.25	9.60
3640	10.55	10.70	2.35	5.85	10.80	11.50
4040	11.60	10.70	2.35	6.90	11.85	11.50
40100	11.60	26.20	2.35	6.90	11.85	27.00
5550	15.50	13.20	2.35	10.80	15.75	14.00
6080	16.70	20.80	2.35	12.00	16.95	21.60
6660	18.30	15.70	2.35	13.60	18.55	16.50
8060	21.90	15.70	2.35	17.20	22.15	16.50
80150	21.90	38.90	2.35	17.20	22.15	39.70



TYPICAL FILTER FOOTPRINT REFLOW SOLDERING

SIZE	FOOTPRINT DIMENSIONS IN mm						
	A	B	C	D	G	H	I
0603	2.30	0.80	0.45	1.40	0.60	0.40	1.50
0805	2.90	1.25	0.90	1.80	0.80	0.50	2.00
1206	4.10	1.60	0.90	2.40	1.00	0.70	3.00
1806	5.50	1.60	1.20	3.20	1.00	1.10	3.00
1812	5.50	3.30	1.20	3.90	1.50	1.20	4.80
2220	6.80	5.40	1.40	4.50	1.50	1.50	7.00

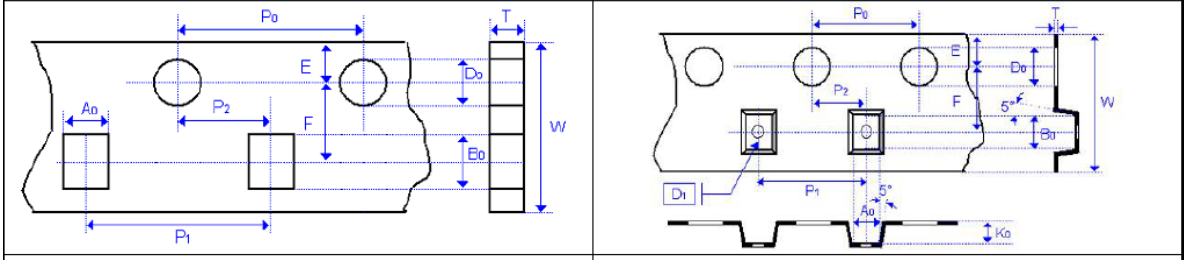


This document is subject to change without notice.

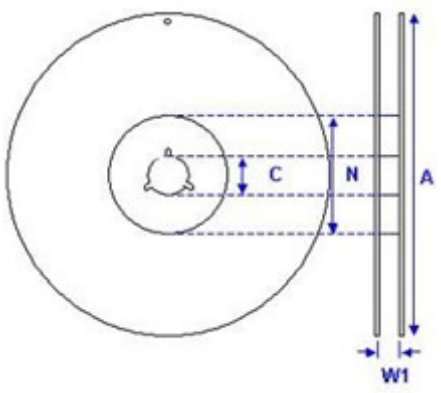
PACKAGE DIMENSION AND QUANTITY

SIZE	THICKNESS	PAPER TAPE		PLASTIC TAPE	
		7" REEL	13" REEL	7' REEL	13" REEL
0402	0.5 ± 0.05	10 K	50 K		
0504	0.6 ± 0.05			4K	15K
	0.9 ± 0.05			4K	15K
0603	0.7 ± 0.07	4K		4K	15K
	0.9 ± 0.07	4K	15K	4K	15K
	0.9 ± 0.07			4K	15K
	1.1 ± 0.07			4K	15K
0805	0.8 ± 0.07	4K	15K	4K	15K
	0.9 ± 0.07			4K	10K
	1.1 ± 0.07			3K	10K
	1.3 ± 0.07			3K	10K
1206	1.1 ± 0.1			3K	10K
	1.4 ± 0.1			3K	8K
	1.8 ± 0.1			2K	8K
1210	1.4 ± 0.1			3K	8K
	1.8 ± 0.1			1K	6K
1808	1.4 ± 0.1			3K	8K
1812	1.6 ± 0.1			2K	8K
	2.1 ± 0.1			1K	6K
	2.8 ± 0.1			1K	6K
2220	1.8 ± 0.1			1K	6K
	3.0 ± 0.1			0.5K	2K
2225	3.0 ± 0.1			0.5K	2K
3033	3.0 ± 0.1			0.5K	2K
3640	3.0 ± 0.1			0.5K	2K
5440	3.9 ± 0.1				0.5K - 1K

EMBOSSED TAPE DIMENSIONS



REEL SIZE	7"	7"	13"
C	13.0 +0.5/-0.2	13.0 +0.5/-0.2	13.0 +0.7/-0.3
W1	8.4 +1.5/-0	12.4 +2.0/-0	8.4 +2.0/-0
A	178.0 ±0.10	178.0 ±0.10	330.0 ±1.0
N	60.0 ±1.0	80.0 ±1.0	100 ±1.0



This document is subject to change without notice.

RELIABILITY PRINCIPLES OVERVIEW

In order to guarantee highly reliable products to their customers, SRT-Microcéramique follows a strict quality policy which is explained below :

- According to AECQ philosophy, each component belongs to a family, which most restrictives members (four corners) have been fully qualified.
- PME components are produced in our Vendôme facility, with very stable process and equipments, in order to ensure Reliability and reproductibility.
- Reliability is based on batch tests, new product or equipment-specific qualifications and periodic requalifications.
- In addition to those regular tests, our quality departement launches regular accelerated tests to further deepens our reliability datas.
- Tests and qualifications of our standard products are based on AECQ methodology and are qualified according to the following limits.
- In accordance to AECQ methodology, specifics tests and limits can be adapted to fit our clients' needs.
- A whole range of stricter reliability tests can be offered for high Reliability products (burn-in, shocks, pulses...) for medical, space and defense applications.
- Based on our reliability database, FIT datas can be provided if necessary.

TESTING

Tests conducted during each batch

FREQUENCY	TEST/STRESS	REFERENCE	AEC-Q	DETAIL
100%	Capa, DF, IR	CECC-32100-4.6		according to datasheet
100%	Visual	CECC-32100-4.5	AEC-Q200-9	no visual defects
50/lot	DPA		AEC-Q200-5	internal component integrity
5/lot	Dimension	CECC-32100-4.5	AEC-Q200-5	according to datasheet
5/lot	Resistance to soldering heat	CECC-32100-4.10	AEC-Q200-15	
5/lot	Solderability	CECC-32100-4.11	AEC-Q200-18	
10/lot	Voltage proof	CECC-32100-4.6.4		
1/ceramic lot	Temperature coefficient	CECC 32100-Prgph4,7		according to datasheet

QUALIFICATIONS

Each component family has been qualified according to CECC and AECQ tests methodology, which are renewed on a periodic basis.

FREQUENCY	TEST/STRESS	REFERENCE	AEC-Q	DETAIL
Qualif	Electrical Characterization	CECC-32100-4.6 4.7	AEC-Q200-19	measure before test according to datasheet and after test according to post environmental limits
Qualif	Temperature Cycling	JESD22 Method-JA method 104	AEC-Q200-4	1,000 cycles -55°C to +125°C Measurement at 24 ± 2 hours after test conclusion
Qualif	Biased Humidity	MIL-STD-202 Method 103	AEC-Q200-7	1,000 hours 85°C/85%RH. Rated voltage. Measurement at 24 ± 2 hours after test conclusion
Qualif	Mechanical Shock	MIL-STD-202 Method 213		Figure 1 of Method 213, Condition F.
Qualif	Temperature Shock	MIL-STD-202 Method 107		–55°C/+125°C. Note: Number of cycles required – 300, maximum transfer time – 20 seconds, dwell time – 15 minutes. Air – air.
Qualif	Operational Life	MIL-STD-202 Method 108 condition D	AEC-Q200-8	1,000 hours at 125°C with apllied Voltage : 2xRV RV≤500V, 1.2xRV 500V<RV≤1250V, RV RV>1250V
Qualif	High Temperature Exposure (Storage)	MIL-STD-202 Method 108	AEC-Q200-3	1,000 hours at 150°C with 0V. Measurement at 24 ± 2 hours after test conclusion
Qualif	Terminal Strength	CECC-32100-4.8	AEC-Q200-6	1.8kg 60 seconds
Qualif	Vibration	MIL-STD-202 Method 204	AEC-Q200-14	5g 20min 12cycles 3 orientations 10-2000Hz
Qualif	Board Flex	CEC 32100-4.9	AEC-Q200-21	3mm Type 1, 2mm Type 2, Measurement at 24 ± 2 hours after test conclusion

POST ENVIRONMENTAL STRESS LIMIT

DIELECTRIC	DISSIPATION FACTOR (MAXIMUM)	CAPACITANCE SHIFT	INSULATION RESISTANCE
NPO	≤ 4 10-3	±2%	10% initial limit
N2T	≤ 6 10-3	±4%	10% initial limit
X7R	≤ 0.035	±15%	10% initial limit

REACH Compliance

- SRT-Microcéramique delivers non-chemical articles only.
- These contain no substances which are intented to be released under normal or reasonably foreseeable conditions of use according Reach article 7(1).

SRT-Microcéramique confirms hereby that our products contain none of the substances which are listed in the present candidate list of the European Chemicals Agency (ECHA), above a concentration of 0.1% by weight of the whole component.

Candidate list of substances (European Chemicals Agency ECHA) :
http://echa.europa.eu/fr/candidate-list-table

ROHS COMPLIANCE

SRT-Microcéramique herewith confirms that RoHS-compliant SRT-microcéramique products are conforming to the following EU directives:
EU directive 2015/863/EU EU directive 2011/65/EU EU directive 2003/11/EC

Following restricted materials are not used and do not exceed the legal limits: Lead (Pb, see exemptions),
- Mercury (Hg)
- Cadmium (Cd)
- Chromium (Cr VI)
- Polybrominated biphenyls (PBB) Polybrominated diphenyl ethers (PBDE) Bis(2-Ethylhexyl) phtalate (DEHP) Benzyl butyl phtalate (BBP)
- Dibutyl phtalate (DBP) Diisobutyl phtalate (DIBP)

Exemptions: The following exemptions according tot he RoHS annexe are applicable:
Identity 7(a) :
- Lead in high melting temperature type solders (i.e lead-based alloys containing 85% by weight or more lead).

Identity 7(c)-I :
- Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

The components are suitable for a lead-free process according to EN 60068-2-58 and in accordance with the IPC/JEDEC standard J-Std-020D.
The lead free process has been tested using solder alloy sn96.5Ag3Cu0.5

Export controls and dual-use regulations

Some SRT-Microcéramique components fall under ‘dual-use’ items under international export controls definition - those that can be used for civil or military purposes which meet certain specified technical standards.

The defining criteria for a dual use component is one with a voltage rating of >750Vdc and a capacitance value of >250nF when measured at 750Vdc and a series inductance <10nH. Components defined as dual-use under the above criteria may require a licence for export across international borders. Please contact us for further information on specific part numbers.

ISO9001:2015

In their design, research and development as well as the manufacturing of MLCC capacitors, customer service and distribution SRT-Microcéramique uses and maintains a Management System audited and certified in accordance to : **ISO9001:2015**

You may contact us for any inquiry regarding the regulations and compliance listed above.

This document is subject to change without notice.