

Multilayer Ceramic Capacitors for Automotive Body & Chassis and Infotainment

REFLOW

AEC-Q200

PART NUMBER

M	C	A	S	J	3	1	L	S	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)	
MCAS	Multilayer Ceramic Capacitor (High dielectric type) for Automotive Body & Chassis and Infotainment Multilayer Ceramic Capacitor (Temperature compensating type) for Automotive Body & Chassis and Infotainment Medium-High voltage Multilayer Ceramic Capacitor for Automotive Body & Chassis and Infotainment
MCAR	High frequency/Low loss Medium-High Voltage Multilayer Ceramic Capacitor for Automotive Body & Chassis and Infotainment
MCJC	Soft Termination Multilayer Ceramic Capacitor for Automotive Body & Chassis and Infotainment
MCRL	LW Reversal Decoupling Low ESL Capacitor (LWDC™) for Automotive Body & Chassis and Infotainment

(1) Product Group

Code	
M	Multilayer Ceramic Capacitor

(2) Category

Code	Recommended equipment	Quality Grade
C	Automotive Electronic Equipment (Body & Chassis, Infotainment)	2

(3) Type

Code	
A	2 terminals
J	Soft Termination
R	LW reversal

(4) Features, Characteristics

Code	
S	Standard/General
R	High frequency/Low loss
C	Internal code (Soft Termination)
L	Low ESL

② Rated voltage

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

④ Thickness

Code	Thickness [mm]
3	0.3
5	0.5
7	0.7
8	0.8
9	0.85
Q	1.15
G	1.25
L	1.6
N	1.9 (0.088 max ※)
M	2.5

Note : ※LW reverse type (MCRL)

③ Dimension (L × W)

Code	L × W [mm]	JIS(mm)	EIA(inch)
06	0.6 × 0.3	0603	0201
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 (MCRL)

⑤Dimension tolerance

Code	Dimension code	L[mm]	W[mm]	T[mm]	Thickness code
A	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	1.15 ± 0.20	Q
	32	3.2 ± 0.30	2.5 ± 0.30	1.6 ± 0.20	L
B	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	10	$1.0 + 0.20 / - 0$	$0.5 + 0.20 / - 0$	$0.5 + 0.20 / - 0$	5
	16	$1.6 + 0.25 / - 0$	$0.8 + 0.25 / - 0$	$0.8 + 0.25 / - 0$	8
	21	$2.0 + 0.25 / - 0$	$1.25 + 0.25 / - 0$	$1.25 + 0.25 / - 0$	G
D	21	$2.0 + 0.30 / - 0$	$1.25 + 0.30 / - 0$	$1.25 + 0.30 / - 0$	G
H	31	3.2 ± 0.15	1.6 ± 0.15	1.15 ± 0.10	Q
J	21	$2.0 + 0.15 / - 0.05$	$1.25 + 0.15 / - 0.05$	0.85 ± 0.10	9
L	21	$2.0 + 0.20 / - 0$	$1.25 + 0.20 / - 0$	0.85 ± 0.10	9
	32	3.2 ± 0.50	2.5 ± 0.30	2.5 ± 0.30	M
N	21	2.0 ± 0.15	1.25 ± 0.15	0.85 ± 0.15	9
S	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	0.7 ± 0.10	7
				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 ± 0.15 ※		1.25 ± 0.10	G
	31	3.2 ± 0.15	1.6 ± 0.15	0.85 ± 0.10	9
	32	3.2 ± 0.15	1.6 ± 0.15	1.6 ± 0.20	L
		3.2 ± 0.30	2.5 ± 0.20	1.9 ± 0.20	N
				2.5 ± 0.20	M
	45	4.5 ± 0.40	3.2 ± 0.30	2.5 ± 0.20	M

Note :※LW reverse type(MCRL)

⑥ Temperature characteristics code

■ High dielectric type

Code	Applicable standard		Temperature range [°C]	Ref. Temp. [°C]	Capacitance change	Capacitance tolerance	Tolerance code
B5	EIA	X5R	-55 ~ + 85	25	± 15%	± 10%	K
						± 20%	M
C6	EIA	X6S	-55 ~ + 105	25	± 22%	± 10%	K
						± 20%	M
B7	EIA	X7R	-55 ~ + 125	25	± 15%	± 10%	K
						± 20%	M
C7	EIA	X7S	-55 ~ + 125	25	± 22%	± 10%	K
						± 20%	M
D7	EIA	X7T	-55 ~ + 125	25	+ 22% / - 33%	± 10%	K
						± 20%	M

■ 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	±0.25pF	C
							±0.5pF
	EIA	C0H	25	±5%		J	
CJ	JIS	CJ	-55~+125	20	0±120ppm/°C	±0.25pF	C
	EIA	C0J		25			
CK	JIS	CK	-55~+125	20	0±250ppm/°C	±0.25pF	C
	EIA	C0K		25			

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

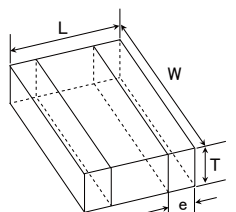
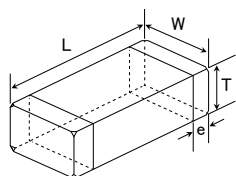
Code	Capacitance tolerance
A	± 0.05pF
B	± 0.1pF
C	± 0.25pF
D	± 0.5pF
G	± 2%
J	± 5%
K	± 10%
M	± 20%

⑨ Packaging

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

⑩ Internal code

■ STANDARD EXTERNAL DIMENSIONS



※LW reverse type

Type	JIS (mm)	EIA (inch)	Dimension [mm] (inch)				
			L	W	T	*1	e
MCAS□06	0603	0201	0.6±0.03 (0.024±0.001)	0.3±0.03 (0.012±0.001)	0.3±0.03 (0.012±0.001)	3	0.15±0.05 (0.006±0.002)
MCAR□10 MCAS□10	1005	0402	1.0±0.05 (0.039±0.002)	0.5±0.05 (0.020±0.002)	0.5±0.05 (0.020±0.002)	5	0.25±0.10 (0.010±0.004)
MCRL□10 ※	0510	0204	0.52±0.05 (0.020±0.002)	1.0±0.05 (0.039±0.002)	0.3±0.05 (0.012±0.002)	3	0.18±0.08 (0.007±0.003)
MCAS□16 MCAR□16	1608	0603	1.6±0.10 (0.063±0.004)	0.8±0.10 (0.031±0.004)	0.7±0.10 (0.028±0.004)	7	0.35±0.25 (0.014±0.010)
					0.8±0.10 (0.031±0.004)	8	
MCJC□16	1608	0603	1.6±0.10 (0.063±0.004)	0.8±0.10 (0.031±0.004)	0.8±0.10 (0.031±0.004)	8	0.35+0.3/-0.25 (0.014+0.012/-0.010)
MCRL□16 ※	0816	0306	0.8±0.10 (0.031±0.004)	1.6±0.10 (0.063±0.004)	0.5±0.05 (0.020±0.002)	5	0.25±0.15 (0.010±0.006)
MCAS□21 MCAR□21	2012	0805	2.0±0.10 (0.079±0.004)	1.25±0.10 (0.049±0.004)	0.85±0.10 (0.033±0.004)	9	0.5±0.25 (0.020±0.010)
					1.25±0.10 (0.049±0.004)	G	
MCJC□21	2012	0805	2.0±0.10 (0.079±0.004)	1.25±0.10 (0.049±0.004)	0.85±0.10 (0.033±0.004)	9	0.5+0.35/-0.25 (0.020+0.014/-0.010)
					1.25±0.10 (0.049±0.004)	G	
MCRL□21 ※	1220	0508	1.25±0.15 (0.049±0.006)	2.0±0.15 (0.079±0.006)	0.85±0.10 (0.033±0.004)	9	0.3±0.2 (0.012±0.008)
MCAS□31	3216	1206	3.2±0.15 (0.126±0.006)	1.6±0.15 (0.063±0.006)	1.15±0.10 (0.045±0.004)	Q	0.5+0.35/-0.25 (0.020+0.014/-0.010)
					1.6±0.20 (0.063±0.008)	L	
MCJC□31	3216	1206	3.2±0.15 (0.126±0.006)	1.6±0.15 (0.063±0.006)	1.15±0.10 (0.045±0.004)	Q	0.6+0.4/-0.3 (0.024+0.016/-0.012)
					1.6±0.20 (0.063±0.008)	L	
MCAS□32	3225	1210	3.2±0.30 (0.126±0.012)	2.5±0.20 (0.098±0.008)	1.9±0.20 (0.075±0.008)	N	0.6±0.3 (0.024±0.012)
					2.5±0.20 (0.098±0.008)	M	
MCJC□32	3225	1210	3.2±0.30 (0.126±0.012)	2.5±0.20 (0.098±0.008)	1.9±0.20 (0.075±0.008)	N	0.6+0.4/-0.3 (0.024+0.016/-0.012)
					2.5±0.20 (0.098±0.008)	M	
MCAS□45	4532	1812	4.5±0.40 (0.177±0.016)	3.2±0.30 (0.126±0.012)	2.5±0.20 (0.098±0.008)	M	0.9±0.6 (0.035±0.024)

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

■ STANDARD QUANTITY

Type			Thickness		Standard quantity[pcs]	
Code	JIS(mm)	EIA(inch)	[mm]	Code	Paper tape	Embossed tape
06	0603	0201	0.3	3	15000	—
10	1005	0402	0.5	5	10000	—
	0510 ※	0204 ※	0.3	3		
16	1608	0603	0.7	7	4000	—
			0.8	8		
			0.8	8	3000 (Soft Termination)	3000 (Soft Termination)
	0816 ※	0306 ※	0.5	5	—	4000
21	2012	0805	0.85	9	4000	—
			1.25	G	—	3000
			1.25	G	—	2000 (Soft Termination)
	1220 ※	0508 ※	0.85	9	4000	—
31	3216	1206	1.15	Q	—	3000
			1.6	L	—	2000
32	3225	1210	1.9	N	—	2000
			2.5	M	—	500(T), 1000(P)
45	4532	1812	2.5	M	—	500

Note : ※.LW Reverse type (MCRL)

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.

Notes)

- The exchange of individual specifications is necessary depending on your application and/or circuit condition. Please contact TAIYO YUDEN's official sales channel.
- For Automotive (AEC-Q200 Qualified) products for BODY & CHASSIS, and INFOTAINMENT. Please check "Automotive Application Guide" for further details before using the products.

< AEC-Q200 :AEC-Q200 qualified>

All the Multilayer Ceramic Capacitors for Automotive products are tested based on the test conditions and methods defined in AEC-Q200 by family item.

125°C products: AEC-Q200 Grade1 (we conduct the evaluation at the test condition of Grade1.)

105°C products: AEC-Q200 Grade2 (we conduct the evaluation at the test condition of Grade2.)

85°C products: AEC-Q200 Grade3 (we conduct the evaluation at the test condition of Grade3.)

Please consult with TAIYO YUDEN's official sales channel for the details of the product specifications and AEC-Q200 test results, etc.,

and please review and approve the product specifications before ordering.

- *1: For standard case size, please kindly refer to Dimension, Thickness, Dimension tolerance, and STANDARD EXTERNAL DIMENSIONS.

Multilayer Ceramic Capacitors (High dielectric type) for Automotive Body & Chassis and Infotainment

0603TYPE

【Temperature Characteristic B7 : X7R(−55~+125°C), D7 : X7T(−55~+125°C)】 0.3mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCAST063SB7101□FCA01	TMK063 B7101□PHFE	25	X7R	100 p	±10,±20	3.5	200	0.3±0.03	
MCAST063SB7151□FCA01	TMK063 B7151□PHFE		X7R	150 p	±10,±20	3.5	200	0.3±0.03	
MCAST063SB7221□FCA01	TMK063 B7221□PHFE		X7R	220 p	±10,±20	3.5	200	0.3±0.03	
MCAST063SB7331□FCA01	TMK063 B7331□PHFE		X7R	330 p	±10,±20	3.5	200	0.3±0.03	
MCAST063SB7471□FCA01	TMK063 B7471□PHFE		X7R	470 p	±10,±20	3.5	200	0.3±0.03	
MCAST063SB7681□FCA01	TMK063 B7681□PHFE		X7R	680 p	±10,±20	5	200	0.3±0.03	
MCAST063SB7102□FCA01	TMK063 B7102□PHFE		X7R	1000 p	±10,±20	5	200	0.3±0.03	
MCAST063SB7152□FCA01	TMK063 B7152□PHFE		X7R	1500 p	±10,±20	5	200	0.3±0.03	
MCAST063SB7222□FCA01	TMK063 B7222□PHFE		X7R	2200 p	±10,±20	5	200	0.3±0.03	
MCAST063SB7332□FCA01	TMK063 B7332□PHFE		X7R	3300 p	±10,±20	5	200	0.3±0.03	
MCASE063SB7101□FCA01	EMK063 B7101□PHFE	16	X7R	100 p	±10,±20	3.5	200	0.3±0.03	
MCASE063SB7151□FCA01	EMK063 B7151□PHFE		X7R	150 p	±10,±20	3.5	200	0.3±0.03	
MCASE063SB7221□FCA01	EMK063 B7221□PHFE		X7R	220 p	±10,±20	3.5	200	0.3±0.03	
MCASE063SB7331□FCA01	EMK063 B7331□PHFE		X7R	330 p	±10,±20	3.5	200	0.3±0.03	
MCASE063SB7471□FCA01	EMK063 B7471□PHFE		X7R	470 p	±10,±20	3.5	200	0.3±0.03	
MCASE063SB7681□FCA01	EMK063 B7681□PHFE		X7R	680 p	±10,±20	5	200	0.3±0.03	
MCASE063SB7102□FCA01	EMK063 B7102□PHFE		X7R	1000 p	±10,±20	5	200	0.3±0.03	
MCASE063SB7152□FCA01	EMK063 B7152□PHFE		X7R	1500 p	±10,±20	5	200	0.3±0.03	
MCASE063SB7222□FCA01	EMK063 B7222□PHFE		X7R	2200 p	±10,±20	5	200	0.3±0.03	
MCASE063SB7332□FCA01	EMK063 B7332□PHFE		X7R	3300 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7101□FCA01	LMK063 B7101□PHFE	10	X7R	100 p	±10,±20	3.5	200	0.3±0.03	
MCASL063SB7151□FCA01	LMK063 B7151□PHFE		X7R	150 p	±10,±20	3.5	200	0.3±0.03	
MCASL063SB7221□FCA01	LMK063 B7221□PHFE		X7R	220 p	±10,±20	3.5	200	0.3±0.03	
MCASL063SB7331□FCA01	LMK063 B7331□PHFE		X7R	330 p	±10,±20	3.5	200	0.3±0.03	
MCASL063SB7471□FCA01	LMK063 B7471□PHFE		X7R	470 p	±10,±20	3.5	200	0.3±0.03	
MCASL063SB7681□FCA01	LMK063 B7681□PHFE		X7R	680 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7102□FCA01	LMK063 B7102□PHFE		X7R	1000 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7152□FCA01	LMK063 B7152□PHFE		X7R	1500 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7222□FCA01	LMK063 B7222□PHFE		X7R	2200 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7332□FCA01	LMK063 B7332□PHFE		X7R	3300 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7472□FCA01	LMK063 B7472□PHFE	6.3	X7R	4700 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7682□FCA01	LMK063 B7682□PHFE		X7R	6800 p	±10,±20	5	200	0.3±0.03	
MCASL063SB7103□FCA01	LMK063 B7103□PHFE		X7R	0.01 μ	±10,±20	5	200	0.3±0.03	
MCASJ063SD7223□FCA01	JMK063 D7223□PHFE		X7T	0.022 μ	±10,±20	7.5	200	0.3±0.03	
MCASJ063SD7333□FCA01	JMK063 D7333□PHFE		X7T	0.033 μ	±10,±20	7.5	200	0.3±0.03	
MCASJ063SD7473□FCA01	JMK063 D7473□PHFE		X7T	0.047 μ	±10,±20	7.5	200	0.3±0.03	
MCASJ063SD7104□FCA01	JMK063 D7104□PHFE		X7T	0.1 μ	±10,±20	10	200	0.3±0.03	

PART NUMBER

1005TYPE

【Temperature Characteristic B5 (BJ) : X5R (−55~+85°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*1 [mm]	Note
							Rated voltage x %		
MCASU105SB5471[FNA01	UMK105 BJ471[VHF	50	X5R	470 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB5102[FNA01	UMK105 BJ102[VHF		X5R	1000 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB5152[FNA01	UMK105 BJ152[VHF		X5R	1500 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB5222[FNA01	UMK105 BJ222[VHF		X5R	2200 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB5332[FNA01	UMK105 BJ332[VHF		X5R	3300 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB5472[FNA01	UMK105 BJ472[VHF		X5R	4700 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB5682[FNA01	UMK105 BJ682[VHF		X5R	6800 p	±10, ±20	2.5	150	0.5±0.05	
MCASU105SB5103[FNA01	UMK105 BJ103[VHF		X5R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	
MCASU105SB5223[FNA01	UMK105 BJ223[VHF		X5R	0.022 μ	±10, ±20	5	200	0.5±0.05	
MCASU105SB5473[FNA01	UMK105 BJ473[VHF		X5R	0.047 μ	±10, ±20	5	200	0.5±0.05	
MCASU105SB5104[FNA01	UMK105 BJ104[VHF		X5R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MCAST105SB5472[FNA01	TMK105 BJ472[VHF	25	X5R	4700 p	±10, ±20	2.5	200	0.5±0.05	
MCAST105SB5682[FNA01	TMK105 BJ682[VHF		X5R	6800 p	±10, ±20	2.5	200	0.5±0.05	
MCAST105SB5103[FNA01	TMK105 BJ103[VHF		X5R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	
MCAST105SB5153[FNA01	TMK105 BJ153[VHF		X5R	0.015 μ	±10, ±20	3.5	200	0.5±0.05	
MCAST105SB5223[FNA01	TMK105 BJ223[VHF		X5R	0.022 μ	±10, ±20	3.5	200	0.5±0.05	
MCAST105SB5333[FNA01	TMK105 BJ333[VHF		X5R	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MCAST105SB5473[FNA01	TMK105 BJ473[VHF		X5R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MCAST105SB5104[FNA01	TMK105 BJ104[VHF		X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCAST105SB5224[FNA01	TMK105 BJ224[VHF		X5R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MCAST105AB5474[FNA01	TMK105ABJ474[VHF		X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	
MCASE105SB5103[FNA01	EMK105 BJ103[VHF	16	X5R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	
MCASE105SB5153[FNA01	EMK105 BJ153[VHF		X5R	0.015 μ	±10, ±20	3.5	200	0.5±0.05	
MCASE105SB5223[FNA01	EMK105 BJ223[VHF		X5R	0.022 μ	±10, ±20	3.5	200	0.5±0.05	
MCASE105SB5333[FNA01	EMK105 BJ333[VHF		X5R	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MCASE105SB5473[FNA01	EMK105 BJ473[VHF		X5R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MCASE105SB5104[FNA01	EMK105 BJ104[VHF		X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCASE105SB5224[FNA01	EMK105 BJ224[VHF		X5R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MCASE105AB5474[FNA01	EMK105ABJ474[VHF		X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	
MCASE105SB5105[FNA01	EMK105 BJ105[VHF		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MCASL105SB5333[FNA01	LMK105 BJ333[VHF	10	X5R	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MCASL105SB5473[FNA01	LMK105 BJ473[VHF		X5R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MCASL105SB5104[FNA01	LMK105 BJ104[VHF		X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCASL105SB5224[FNA01	LMK105 BJ224[VHF		X5R	0.22 μ	±10, ±20	5	150	0.5±0.05	
MCASL105AB5474[FNA01	LMK105ABJ474[VHF		X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	
MCASL105SB5105[FNA01	LMK105 BJ105[VHF		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MCASL105AB5225[FNA01	LMK105ABJ225[VHF		X5R	2.2 μ	±10, ±20	10	150	0.5±0.10	
MCASJ105SB5104[FNA01	JMK105 BJ104[VHF	6.3	X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCASJ105SB5224[FNA01	JMK105 BJ224[VHF		X5R	0.22 μ	±10, ±20	5	150	0.5±0.05	
MCASJ105SB5474[FNA01	JMK105 BJ474[VHF		X5R	0.47 μ	±10, ±20	10	150	0.5±0.05	
MCASJ105SB5105[FNA01	JMK105 BJ105[VHF		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MCASJ105SB5225[FNA01	JMK105 BJ225[VHF		X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	
MCASJ105BB5475MFNA01	JMK105BBJ475MVHF		X5R	4.7 μ	±20	10	150	0.5+0.15/-0.05	
MCASA105SB5225[FNA01	AMK105 BJ225[VHF	4	X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	
MCASA105BB5475MFNA01	AMK105BBJ475MVHF		X5R	4.7 μ	±20	10	150	0.5+0.15/-0.05	

【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*1 [mm]	Note
							Rated voltage x %		
MCASE105AC6474[FNA01	EMK105AC6474[VHF	16	X6S	0.47 μ	±10, ±20	10	150	0.5±0.10	
MCASL105SC6105[FNA01	LMK105 C6105[VHF	10	X6S	1 μ	±10, ±20	10	150	0.5±0.05	
MCASJ105SC6105[FNA01	JMK105 C6105[VHF	6.3	X6S	1 μ	±10, ±20	10	150	0.5±0.05	

PART NUMBER

【Temperature Characteristic B7 : X7R(−55~+125℃), D7 : X7T(−55~+125℃)】 0.5mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU105SB7221□FNA01	UMK105 B7221□VHF	50	X7R	220 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7331□FNA01	UMK105 B7331□VHF		X7R	330 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7471□FNA01	UMK105 B7471□VHF		X7R	470 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7681□FNA01	UMK105 B7681□VHF		X7R	680 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7102□FNA01	UMK105 B7102□VHF		X7R	1000 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7152□FNA01	UMK105 B7152□VHF		X7R	1500 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7222□FNA01	UMK105 B7222□VHF		X7R	2200 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7332□FNA01	UMK105 B7332□VHF		X7R	3300 p	±10, ±20	2.5	200	0.5±0.05	
MCASU105SB7472□FNA01	UMK105 B7472□VHF		X7R	4700 p	±10, ±20	2.5	150	0.5±0.05	
MCASU105SB7682□FNA01	UMK105 B7682□VHF		X7R	6800 p	±10, ±20	2.5	150	0.5±0.05	
MCASU105SB7103□FNA01	UMK105 B7103□VHF		X7R	0.01 μ	±10, ±20	3.5	150	0.5±0.05	
MCASU105SB7153□FCA01	UMK105 B7153□VHFE		X7R	0.015 μ	±10, ±20	3.5	200	0.5±0.05	
MCASU105SB7223□FNA01	UMK105 B7223□VHF		X7R	0.022 μ	±10, ±20	10	200	0.5±0.05	
MCASU105SB7333□FCA01	UMK105 B7333□VHFE		X7R	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MCASU105SB7473□FNA01	UMK105 B7473□VHF		X7R	0.047 μ	±10, ±20	10	200	0.5±0.05	
MCASU105AB7683□FCA01	UMK105AB7683□VHFE		X7R	0.068 μ	±10, ±20	5	150	0.5±0.1	
MCASU105SB7104□FNA01	UMK105 B7104□VHF		X7R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MCAST105SB7472□FNA01	TMK105 B7472□VHF		X7R	4700 p	±10, ±20	2.5	200	0.5±0.05	
MCAST105SB7682□FNA01	TMK105 B7682□VHF		X7R	6800 p	±10, ±20	2.5	200	0.5±0.05	
MCAST105SB7103□FNA01	TMK105 B7103□VHF		X7R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	
MCAST105SB7153□FNA01	TMK105 B7153□VHF		X7R	0.015 μ	±10, ±20	3.5	150	0.5±0.05	
MCAST105SB7223□FNA01	TMK105 B7223□VHF		X7R	0.022 μ	±10, ±20	3.5	150	0.5±0.05	
MCAST105SB7333□FNA01	TMK105 B7333□VHF		X7R	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MCAST105SB7473□FNA01	TMK105 B7473□VHF		X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MCAST105AB7683□FCA01	TMK105AB7683□VHFE		X7R	0.068 μ	±10, ±20	5	200	0.5±0.1	
MCAST105SB7104□FNA01	TMK105 B7104□VHF		X7R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MCASE105SB7103□FNA01	EMK105 B7103□VHF	16	X7R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	
MCASE105SB7153□FNA01	EMK105 B7153□VHF		X7R	0.015 μ	±10, ±20	3.5	150	0.5±0.05	
MCASE105SB7223□FNA01	EMK105 B7223□VHF		X7R	0.022 μ	±10, ±20	3.5	150	0.5±0.05	
MCASE105SB7333□FNA01	EMK105 B7333□VHF		X7R	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MCASE105SB7473□FNA01	EMK105 B7473□VHF		X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MCASE105SB7104□FNA01	EMK105 B7104□VHF		X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCASE105SB7224□FNA01	EMK105 B7224□VHF		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MCASL105SB7473□FNA01	LMK105 B7473□VHF	10	X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MCASL105SB7104□FNA01	LMK105 B7104□VHF		X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCASL105SB7224□FNA01	LMK105 B7224□VHF		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MCASL105AD7474□FCA01	LMK105AD7474□VHFE		X7T	0.47 μ	±10, ±20	10	150	0.5±0.10	
MCASL105CD7105□FCA01	LMK105CD7105□VHFE		X7T	1 μ	±10, ±20	10	150	0.5+0.20/-0	
MCASJ105SB7104□FNA01	JMK105 B7104□VHF	6.3	X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MCASJ105SB7224□FNA01	JMK105 B7224□VHF		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MCASJ105SB7474□FNA01	JMK105 B7474□VHF		X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	
MCASJ105CD7105□FNA01	JMK105CD7105□VHF		X7T	1 μ	±10, ±20	10	150	0.5+0.20/-0	
MCASA105SB7474□FNA01	AMK105 B7474□VHF	4	X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	

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【Temperature Characteristic B5(BJ) : X5R(−55~+85℃)】 0.8mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU168SB5104□TNA01	UMK107 BJ104□AHT	50	X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCASU168SB5224□TNA01	UMK107 BJ224□AHT		X5R	0.22 μ	±10, ±20	10	150	0.8±0.10	
MCASU168SB5474□TNA01	UMK107 BJ474□AHT		X5R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MCASU168AB5105□TNA01	UMK107ABJ105□AHT		X5R	1 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASG168SB5223□TNA01	GMK107 BJ223□AHT		X5R	0.022 μ	±10, ±20	2.5	200	0.8±0.10	
MCASG168SB5473□TNA01	GMK107 BJ473□AHT	35	X5R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	
MCASG168SB5104□TNA01	GMK107 BJ104□AHT		X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCASG168SB5224□TNA01	GMK107 BJ224□AHT		X5R	0.22 μ	±10, ±20	10	150	0.8±0.10	
MCASG168AB5474□TNA01	GMK107ABJ474□AHT		X5R	0.47 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASG168SB5105□TNA01	GMK107 BJ105□AHT		X5R	1 μ	±10, ±20	10	150	0.8±0.10	
MCAST168SB5223□TNA01	TMK107 BJ223□AHT	25	X5R	0.022 μ	±10, ±20	2.5	200	0.8±0.10	
MCAST168SB5473□TNA01	TMK107 BJ473□AHT		X5R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	
MCAST168SB5104□TNA01	TMK107 BJ104□AHT		X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCAST168SB5224□TNA01	TMK107 BJ224□AHT		X5R	0.22 μ	±10, ±20	5	150	0.8±0.10	
MCAST168SB5474□TNA01	TMK107 BJ474□AHT		X5R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	
MCAST168SB5105□TNA01	TMK107 BJ105□AHT		X5R	1 μ	±10, ±20	10	150	0.8±0.10	
MCAST168BB5225□TNA01	TMK107BBJ225□AHT		X5R	2.2 μ	±10, ±20	10	150	0.8+0.20/-0	
MCASE168SB5104□TNA01	EMK107 BJ104□AHT	16	X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCASE168SB5224□TNA01	EMK107 BJ224□AHT		X5R	0.22 μ	±10, ±20	5	150	0.8±0.10	
MCASE168SB5474□TNA01	EMK107 BJ474□AHT		X5R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	
MCASE168SB5105□TNA01	EMK107 BJ105□AHT		X5R	1 μ	±10, ±20	5	150	0.8±0.10	
MCASE168AB5225□TNA01	EMK107ABJ225□AHT		X5R	2.2 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASE168BB5475□TNA01	EMK107BBJ475□AHT		X5R	4.7 μ	±10, ±20	10	150	0.8+0.20/-0	
MCASL168SB5474□TNA01	LMK107 BJ474□AHT	10	X5R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	
MCASL168SB5105□TNA01	LMK107 BJ105□AHT		X5R	1 μ	±10, ±20	5	150	0.8±0.10	
MCASL168SB5225□TNA01	LMK107 BJ225□AHT		X5R	2.2 μ	±10, ±20	10	150	0.8±0.10	
MCASL168SB5475□TNA01	LMK107 BJ475□AHT		X5R	4.7 μ	±10, ±20	10	150	0.8±0.10	
MCASL168BB5106MTNA01	LMK107BBJ106MAHT		X5R	10 μ	±20	10	150	0.8+0.20/-0	
MCASJ168SB5105□TNA01	JMK107 BJ105□AHT	6.3	X5R	1 μ	±10, ±20	5	150	0.8±0.10	
MCASJ168SB5225□TNA01	JMK107 BJ225□AHT		X5R	2.2 μ	±10, ±20	10	150	0.8±0.10	
MCASJ168SB5475□TNA01	JMK107 BJ475□AHT		X5R	4.7 μ	±10, ±20	10	150	0.8±0.10	
MCASJ168AB5106□TNA01	JMK107ABJ106□AHT		X5R	10 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASA168AB5106□TNA01	AMK107ABJ106□AHT	4	X5R	10 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASA168BB5226MTNA01	AMK107BBJ226MAHT		X5R	22 μ	±20	10	150	0.8+0.20/-0	

▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification.

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℃)】 0.8mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASL168SC6225□TNA01	LMK107 C6225□AHT	10	X6S	2.2 μ	±10, ±20	10	150	0.8±0.10	
MCASJ168AC6475□TNA01	JMK107AC6475□AHT	6.3	X6S	4.7 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASJ168BC6106MTNA01	JMK107BC6106MAHT		X6S	10 μ	±20	10	150	0.8+0.20/-0	

【Temperature Characteristic B7 : X7R (−55~+125℃), C7 : X7S (−55~+125℃), D7 : X7T (−55~+125℃)】 0.8mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU168SB7102□TNA01	UMK107 B7102□AHT	50	X7R	1000 p	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7152□TNA01	UMK107 B7152□AHT		X7R	1500 p	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7222□TNA01	UMK107 B7222□AHT		X7R	2200 p	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7332□TNA01	UMK107 B7332□AHT		X7R	3300 p	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7472□TNA01	UMK107 B7472□AHT		X7R	4700 p	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7682□TNA01	UMK107 B7682□AHT		X7R	6800 p	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7103□TNA01	UMK107 B7103□AHT		X7R	0.01 μ	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7153□TNA01	UMK107 B7153□AHT		X7R	0.015 μ	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7223□TNA01	UMK107 B7223□AHT		X7R	0.022 μ	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7333□TNA01	UMK107 B7333□AHT		X7R	0.033 μ	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7473□TNA01	UMK107 B7473□AHT		X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	
MCASU168SB7683□TNA01	UMK107 B7683□AHT		X7R	0.068 μ	±10, ±20	3.5	150	0.8±0.10	
MCASU168SB7104□TNA01	UMK107 B7104□AHT	35	X7R	0.1 μ	±10, ±20	3.5	200	0.8±0.10	
MCASU168AC7154□TCA01	UMK107AC7154□AHT		X7S	0.15 μ	±10, ±20	3.5	150	0.8+0.15/-0.05	
MCASU168SC7224□TCA01	UMK107 C7224□AHT		X7S	0.22 μ	±10, ±20	3.5	150	0.8±0.10	
MCASU168SB7474□TCA01	UMK107 B7474□AHT		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MCASG168SB7473□TNA01	GMK107 B7473□AHT		X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	
MCASG168SB7104□TNA01	GMK107 B7104□AHT		X7R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCASG168SB7224□TNA01	GMK107 B7224□AHT		X7R	0.22 μ	±10, ±20	10	150	0.8±0.10	
MCASG168SB7474□TNA01	GMK107 B7474□AHT		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MCASG168AB7105□TNA01	GMK107AB7105□AHT		X7R	1 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCAST168SB7223□TNA01	TMK107 B7223□AHT		X7R	0.022 μ	±10, ±20	2.5	200	0.8±0.10	
MCAST168SB7473□TNA01	TMK107 B7473□AHT		X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	
MCAST168SB7104□TNA01	TMK107 B7104□AHT	25	X7R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCAST168SB7224□TNA01	TMK107 B7224□AHT		X7R	0.22 μ	±10, ±20	10	150	0.8±0.10	
MCAST168SB7474□TNA01	TMK107 B7474□AHT		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MCAST168AB7105□TNA01	TMK107AB7105□AHT		X7R	1 μ	±10, ±20	10	150	0.8+0.15/-0.05	
MCASE168SB7473□TNA01	EMK107 B7473□AHT	16	X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	
MCASE168SB7104□TNA01	EMK107 B7104□AHT		X7R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	
MCASE168SB7224□TNA01	EMK107 B7224□AHT		X7R	0.22 μ	±10, ±20	5	150	0.8±0.10	
MCASE168SB7474□TNA01	EMK107 B7474□AHT		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MCASE168SB7105□TNA01	EMK107 B7105□AHT		X7R	1 μ	±10, ±20	10	150	0.8±0.10	
MCASL168SB7224□TNA01	LMK107 B7224□AHT	10	X7R	0.22 μ	±10, ±20	5	150	0.8±0.10	
MCASL168SB7474□TNA01	LMK107 B7474□AHT		X7R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	
MCASL168SB7105□TNA01	LMK107 B7105□AHT		X7R	1 μ	±10, ±20	10	150	0.8±0.10	
MCASL168BD7225□TNA01	LMK107BD7225□AHT		X7T	2.2 μ	±10, ±20	10	200	0.8+0.20/-0	
MCASJ168SB7105□TNA01	JMK107 B7105□AHT	6.3	X7R	1 μ	±10, ±20	10	150	0.8±0.10	
MCASJ168SB7225□TNA01	JMK107 B7225□AHT		X7R	2.2 μ	±10, ±20	10	150	0.8±0.10	

2012TYPE

【Temperature Characteristic B5 (BJ) : X5R (−55~+85℃)】 1.25mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU21GSB5104□TNA01	UMK212 BJ104□GHT	50	X5R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB5224□TNA01	UMK212 BJ224□GHT		X5R	0.22 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB5474□TNA01	UMK212 BJ474□GHT		X5R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	
MCASU21GSB5105□TNA01	UMK212 BJ105□GHT		X5R	1 μ	±10, ±20	5	150	1.25±0.10	
MCASG21GSB5104□TNA01	GMK212 BJ104□GHT	35	X5R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	
MCASG21GSB5224□TNA01	GMK212 BJ224□GHT		X5R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MCASG21GSB5474□TNA01	GMK212 BJ474□GHT		X5R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	
MCASG21GSB5105□TNA01	GMK212 BJ105□GHT		X5R	1 μ	±10, ±20	5	150	1.25±0.10	
MCASG21GBB5225□TNA01	GMK212BBJ225□GHT	25	X5R	2.2 μ	±10, ±20	10	150	1.25+0.20/-0	
MCAST21GSB5104□TNA01	TMK212 BJ104□GHT		X5R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	
MCAST21GSB5224□TNA01	TMK212 BJ224□GHT		X5R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MCAST21GSB5474□TNA01	TMK212 BJ474□GHT		X5R	0.47 μ	±10, ±20	3.5	200	1.25±0.10	
MCAST21GSB5105□TNA01	TMK212 BJ105□GHT		X5R	1 μ	±10, ±20	3.5	150	1.25±0.10	
MCAST21GSB5225□TNA01	TMK212 BJ225□GHT		X5R	2.2 μ	±10, ±20	5	150	1.25±0.10	
MCAST21GBB5475□TNA01	TMK212BBJ475□GHT		X5R	4.7 μ	±10, ±20	10	150	1.25+0.20/-0	
MCAST21GBB5106□TNA01	TMK212BBJ106□GHT		X5R	10 μ	±10, ±20	10	150	1.25+0.20/-0	
MCASE21GSB5105□TNA01	EMK212 BJ105□GHT		X5R	1 μ	±10, ±20	3.5	150	1.25±0.10	
MCASE21GSB5225□TNA01	EMK212 BJ225□GHT		X5R	2.2 μ	±10, ±20	5	150	1.25±0.10	
MCASE21GAB5475□TNA01	EMK212ABJ475□GHT		X5R	4.7 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MCASE21GBB5106□TNA01	EMK212BBJ106□GHT		X5R	10 μ	±10, ±20	10	150	1.25+0.20/-0	
MCASL21GSB5225□TNA01	LMK212 BJ225□GHT	10	X5R	2.2 μ	±10, ±20	5	200	1.25±0.10	
MCASL21GAB5475□TNA01	LMK212ABJ475□GHT		X5R	4.7 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MCASL21GAB5106□TNA01	LMK212ABJ106□GHT		X5R	10 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MCASJ21GAB5475□TNA01	JMK212ABJ475□GHT	6.3	X5R	4.7 μ	±10, ±20	5	200	1.25+0.15/-0.05	
MCASJ21GAB5106□TNA01	JMK212ABJ106□GHT		X5R	10 μ	±10, ±20	10	150	1.25+0.15/-0.05	
MCASJ21GBB5226MTNA01	JMK212BBJ226MGHT		X5R	22 μ	±20	10	150	1.25+0.20/-0	
MCASA21GAB5226MTNA01	AMK212ABJ226MGHT	4	X5R	22 μ	±20	10	150	1.25+0.15/-0.05	
MCASA21GBB5476MTNA01	AMK212BBJ476MGHT		X5R	47 μ	±20	10	150	1.25+0.20/-0	

PART NUMBER

【Temperature Characteristic B5(BJ) : 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*1 [mm]	Note
							Rated voltage x %		
MCASE219SB5105□TNA01	EMK212 BJ105□DHT	16	X5R	1 μ	±10, ±20	5	200	0.85±0.10	
MCASE219JB5225□TNA01	EMK212ABJ225□DHT		X5R	2.2 μ	±10, ±20	5	150	0.85±0.10	
MCASE219LB5475□TNA01	EMK212BBJ475□DHT		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	

【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*1 [mm]	Note
							Rated voltage x %		
MCASL21GBC6106□TNA01	LMK212BC6106□GHT	10	X6S	10 μ	±10, ±20	10	150	1.25+0.20/−0	
MCASA21GBC6226MTNA01	AMK212BC6226MGHT	4	X6S	22 μ	±20	10	150	1.25+0.20/−0	

【Temperature Characteristic B7 : X7R(−55~+125°C), C7 : X7S(−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*1 [mm]	Note
							Rated voltage x %		
MCASU21GSB7103□TNA01	UMK212 B7103□GHT	50	X7R	0.01 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB7153□TNA01	UMK212 B7153□GHT		X7R	0.015 μ	±10, ±20	2.5	200	1.25±0.10	
MCASU21GSB7223□TNA01	UMK212 B7223□GHT		X7R	0.022 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB7333□TNA01	UMK212 B7333□GHT		X7R	0.033 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB7473□TNA01	UMK212 B7473□GHT		X7R	0.047 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB7683□TNA01	UMK212 B7683□GHT		X7R	0.068 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB7104□TNA01	UMK212 B7104□GHT		X7R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GBB7154□TCA01	UMK212BB7154□GHTE		X7R	0.15 μ	±10, ±20	3.5	200	1.25+0.2/−0	
MCASU21GSB7224□TNA01	UMK212 B7224□GHT		X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MCASU21GBC7334□TCA01	UMK212BC7334□GHTE		X7S	0.33 μ	±10, ±20	3.5	150	1.25+0.2/−0	
MCASU21GSC7474□TCA01	UMK212 C7474□GHTE		X7S	0.47 μ	±10, ±20	3.5	150	1.25±0.10	
MCASU21GCC7684□TCA01	UMK212CC7684□GHTE		X7S	0.68 μ	±10, ±20	3.5	150	1.25+0.25/−0	
MCASU21GSB7105□TNA01	UMK212 B7105□GHT	35	X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MCASG21GSB7224□TNA01	GMK212 B7224□GHT		X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MCASG21GSB7105□TNA01	GMK212 B7105□GHT		X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MCASU21GSB7224□TNA01	TMK212 B7224□GHT	25	X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MCASU21GSB7334□TNA01	TMK212 B7334□GHT		X7R	0.33 μ	±10, ±20	3.5	200	1.25±0.10	
MCASU21GSB7474□TNA01	TMK212 B7474□GHT		X7R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	
MCASU21GSB7105□TNB25	TMK212 B7105□GHTR	16	X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MCASU21GSB7225□TNA01	TMK212 B7225□GHT		X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	
MCASU21GSB7224□TNA01	EMK212 B7224□GHT		X7R	0.22 μ	±10, ±20	3.5	200	1.25±0.10	
MCASE21GSB7334□TNA01	EMK212 B7334□GHT		X7R	0.33 μ	±10, ±20	3.5	200	1.25±0.10	
MCASE21GSB7474□TNA01	EMK212 B7474□GHT		X7R	0.47 μ	±10, ±20	3.5	200	1.25±0.10	
MCASE21GSB7105□TNB25	EMK212 B7105□GHTR		X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MCASE21GSB7225□TNA01	EMK212 B7225□GHT		X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	
MCASE21GAB7475□TNA01	EMK212AB7475□GHTR		X7R	4.7 μ	±10, ±20	10	150	1.25+0.15/−0.05	
MCASL21GSB7105□TNB25	LMK212 B7105□GHTR		X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MCASL21GSB7225□TNA01	LMK212 B7225□GHT		X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	
MCASL21GSB7475□TNA01	LMK212 B7475□GHT		X7R	4.7 μ	±10, ±20	10	150	1.25±0.10	
MCASL21GBB7106□TNA01	LMK212BB7106□GHTR		X7R	10 μ	±10, ±20	10	150	1.25+0.2/−0	
MCASJ21GSB7475□TNA01	JMK212 B7475□GHT	6.3	X7R	4.7 μ	±10, ±20	10	150	1.25±0.10	
MCASJ21GAB7106□TNA01	JMK212AB7106□GHTR		X7R	10 μ	±10, ±20	10	150	1.25+0.15/−0.05	

3216TYPE

【Temperature Characteristic B5(BJ) : X5R(−55~+85°C)】 1.6mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU31LSB5474□TNA01	UMK316 BJ474□LHT	50	X5R	0.47 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB5105□TNA01	UMK316 BJ105□LHT		X5R	1 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB5225□TNA01	UMK316 BJ225□LHT		X5R	2.2 μ	±10, ±20	10	150	1.6±0.20	
MCASU31LAB5475□TNA01	UMK316ABJ475□LHT		X5R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LSB5105□TNA01	GMK316 BJ105□LHT	35	X5R	1 μ	±10, ±20	3.5	200	1.6±0.20	
MCASG31LSB5225□TNA01	GMK316 BJ225□LHT		X5R	2.2 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LSB5475□TNA01	GMK316 BJ475□LHT		X5R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LBB5106□TNA01	GMK316BBJ106□LHT		X5R	10 μ	±10, ±20	10	150	1.6±0.30	
MCASU31LSB5225□TNA01	TMK316 BJ225□LHT	25	X5R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB5475□TNA01	TMK316 BJ475□LHT		X5R	4.7 μ	±10, ±20	5	150	1.6±0.20	
MCASU31LSB5106□TNA01	TMK316 BJ106□LHT		X5R	10 μ	±10, ±20	5	150	1.6±0.20	
MCASE31LSB5225□TNA01	EMK316 BJ225□LHT		X5R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	
MCASE31LSB5475□TNA01	EMK316 BJ475□LHT	16	X5R	4.7 μ	±10, ±20	5	150	1.6±0.20	
MCASE31LSB5106□TNA01	EMK316 BJ106□LHT		X5R	10 μ	±10, ±20	5	150	1.6±0.20	
MCASE31LBB5226MTNA01	EMK316BBJ226MLHT		X5R	22 μ	±20	10	150	1.6±0.30	
MCASL31LSB5475□TNA01	LMK316 BJ475□LHT	10	X5R	4.7 μ	±10, ±20	5	150	1.6±0.20	
MCASL31LSB5106□TNA01	LMK316 BJ106□LHT		X5R	10 μ	±10, ±20	5	150	1.6±0.20	
MCASL31LAB5226□TNA01	LMK316ABJ226□LHT		X5R	22 μ	±10, ±20	10	150	1.6±0.20	
MCASJ31LSB5106□TNA01	JMK316 BJ106□LHT	6.3	X5R	10 μ	±10, ±20	5	200	1.6±0.20	
MCASJ31LAB5226□TNA01	JMK316ABJ226□LHT		X5R	22 μ	±10, ±20	10	150	1.6±0.20	
MCASJ31LAB5476MTNA01	JMK316ABJ476MLHT		X5R	47 μ	±20	10	150	1.6±0.20	

PART NUMBER

【Temperature Characteristic B7 : X7R(−55~+125℃), 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*1 [mm]	Note
							Rated voltage x %		
MCASU31LSB7473□TNA01	UMK316 B7473□LHT	50	X7R	0.047 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB7683□TNA01	UMK316 B7683□LHT		X7R	0.068 μ	±10, ±20	2.5	200	1.6±0.20	
MCASU31LSB7104□TNA01	UMK316 B7104□LHT		X7R	0.1 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB7154□TNA01	UMK316 B7154□LHT		X7R	0.15 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB7224□TNA01	UMK316 B7224□LHT		X7R	0.22 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB7334□TNA01	UMK316 B7334□LHT		X7R	0.33 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB7474□TNA01	UMK316 B7474□LHT		X7R	0.47 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LSB7105□TNA01	UMK316 B7105□LHT		X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	
MCASU31LBC7155□TCA01	UMK316BC7155□LHTE		X7S	1.5 μ	±10, ±20	3.5	150	1.6±0.30	
MCASU31LSB7225□TNA01	UMK316 B7225□LHT		X7R	2.2 μ	±10, ±20	10	150	1.6±0.20	
MCASU31LAC7475□TCA01	UMK316AC7475□LHTE	35	X7S	4.7 μ	±10, ±20	2.5	150	1.6±0.20	
MCASG31LSB7105□TNA01	GMK316 B7105□LHT		X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	
MCASG31LSB7225□TNA01	GMK316 B7225□LHT		X7R	2.2 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT	25	X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT		X7R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASG31LAB7475□TNA01	GMK316AB7475□LHT		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MCASE31LSB7225□TNA01	EMK316 B7225□LHT	16	X7R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	
MCASE31LAB7475□TNA01	EMK316AB7475□LHT		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MCASE31LAB7475□TNA01	EMK316AB7475□LHT		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MCASE31LAB7475□TNA01	EMK316AB7475□LHT		X7R	4.7 μ	±10, ±20	5	150	1.6±0.20	
MCASE31LAB7475□TNA01	EMK316AB7475□LHT		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MCASL31LAB7106□TNA01	LMK316AB7106□LHT	10	X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MCASL31LAB7106□TNA01	LMK316AB7106□LHT		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MCASJ31LAB7106□TNA01	JMK316AB7106□LHT	6.3	X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MCASJ31LAB7106□TNA01	JMK316AB7106□LHT		X7R	22 μ	±10, ±20	10	150	1.6±0.20	
MCASA31LAB7226□TNA01	AMK316AB7226□LHT	4	X7R	22 μ	±10, ±20	10	150	1.6±0.20	
MCASA31LAB7226□TNA01	AMK316AB7226□LHT		X7S	47 μ	±20	10	150	1.6±0.20	

3225TYPE

【Temperature Characteristic B5(BJ) : 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*1 [mm]	Note
							Rated voltage x %		
MCASU32MSB5106□PNA01	UMK325 BJ106□MHP	50	X5R	10 μ	±10, ±20	5	150	2.5±0.20	
MCASG32MSB5106□PNA01	GMK325 BJ106□MHP	35	X5R	10 μ	±10, ±20	5	150	2.5±0.20	
MCASG32MSB5106□PNA01	GMK325 BJ106□MHP	25	X5R	10 μ	±10, ±20	5	150	2.5±0.20	
MCASG32MSB5226□PNA01	EMK325 BJ226□MHP	16	X5R	22 μ	±10, ±20	5	150	2.5±0.20	
MCASE32MAB5476□PNDT1	EMK325ABJ476□MHP		X5R	47 μ	±10, ±20	10	150	2.5±0.30	
MCASL32MSB5226□PNA01	LMK325 BJ226□MHP	10	X5R	22 μ	±10, ±20	5	150	2.5±0.20	
MCASL32MSB5476□PNA01	LMK325 BJ476□MHP		X5R	47 μ	±10, ±20	10	150	2.5±0.20	
MCASJ32MSB5476□PNA01	JMK325 BJ476□MHP	6.3	X5R	47 μ	±10, ±20	10	150	2.5±0.20	

【Temperature Characteristic B5(BJ) : 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*1 [mm]	Note
							Rated voltage x %		
MCASU32NSB5475□TNA01	UMK325 BJ475□NHT	50	X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MCASG32NSB5225MTNA01	GMK325 BJ225MNHT	35	X5R	2.2 μ	±20	3.5	200	1.9±0.20	
MCASG32NSB5475□TNA01	GMK325 BJ475□NHT		X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MCASG32NSB5475□TNA01	GMK325 BJ475□NHT	25	X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MCASE32NSB5475MTNA01	EMK325 BJ475MNHT	16	X5R	4.7 μ	±20	3.5	200	1.9±0.20	
MCASE32NSB5106□TNA01	EMK325 BJ106□NHT		X5R	10 μ	±10, ±20	5	150	1.9±0.20	

【Temperature Characteristic B7 : X7R(−55~+125℃)】 2.5mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU32MSB7225□PNA01	UMK325 B7225□MHP	50	X7R	2.2 μ	±10, ±20	3.5	200	2.5±0.20	
MCASU32MSB7335□PNA01	UMK325 B7335□MHP		X7R	3.3 μ	±10, ±20	3.5	200	2.5±0.20	
MCASU32MSB7475□PNA01	UMK325 B7475□MHP		X7R	4.7 μ	±10, ±20	5	150	2.5±0.20	
MCASU32MAB7106□PNA01	UMK325AB7106□MHP		X7R	10 μ	±10, ±20	10	150	2.5±0.30	
MCASG32MAB7106□PNA01	GMK325AB7106□MHP	35	X7R	10 μ	±10, ±20	10	150	2.5±0.30	
MCASG32MAB7106□PNA01	GMK325AB7106□MHP	25	X7R	3.3 μ	±10, ±20	3.5	200	2.5±0.20	
MCASG32MAB7106□PNA01	GMK325AB7106□MHP		X7R	10 μ	±10, ±20	10	150	2.5±0.30	
MCASG32MAB7106□PNA01	GMK325AB7106□MHP		X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MCASG32MAB7106□PNA01	GMK325AB7106□MHP		X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MCASE32MSB7226□PNA01	EMK325 B7226□MHP	16	X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MCASE32MSB7226□PNA01	EMK325 B7226□MHP	10	X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MCASJ32MSB7226□PNA01	JMK325 B7226□MHP	6.3	X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MCASJ32MSB7476□PNA01	JMK325 B7476□MHP		X7R	47 μ	±10, ±20	10	150	2.5±0.20	

【Temperature Characteristic B7 : X7R(−55~+125℃)】 1.9mm Thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*1 [mm]	Note
							Rated voltage x %		
MCASU32NSB7105□TNA01	UMK325 B7105□NHT	50	X7R	1 μ	±10, ±20	3.5	200	1.9±0.20	
MCASG32NSB7225□TNA01	GMK325 B7225□NHT	35	X7R	2.2 μ	±10, ±20	3.5	200	1.9±0.20	
MCASG32NSB7475□TNA01	GMK325 B7475□NHT		X7R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MCASG32NSB7475□TNA01	GMK325 B7475□NHT	25	X7R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MCASE32NSB7475□TNA01	EMK325 B7475□NHT	16	X7R	4.7 μ	±10, ±20	3.5	150	1.9±0.20	
MCASE32NSB7106□TNA01	EMK325 B7106□NHT		X7R	10 μ	±10, ±20	10	150	1.9±0.20	

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