

Safety Chip Capacitors



MSC Series
(X1Y2/X2Y3)

MERITEK

FEATURES

UL No. E342565

- High reliability and stability
- Small size and high capacitance
- RoHS compliant
- Safety standard approval by UL60950



MERITEK MSC series safety Chip Capacitors are designed for surge or lightning protection in across the line and line bypass applications, such as telephone, computer network, modem, and other electronic equipments.

SPECIFICATIONS

Dielectric	NP0		X7R	
Size	1808, 1812		1808, 1812, 2211	
Rated voltage (WVDC)	250Vac		250Vac	
Capacitance range*	X1Y2 Class	3pF ~ 470pF	X1Y2 Class	100pF ~ 2200pF
	X2Y3 Class	3pF ~ 1000pF	X2Y3 Class	150pF ~ 4700pF
Capacitance tolerance	Cap≤5pF : B (±0.1pF), C (±0.25pF) 5pF<Cap<10pF : C (±0.25pF), D (±0.5pF) Cap≥10pF : F (±1%), G (±2%), J (±5%), K (±10%)		J (±5%), K (±10%), M (±20%)	
Tan δ*	Cap<30pF : D.F≤1/(400+20C) Cap≥30pF : D.F≤0.10%		≤2.5%	
Insulation resistance at 500Vdc for 60 seconds	≥100GΩ or R•C≥1000 whichever is smaller		≥10GΩ or R•C≥500Ω•F whichever is smaller	
Operating temperature	-55 to +125°C			
Capacitance characteristic	±30ppm / °C		±15%	
Termination	Ag/Ni/Sn (lead-free termination)			

* NP0: Apply 1.0±0.2Vrms, 1.0MHz±10%, at 25°C ambient temperature

X7R: Apply 1.0±0.2Vrms, 1.0kHz±10%, at 25°C ambient temperature.

PART NUMBERING SYSTEM

Meritek Series MSC 08 X 101 K 302

Size

Code	08	12	21
	1808	1812	2211

Dielectric

CODE	N	X
	NPO	X7R

Capacitance

CODE	8R2	101	102	152
pF	8.2	100	1000	1500
nF	--	.1	1	1.5
μF	--	0.0001	0.001	0.0015

Tolerance

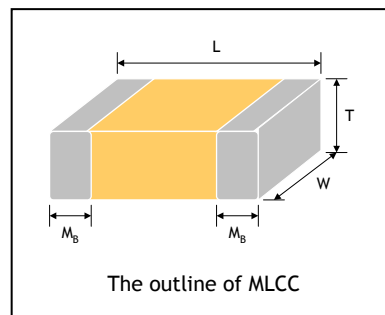
Code	Tolerance	Code	Tolerance	Code	Tolerance
F	±1%	G	±2%	J	±5%
K	±10%	M	±20%	Z	+80/-20%

Rated Voltage

Code	302	502
	X2Y3	X1Y2

DIMENSIONS

Size Inch (mm)	L (mm)	W (mm)	Tmax (mm)	M _B min (mm)
1808 (4520)	4.60±0.30	2.00±0.20	2.20	0.26
1812 (4532)	4.60±0.30	3.20±0.30	2.80	0.26
2211 (5728)	5.70±0.40	2.80±0.30	2.80	0.30



CAPACITANCE RANGE

X1Y2 Class

SIZE	1808	1812	2211
DIELECTRIC	NPO	X7R	X7R
RATED VOLTAGE	250Vac	250Vac	250Vac
CERTIFICATED	UL	UL	UL
CLASS	X1Y2	X1Y2	X1Y2
Capacitance	3.0pF (3R0)		
	3.3pF (3R3)		
	3.9pF (3R9)		
	4.7pF (4R7)		
	5.0pF (5R0)		
	5.6pF (5R6)		
	6.8pF (6R8)		
	8.2pF (8R2)		
	10pF (100)		
	12pF (120)		
	15pF (150)		
	18pF (180)		
	22pF (220)		
	27pF (270)		
	33pF (330)		
	39pF (390)		
	47pF (470)		
	56pF (560)		
	68pF (680)		
	82pF (820)		
	100pF (101)		
	120pF (121)		
	130pF (131)		
	150pF (151)		
	180pF (181)		
	220pF (221)		
	270pF (271)		
	330pF (331)		
	390pF (391)		
	470pF (471)		
	560pF (561)		
	680pF (681)		
	820pF (821)		
	1,000pF (102)		
	1,200pF (122)		
	1,500pF (152)		
	1,800pF (182)		
	2,200pF (222)		



CAPACITANCE RANGE

X2Y3 Class

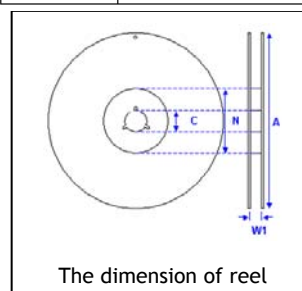
SIZE		1808	1808	1812
DIELECTRIC		NPO	X7R	X7R
RATED VOLTAGE		250Vac	250Vac	250Vac
CERTIFICATED		UL	UL	UL
CLASS		X2Y3	X2Y3	X2Y3
Capacitance	3.0pF (3R0)			
	3.3pF (3R3)			
	3.9pF (3R9)			
	4.7pF (4R7)			
	5.0pF (5R0)			
	5.6pF (5R6)			
	6.8pF (6R8)			
	8.2pF (8R2)			
	10pF (100)			
	12pF (120)			
	15pF (150)			
	18pF (180)			
	22pF (220)			
	27pF (270)			
	33pF (330)			
	39pF (390)			
	47pF (470)			
	56pF (560)			
	68pF (680)			
	82pF (820)			
	100pF (101)			
	120pF (121)			
	130pF (131)			
	150pF (151)			
	180pF (181)			
	220pF (221)			
	270pF (271)			
	300pF (301)			
	330pF (331)			
	390pF (391)			
	470pF (471)			
	560pF (561)			
	680pF (681)			
	820pF (821)			
	1,000pF (102)			
	1,200pF (122)			
	1,500pF (152)			
	1,800pF (182)			
	2,200pF (222)			
	2,700pF (272)			
	3,300pF (332)			
	3,900pF (392)			
	4,700pF (472)			

PACKAGE DIMENSIONS

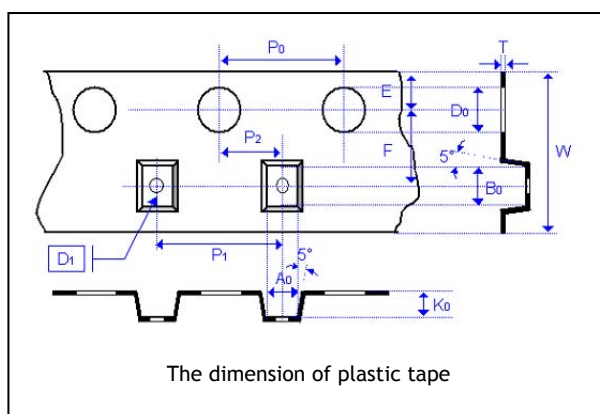
Size	Thickness (mm)	Plastic tape	
		7" reel	13" reel
1808 (4520)	1.25±0.10	2k	-
	1.40±0.15	2k	-
	1.60±0.20	2k	-
	2.00±0.20	1k	-
1812 (4532)	1.25±0.10	1k	-
	1.60±0.20	1k	-
	2.00±0.20	1k	-
	2.50±0.30	0.5k	3k
2211 (5728)	1.60±0.20	1k	-
	2.00±0.20	1k	-
	2.50±0.30	0.5k	-

Unit: pieces

Size	1808, 1812, 2211
Reel size	7"
C	13.0+0.5/-0.2
W ₁	12.4+2.0/-0
A	178.0±0.10
N	80.0±1.0



EMBOSED TAPE DIMENSIONS



Size	1808		1812		2211	
Chip Thickness	1.25±0.10 1.40±0.15 1.60±0.20	2.00±0.20	1.25±0.10 1.60±0.20 2.00±0.20	2.50±0.30	1.60±0.20 2.00±0.20	2.50±0.30
A ₀	<2.50	<2.50	<3.90	<3.90	<3.30	<3.30
B ₀	<5.30	<5.30	<5.30	<5.30	<6.50	<6.50
T	0.25±0.05	0.25±0.05	0.25±0.05	0.25±0.05	0.30±0.10	0.30±0.10
K ₀	<2.50	<2.50	<2.50	<3.00	<2.50	<3.10
W	12.0±0.20	12.0±0.20	12.0±0.20	12.0±0.20	12.0±0.20	12.0±0.20
P ₀	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
10xP ₀	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20	40.0±0.20
P ₁	4.00±0.10	4.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10
P ₂	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05
D ₀	1.50+0.10/-0	1.50+0.10/-0	1.50±0.10/-0	1.50+0.10/-0	1.50+0.10/-0	1.50+0.10/-0
D ₁	1.50±0.10	1.50±0.10	1.50±0.10	1.50+/-0.10	1.50±0.10	1.50±0.10
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75+/-0.1	1.75±0.1	1.75±0.10
F	5.50±0.05	5.50±0.05	5.50±0.05	5.50+/-0.05	5.50±0.05	5.50±0.05