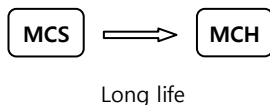


MCS series

Standard Long life RoHS Compliant

- 85°C 5,000Hrs assured.
- Long life, High ripple
- RoHS compliant
- Halogen-free capacitors are also available.



Specifications

Item	Characteristics	
Rated Voltage Range	10 ~ 100 Vdc	160 ~ 500 Vdc
Operating Temperature Range	-40 ~ +85°C	-25 ~ +85°C
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	After 5 minutes application of rated voltage, leakage current not more than $I=3\sqrt{CV}$ or 5mA whichever is smaller Where, I:Max. Leakage current(μA), C:Nominal capacitance(μF), V:Rated voltage(Vdc) (at 20°C, 5min)	
Dissipation Factor(Tanδ)	The dissipation factor (Tanδ) shall not exceed the values shown in the ratings. (at 20°C, 120Hz)	
Temperature characteristics (Max,impedance ratio)	Rated voltage (Vdc)	10 ~ 100 160 ~ 500
	Z(-25°C)/Z(20°C)	- 8
	Z(-40°C)/Z(20°C)	12 -
(at 120Hz)		
Load life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for specified life times at 85°C 5,000hrs. Capacitance change ≤±20% of the initial value Tan δ ≤200% of the initial specified value Leakage current ≤The initial specified value	
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes at least 24 hours and not more than 48 hours before the measurements. Capacitance change ≤±20% of the initial value Tanδ ≤200% of the initial specified value Leakage current ≤The initial specified value	

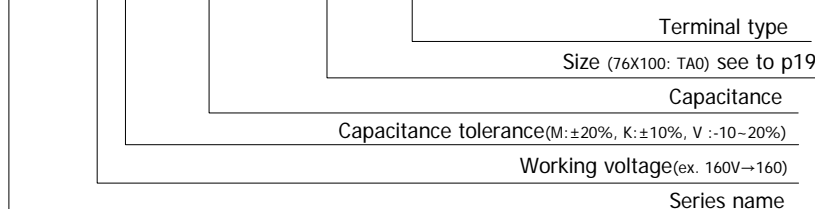
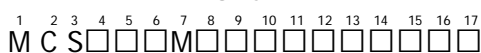
Dimensions

Terminal code : WO / WB Type

Type	d (mm)	ΦD	E	K	F	J
WO	10±1	51	32.5	37.0	22.4	14.0
WB	17±1	63.5	38.1	43.5	28.0	14.0
		76	44.5	50.0	31.5	14.0
		89	50.8	56.5	31.5	16.0
		100	56.5	43.4	41.5	18.0

- Printed white color letter on black sleeve

Code numbering system



Ø35	P
Ø51	R
Ø63.5	S
Ø76	T
Ø89	U
Ø100	V



MCS series

Standard Ratings

Note1) Ripple current = Arms/85°C, 120Hz

WV (Vdc)	Cap (µF)	Size ØxL(mm)	Tanδ	Ripple ¹⁾	Code No	WV (Vdc)	Cap (µF)	Size ØxL(mm)	Tanδ	Ripple ¹⁾	Code No	
10	47,000	35 x 80	0.60	6.0	MCS010□473P80WOR	80	220,000	90 x 170	0.60	28.3	MCS063□224UH0WOR	
	68,000	35 x 80	0.60	7.2	MCS010□683P80WOR		330,000	90 x 220	0.60	31.2	MCS063□334UM0WOR	
	100,000	35 x 100	0.60	8.8	MCS010□104PA0WOR		470,000	100 x 250	0.60	33.6	MCS063□474VP0WOR	
	150,000	51 x 80	0.90	10.7	MCS010□154R80WOR		100	10,000	35 x 80	0.20	4.2	MCS080□103P80WOR
	220,000	51 x 100	0.90	13.0	MCS010□224RA0WOR			15,000	35 x 120	0.20	6.0	MCS080□153PC0WOR
	330,000	63.5 x 100	0.90	15.9	MCS010□334SA0WOR			22,000	51 x 80	0.20	6.5	MCS080□223R80WOR
	470,000	63.5 x 120	1.20	19.0	MCS010□474SC0WOR			33,000	51 x 120	0.20	9.0	MCS080□333RC0WOR
	680,000	76 x 120	1.60	22.8	MCS010□684TC0WOR			47,000	63.5 x 100	0.25	12.7	MCS080□473SA0WOR
	1,000,000	90 x 170	2.00	27.7	MCS010□105UH0WOR			68,000	63.5 x 140	0.30	15.5	MCS080□683SE0WOR
	1,500,000	90 x 220	2.00	33.9	MCS010□155UM0WOR			100,000	76 x 140	0.35	21.3	MCS080□104TE0WOR
2,200,000	100 x 250	2.40	41.1	MCS010□225VP0WOR	150,000	90 x 170		0.40	26.5	MCS080□154UH0WOR		
16	47,000	35 x 80	0.40	6.4	MCS016□473P80WOR	220,000		90 x 220	0.40	28.9	MCS080□224UM0WOR	
	68,000	35 x 100	0.40	7.9	MCS016□683PA0WOR	330,000		100 x 250	0.40	31.8	MCS080□334VP0WOR	
	100,000	35 x 120	0.55	10.6	MCS016□104PC0WOR	160	4,700	35 x 80	0.12	3.8	MCS100□472P80WOR	
	150,000	51 x 100	0.60	11.3	MCS016□154RA0WOR		6,800	35 x 100	0.12	4.5	MCS100□682PA0WOR	
	220,000	51 x 120	0.80	15.5	MCS016□224RC0WOR		10,000	35 x 120	0.15	5.3	MCS100□103PC0WOR	
	330,000	63.5 x 120	0.95	25.0	MCS016□334SC0WOR		15,000	51 x 80	0.15	6.0	MCS100□153R80WOR	
	470,000	76 x 120	1.10	30.0	MCS016□474TC0WOR		22,000	51 x 100	0.15	6.8	MCS100□223RA0WOR	
	680,000	90 x 170	1.50	33.0	MCS016□684UH0WOR		33,000	51 x 140	0.15	10.0	MCS100□333RE0WOR	
	1,000,000	90 x 220	1.50	36.0	MCS016□105UM0WOR		47,000	63.5 x 140	0.20	14.4	MCS100□473SE0WOR	
	1,500,000	100 x 250	1.50	39.0	MCS016□155VP0WOR		68,000	76 x 140	0.30	18.1	MCS100□683TE0WOR	
25	33,000	35 x 80	0.35	6.2	MCS025□333P80WOR		100,000	90 x 170	0.30	22.0	MCS100□104UH0WOR	
	47,000	35 x 100	0.35	8.2	MCS025□473PA0WOR		150,000	90 x 220	0.30	27.0	MCS100□154UM0WOR	
	68,000	35 x 120	0.40	9.4	MCS025□683PC0WOR	220,000	100 x 250	0.30	33.0	MCS100□224VP0WOR		
	100,000	51 x 100	0.45	12.0	MCS025□104RA0WOR	200	2,200	35 x 80	0.15	3.1	MCS160□222P80WOR	
	150,000	51 x 120	0.50	15.0	MCS025□154RC0WOR		3,300	35 x 120	0.15	4.5	MCS160□332PC0WOR	
	220,000	63.5 x 120	0.65	18.9	MCS025□224SC0WOR		4,700	51 x 80	0.15	5.0	MCS160□472R80WOR	
	330,000	76 x 120	0.75	24.5	MCS025□334TC0WOR		6,800	51 x 100	0.15	6.4	MCS160□682RA0WOR	
	470,000	90 x 170	1.00	30.5	MCS025□474UH0WOR		10,000	63.5 x 100	0.20	9.0	MCS160□103SA0WOR	
	680,000	90 x 220	1.00	33.3	MCS025□684UM0WOR		15,000	76 x 100	0.20	12.0	MCS160□153TA0WOR	
	1,000,000	100 x 250	1.00	36.4	MCS025□105VP0WOR		22,000	76 x 140	0.20	16.5	MCS160□223TE0WOR	
35	33,000	35 x 80	0.30	6.2	MCS035□333P80WOR		33,000	90 x 140	0.25	19.0	MCS160□333UE0WOR	
	47,000	35 x 120	0.30	8.2	MCS035□473PC0WOR		47,000	90 x 170	0.25	20.5	MCS160□473UH0WOR	
	68,000	51 x 80	0.35	9.3	MCS035□683R80WOR		68,000	90 x 220	0.25	22.0	MCS160□683UM0WOR	
	100,000	51 x 120	0.40	13.6	MCS035□104RC0WOR	100,000	100 x 250	0.25	24.0	MCS160□104VP0WOR		
	150,000	63.5 x 100	0.50	14.5	MCS035□154SA0WOR	250	1,500	35 x 80	0.15	2.9	MCS200□152P80WOR	
	220,000	76 x 100	0.65	16.8	MCS035□224TA0WOR		2,200	35 x 100	0.15	3.5	MCS200□222PA0WOR	
	330,000	76 x 140	0.75	24.8	MCS035□334TE0WOR		3,300	51 x 70	0.15	4.8	MCS200□332R70WOR	
	470,000	90 x 170	0.90	32.6	MCS035□474UH0WOR		4,700	51 x 90	0.15	6.3	MCS200□472R90WOR	
	680,000	90 x 220	0.90	35.2	MCS035□684UM0WOR		6,800	51 x 100	0.15	7.1	MCS200□682RA0WOR	
	1,000,000	100 x 250	0.90	38.5	MCS035□105VP0WOR		10,000	63.5 x 100	0.20	9.6	MCS200□103SA0WOR	
50	15,000	35 x 80	0.25	5.3	MCS050□153P80WOR		15,000	76 x 120	0.20	13.0	MCS200□153TC0WOR	
	22,000	35 x 100	0.25	6.1	MCS050□223PA0WOR		22,000	90 x 140	0.25	15.5	MCS200□223UE0WOR	
	33,000	51 x 70	0.25	7.0	MCS050□333R70WOR		33,000	90 x 170	0.25	19.5	MCS200□333UE0WOR	
	47,000	51 x 90	0.25	8.6	MCS050□473R90WOR		47,000	90 x 220	0.25	20.5	MCS200□473UM0WOR	
	68,000	51 x 100	0.25	11.0	MCS050□683RA0WOR	68,000	100 x 250	0.25	22.5	MCS200□683VP0WOR		
	100,000	63.5 x 100	0.35	14.2	MCS050□104SA0WOR	63	1,000	35 x 80	0.15	2.4	MCS250□102P80WOR	
	150,000	76 x 120	0.55	18.6	MCS050□154TC0WOR		1,500	35 x 100	0.15	3.0	MCS250□152PA0WOR	
	220,000	90 x 140	0.75	20.3	MCS050□224UE0WOR		2,200	51 x 80	0.15	4.0	MCS250□222R80WOR	
	330,000	90 x 170	0.75	25.0	MCS050□334UH0WOR		3,300	51 x 100	0.15	5.2	MCS250□332RA0WOR	
	470,000	90 x 220	0.75	33.0	MCS050□474UM0WOR		4,700	63.5 x 100	0.20	7.1	MCS250□472SA0WOR	
680,000	100 x 250	0.75	36.0	MCS050□684VP0WOR	6,800		63.5 x 120	0.20	8.7	MCS250□682SC0WOR		
63	10,000	35 x 80	0.25	4.0	MCS063□103P80WOR		10,000	76 x 120	0.20	11.5	MCS250□103TC0WOR	
	15,000	35 x 100	0.25	5.5	MCS063□153PA0WOR		15,000	90 x 140	0.25	16.0	MCS250□153UE0WOR	
	22,000	35 x 120	0.25	7.1	MCS063□223PC0WOR		22,000	90 x 170	0.25	17.5	MCS250□223UH0WOR	
	33,000	51 x 80	0.25	8.8	MCS063□333R80WOR		33,000	90 x 220	0.25	19.5	MCS250□333UM0WOR	
	47,000	51 x 120	0.25	11.7	MCS063□473RC0WOR	47,000	100 x 250	0.25	21.0	MCS250□473VP0WOR		
	68,000	63.5 x 100	0.30	15.0	MCS063□683SA0WOR							
	100,000	63.5 x 140	0.30	20.8	MCS063□104SE0WOR							
150,000	76 x 140	0.50	26.0	MCS063□154TE0WOR								



MCS series

Standard Ratings

Note1) Ripple current = Arms/85°C, 120Hz

VV (Vdc)	Cap (uF)	Size ØxL(mm)	Tan δ	Ripple ¹⁾	Code No
350	1,000	51 x 60	0.20	4.8	MCS350□102R60WOR
	1,200	51 x 70	0.20	5.5	MCS350□122R70WOR
	1,500	51 x 75	0.20	6.5	MCS350□152R75WOR
	1,800	51 x 90	0.20	7.1	MCS350□182R90WOR
	2,200	51 x 95	0.20	8.2	MCS350□222R95WOR
	2,700	51 x 105	0.20	9.3	MCS350□272RA5WOR
		63.5 x 85	0.20	9.9	MCS350□272S85WOR
	3,300	63.5 x 95	0.20	11.8	MCS350□332S95WOR
		63.5 x 100	0.20	12.8	MCS350□392SA0WOR
	3,900	76 x 85	0.20	13.0	MCS350□392T85WOR
		63.5 x 115	0.20	13.8	MCS350□472S85WOR
	4,700	76 x 90	0.20	14.2	MCS350□472T90WOR
		63.5 x 130	0.20	17.3	MCS350□562SD0WOR
	5,600	76 x 100	0.20	16.8	MCS350□562TA0WOR
		63.5 x 155	0.20	19.6	MCS350□682SF5WOR
	6,800	76 x 115	0.20	19.0	MCS350□682TB5WOR
		63.5 x 190	0.20	22.6	MCS350□822SJ0WOR
	8,200	76 x 130	0.20	21.0	MCS350□822TD0WOR
		90 x 120	0.20	24.0	MCS350□822UC0WOR
	10,000	76 x 155	0.20	25.0	MCS350□103TF5WOR
90 x 140		0.20	25.9	MCS350□103UE0WOR	
12,000	90 x 150	0.20	28.0	MCS350□123UF0WOR	
400	1,000	51 x 65	0.20	5.0	MCS400□102R65WOR
	1,200	51 x 75	0.20	5.8	MCS400□122R75WOR
	1,500	51 x 90	0.20	6.8	MCS400□152R90WOR
	1,800	51 x 95	0.20	7.3	MCS400□182R95WOR
	2,200	51 x 105	0.20	8.8	MCS400□222RA5WOR
		63.5 x 85	0.20	8.9	MCS400□222S85WOR
	2,700	51 x 115	0.20	10.0	MCS400□272RB5WOR
		63.5 x 90	0.20	10.6	MCS400□272S90WOR
	3,300	76 x 75	0.20	10.5	MCS400□272T75WOR
		63.5 x 95	0.20	11.8	MCS400□332S95WOR
	3,900	76 x 90	0.20	12.0	MCS400□332T90WOR
		63.5 x 115	0.20	12.8	MCS400□392SB5WOR
	4,700	76 x 95	0.20	13.0	MCS400□392T95WOR
		63.5 x 130	0.20	14.8	MCS400□472SD0WOR
	5,600	76 x 110	0.20	15.0	MCS400□472TA0WOR
		63.5 x 155	0.20	17.0	MCS400□562SF5WOR
	6,800	76 x 115	0.20	16.5	MCS400□562TB5WOR
		63.5 x 190	0.20	20.5	MCS400□682SJ0WOR
	8,200	76 x 130	0.20	19.2	MCS400□682TD0WOR
		90 x 120	0.20	20.5	MCS400□682UC0WOR
10,000	76 x 155	0.20	22.5	MCS400□822TF5WOR	
	90 x 120	0.20	23.0	MCS400□822UC0WOR	
12,000	76 x 170	0.20	26.1	MCS400□103TH0WOR	
	90 x 130	0.20	24.2	MCS400□103UD0WOR	
15,000	90 x 155	0.20	28.5	MCS400□123UF5WOR	
18,000	90 x 190	0.20	34.8	MCS400□153UJ0WOR	
450	1,000	51 x 75	0.20	5.2	MCS450□102R75WOR
	1,200	51 x 85	0.20	6.3	MCS450□122R85WOR
	1,500	51 x 95	0.20	6.4	MCS450□152R95WOR
		51 x 105	0.20	7.6	MCS450□182RA5WOR
	1,800	63.5 x 85	0.20	7.6	MCS450□182S85WOR
		63.5 x 90	0.20	9.0	MCS450□222S90WOR
	2,200	76 x 85	0.20	9.4	MCS450□222T85WOR
		63.5 x 95	0.20	10.5	MCS450□272S95WOR
	2,700	76 x 90	0.20	11.0	MCS450□272T90WOR
		63.5 x 115	0.20	12.1	MCS450□332SB5WOR
3,300	76 x 100	0.20	12.8	MCS450□332TA0WOR	

VV (Vdc)	Cap (uF)	Size ØxL(mm)	Tan δ	Ripple ¹⁾	Code No
450	3,900	76 x 110	0.20	14.2	MCS450□392TB0WOR
	4,700	63.5 x 155	0.20	15.6	MCS450□472SF5WOR
		76 x 115	0.20	15.1	MCS450□472TB5WOR
	5,600	63.5 x 190	0.20	18.5	MCS450□562SJ0WOR
		90 x 120	0.20	18.4	MCS450□562UC0WOR
	6,800	76 x 155	0.20	20.7	MCS450□682TF5WOR
		90 x 125	0.20	20.0	MCS450□682UC5WOR
	8,200	76 x 190	0.20	19.1	MCS450□822TJ0WOR
	12,000	90 x 190	0.20	29.5	MCS450□123UJ0WOR
	15,000	90 x 235	0.20	35.6	MCS450□153UN5WOR
500	1,000	51 x 100	0.20	4.2	MCS500□102RA0WOR
		63.5 x 80	0.20	4.2	MCS500□102S80WOR
	1,200	51 x 115	0.20	6.2	MCS500□122RB5WOR
		63.5 x 85	0.20	6.3	MCS500□122S85WOR
	1,500	51 x 130	0.20	7.3	MCS500□152RD0WOR
		63.5 x 90	0.20	7.1	MCS500□152S90WOR
	1,800	63.5 x 105	0.20	8.3	MCS500□182SA5WOR
	2,200	63.5 x 120	0.20	9.6	MCS500□222SC0WOR
	2,700	76 x 110	0.20	10.7	MCS500□272TB0WOR
	3,300	76 x 115	0.20	12.4	MCS500□332TB5WOR
		76 x 150	0.20	14.4	MCS500□392TF0WOR
	3,900	90 x 120	0.20	14.4	MCS500□392UC0WOR
		76 x 170	0.20	16.5	MCS500□472TH0WOR
	4,700	90 x 130	0.20	15.8	MCS500□472UD0WOR
		76 x 190	0.20	19.0	MCS500□562TJ0WOR
5,600	90 x 150	0.20	18.6	MCS500□562UF0WOR	
	90 x 170	0.20	21.2	MCS500□682UH0WOR	
8,200	90 x 190	0.20	24.5	MCS500□822UJ0WOR	
10,000	90 x 235	0.20	29.3	MCS500□103UN5WOR	

Rated ripple current multipliers

Frequency(Hz)	50	60	120	1K	10K
Coefficient	0.80	0.82	1.00	1.35	1.40