

Multilayer Ceramic Capacitors for General Electronic Equipment for Consumer

REFLOW

PART NUMBER

M	S	A	S	U	3	1	L	B	B	5	1	0	6	K	T	N	A	0	1
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩										

① Series

Code (1)(2)(3)(4)	
MSAS	Multilayer Ceramic Capacitor (High dielectric type) for General Electronic Equipment for Consumer Multilayer Ceramic Capacitor (Temperature compensating type) for General Electronic Equipment for Consumer Medium-High Voltage Multilayer Ceramic Capacitor for General Electronic Equipment for Consumer
MSAR	High frequency/Low loss Multilayer Ceramic Capacitor for General Electronic Equipment for Consumer
MSAY	Low distortion design/Audible/Good bias Multilayer Ceramic Capacitor for General Electronic Equipment for Consumer
MSRL	LW Reversal Decoupling Low ESL Capacitor (LWDC™) for General Electronic Equipment for Consumer

(1) Product Group

Code	
M	Multilayer Ceramic Capacitor

(2) Category

Code	Recommended equipment	Quality Grade
S	General Electronic Equipment for Consumer	3

(3) Type

Code	
A	2 terminals
R	LW reversal

(4) Features, Characteristics

Code	
S	Standard/General
R	High frequency/Low loss
Y	Low distortion design/Audible/Good bias
L	Low ESL

② Rated voltage

Code	Rated voltage [VDC]
P	2.5
A	4
J	6.3
L	10
E	16
T	25
G	35
U	50
H	100
Q	250
S	630
X	2000

④ Thickness

Code	Thickness [mm]
1	0.125
H	0.13 (1.5 max ※)
E	0.18 (1.1 max ※)
2	0.2
3	0.3
K	0.45
5	0.5
8	0.8
9	0.85
Q	1.15
G	1.25
L	1.6
N	1.9 (0.088 ※)
Y	2.0 max
M	2.5

Note : ※LW reverse type (MSRL)

③ Dimension

Code	(L × W) [mm]	JIS(mm)	EIA(inch)
02	0.25 × 0.125	0201	008004
04	0.4 × 0.2	0402	01005
06	0.6 × 0.3	0603	0201
1L	1.0 × 0.5	1005	0402
10	1.0 × 0.5	1005	0402
	0.52 × 1.0 ※	0510	0204
16	1.6 × 0.8	1608	0603
	0.8 × 1.6 ※	0816	0306
21	2.0 × 1.25	2012	0805
	1.25 × 2.0 ※	1220	0508
31	3.2 × 1.6	3216	1206
32	3.2 × 2.5	3225	1210
45	4.5 × 3.2	4532	1812

Note : ※LW reverse type (MSRL)

⑤Dimension tolerance

Code	Dimension code	L[mm]	W[mm]	T[mm]	Thickness code
A	06	0.6 ± 0.05	0.3 ± 0.05	0.3 ± 0.05	3
	10	1.0 ± 0.10	0.5 ± 0.10	0.5 ± 0.10	5
	16	$1.6 + 0.15 / - 0.05$	$0.8 + 0.15 / - 0.05$	$0.8 + 0.15 / - 0.05$	8
	21	$2.0 + 0.15 / - 0.05$	$1.25 + 0.15 / - 0.05$	$1.25 + 0.15 / - 0.05$	G
	31	3.2 ± 0.20	1.6 ± 0.20	1.6 ± 0.20	L
	32	3.2 ± 0.30	2.5 ± 0.30	2.5 ± 0.30	M
B	45	4.5 ± 0.40	3.2 ± 0.30	$2.0 + 0 / - 0.30$	Y
	06	0.6 ± 0.09	0.3 ± 0.09	0.3 ± 0.09	3
	10	$1.0 + 0.15 / - 0.05$	$0.5 + 0.15 / - 0.05$	$0.5 + 0.15 / - 0.05$	5
	16	$1.6 + 0.20 / - 0$	$0.8 + 0.20 / - 0$	$0.8 + 0.20 / - 0$	8
	21	$2.0 + 0.20 / - 0$	$1.25 + 0.20 / - 0$	$1.25 + 0.20 / - 0$	G
	31	3.2 ± 0.30	1.6 ± 0.30	1.6 ± 0.30	L
C	32	3.2 ± 0.30	2.5 ± 0.20	$1.9 + 0.1 / - 0.20$	Y
	10	$1.0 + 0.20 / - 0$	$0.5 + 0.20 / - 0$	$0.5 + 0.20 / - 0$	5
E	06	$0.6 + 0.25 / - 0$	$0.3 + 0.25 / - 0$	$0.3 + 0.25 / - 0$	3
	10	$1.0 + 0.30 / - 0$	$0.5 + 0.30 / - 0$	$0.5 + 0.30 / - 0$	5
H	31	3.2 ± 0.15	1.6 ± 0.15	0.85 ± 0.10	9
				1.15 ± 0.10	Q
J	16	$1.6 + 0.20 / - 0$	$0.8 + 0.20 / - 0$	0.45 ± 0.05	K
	21	$2.0 + 0.15 / - 0.05$	$1.25 + 0.15 / - 0.05$	0.85 ± 0.10	9
	32	3.2 ± 0.30	2.5 ± 0.20	0.85 ± 0.10	9
				1.15 ± 0.10	Q
L	21	$2.0 + 0.20 / - 0$	$1.25 + 0.20 / - 0$	0.85 ± 0.10	9
	31	3.2 ± 0.20	1.6 ± 0.20	0.85 ± 0.10	9
S	02	0.25 ± 0.013	0.125 ± 0.013	0.125 ± 0.013	1
	04	0.4 ± 0.02	0.2 ± 0.02	0.2 ± 0.02	2
	06	0.6 ± 0.03	0.3 ± 0.03	0.3 ± 0.03	3
	10	1.0 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	5
		0.52 ± 0.05 ※	1.0 ± 0.05	0.3 ± 0.05	3
	16	1.6 ± 0.10	0.8 ± 0.10	0.8 ± 0.10	8
		0.8 ± 0.10 ※	1.6 ± 0.10	0.5 ± 0.05	5
	21	2.0 ± 0.10	1.25 ± 0.10	0.85 ± 0.10	9
				1.25 ± 0.10	G
				0.85 ± 0.10	9
	31	3.2 ± 0.15	1.6 ± 0.15	1.6 ± 0.20	L
	32	3.2 ± 0.30	2.5 ± 0.20	2.5 ± 0.20	M
				1.9 ± 0.20	N
				2.5 ± 0.20	M
	45	4.5 ± 0.40	3.2 ± 0.30	2.5 ± 0.20	M
T	16	1.6 ± 0.10	0.8 ± 0.10	0.45 ± 0.05	K
X	1L	1.0 ± 0.05	0.5 ± 0.05	0.13 ± 0.02	H
				0.18 ± 0.02	E
				0.2 ± 0.02	2
Y	1L	1.0 ± 0.05	0.5 ± 0.05	0.3 ± 0.03	3

Note :※LW reverse type (MSRL)

⑥ Temperature characteristics code

■ High dielectric type (SD: Excluding Low distortion design/Audible/Good bias Multilayer Ceramic Capacitor)

Code	Applicable standard		Temperature range [°C]	Ref. Temp. [°C]	Capacitance change	Capacitance tolerance	Tolerance code
B5	JIS	B	-25 ~ + 85	20	± 10%	± 10%	K
						± 20%	M
	EIA	X5R	-55 ~ + 85	25	± 15%	± 10%	K
						± 20%	M
B7	EIA	X7R	-55 ~ + 125	25	± 15%	± 10%	K
						± 20%	M
C6	EIA	X6S	-55 ~ + 105	25	± 22%	± 10%	K
						± 20%	M
C7	EIA	X7S	-55 ~ + 125	25	± 22%	± 10%	K
						± 20%	M
LD(※)	EIA	X5R	-55 ~ + 85	25	± 15%	± 10%	K
						± 20%	M

Note : ※LD: Low distortion design/Audible/Good bias Multilayer Ceramic Capacitor

■ Temperature compensating type

Code	Applicable standard		Temperature range[°C]	Ref. Temp.[°C]	Capacitance change	Capacitance tolerance	Tolerance code
CG	JIS	CG	-55~+125	20	0±30ppm/°C	±0.05pF	A
						±0.1pF	B
						±0.25pF	C
	EIA	C0G		25		±0.5pF	D
						±2%	G
						±5%	J
CH	JIS	CH	-55~+125	20	0±60ppm/°C	±0.05pF	A
						±0.1pF	B
						±0.25pF	C
	EIA	C0H		25		±0.5pF	D
						±2%	G
						±5%	J
CJ	JIS	CJ	-55~+125	20	0±120ppm/°C	±0.05pF	A
	EIA	C0J		25		±0.1pF	B
						±0.25pF	C
CK	JIS	CK	-55~+125	20	0±250ppm/°C	±0.05pF	A
	EIA	C0K		25		±0.1pF	B
						±0.25pF	C

⑥ Series code

• Low distortion design/Audible/Good bias Multilayer Ceramic Capacitor

Code	Series code
SD	Standard

• Medium-High Voltage Multilayer Ceramic Capacitor

Code	Series code
SD	Standard

⑦ Nominal capacitance

Code (example)	Nominal capacitance
0R5	0.5pF
010	1pF
100	10pF
101	100pF
102	1,000pF
103	0.01μF
104	0.1μF
105	1μF
106	10μF
107	100μF

Note : R=Decimal point

⑧ Capacitance tolerance

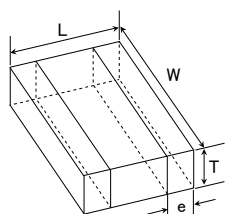
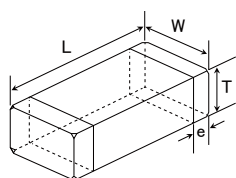
Code	Capacitance tolerance
A	± 0.05pF
B	± 0.1pF
C	± 0.25pF
D	± 0.5pF
G	± 2%
J	± 5%
K	± 10%
M	± 20%

⑨ Packaging

Code	Packaging
F	φ178mm Taping (2mm pitch)
T	φ178mm Taping (4mm pitch)
P	φ178mm Taping (4mm pitch, 1000 pcs/reel) 3225 type (Thickness code M)
R	φ178mm Embossed Taping 1005type (2mm pitch) 1608type (4mm pitch)
W	φ178mm Embossed Taping (1mm pitch) 0201/0402type

⑩ Internal code

■ STANDARD EXTERNAL DIMENSIONS



※LW reverse type

Type	JIS (mm)	EIA (inch)	Dimension [mm]				
			L	W	T	*1	e
MSAS□02	0201	008004	0.25 ± 0.013	0.125 ± 0.013	0.125 ± 0.013	1	0.0675 ± 0.0275
MSAR□02	0201	008004	0.25 ± 0.013	0.125 ± 0.013	0.125 ± 0.013	1	0.0675 ± 0.0275
MSAS□04	0402	01005	0.4 ± 0.02	0.2 ± 0.02	0.2 ± 0.02	2	0.1 ± 0.03
MSAR□04	0402	01005	0.4 ± 0.02	0.2 ± 0.02	0.2 ± 0.02	2	0.1 ± 0.03
MSAS□06	0603	0201	0.6 ± 0.03	0.3 ± 0.03	0.3 ± 0.03	3	0.15 ± 0.05
MSAS□1L	1005	0402	1.0 ± 0.05	0.5 ± 0.05	0.13 ± 0.02	H	0.25 ± 0.10
					0.18 ± 0.02	E	
					0.2 ± 0.02	2	
					0.3 ± 0.03	3	
MSAS□10	1005	0402	1.0 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	5	0.25 ± 0.10
MSAY□1L	1005	0402	1.0 ± 0.05	0.5 ± 0.05	0.3 ± 0.03	3	0.25 ± 0.10
MSAY□10	1005	0402	1.0 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	5	0.25 ± 0.10
MSRL□10 ※	0510	0204	0.52 ± 0.05	1.0 ± 0.05	0.3 ± 0.05	3	0.18 ± 0.08
MSAS□16	1608	0603	1.6 ± 0.10	0.8 ± 0.10	0.45 ± 0.05	K	0.35 ± 0.25
					0.8 ± 0.10	8	
MSAY□16	1608	0603	1.6 ± 0.10	0.8 ± 0.10	0.8 ± 0.10	8	0.35 ± 0.25
MSRL□16 ※	0816	0306	0.8 ± 0.10	1.6 ± 0.10	0.5 ± 0.05	5	0.25 ± 0.15
MSAS□21	2012	0805	2.0 ± 0.10	1.25 ± 0.10	0.85 ± 0.10	9	0.5 ± 0.25
					1.25 ± 0.10	G	
MSRL□21 ※	1220	0508	1.25 ± 0.15	2.0 ± 0.15	0.85 ± 0.10	9	0.3 ± 0.2
MSAS□31	3216	1206	3.2 ± 0.15	1.6 ± 0.15	0.85 ± 0.10	9	$0.5 + 0.35 / - 0.25$
					1.15 ± 0.10	Q	
					1.6 ± 0.20	L	
MSAY□31	3216	1206	3.2 ± 0.15	1.6 ± 0.15	1.15 ± 0.10	Q	$0.5 + 0.35 / - 0.25$
					1.6 ± 0.20	L	
MSAS□32	3225	1210	3.2 ± 0.30	2.5 ± 0.20	0.85 ± 0.10	9	0.6 ± 0.3
					1.15 ± 0.10	Q	
					1.9 ± 0.20	N	
					$1.9 + 0.1 / - 0.20$	Y	
MSAY□32	3225	1210	3.2 ± 0.30	2.5 ± 0.20	2.5 ± 0.20	M	0.6 ± 0.3
					1.9 ± 0.20	N	
					2.5 ± 0.20	M	
MSAS□45	4532	1812	4.5 ± 0.40	3.2 ± 0.30	$2.0 + 0 / - 0.30$	Y	0.6 ± 0.4
					2.5 ± 0.20	M	0.9 ± 0.6

Note :※LW reverse type (MSRL), *1.Thickness code

■ STANDARD QUANTITY

Type			Thickness		Standard quantity [pcs]	
Code	JIS(mm)	EIA(inch)	[mm]	Code	Paper tape	Embossed tape
02	0201	008004	0.125	1	—	50000
04	0402	01005	0.2	2	—	40000
06	0603	0201	0.3	3	15000	—
1L	1005	0402	0.13	H	—	20000
			0.18	E	—	15000
			0.2	2	20000	—
			0.3	3	15000	—
10	1005	0402	0.5	5	10000	—
	0510 ※	0204 ※	0.3	3		
16	1608	0603	0.45	K	4000	—
			0.8	8		
	0816 ※	0306 ※	0.5	5	—	4000
21	2012	0805	0.85	9	4000	—
			1.25	G	—	3000
	1220 ※	0508 ※	0.85	9	4000	—
31	3216	1206	0.85	9	4000	—
			1.15	Q	—	3000
			1.6	L	—	2000
32	3225	1210	0.85	9	—	2000
			1.15	Q		
			1.9	N		
			2.0 max	Y		
			2.5	M	—	1000
45	4532	1812	2.0 max	Y	—	1000
			2.5	M	—	500

Note : ※: LW Reverse type (MSRL)

PART NUMBER

- All the Multilayer Ceramic Capacitors of the catalog lineup are RoHS Compliant.
- Capacitance tolerance code is applied to □ of part number.
- All the Multilayer Ceramic Capacitors in the catalog lineup are applicable for reflow-soldering. Please contact us for flow compatible products.

Note)
 *1 We may provide X7R/X7S for some items according to the individual specification.
 *2 The exchange of individual specification is necessary depending on the application and circuit condition. Please contact TAIYO YUDEN sales channels.
 *3 The size standard should look at Dimension, Thickness, Dimension tolerance, and STANDARD EXTERNAL DIMENSIONS.

Multilayer Ceramic Capacitors (High dielectric type) for General Electronic Equipment for Consumer

0201TYPE

【Temperature Characteristic B5(BJ) : X5R(−55~+85°C)】 0.125mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASE021SB5221□WNA01	EMK021 BJ221□K-W	16	X5R	220 p	±10, ±20	10	150	0.125±0.013	
MSASE021SB5471□WNA01	EMK021 BJ471□K-W		X5R	470 p	±10, ±20	10	150	0.125±0.013	
MSASE021SB5102□WNA01	EMK021 BJ102□K-W		X5R	1000 p	±10, ±20	10	150	0.125±0.013	
MSASJ021SB5222□WNA01	JMK021 BJ222□K-W	6.3	X5R	2200 p	±10, ±20	10	150	0.125±0.013	
MSASJ021SB5472□WNA01	JMK021 BJ472□K-W		X5R	4700 p	±10, ±20	10	150	0.125±0.013	
MSASJ021SB5103□WNA01	JMK021 BJ103□K-W		X5R	0.01 μ	±10, ±20	10	150	0.125±0.013	
MSASA021SB5223MWNA01	AMK021 BJ223MK-W	4	X5R	0.022 μ	±20	10	150	0.125±0.013	

0402TYPE

【Temperature Characteristic B5(BJ) : B(−25~+85°C)/X5R(−55~+85°C)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASE042SB5101□WNA01	EMK042 BJ101□C-W	16	X5R	100 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5151□WNA01	EMK042 BJ151□C-W		X5R	150 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5221□WNA01	EMK042 BJ221□C-W		X5R	220 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5331□WNA01	EMK042 BJ331□C-W		X5R	330 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5471□WNA01	EMK042 BJ471□C-W		X5R	470 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5681□WNA01	EMK042 BJ681□C-W		X5R	680 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5102□WNA01	EMK042 BJ102□C-W		B X5R	1000 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB5152□WNA01	EMK042 BJ152□C-W		X5R	1500 p	±10, ±20	10	150	0.2±0.02	
MSASE042SB5222□WNA01	EMK042 BJ222□C-W		X5R	2200 p	±10, ±20	10	150	0.2±0.02	
MSASE042SB5332□WNA01	EMK042 BJ332□C-W		X5R	3300 p	±10, ±20	10	150	0.2±0.02	
MSASE042SB5472□WNA01	EMK042 BJ472□C-W		X5R	4700 p	±10, ±20	10	150	0.2±0.02	
MSASE042SB5682□WNA01	EMK042 BJ682□C-W		X5R	6800 p	±10, ±20	10	150	0.2±0.02	
MSASE042SB5103□WNA01	EMK042 BJ103□C-W		X5R	0.01 μ	±10, ±20	10	150	0.2±0.02	
MSASL042SB5101□WNA01	LMK042 BJ101□C-W	10	X5R*	100 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5151□WNA01	LMK042 BJ151□C-W		X5R*	150 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5221□WNA01	LMK042 BJ221□C-W		X5R*	220 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5331□WNA01	LMK042 BJ331□C-W		X5R*	330 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5471□WNA01	LMK042 BJ471□C-W		X5R*	470 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5681□WNA01	LMK042 BJ681□C-W		X5R*	680 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5102□WNA01	LMK042 BJ102□C-W		B X5R*	1000 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB5152□WNA01	LMK042 BJ152□C-W		X5R	1500 p	±10, ±20	10	150	0.2±0.02	
MSASL042SB5222□WNA01	LMK042 BJ222□C-W		X5R	2200 p	±10, ±20	10	150	0.2±0.02	
MSASL042SB5332□WNA01	LMK042 BJ332□C-W		X5R	3300 p	±10, ±20	10	150	0.2±0.02	
MSASL042SB5472□WNA01	LMK042 BJ472□C-W		X5R	4700 p	±10, ±20	10	150	0.2±0.02	
MSASL042SB5682□WNA01	LMK042 BJ682□C-W		X5R	6800 p	±10, ±20	10	150	0.2±0.02	
MSASL042SB5103□WNA01	LMK042 BJ103□C-W		X5R	0.01 μ	±10, ±20	10	150	0.2±0.02	
MSASL042SB5104MWNA01	LMK042 BJ104MC-W		X5R	0.1 μ	±20	10	150	0.2±0.02	
MSASJ042SB5152□WNA01	JMK042 BJ152□C-W	6.3	X5R*	1500 p	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5222□WNA01	JMK042 BJ222□C-W		X5R*	2200 p	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5332□WNA01	JMK042 BJ332□C-W		X5R*	3300 p	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5472□WNA01	JMK042 BJ472□C-W		X5R*	4700 p	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5682□WNA01	JMK042 BJ682□C-W		X5R*	6800 p	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5103□WNA01	JMK042 BJ103□C-W		X5R*	0.01 μ	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5223□WNA01	JMK042 BJ223□C-W		X5R	0.022 μ	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5473□WNA01	JMK042 BJ473□C-W		X5R	0.047 μ	±10, ±20	10	150	0.2±0.02	
MSASJ042SB5104□WNA01	JMK042 BJ104□C-W		X5R	0.1 μ	±10, ±20	10	150	0.2±0.02	
MSASA042SB5473□WNA01	AMK042 BJ473□C-W	4	X5R	0.047 μ	±10, ±20	10	150	0.2±0.02	
MSASA042SB5104□WNA01	AMK042 BJ104□C-W		X5R	0.1 μ	±10, ±20	10	150	0.2±0.02	

PART NUMBER

【Temperature Characteristic B7 : X7R(−55~+125℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASE042SB7101□WNA01	EMK042 B7101□C-W	16	X7R	100 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB7151□WNA01	EMK042 B7151□C-W		X7R	150 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB7221□WNA01	EMK042 B7221□C-W		X7R	220 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB7331□WNA01	EMK042 B7331□C-W		X7R	330 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB7471□WNA01	EMK042 B7471□C-W		X7R	470 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB7681□WNA01	EMK042 B7681□C-W		X7R	680 p	±10, ±20	5	200	0.2±0.02	
MSASE042SB7102□WNA01	EMK042 B7102□C-W		X7R	1000 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7101□WNA01	LMK042 B7101□C-W	10	X7R	100 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7151□WNA01	LMK042 B7151□C-W		X7R	150 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7221□WNA01	LMK042 B7221□C-W		X7R	220 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7331□WNA01	LMK042 B7331□C-W		X7R	330 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7471□WNA01	LMK042 B7471□C-W		X7R	470 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7681□WNA01	LMK042 B7681□C-W		X7R	680 p	±10, ±20	5	200	0.2±0.02	
MSASL042SB7102□WNA01	LMK042 B7102□C-W		X7R	1000 p	±10, ±20	5	200	0.2±0.02	

0603TYPE

【Temperature Characteristic B5(BJ) : B(−25~+85℃)/X5R(−55~+85℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU063SB5101□FNA01	UMK063 BJ101□P-F	50	B X5R ^{*1}	100 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5151□FNA01	UMK063 BJ151□P-F		B X5R ^{*1}	150 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5221□FNA01	UMK063 BJ221□P-F		B X5R ^{*1}	220 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5331□FNA01	UMK063 BJ331□P-F		B X5R ^{*1}	330 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5471□FNA01	UMK063 BJ471□P-F		B X5R ^{*1}	470 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5681□FNA01	UMK063 BJ681□P-F		B X5R ^{*1}	680 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5102□FNA01	UMK063 BJ102□P-F		B X5R ^{*1}	1000 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB5152□FNA01	UMK063 BJ152□P-F		B X5R	1500 p	±10, ±20	5	200	0.3±0.03	
MSASU063SB5222□FNA01	UMK063 BJ222□P-F		B X5R	2200 p	±10, ±20	5	200	0.3±0.03	
MSASU063SB5332□FNA01	UMK063 BJ332□P-F		B X5R	3300 p	±10, ±20	5	200	0.3±0.03	
MSASU063SB5472□FNA01	UMK063 BJ472□P-F		B X5R	4700 p	±10, ±20	5	200	0.3±0.03	
MSASU063SB5682□FNA01	UMK063 BJ682□P-F		B X5R	6800 p	±10, ±20	5	200	0.3±0.03	
MSASU063SB5103□FNA01	UMK063 BJ103□P-F		B X5R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MSASG063SB5104□FNA01	GMK063 BJ104□P-F	35	X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSAST063SB5152□FNA01	TMK063 BJ152□P-F	25	B X5R	1500 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB5222□FNA01	TMK063 BJ222□P-F		B X5R	2200 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB5332□FNA01	TMK063 BJ332□P-F		B X5R	3300 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB5472□FNA01	TMK063 BJ472□P-F		B X5R	4700 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB5682□FNA01	TMK063 BJ682□P-F		B X5R	6800 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB5103□FNA01	TMK063 BJ103□P-F		B X5R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MSAST063SB5223□FNA01	TMK063 BJ223□P-F		B X5R	0.022 μ	±10, ±20	7.5	200	0.3±0.03	
MSAST063AB5104□FNA01	TMK063ABJ104□P-F		X5R	0.1 μ	±10, ±20	10	150	0.3±0.05	
MSASE063SB5152□FNA01	EMK063 BJ152□P-F	16	B X5R ^{*1}	1500 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB5222□FNA01	EMK063 BJ222□P-F		B X5R ^{*1}	2200 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB5332□FNA01	EMK063 BJ332□P-F		B X5R ^{*1}	3300 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB5472□FNA01	EMK063 BJ472□P-F		B X5R ^{*1}	4700 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB5682□FNA01	EMK063 BJ682□P-F		B X5R ^{*1}	6800 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB5103□FNA01	EMK063 BJ103□P-F		B X5R ^{*1}	0.01 μ	±10, ±20	5	200	0.3±0.03	
MSASE063SB5153□FNA01	EMK063 BJ153□P-F		X5R	0.015 μ	±10, ±20	7.5	200	0.3±0.03	
MSASE063SB5223□FNA01	EMK063 BJ223□P-F		B X5R	0.022 μ	±10, ±20	7.5	200	0.3±0.03	
MSASE063SB5333□FNA01	EMK063 BJ333□P-F		X5R	0.033 μ	±10, ±20	7.5	150	0.3±0.03	
MSASE063SB5473□FNA01	EMK063 BJ473□P-F		X5R	0.047 μ	±10, ±20	7.5	150	0.3±0.03	
MSASE063SB5683□FNA01	EMK063 BJ683□P-F		X5R	0.068 μ	±10, ±20	10	150	0.3±0.03	
MSASE063SB5104□FNA01	EMK063 BJ104□P-F		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSASE063SB5224□FNA01	EMK063 BJ224□P-F		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MSASE063BB5474□FNB33	EMK063BBJ474□PLF		X5R	0.47 μ	±10, ±20	10	150	0.3±0.09	
MSASL063SB5223□FNA01	LMK063 BJ223□P-F	10	B X5R	0.022 μ	±10, ±20	7.5	150	0.3±0.03	
MSASL063SB5333□FNA01	LMK063 BJ333□P-F		X5R	0.033 μ	±10, ±20	7.5	150	0.3±0.03	
MSASL063SB5473□FNA01	LMK063 BJ473□P-F		X5R	0.047 μ	±10, ±20	7.5	150	0.3±0.03	
MSASL063SB5683□FNA01	LMK063 BJ683□P-F		X5R	0.068 μ	±10, ±20	10	150	0.3±0.03	
MSASL063SB5104□FNA01	LMK063 BJ104□P-F		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSASL063SB5224□FNA01	LMK063 BJ224□P-F		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MSASL063BB5474□FNB33	LMK063BBJ474□PLF		X5R	0.47 μ	±10, ±20	10	150	0.3±0.09	
MSASL063BB5105MFNB33	LMK063BBJ105MPLF		X5R	1 μ	±20	10	150	0.3±0.09	
MSASJ063SB5104□FNA01	JMK063 BJ104□P-F	6.3	X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSASJ063SB5224□FNA01	JMK063 BJ224□P-F		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MSASJ063SB5334MFNA01	JMK063 BJ334MP-F		X5R	0.33 μ	±20	10	150	0.3±0.03	
MSASJ063SB5474□FNA01	JMK063 BJ474□P-F		X5R	0.47 μ	±10, ±20	10	150	0.3±0.03	
MSASJ063AB5105□FNA01	JMK063ABJ105□P-F		X5R	1 μ	±10, ±20	10	150	0.3±0.05	
MSASA063EB5475MFNA01	AMK063EBJ475MP-F	4	X5R	4.7 μ	±20	10	150	0.3+0.25/-0	
MSASP063EB5475MFNA01	PMK063EBJ475MP-F	2.5	X5R	4.7 μ	±20	10	150	0.3+0.25/-0	

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For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (<http://www.ty-top.com/>).

PART NUMBER

【Temperature Characteristic C6 : X6S (−55~+105℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSAST063SC6104□FNA01	TMK063 C6104□P-F	25	X6S	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSASE063AC6104□FNA01	EMK063AC6104□P-F	16	X6S	0.1 μ	±10, ±20	10	150	0.3±0.05	
MSASL063SC6104□FNA01	LMK063 C6104□P-F	10	X6S	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSASL063SC6224□FNA01	LMK063 C6224□P-F		X6S	0.22 μ	±10, ±20	10	150	0.3±0.03	
MSASL063BC6474□FNB33	LMK063BC6474□PLF		X6S	0.47 μ	±10, ±20	10	150	0.3±0.09	
MSASJ063SC6104□FNA01	JMK063 C6104□P-F	6.3	X6S	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSASJ063SC6224□FNA01	JMK063 C6224□P-F		X6S	0.22 μ	±10, ±20	10	150	0.3±0.03	
MSASJ063BC6474□FNA01	JMK063BC6474□P-F		X6S	0.47 μ	±10, ±20	10	150	0.3±0.09	
MSASJ063BC6105MFNA01	JMK063BC6105MP-F	4	X6S	1 μ	±20	10	150	0.3±0.09	
MSASA063SC6474□FNA01	JMK063 C6474□P-F		X6S	0.47 μ	±10, ±20	10	150	0.3±0.03	
MSASA063AC6105□FNA01	AMK063AC6105□P-F		X6S	1 μ	±10, ±20	10	150	0.3±0.05	

【Temperature Characteristic B7 : X7R (−55~+125℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU063SB7101□FNA01	UMK063 B7101□P-F	50	X7R	100 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB7151□FNA01	UMK063 B7151□P-F		X7R	150 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB7221□FNA01	UMK063 B7221□P-F		X7R	220 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB7331□FNA01	UMK063 B7331□P-F		X7R	330 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB7471□FNA01	UMK063 B7471□P-F		X7R	470 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB7681□FNA01	UMK063 B7681□P-F		X7R	680 p	±10, ±20	3.5	200	0.3±0.03	
MSASU063SB7102□FNA01	UMK063 B7102□P-F	25	X7R	1000 p	±10, ±20	3.5	200	0.3±0.03	
MSAST063SB7152□FNA01	TMK063 B7152□P-F		X7R	1500 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB7222□FNA01	TMK063 B7222□P-F		X7R	2200 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB7332□FNA01	TMK063 B7332□P-F		X7R	3300 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB7472□FNA01	TMK063 B7472□P-F		X7R	4700 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB7682□FNA01	TMK063 B7682□P-F		X7R	6800 p	±10, ±20	5	200	0.3±0.03	
MSAST063SB7103□FNA01	TMK063 B7103□P-F	16	X7R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MSASE063SB7152□FNA01	EMK063 B7152□P-F		X7R	1500 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB7222□FNA01	EMK063 B7222□P-F		X7R	2200 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB7332□FNA01	EMK063 B7332□P-F		X7R	3300 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB7472□FNA01	EMK063 B7472□P-F		X7R	4700 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB7682□FNA01	EMK063 B7682□P-F		X7R	6800 p	±10, ±20	5	200	0.3±0.03	
MSASE063SB7103□FNA01	EMK063 B7103□P-F	4	X7R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MSASE063SB7223□FNA01	EMK063 B7223□P-F		X7R	0.022 μ	±10, ±20	7.5	150	0.3±0.03	

1005TYPE

【Temperature Characteristic B5(BJ) : B (−25~+85℃)/X5R (−55~+85℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU105SB5223□FNA01	UMK105 BJ223□V-F	50	X5R	0.022 μ	±10, ±20	5	200	0.5±0.05	
MSASU105SB5473□FNA01	UMK105 BJ473□V-F		X5R	0.047 μ	±10, ±20	5	200	0.5±0.05	
MSASU105SB5104□FNA01	UMK105 BJ104□V-F		X5R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MSASU105SB5224□FNA01	UMK105 BJ224□V-F		X5R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MSASU105AB5474□FNA01	UMK105ABJ474□V-F		X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	
MSASU105CB5105□FNA01	UMK105CBJ105□V-F		X5R	1 μ	±10, ±20	10	150	0.5±0.20/-0	
MSASG105SB5104□FNA01	GMK105 BJ104□V-F	35	B	X5R	0.1 μ	5	150	0.5±0.05	
MSASG105AB5105□FNA01	GMK105ABJ105□V-F		X5R	1 μ	±10, ±20	10	150	0.5±0.10	
MSAST105SB5153□FNA01	TMK105 BJ153□V-F	25	B	X5R ^{*1}	0.015 μ	3.5	200	0.5±0.05	
MSAST105SB5223□FNA01	TMK105 BJ223□V-F		B	X5R ^{*1}	0.022 μ	3.5	200	0.5±0.05	
MSAST105SB5333□FNA01	TMK105 BJ333□V-F		B	X5R ^{*1}	0.033 μ	3.5	150	0.5±0.05	
MSAST105SB5473□FNA01	TMK105 BJ473□V-F		B	X5R ^{*1}	0.047 μ	3.5	150	0.5±0.05	
MSAST105SB5104□FNA01	TMK105 BJ104□V-F		B	X5R	0.1 μ	5	150	0.5±0.05	
MSAST105SB5224□FNA01	TMK105 BJ224□V-F		X5R	0.22 μ	±10, ±20	10	200	0.5±0.05	
MSAST105AB5474□FNA01	TMK105ABJ474□V-F	16	X5R	0.47 μ	±10, ±20	10	200	0.5±0.10	
MSAST105SB5105□FNA01	TMK105 BJ105□V-F		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MSAST105CB5225□FNA01	TMK105CBJ225□V-F		X5R	2.2 μ	±10, ±20	10	150	0.5±0.20/-0	
MSASE105SB5224□FNA01	EMK105 BJ224□V-F		B	X5R	0.22 μ	5	150	0.5±0.05	
MSASE105AB5474□FNA01	EMK105ABJ474□V-F		X5R	0.47 μ	±10, ±20	10	200	0.5±0.10	
MSASE105SB5105□FNA01	EMK105 BJ105□V-F		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MSASE105AB5225□FNA01	EMK105ABJ225□V-F	10	X5R	2.2 μ	±10, ±20	10	150	0.5±0.10	
MSASL105SB5225□FNA01	LMK105 BJ225□V-F		X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	
MSASL105BB5475MFNB33	LMK105BBJ475MVL		X5R	4.7 μ	±20	10	150	0.5±0.15/-0.05	
MSASJ105SB5225□FNA01	JMK105 BJ225□V-F	6.3	X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	
MSASJ105BB5475MFNA01	JMK105BBJ475MV-F		X5R	4.7 μ	±20	10	150	0.5±0.15/-0.05	
MSASA105EB5226MFNA01	AMK105EBJ226MV-F	4	X5R	22 μ	±20	20	150	0.5±0.30/-0	

【Temperature Characteristic B5(BJ) : B (−25~+85℃)/X5R (−55~+85℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU1L3YB5104□FNA01	UMK105 BJ104□P-F	50	X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSAST1L3YB5103□FNA01	TMK105 BJ103□P-F	25	B	X5R	0.01 μ	5	150	0.3±0.03	
MSAST1L3YB5104□FNA01	TMK105 BJ104□P-F		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MSAST1L3YB5224□FNA01	TMK105 BJ224□P-F		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MSAST1L3YB5474□FNA01	TMK105 BJ474□P-F	16	X5R	0.47 μ	±10, ±20	10	150	0.3±0.03	
MSASE1L3YB5474□FNA01	EMK105 BJ474□P-F	10	X5R	1 μ	±10, ±20	10	150	0.3±0.03	
MSASL1L3YB5105□FNB33	LMK105 BJ105□PLF	6.3	X5R	1 μ	±10, ±20	10	150	0.3±0.03	
MSASA1L3YB5225MFNA01	AMK105 BJ225MP-F	4	X5R	2.2 μ	±20	10	150	0.3±0.03	

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PART NUMBER

【Temperature Characteristic B5(BJ) : X5R(−55~+85°C)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASL1L2XB5104[FNA01	LMK105 BJ104[C-F	10	X5R	0.1 μ	±10, ±20	10	150	0.2±0.02	
MSASJ1L2XB5224[FNA01	JMK105 BJ224[C-F	6.3	X5R	0.22 μ	±10, ±20	10	150	0.2±0.02	
MSASJ1L2XB5474[FNA01	JMK105 BJ474[C-F		X5R	0.47 μ	±10, ±20	10	150	0.2±0.02	
MSASJ1L2XB5105MFNA01	JMK105 BJ105MC-F		X5R	1 μ	±20	10	150	0.2±0.02	

【Temperature Characteristic B5(BJ) : X5R(−55~+85°C)】 0.18mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASL1LEXB5104[RNA01	LMK105 BJ104[E-R	10	X5R	0.1 μ	±10, ±20	10	150	0.18±0.02	
MSASJ1LEXB5224[RNA01	JMK105 BJ224[E-R	6.3	X5R	0.22 μ	±10, ±20	10	150	0.18±0.02	
MSASJ1LEXB5474[RNA01	JMK105 BJ474[E-R		X5R	0.47 μ	±10, ±20	10	150	0.18±0.02	
MSASA1LEXB5105MRNA01	AMK105 BJ105ME-R	4	X5R	1 μ	±20	10	150	0.18±0.02	

【Temperature Characteristic B5(BJ) : X5R(−55~+85°C)】 0.13mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASL1LHXB5104MRNA01	LMK105 BJ104MH-R	10	X5R	0.1 μ	±20	10	150	0.13±0.02	
MSASJ1LHXB5224MRNA01	JMK105 BJ224MH-R	6.3	X5R	0.22 μ	±20	10	150	0.13±0.02	
MSASA1LHXB5474MRNA01	AMK105 BJ474MH-R	4	X5R	0.47 μ	±20	10	150	0.13±0.02	

【Temperature Characteristic C6 : X6S(−55~+105°C)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASG105CC6105[FNA01	GMK105CC6105[V-F	35	X6S	1 μ	±10, ±20	10	150	0.5+0.20/-0	
MSAST105AC6105[FNA01	TMK105AC6105[V-F	25	X6S	1 μ	±10, ±20	10	150	0.5±0.10	
MSAST105CC6105MFNA01	TMK105CC6105MV-F		X6S	1 μ	±20	10	150	0.5+0.20/-0	
MSASE105SC6105[FNA01	EMK105 C6105[V-F	16	X6S	1 μ	±10, ±20	10	150	0.5±0.05	
MSASE105CC6225[FNA01	EMK105CC6225[V-F		X6S	2.2 μ	±10, ±20	10	150	0.5+0.20/-0	
MSASL105SC6105[FNA01	LMK105 C6105[V-F	10	X6S	1 μ	±10, ±20	10	200	0.5±0.05	
MSASL105AC6225[FNA01	LMK105AC6225[V-F		X6S	2.2 μ	±10, ±20	10	150	0.5±0.10	
MSASJ105SC6225[FNA01	JMK105 C6225[V-F	6.3	X6S	2.2 μ	±10, ±20	10	150	0.5±0.05	
MSASJ105BC6475MFNA01	JMK105BC6475MV-F		X6S	4.7 μ	±20	10	150	0.5+0.15/-0.05	
MSASA105BC6475MFNA01	AMK105BC6475MV-F	4	X6S	4.7 μ	±20	10	200	0.5+0.15/-0.05	
MSASP105EC6226MFNA01	PMK105EC6226MV-F	2.5	X6S	22 μ	±20	20	150	0.5+0.30/-0	

【Temperature Characteristic B7 : X7R(−55~+125°C)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU105SB7152[FNA01	UMK105 B7152[V-F	50	X7R	1500 p	±10, ±20	2.5	200	0.5±0.05	
MSASU105SB7222[FNA01	UMK105 B7222[V-F		X7R	2200 p	±10, ±20	2.5	200	0.5±0.05	
MSASU105SB7332[FNA01	UMK105 B7332[V-F		X7R	3300 p	±10, ±20	2.5	200	0.5±0.05	
MSASU105SB7472[FNA01	UMK105 B7472[V-F		X7R	4700 p	±10, ±20	2.5	150	0.5±0.05	
MSASU105SB7682[FNA01	UMK105 B7682[V-F		X7R	6800 p	±10, ±20	2.5	150	0.5±0.05	
MSASU105SB7103[FNA01	UMK105 B7103[V-F		X7R	0.01 μ	±10, ±20	3.5	150	0.5±0.05	
MSASU105SB7223[FNB25	UMK105 B7223[V-FR		X7R	0.022 μ	±10, ±20	10	200	0.5±0.05	
MSASU105SB7473[FNB25	UMK105 B7473[V-FR		X7R	0.047 μ	±10, ±20	10	200	0.5±0.05	
MSASU105SB7104[FNB25	UMK105 B7104[V-FR		X7R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MSAST105SB7223[FNA01	TMK105 B7223[V-F	25	X7R	0.022 μ	±10, ±20	3.5	150	0.5±0.05	
MSAST105SB7473[FNA01	TMK105 B7473[V-F		X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MSAST105SB7104[FNB25	TMK105 B7104[V-FR		X7R	0.1 μ	±10, ±20	10	200	0.5±0.05	
MSAST105SB7224[FNB25	TMK105 B7224[V-FR		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MSASE105SB7223[FNA01	EMK105 B7223[V-F	16	X7R	0.022 μ	±10, ±20	3.5	200	0.5±0.05	
MSASE105SB7473[FNA01	EMK105 B7473[V-F		X7R	0.047 μ	±10, ±20	3.5	200	0.5±0.05	
MSASE105SB7104[FNA01	EMK105 B7104[V-F		X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MSASE105SB7224[FNB25	EMK105 B7224[V-FR	10	X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MSASL105SB7224[FNB25	LMK105 B7224[V-FR		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MSASL105SB7474[FNA01	LMK105 B7474[V-F	6.3	X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	
MSASJ105SB7224[FNA01	JMK105 B7224[V-F		X7R	0.22 μ	±10, ±20	5	150	0.5±0.05	
MSASJ105SB7474[FNA01	JMK105 B7474[V-F		X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	

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【Temperature Characteristic B5 (BJ) : X5R (−55~+85°C)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU168AB5474□TNA01	UMK107ABJ474□A-T	50	X5R	0.47 μ	±10, ±20	10	150	0.8±0.15/-0.05	
MSASU168SB5105□TNA01	UMK107 BJ105□A-T		X5R	1 μ	±10, ±20	10	150	0.8±0.10	
MSASU168BB5225□TNA01	UMK107BBJ225□A-T		X5R	2.2 μ	±10, ±20	10	150	0.8±0.20/-0	
MSASG168BB5475□TNA01	GМК107BBJ475□A-T	35	X5R	4.7 μ	±10, ±20	10	150	0.8±0.20/-0	
MSAST168AB5225□TNA01	TMK107ABJ225□A-T	25	X5R	2.2 μ	±10, ±20	10	150	0.8±0.15/-0.05	
MSAST168BB5475□TNA01	TMK107BBJ475□A-T		X5R	4.7 μ	±10, ±20	10	150	0.8±0.20/-0	
MSAST168BB5106MTNA01	TMK107BBJ106MA-T		X5R	10 μ	±20	10	150	0.8±0.20/-0	
MSASE168AB5475□TNA01	EMK107ABJ475□A-T	16	X5R	4.7 μ	±10, ±20	10	150	0.8±0.15/-0.05	
MSASE168BB5106MTNA01	EMK107BBJ106MA-T		X5R	10 μ	±20	10	150	0.8±0.20/-0	
MSASL168BB5106□TNB33	LMK107BBJ106□ALT		X5R	10 μ	±10, ±20	10	150	0.8±0.20/-0	
MSASL168BB5226MTNA01	LMK107BBJ226MA-T	10	X5R	22 μ	±20	10	150	0.8±0.20/-0	
MSASJ168AB5106□TNA01	JMK107ABJ106□A-T	6.3	X5R	10 μ	±10, ±20	10	150	0.8±0.15/-0.05	
MSASJ168BB5226MTNA01	JMK107BBJ226MA-T		X5R	22 μ	±20	10	150	0.8±0.20/-0	
MSASJ168BB5476MRCA01	JMK107BBJ476MA-RE		X5R	47 μ	±20	15	150	0.8±0.20/-0	
MSASA168BB5476MRCA01	AMK107BBJ476MA-RE	4	X5R	47 μ	±20	20	150	0.8±0.20/-0	

【Temperature Characteristic B5 (BJ) : X5R (−55~+85°C)】 0.45mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSAST16KTB5105□TNA01	TMK107 BJ105□K-T	25	X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MSASE16KTB5105□TNA01	EMK107 BJ105□K-T	16	X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MSASE16KJB5225□TNA01	EMK107BBJ225□K-T		X5R	2.2 μ	±10, ±20	10	150	0.45±0.05	
MSASL16KTB5105□TNA01	LMK107 BJ105□K-T		X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MSASL16KTB5225□TNA01	LMK107 BJ225□K-T	10	X5R	2.2 μ	±10, ±20	10	150	0.45±0.05	
MSASL16KJB5475MTNB33	LMK107BBJ475MKLT		X5R	4.7 μ	±20	10	150	0.45±0.05	
MSASJ16KTB5105□TNA01	JMK107 BJ105□K-T		X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MSASJ16KTB5225□TNA01	JMK107 BJ225□K-T	6.3	X5R	2.2 μ	±10, ±20	10	150	0.45±0.05	
MSASJ16KTB5475MTNA01	JMK107 BJ475MK-T		X5R	4.7 μ	±20	10	150	0.45±0.05	
MSASJ16KJB5106MTNC12	JMK107BBJ106MK-TT		X5R	10 μ	±20	10	150	0.45±0.05	

【Temperature Characteristic C6 : X6S (−55~+105°C)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSAST168BC6225□TNA01	TMK107BC6225□A-T	25	X6S	2.2 μ	±10, ±20	10	150	0.8±0.20/-0	
MSASE168SC6105□TNA01	EMK107 C6105□A-T	16	X6S	1 μ	±10, ±20	5	150	0.8±0.10	
MSASE168BC6225□TNA01	EMK107BC6225□A-T		X6S	2.2 μ	±10, ±20	10	150	0.8±0.20/-0	
MSASE168BC6475□TNA01	EMK107BC6475□A-T		X6S	4.7 μ	±10, ±20	10	150	0.8±0.20/-0	
MSASE168BC6106MTNA01	EMK107BC6106MA-T	10	X6S	10 μ	±20	10	150	0.8±0.20/-0.0	
MSASL168SC6105□TNA01	LMK107 C6105□A-T		X6S	1 μ	±10, ±20	5	150	0.8±0.10	
MSASL168AC6475□TNA01	LMK107AC6475□A-T		X6S	4.7 μ	±10, ±20	10	150	0.8±0.15/-0.05	
MSASL168BC6106MTNA01	LMK107BC6106MA-T	6.3	X6S	10 μ	±20	10	150	0.8±0.20/-0	
MSASJ168SC6475□TNA01	JMK107 C6475□A-T		X6S	4.7 μ	±10, ±20	10	150	0.8±0.10	
MSASJ168BC6106MTNA01	JMK107BC6106MA-T		X6S	10 μ	±20	10	150	0.8±0.20/-0	
MSASJ168BC6226MTNA01	JMK107BC6226MA-T	4	X6S	22 μ	±20	10	150	0.8±0.20/-0	
MSASA168BC6226MTNA01	AMK107BC6226MA-T		X6S	22 μ	±20	10	150	0.8±0.20/-0	
MSASA168BC6476MRCA01	AMK107BC6476MA-RE		X6S	47 μ	±20	20	150	0.8±0.20/-0	

【Temperature Characteristic B7 : X7R (−55~+125°C)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU168SB7224□TNB25	UMK107 B7224□A-TR	50	X7R	0.22 μ	±10, ±20	10	150	0.8±0.10	
MSASU168SB7474□TNB25	UMK107 B7474□A-TR		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MSASU168AB7105□TNA01	UMK107AB7105□A-T		X7R	1 μ	±10, ±20	10	150	0.8±0.15/-0.05	
MSAST168SB7474□TNB25	TMK107 B7474□A-TR	25	X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MSAST168SB7105□TNA01	TMK107 B7105□A-T		X7R	1 μ	±10, ±20	10	150	0.8±0.10	
MSASE168SB7474□TNA01	EMK107 B7474□A-T		X7R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	
MSASE168SB7105□TNA01	EMK107 B7105□A-T	16	X7R	1 μ	±10, ±20	5	150	0.8±0.10	
MSASE168BB7225□TNA01	EMK107BB7225□A-T		X7R	2.2 μ	±10, ±20	10	150	0.8±0.20/-0	
MSASL168SB7225□TNB25	LMK107 B7225□A-TR	10	X7R	2.2 μ	±10, ±20	10	150	0.8±0.10	
MSASJ168SB7225□TNB25	JMK107 B7225□A-TR	6.3	X7R	2.2 μ	±10, ±20	10	200	0.8±0.10	
MSASJ168BB7475□TNA01	JMK107BB7475□A-T		X7R	4.7 μ	±10, ±20	10	150	0.8±0.20/-0	

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【Temperature Characteristic B5 (BJ) : X5R (−55~+85°C)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU21GBB5475□TNA01	UMK212BBJ475□G-T	50	X5R	4.7 μ	±10, ±20	10	150	1.25+0.20/-0	
MSASG21GBB5106□TNA01	GMK212BBJ106□G-T	35	X5R	10 μ	±10, ±20	10	150	1.25+0.20/-0	
MSAST21GAB5475□TNA01	TMK212ABJ475□G-T	25	X5R	4.7 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MSAST21GBB5106□TNA01	TMK212BBJ106□G-T		X5R	10 μ	±10, ±20	10	150	1.25+0.20/-0	
MSAST21GBB5226MTNC12	TMK212BBJ226MG-TT	16	X5R	22 μ	±20	10	150	1.25+0.20/-0	
MSASE21GAB5106□TNA01	EMK212ABJ106□G-T		X5R	10 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MSASE21GBB5226MTNA01	EMK212BBJ226MG-T		X5R	22 μ	±20	10	150	1.25+0.20/-0	
MSASL21GBB5226MTNA01	LMK212BBJ226MG-T	10	X5R	22 μ	±20	10	150	1.25+0.20/-0	
MSASL21GBB5476MTNA01	LMK212BBJ476MG-T		X5R	47 μ	±20	10	150	1.25+0.20/-0	
MSASJ21GAB5226□TNA01	JMK212ABJ226□G-T		X5R	22 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MSASJ21GBB5476MTNA01	JMK212BBJ476MG-T	6.3	X5R	47 μ	±20	10	150	1.25+0.20/-0	
MSASJ21GBB5107MTCA01	JMK212BBJ107MG-TE		X5R	100 μ	±20	20	150	1.25+0.20/-0	
MSASA21GBB5107MTCA01	EMK212BBJ107MG-TE	4	X5R	100 μ	±20	20	150	1.25+0.20/-0	
MSASP21GBB5107MTNA01	PMK212BBJ107MG-T	2.5	X5R	100 μ	±20	10	150	1.25+0.20/-0	

【Temperature Characteristic B5 (BJ) : B (−25~+85°C)/X5R (−55~+85°C)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU219JB5105□TNA01	UMK212ABJ105□D-T	50	X5R	1 μ	±10, ±20	10	150	0.85±0.10	
MSASU219LB5225□TNA01	UMK212BBJ225□D-T	35	X5R	2.2 μ	±10, ±20	10	150	0.85±0.10	
MSASG219LB5475□TNA01	GMK212BBJ475□D-T		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MSAST219SB5474□TNA01	TMK212 B J474□D-T	25	B	X5R	0.47 μ	±10, ±20	3.5	200	0.85±0.10
MSAST219SB5105□TNA01	TMK212 B J105□D-T		B	X5R	1 μ	±10, ±20	5	200	0.85±0.10
MSAST219JB5225□TNA01	TMK212ABJ225□D-T		X5R	2.2 μ	±10, ±20	5	150	0.85±0.10	
MSAST219LB5475□TNA01	TMK212BBJ475□D-T		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MSAST219LB5106□TNA01	TMK212BBJ106□D-T		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MSASE219SB5105□TNA01	EMK212 B J105□D-T		B	X5R ^{*1}	1 μ	±10, ±20	5	200	0.85±0.10
MSASE219JB5225□TNA01	EMK212ABJ225□D-T	16	X5R ^{*1}	2.2 μ	±10, ±20	5	200	0.85±0.10	
MSASE219SB5475□TNA01	EMK212 B J475□D-T		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MSASE219JB5106□TNA01	EMK212ABJ106□D-T		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MSASL219SB5105□TNA01	LMK212 B J105□D-T		B	X5R ^{*1}	1 μ	±10, ±20	3.5	200	0.85±0.10
MSASL219SB5225□TNA01	LMK212 B J225□D-T	10	X5R ^{*1}	2.2 μ	±10, ±20	5	200	0.85±0.10	
MSASL219JB5106□TNA01	LMK212ABJ106□D-T		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MSASL219LB5226MTNA01	LMK212BBJ226MD-T		X5R	22 μ	±20	10	150	0.85±0.10	
MSASJ219JB5106□TNA01	JMK212ABJ106□D-T	6.3	X5R	10 μ	±10, ±20	10	200	0.85±0.10	
MSASJ219JB5226MTNA01	JMK212ABJ226MD-T		X5R	22 μ	±20	10	150	0.85±0.10	
MSASA219LB5476MTNA01	AMK212BBJ476MD-T	4	X5R	47 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic X6S (−55~+105°C)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSAST21GBC6106□TNA01	TMK212BC6106□G-T	25	X6S	10 μ	±10, ±20	10	150	1.25+0.20/-0	
MSASE21GBC6226MTNC12	EMK212BC6226MG-TT	16	X6S	22 μ	±20	10	150	1.25+0.20/-0	
MSASL21GBC6226MTNA01	LMK212BC6226MG-T	10	X6S	22 μ	±20	10	150	1.25+0.20/-0	
MSASJ21GBC6226MTNA01	JMK212BC6226MG-T	6.3	X6S	22 μ	±20	10	150	1.25+0.20/-0	
MSASJ21GBC6476MTNA01	JMK212BC6476MG-T		X6S	47 μ	±20	10	150	1.25+0.20/-0	
MSASA21GAC6226MTNA01	TMK212AC6226MG-T		X6S	22 μ	±20	10	150	1.25+0.15/-0.05	
MSASA21GBC6476MTNA01	AMK212BC6476MG-T	4	X6S	47 μ	±20	10	150	1.25+0.20/-0	
MSASA21GBC6107MTCA01	AMK212BC6107MG-TE		X6S	100 μ	±20	20	150	1.25+0.20/-0	

【Temperature Characteristic C6 : X6S (−55~+105°C)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASL219JC6106□TNA01	LMK212AC6106□D-T	10	X6S	10 μ	±10, ±20	10	150	0.85±0.10	
MSASA219LC6226MTNA01	AMK212BC6226MD-T	4	X6S	22 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic B7 : X7R (−55~+125°C)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU21GSB7224□TNA01	UMK212 B7224□G-T	50	X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MSASU21GSB7474□TNA01	UMK212 B7474□G-T		X7R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	
MSASU21GSB7105□TNA01	UMK212 B7105□G-T		X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MSASU21GBB7225□TNA01	UMK212BB7225□G-T		X7R	2.2 μ	±10, ±20	10	150	1.25+0.20/-0	
MSASG21GSB7105□TNA01	GMK212 B7105□G-T	35	X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MSAST21GSB7225□TNB25	TMK212 B7225□G-TR	25	X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	
MSAST21GAB7475□TNA01	TMK212AB7475□G-T		X7R	4.7 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MSASE21GSB7475□TNA01	EMK212 B7475□G-T	16	X7R	4.7 μ	±10, ±20	10	150	1.25±0.10	
MSASE21GBB7106MTNA01	EMK212BB7106MG-T		X7R	10 μ	±20	10	150	1.25+0.20/-0	
MSASL21GAB7106□TNA01	LMK212AB7106□G-T	10	X7R	10 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MSASJ21GAB7106□TNA01	JMK212AB7106□G-T	6.3	X7R	10 μ	±10, ±20	10	150	1.25+0.15/-0.05	

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PART NUMBER

【Temperature Characteristic B7 : X7R(−55~+125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
								Rated voltage x %		
MSASU219JB7104□TNA01	UMK212AB7104□D-T	50		X7R	0.1 μ	±10, ±20	10	150	0.85±0.10	
MSASU219JB7224□TNA01	UMK212AB7224□D-T			X7R	0.22 μ	±10, ±20	10	150	0.85±0.10	
MSASU219JB7474□TNA01	UMK212AB7474□D-T			X7R	0.47 μ	±10, ±20	10	150	0.85±0.10	
MSASU219JB7105□TNA01	UMK212AB7105□D-T			X7R	1 μ	±10, ±20	10	150	0.85±0.10	
MSAST219JB7225□TNB25	TMK212AB7225□D-TR	25		X7R	2.2 μ	±10, ±20	10	150	0.85±0.10	
MSASE219SB7474□TNA01	EMK212 B7474□D-T	16		X7R	0.47 μ	±10, ±20	3.5	200	0.85±0.10	
MSASE219SB7105□TNA01	EMK212 B7105□D-T			X7R	1 μ	±10, ±20	5	200	0.85±0.10	
MSASE219JB7225□TNA01	EMK212AB7225□D-T			X7R	2.2 μ	±10, ±20	5	150	0.85±0.10	
MSASE219LB7475MTNA01	EMK212BB7475MD-T			X7R	4.7 μ	±20	10	150	0.85±0.10	
MSASL219SB7105□TNA01	LMK212 B7105□D-T	10		X7R	1 μ	±10, ±20	3.5	200	0.85±0.10	
MSASL219JB7225□TNA01	LMK212AB7225□D-T			X7R	2.2 μ	±10, ±20	5	200	0.85±0.10	
MSASL219JB7475□TNB25	LMK212AB7475□D-TR			X7R	4.7 μ	±10, ±20	10	150	0.85±0.10	
				X7R	4.7 μ	±10, ±20	10	150	0.85±0.10	

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【Temperature Characteristic B5(BJ) : X5R(−55~+85℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
								Rated voltage x %		
MSASU31LSB5475□TNA01	UMK316 BJ475□L-T	50		X5R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MSASU31LBB5106□TNA01	UMK316BBJ106□L-T			X5R	10 μ	±10, ±20	10	150	1.6±0.30	
MSAST31LBB5226MTNA01	TMK316BBJ226ML-T	25		X5R	22 μ	±20	10	150	1.6±0.30	
MSASE31LBB5476MTNA01	EMK316BBJ476ML-T	16		X5R	47 μ	±20	10	150	1.6±0.30	
MSASL31LAB5476MTNA01	LMK316ABJ476ML-T	10		X5R	47 μ	±20	10	150	1.6±0.20	
MSASJ31LAB5107MTNA01	JMK316ABJ107ML-T	6.3		X5R	100 μ	±20	10	150	1.6±0.20	
MSASJ31LBB5227MTCA01	JMK316BBJ227ML-TE			X5R	220 μ	±20	20	150	1.6±0.30	
MSASA31LAB5107MTNA01	AMK316ABJ107ML-T			X5R	100 μ	±20	10	150	1.6±0.20	
MSASA31LBB5157MTNA01	AMK316BBJ157ML-T			X5R	150 μ	±20	10	150	1.6±0.30	
MSASA31LBB5227MTCA01	AMK316BBJ227ML-TE	4		X5R	220 μ	±20	20	150	1.6±0.30	
MSASP31LBB5227MTNA01	PMK316BBJ227ML-T	2.5		X5R	220 μ	±20	10	150	1.6±0.30	

【Temperature Characteristic B5(BJ) : B(−25~+85℃)/X5R(−55~+85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
								Rated voltage x %		
MSASU319HB5105□TNA01	UMK316 BJ105□D-T	50		X5R	1 μ	±10, ±20	3.5	150	0.85±0.10	
MSASU319HB5225□TNA01	UMK316 BJ225□D-T			X5R	2.2 μ	±10, ±20	3.5	150	0.85±0.10	
MSASU319LB5475□TNA01	UMK316ABJ475□D-T			X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MSAST319HB5105□TNA01	TMK316 BJ105□D-T			X5R	1 μ	±10, ±20	3.5	200	0.85±0.10	
MSAST319HB5225□TNA01	TMK316 BJ225□D-T	25		X5R	2.2 μ	±10, ±20	3.5	150	0.85±0.10	
MSAST319HB5475□TNA01	TMK316 BJ475□D-T			X5R	4.7 μ	±10, ±20	5	150	0.85±0.10	
MSAST319LB5106□TNA01	TMK316ABJ106□D-T			X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MSASE319HB5225□TNA01	EMK316 BJ225□D-T			X5R	2.2 μ	±10, ±20	3.5	200	0.85±0.10	
MSASE319HB5475□TNA01	EMK316 BJ475□D-T	16		X5R	4.7 μ	±10, ±20	5	200	0.85±0.10	
MSASE319HB5106□TNA01	EMK316 BJ106□D-T			X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MSASE319LB5226MTNA01	EMK316ABJ226MD-T			X5R	22 μ	±20	10	150	0.85±0.10	
MSASL319HB5475□TNA01	LMK316 BJ475□D-T			X5R	4.7 μ	±10, ±20	5	200	0.85±0.10	
MSASL319HB5106□TNA01	LMK316 BJ106□D-T	10		X5R	10 μ	±10, ±20	10	200	0.85±0.10	
MSASL319LB5226MTNA01	LMK316ABJ226MD-T			X5R	22 μ	±20	10	150	0.85±0.10	
MSASJ319HB5106□TNA01	JMK316 BJ106□D-T			X5R	10 μ	±10, ±20	10	200	0.85±0.10	
MSASJ319LB5226MTNA01	JMK316ABJ226MD-T			X5R	22 μ	±20	10	150	0.85±0.10	
MSASJ319LB5476MTNA01	JMK316ABJ476MD-T	6.3		X5R	47 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic C6 : X6S(−55~+105℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
								Rated voltage x %		
MSAST31LBC6226MTNA01	TMK316BC6226ML-T	25		X6S	22 μ	±20	10	150	1.6±0.30	
MSASE31LBC6226MTNA01	EMK316BC6226ML-T	16		X6S	22 μ	±20	10	150	1.6±0.30	
MSASL31LBC6476MTNA01	LMK316BC6476ML-T	10		X6S	47 μ	±20	10	150	1.6±0.30	
MSASJ31LAC6476MTNA01	JMK316AC6476ML-T	6.3		X6S	47 μ	±20	10	150	1.6±0.20	
MSASA31LAC6476MTNA01	AMK316AC6476ML-T			X6S	47 μ	±20	10	200	1.6±0.20	
MSASA31LAC6107MTNA01	AMK316AC6107ML-T			X6S	100 μ	±20	10	150	1.6±0.20	
MSASA31LBC6227MTCA01	AMK316BC6227ML-TE			X6S	220 μ	±20	20	150	1.6±0.30	

【Temperature Characteristic C7 : X7S(−55~+125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
								Rated voltage x %		
MSASJ31LAC7476MTNA01	JMK316AC7476ML-T	6.3		X7S	47 μ	±20	10	150	1.6±0.20	
MSASA31LAC7476MTNA01	AMK316AC7476ML-T	4		X7S	47 μ	±20	10	150	1.6±0.20	

■ PART NUMBER

【Temperature Characteristic B7 : X7R(−55~+125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU31LSB7225□TNA01	UMK316 B7225□L-T	50	X7R	2.2 μ	±10, ±20	10	150	1.6±0.20	
MSASU31LAB7475□TNA01	UMK316AB7475□L-T		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MSASG31LAB7106□TNB25	GMK316AB7106□L-TR		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MSAST31LAB7475□TNA01	TMK316AB7475□L-T	25	X7R	4.7 μ	±10, ±20	10	200	1.6±0.20	
MSAST31LAB7106□TNA01	TMK316AB7106□L-T		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MSASE31LSB7475□TNA01	EMK316 B7475□L-T		X7R	4.7 μ	±10, ±20	5	200	1.6±0.20	
MSASE31LAB7106□TNA01	EMK316AB7106□L-T	16	X7R	10 μ	±10, ±20	10	200	1.6±0.20	
MSASE31LBB7226MTNA01	EMK316BB7226ML-T		X7R	22 μ	±20	10	150	1.6±0.30	
MSASL31LAB7106□TNA01	LMK316AB7106□L-T		X7R	10 μ	±10, ±20	10	200	1.6±0.20	
MSASL31LAB7226□TNB25	LMK316AB7226□L-TR	10	X7R	22 μ	±10, ±20	10	150	1.6±0.20	

【Temperature Characteristic B7 : X7R(−55~+125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU319HB7225□TNA01	UMK316 B7225□D-T	50	X7R	2.2 μ	±10, ±20	10	150	0.85±0.10	
MSAST319LB7475□TNA01	TMK316AB7475□D-T	25	X7R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MSASL319LB7106MTNA01	LMK316AB7106MD-T	10	X7R	10 μ	±20	10	150	0.85±0.10	

● 3225TYPE

【Temperature Characteristic B5(BJ) : B(−25~+85℃)/X5R(−55~+85℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU32MSB5106□PNA01	UMK325 BJ106□M-P	50	X5R	10 μ	±10, ±20	5	150	2.5±0.20	
MSASG32MSB5226MPNA01	GMK325 BJ226MM-P	35	X5R	22 μ	±20	5	150	2.5±0.20	
MSAST32MAB5476MPNDT1	TMK325ABJ476MM-P	25	X5R	47 μ	±20	10	150	2.5±0.30	
MSASE32MAB5107MPNA01	EMK325ABJ107MM-P	16	X5R	100 μ	±20	10	150	2.5±0.30	
MSASL32MAB5107MPNA01	LMK325ABJ107MM-P	10	X5R	100 μ	±20	10	150	2.5±0.30	
MSASJ32MAB5157MPNDT1	JMK325ABJ157MM-P	6.3	X5R	150 μ	±20	10	150	2.5±0.30	
MSASJ32MAB5227MPNDT1	JMK325ABJ227MM-P		X5R	220 μ	±20	10	150	2.5±0.30	
MSASJ32MAB5337MPCDT1	JMK325ABJ337MM-PE		X5R	330 μ	±20	10	150	2.5±0.30	
MSASA32MAB5157MPNDT1	AMK325ABJ157MM-P	4	X5R	150 μ	±20	10	150	2.5±0.30	
MSASA32MAB5227MPNDT1	AMK325ABJ227MM-P		X5R	220 μ	±20	10	150	2.5±0.30	
MSASA32MAB5337MPNDT1	AMK325ABJ337MM-P		X5R	330 μ	±20	10	150	2.5±0.30	

【Temperature Characteristic B5(BJ) : B(−25~+85℃)/X5R(−55~+85℃)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASU32NSB5475□TNA01	UMK325 BJ475□N-T	50	X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MSASG32NSB5225□TNA01	GMK325 BJ225□N-T		B X5R	2.2 μ	±10, ±20	3.5	200	1.9±0.20	
MSASG32NSB5475□TNA01	GMK325 BJ475□N-T		X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MSASG32NSB5106□TNA01	GMK325 BJ106□N-T	25	X5R	10 μ	±10, ±20	5	150	1.9±0.20	
MSAST32NSB5335MTNA01	TMK325 BJ335MM-T		B X5R ^{*1}	3.3 μ	±20	3.5	200	1.9±0.20	
MSAST32NSB5475□TNA01	TMK325 BJ475□N-T		B X5R ^{*1}	4.7 μ	±10, ±20	3.5	200	1.9±0.20	
MSAST32NSB5106□TNA01	TMK325 BJ106□N-T	16	X5R	10 μ	±10, ±20	5	200	1.9±0.20	
MSASE32NSB5475□TNA01	EMK325 BJ475□N-T		B X5R ^{*1}	4.7 μ	±10, ±20	3.5	200	1.9±0.20	
MSASE32NSB5106□TNA01	EMK325 BJ106□N-T		X5R	10 μ	±10, ±20	3.5	200	1.9±0.20	
MSASE32YBB5476MTNA01	EMK325 BJ476MY-T	10	X5R	47 μ	±20	10	150	1.9±0.1/-0.2	
MSASL32NSB5106□TNA01	LMK325 BJ106□N-T		X5R	10 μ	±10, ±20	3.5	200	1.9±0.20	
MSASL32YBB5226MTNA01	LMK325 BJ226MY-T		B X5R	22 μ	±20	5	150	1.9±0.1/-0.2	
MSASJ32YBB5226MTNA01	JMK325 BJ226MY-T	6.3	B X5R	22 μ	±20	5	200	1.9±0.1/-0.2	
MSASJ32NSB5476MTNA01	JMK325 BJ476MM-T		X5R	47 μ	±20	10	150	1.9±0.20	
MSASJ32YBB5107MTNA01	JMK325 BJ107MY-T		X5R	100 μ	±20	10	150	1.9±0.1/-0.2	

【Temperature Characteristic B5(BJ) : B(−25~+85℃)/X5R(−55~+85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSAST329JB5106□TNA01	TMK325 BJ106□D-T	25	X5R	10 μ	±10, ±20	5	150	0.85±0.10	
MSASE329JB5106□TNA01	EMK325 BJ106□D-T	16	X5R	10 μ	±10, ±20	5	150	0.85±0.10	
MSASE329JB5226MTNA01	EMK325 BJ226MD-T		X5R	22 μ	±20	10	150	0.85±0.10	
MSASL329JB5335□TNA01	LMK325 BJ335□D-T		B X5R	3.3 μ	±10, ±20	3.5	200	0.85±0.10	
MSASL329JB5475□TNA01	LMK325 BJ475□D-T	10	B X5R	4.7 μ	±10, ±20	5	200	0.85±0.10	
MSASL329JB5106□TNA01	LMK325 BJ106□D-T		X5R	10 μ	±10, ±20	5	150	0.85±0.10	

【Temperature Characteristic C6 : X6S(−55~+105℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness ^{*3} [mm]	Note
							Rated voltage x %		
MSASE32MAC6476MPNDT1	EMK325AC6476MM-P	16	X6S	47 μ	±20	10	150	2.5±0.30	
MSASL32MAC6107MPNA01	LMK325AC6107MM-P	10	X6S	100 μ	±20	10	150	2.5±0.30	
MSASA32MAC6157MPNDT1	AMK325AC6157MM-P	4	X6S	150 μ	±20	10	150	2.5±0.30	
MSASA32MAC6227MPNDT1	AMK325AC6227MM-P		X6S	220 μ	±20	10	150	2.5±0.30	
MSASA32MAC6337MPCDT1	AMK325AC6337MM-PE		X6S	330 μ	±20	10	150	2.5±0.30	
MSASP32MAC6227MPNDT1	PMK325AC6227MM-P	2.5	X6S	220 μ	±20	10	200	2.5±0.30	
MSASP32MAC6337MPNDT1	PMK325AC6337MM-P		X6S	330 μ	±20	10	150	2.5±0.30	

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PART NUMBER

【Temperature Characteristic C7 : X7S(−55~+125°C)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASJ32MAC7107MPNA01	JMK325AC7107MM-P	6.3	X7S	100 μ	±20	10	150	2.5±0.30	

【Temperature Characteristic B7 : X7R(−55~+125°C)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU32MSB7335□PNA01	UMK325 B7335□M-P	50	X7R	3.3 μ	±10, ±20	3.5	200	2.5±0.20	
MSASU32MSB7475□PNA01	UMK325 B7475□M-P		X7R	4.7 μ	±10, ±20	5	150	2.5±0.20	
MSASU32MAB7106□PNA01	UMK325AB7106□M-P		X7R	10 μ	±10, ±20	10	150	2.5±0.30	
MSAST32MAB7106□PNA01	TMK325AB7106□M-P	25	X7R	10 μ	±10, ±20	10	200	2.5±0.30	
MSAST32MSB7226□PNB25	TMK325 B7226□M-PR		X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MSASE32MSB7226□PNB25	EMK325 B7226□M-PR		X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MSASL32MSB7476□PNB25	LMK325 B7476□M-PR	10	X7R	47 μ	±10, ±20	10	150	2.5±0.20	
MSASJ32MSB7476□PNB25	JMK325 B7476□M-PR	6.3	X7R	47 μ	±10, ±20	10	200	2.5±0.20	

【Temperature Characteristic B7 : X7R(−55~+125°C)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASU32NSB7475□TNB25	UMK325 B7475□N-TR	50	X7R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MSAST32NSB7335□TNA01	TMK325 B7335□N-T	25	X7R	3.3 μ	±10, ±20	3.5	200	1.9±0.20	
MSAST32NSB7475□TNA01	TMK325 B7475□N-T		X7R	4.7 μ	±10, ±20	3.5	150	1.9±0.20	
MSAST32NSB7106□TNB25	TMK325 B7106□N-TR		X7R	10 μ	±10, ±20	10	150	1.9±0.20	
MSASE32NSB7475□TNA01	EMK325 B7475□N-T	16	X7R	4.7 μ	±10, ±20	3.5	200	1.9±0.20	
MSASE32NSB7106□TNA01	EMK325 B7106□N-T		X7R	10 μ	±10, ±20	3.5	150	1.9±0.20	
MSASL32NSB7106□TNA01	LMK325 B7106□N-T	10	X7R	10 μ	±10, ±20	3.5	200	1.9±0.20	

4532TYPE

【Temperature Characteristic B5(BJ) : X5R(−55~+85°C)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASA45MSB5477MTNA01	AMK432 BJ477MM-T	4	X5R	470 μ	±20	10	150	2.5±0.20	

【Temperature Characteristic C6 : X6S(−55~+105°C)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
MSASP45MSC6477MTNA01	PMK432 C6477MM-T	2.5	X6S	470 μ	±20	10	150	2.5±0.20	