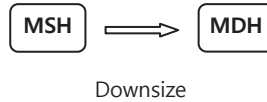




# MDH series

- 105°C 2,000Hrs assured.
- Small sized
- For SMPS, Inverter
- RoHS compliant
- Halogen-free capacitors are also available.

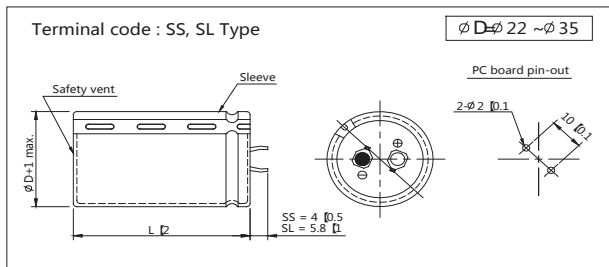
Downsize RoHS Compliant



## Specifications

Item	Characteristics	
Rated Voltage Range	160 ~ 250 Vdc	350 ~ 500 Vdc
Operating Temperature Range	-40 ~ +105°C	-25 ~ +105°C
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I=0.02CV or 3mA whichever is smaller Where, I:Max. Leakage current(µA), C:Nominal capacitance(µF), V:Rated voltage(Vdc) (at 20°C, 5min)	
Dissipation Factor(Tanδ)	Rated voltage (Vdc)	160 ~ 400      420 ~ 500
	Tanδ (max.)	0.15      0.20
Temperature characteristics (Max,impedance ratio)	Rated voltage (Vdc)	160 ~ 250      350 ~ 500
	Z(-25°C)/Z(20°C)	4      8
	Z(-40°C)/Z(20°C)	6      -
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 105°C2,000hrs.	
	Capacitance change	≤±20%of the initial 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 105°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

## Dimensions



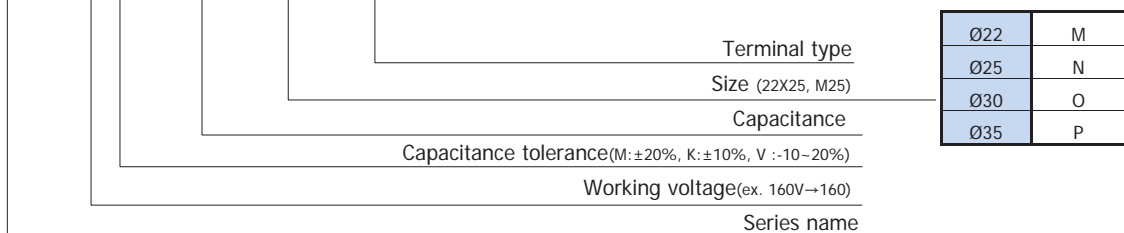
- Printed white color letter on brown sleeve
- The standard design has no bottom plate

## Rated ripple current multipliers

Vdc \ Freq.(Hz)	50	60	120	1K	10K	100K
160 ~ 250	0.81	0.85	1.00	1.32	1.45	1.50
350 ~ 500	0.77	0.82	1.00	1.30	1.41	1.43

## Code numbering system

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16  
M D H □ □ □ M □ □ □ □ □ □ □ □ □ □ □ □





# MDH series

## Standard Ratings

Note1) Ripple current = mArms/105°C, 120Hz

WV (Vdc)	Cap (uF)	Size ØxL (mm)	Tan δ	Ripple <sup>1)</sup>	Code No
160	330	20 x 25	0.15	1,170	MDH160□331L25□□□
	390	20 x 25	0.15	1,280	MDH160□391L25□□□
	470	20 x 30	0.15	1,400	MDH160□471L30□□□
		22 x 25	0.15	1,400	MDH160□471M25□□□
	560	20 x 35	0.15	1,500	MDH160□561L35□□□
		22 x 30	0.15	1,500	MDH160□561M30□□□
	680	20 x 40	0.15	1,700	MDH160□681L40□□□
		22 x 35	0.15	1,700	MDH160□681M35□□□
		25 x 25	0.15	1,700	MDH160□681N25□□□
	820	22 x 35	0.15	2,000	MDH160□821M35□□□
		25 x 30	0.15	2,000	MDH160□821N30□□□
		30 x 25	0.15	2,000	MDH160□821O25□□□
	1,000	22 x 45	0.15	2,200	MDH160□102M45□□□
		25 x 35	0.15	2,200	MDH160□102N35□□□
		30 x 25	0.15	2,200	MDH160□102O25□□□
	1,200	25 x 40	0.15	2,300	MDH160□122N40□□□
		30 x 30	0.15	2,300	MDH160□122O30□□□
		35 x 25	0.15	2,300	MDH160□122P25□□□
	1,500	25 x 45	0.15	2,500	MDH160□152N45□□□
		30 x 35	0.15	2,500	MDH160□152O35□□□
		35 x 30	0.15	2,500	MDH160□152P30□□□
	1,800	30 x 40	0.15	2,700	MDH160□182O40□□□
		35 x 35	0.15	2,700	MDH160□182P35□□□
	2,200	30 x 45	0.15	2,900	MDH160□222O45□□□
35 x 35		0.15	2,900	MDH160□222P35□□□	
2,700	35 x 45	0.15	3,100	MDH160□272P45□□□	
3,300	35 x 50	0.15	3,300	MDH160□332P50□□□	
180	330	20 x 25	0.15	1,200	MDH180□331L25□□□
	390	20 x 30	0.15	1,280	MDH180□391L30□□□
		22 x 25	0.15	1,280	MDH180□391M25□□□
	470	20 x 35	0.15	1,380	MDH180□471L35□□□
		22 x 30	0.15	1,380	MDH180□471M30□□□
	560	20 x 40	0.15	1,500	MDH180□561L40□□□
		22 x 30	0.15	1,500	MDH180□561M30□□□
	680	25 x 25	0.15	1,500	MDH180□561N25□□□
		20 x 45	0.15	1,700	MDH180□681L45□□□
		22 x 35	0.15	1,700	MDH180□681M35□□□
	820	25 x 30	0.15	1,700	MDH180□681N30□□□
		22 x 40	0.15	2,000	MDH180□821M40□□□
		25 x 35	0.15	2,000	MDH180□821N35□□□
	1,000	30 x 25	0.15	2,000	MDH180□821O25□□□
		25 x 40	0.15	2,200	MDH180□102N40□□□
		30 x 30	0.15	2,200	MDH180□102O30□□□
	1,200	35 x 25	0.15	2,200	MDH180□102P25□□□
		25 x 45	0.15	2,300	MDH180□122N45□□□
		30 x 35	0.15	2,300	MDH180□122O35□□□
	1,500	35 x 30	0.15	2,300	MDH180□122P30□□□
		25 x 50	0.15	2,500	MDH180□152N50□□□
		30 x 40	0.15	2,500	MDH180□152O40□□□
	1,800	35 x 30	0.15	2,500	MDH180□152P30□□□
		30 x 45	0.15	2,700	MDH180□182O45□□□
35 x 35		0.15	2,700	MDH180□182P35□□□	
2,200	30 x 50	0.15	2,900	MDH180□222O50□□□	
	35 x 40	0.15	2,900	MDH180□222P40□□□	
2,700	35 x 50	0.15	3,100	MDH180□272P50□□□	
200	270	20 x 25	0.15	990	MDH200□271L25□□□
	330	20 x 30	0.15	1,200	MDH200□331L30□□□
		22 x 25	0.15	1,200	MDH200□331M25□□□
	390	20 x 30	0.15	1,330	MDH200□391L30□□□
		22 x 25	0.15	1,310	MDH200□391M25□□□

WV (Vdc)	Cap (uF)	Size ØxL (mm)	Tan δ	Ripple <sup>1)</sup>	Code No	
200	470	20 x 35	0.15	1,480	MDH200□471L35□□□	
		22 x 30	0.15	1,480	MDH200□471M30□□□	
		25 x 25	0.15	1,480	MDH200□471N25□□□	
	560	20 x 40	0.15	1,600	MDH200□561L40□□□	
		22 x 35	0.15	1,600	MDH200□561M35□□□	
	680	22 x 40	0.15	1,750	MDH200□681M40□□□	
		25 x 30	0.15	1,750	MDH200□681N30□□□	
		30 x 25	0.15	1,750	MDH200□681O25□□□	
	820	22 x 45	0.15	2,040	MDH200□821M45□□□	
		25 x 35	0.15	2,040	MDH200□821N35□□□	
	1,000	22 x 50	0.15	2,300	MDH200□102M50□□□	
		25 x 45	0.15	2,300	MDH200□102N45□□□	
		30 x 30	0.15	2,300	MDH200□102O30□□□	
		35 x 25	0.15	2,300	MDH200□102P25□□□	
	1,200	25 x 50	0.15	2,650	MDH200□122N50□□□	
		30 x 35	0.15	2,650	MDH200□122O35□□□	
		35 x 30	0.15	2,650	MDH200□122P30□□□	
	1,500	30 x 40	0.15	2,800	MDH200□152O40□□□	
		35 x 35	0.15	2,800	MDH200□152P35□□□	
	1,800	30 x 50	0.15	3,080	MDH200□182O50□□□	
		35 x 40	0.15	3,080	MDH200□182P40□□□	
	2,200	35 x 45	0.15	3,480	MDH200□222P45□□□	
	220	220	20 x 25	0.15	980	MDH220□221L25□□□
		270	20 x 30	0.15	1,080	MDH220□271L30□□□
22 x 25			0.15	1,080	MDH220□271M25□□□	
330		20 x 35	0.15	1,260	MDH220□331L35□□□	
		22 x 25	0.15	1,260	MDH220□331M25□□□	
390		20 x 35	0.15	1,340	MDH220□391L35□□□	
		22 x 30	0.15	1,340	MDH220□391M30□□□	
		25 x 25	0.15	1,340	MDH220□391N25□□□	
470		20 x 45	0.15	1,480	MDH220□471L45□□□	
		22 x 35	0.15	1,480	MDH220□471M35□□□	
560		22 x 40	0.15	1,610	MDH220□561M40□□□	
		25 x 35	0.15	1,610	MDH220□561N35□□□	
		30 x 25	0.15	1,610	MDH220□561O25□□□	
680		22 x 45	0.15	1,780	MDH220□681M45□□□	
		25 x 35	0.15	1,780	MDH220□681N35□□□	
		30 x 30	0.15	1,780	MDH220□681O30□□□	
820		22 x 50	0.15	1,930	MDH220□821M50□□□	
		25 x 40	0.15	1,930	MDH220□821N40□□□	
		30 x 35	0.15	1,930	MDH220□821O35□□□	
		35 x 25	0.15	1,930	MDH220□821P25□□□	
1,000		25 x 50	0.15	2,330	MDH220□102N50□□□	
		30 x 35	0.15	2,330	MDH220□102O35□□□	
		35 x 30	0.15	2,330	MDH220□102P30□□□	
1,200		30 x 40	0.15	2,500	MDH220□122O40□□□	
	35 x 35	0.15	2,500	MDH220□122P35□□□		
1,500	30 x 50	0.15	2,760	MDH220□152O50□□□		
	35 x 40	0.15	2,760	MDH220□152P40□□□		
1,800	35 x 50	0.15	3,110	MDH220□182P50□□□		
250	220	22 x 25	0.15	1,000	MDH250□221M25□□□	
	270	22 x 25	0.15	1,100	MDH250□271M25□□□	
		20 x 35	0.15	1,200	MDH250□331L35□□□	
	330	22 x 30	0.15	1,200	MDH250□331M30□□□	
		25 x 25	0.15	1,200	MDH250□331N25□□□	
	390	20 x 40	0.15	1,300	MDH250□391L40□□□	
		22 x 35	0.15	1,300	MDH250□391M35□□□	
	470	25 x 30	0.15	1,300	MDH250□391N30□□□	
		22 x 40	0.15	1,400	MDH250□471M40□□□	
	470	25 x 35	0.15	1,400	MDH250□471N35□□□	



**MDH series**

**Standard Ratings**

Note1) Ripple current = mArms/105°C,120Hz

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Tan δ	Ripple <sup>1)</sup>	Code No	
250	470	30 x 25	0.15	1,400	MDH250□471025□□□	
		22 x 45	0.15	1,500	MDH250□561M45□□□	
	560	25 x 35	0.15	1,500	MDH250□561N35□□□	
		30 x 30	0.15	1,500	MDH250□561O30□□□	
	680	22 x 50	0.15	1,700	MDH250□681M50□□□	
		25 x 40	0.15	1,700	MDH250□681N40□□□	
		30 x 30	0.15	1,700	MDH250□681O30□□□	
	820	35 x 25	0.15	1,700	MDH250□681P25□□□	
		25 x 45	0.15	2,000	MDH250□821M45□□□	
		30 x 35	0.15	2,000	MDH250□821O35□□□	
	1,000	35 x 30	0.15	2,000	MDH250□821P30□□□	
		30 x 40	0.15	2,200	MDH250□102O40□□□	
	1,200	35 x 35	0.15	2,200	MDH250□102P35□□□	
		30 x 45	0.15	2,300	MDH250□122O45□□□	
	1,500	35 x 40	0.15	2,300	MDH250□122P40□□□	
		35 x 45	0.15	2,500	MDH250□152P45□□□	
	1,800	35 x 50	0.15	2,700	MDH250□182P50□□□	
	350	120	22 x 25	0.15	750	MDH350□121M25□□□
22 x 30			0.15	820	MDH350□151M30□□□	
150		22 x 30	0.15	900	MDH350□181M30□□□	
		25 x 25	0.15	900	MDH350□181N25□□□	
220		22 x 35	0.15	1,000	MDH350□221M35□□□	
		25 x 30	0.15	1,000	MDH350□221N30□□□	
270		22 x 40	0.15	1,100	MDH350□271M40□□□	
		25 x 35	0.15	1,100	MDH350□271N35□□□	
330		30 x 25	0.15	1,100	MDH350□271O25□□□	
		22 x 45	0.15	1,200	MDH350□331M45□□□	
390		25 x 40	0.15	1,200	MDH350□331N40□□□	
		30 x 30	0.15	1,200	MDH350□331O30□□□	
470		25 x 45	0.15	1,300	MDH350□391N45□□□	
		30 x 35	0.15	1,300	MDH350□391O35□□□	
560		25 x 50	0.15	1,400	MDH350□471M50□□□	
		30 x 40	0.15	1,400	MDH350□471O40□□□	
680		35 x 30	0.15	1,400	MDH350□471P30□□□	
		30 x 45	0.15	1,500	MDH350□561O45□□□	
820		35 x 35	0.15	1,500	MDH350□561P35□□□	
		30 x 50	0.15	1,700	MDH350□681O50□□□	
400		68	20 x 25	0.15	490	MDH400□680L25SS□□□
			20 x 30	0.15	640	MDH400□820L30□□□
		82	20 x 30	0.15	680	MDH400□101L30□□□
			22 x 25	0.15	680	MDH400□101M25□□□
	100	20 x 35	0.15	730	MDH400□121L35□□□	
		22 x 30	0.15	730	MDH400□121M30□□□	
	120	20 x 40	0.15	850	MDH400□151L40□□□	
		22 x 35	0.15	850	MDH400□151M35□□□	
	150	22 x 35	0.15	950	MDH400□181M35□□□	
		25 x 30	0.15	950	MDH400□181N30□□□	
	180	30 x 25	0.15	950	MDH400□181O25□□□	
		22 x 45	0.15	1,100	MDH400□221M45□□□	
	220	25 x 35	0.15	1,100	MDH400□221N35□□□	
		30 x 25	0.15	1,100	MDH400□221O25□□□	
	270	22 x 50	0.15	1,220	MDH400□271M50□□□	
		25 x 40	0.15	1,220	MDH400□271N40□□□	
	330	30 x 30	0.15	1,220	MDH400□271O30□□□	
		35 x 25	0.15	1,220	MDH400□271P25□□□	
	390	25 x 45	0.15	1,440	MDH400□331N45□□□	
		30 x 35	0.15	1,440	MDH400□331O35□□□	
	470	25 x 50	0.15	1,550	MDH400□391N50□□□	

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Tan δ	Ripple <sup>1)</sup>	Code No
400	390	30 x 40	0.15	1,550	MDH400□391O40□□□
		35 x 30	0.15	1,550	MDH400□391P30□□□
	470	30 X 45	0.15	1,680	MDH400□471O45□□□
		35 x 35	0.15	1,680	MDH400□471P35□□□
	560	30 x 50	0.15	1,900	MDH400□561O50□□□
		35 x 40	0.15	1,900	MDH400□561P40□□□
680	35 x 45	0.15	2,120	MDH400□681P45□□□	
420	68	20 x 25	0.20	500	MDH420□680L25□□□
		20 x 25	0.20	640	MDH420□820L25□□□
	82	20 x 30	0.20	660	MDH420□101L30□□□
		22 x 25	0.20	660	MDH420□101M25□□□
	100	20 x 35	0.20	810	MDH420□121L35□□□
		22 x 30	0.20	810	MDH420□121M30□□□
	120	25 x 25	0.20	810	MDH420□121N25□□□
		20 x 40	0.20	840	MDH420□151L40□□□
	150	22 x 35	0.20	840	MDH420□151M35□□□
		25 x 30	0.20	840	MDH420□151N30□□□
	180	20 x 45	0.20	910	MDH420□181L45□□□
		22 x 40	0.20	910	MDH420□181M40□□□
		25 x 30	0.20	910	MDH420□181N30□□□
		30 x 25	0.20	910	MDH420□181O25□□□
	220	22 x 45	0.20	1,050	MDH420□221M45□□□
		25 x 35	0.20	1,050	MDH420□221N35□□□
		30 x 30	0.20	1,050	MDH420□221O30□□□
	270	25 x 40	0.20	1,250	MDH420□271M40□□□
		30 x 30	0.20	1,250	MDH420□271O30□□□
		35 x 25	0.20	1,250	MDH420□271P25□□□
	330	25 x 50	0.20	1,420	MDH420□331N50□□□
		30 x 35	0.20	1,420	MDH420□331O35□□□
		35 x 30	0.20	1,420	MDH420□331P30□□□
	390	30 X 40	0.20	1,610	MDH420□391O40□□□
35 x 35		0.20	1,610	MDH420□391P35□□□	
470	30 x 45	0.20	1,860	MDH420□471O45□□□	
	35 x 40	0.20	1,860	MDH420□471P40□□□	
560	35 x 45	0.20	2,100	MDH420□561P45□□□	
	35 x 50	0.20	2,200	MDH420□681P50□□□	
450	56	20 x 25	0.20	440	MDH450□560L25□□□
		20 x 25	0.20	500	MDH450□680L25□□□
	82	20 x 30	0.20	640	MDH450□820L30□□□
		22 x 25	0.20	640	MDH450□820M25□□□
	100	20 x 35	0.20	690	MDH450□101L35□□□
		22 x 30	0.20	690	MDH450□101M30□□□
	120	25 x 25	0.20	690	MDH450□101N25□□□
		22 x 35	0.20	720	MDH450□121M35□□□
	150	25 x 30	0.20	720	MDH450□121N30□□□
		20 x 45	0.20	790	MDH450□151L45□□□
	180	22 x 40	0.20	790	MDH450□151M40□□□
		25 x 30	0.20	790	MDH450□151N30□□□
		30 x 25	0.20	790	MDH450□151O25□□□
	220	22 x 45	0.20	870	MDH450□181M45□□□
		25 x 35	0.20	870	MDH450□181N35□□□
		30 x 30	0.20	870	MDH450□181O30□□□
	270	25 x 40	0.20	1,050	MDH450□221M40□□□
		30 x 30	0.20	1,050	MDH450□221O30□□□
		35 x 25	0.20	1,050	MDH450□221P25□□□
	330	25 x 50	0.20	1,230	MDH450□271N50□□□
		30 x 35	0.20	1,230	MDH450□271O35□□□
		35 x 30	0.20	1,230	MDH450□271P30□□□
	390	30 x 40	0.20	1,380	MDH450□331O40□□□
		35 x 35	0.20	1,380	MDH450□331P35□□□



## MDH series

### Standard Ratings

Note1) Ripple current = mA rms/105°C, 120Hz

WV (Vdc)	Cap (µF)	Size ØxL (mm)	Tan δ	Ripple <sup>1)</sup>	Code No
450	390	30 x 50	0.20	1,610	MDH450□391O50□□□
		35 x 40	0.20	1,610	MDH450□391P40□□□
	470	35 x 45	0.20	1,780	MDH450□471P45□□□
	560	35 x 50	0.20	1,990	MDH450□561P50□□□
500	56	22 x 25	0.20	470	MDH500□560M25□□□
	68	22 x 30	0.20	520	MDH500□680M30□□□
		25 x 25	0.20	520	MDH500□680N25□□□
	82	22 x 35	0.20	590	MDH500□820M35□□□
	100	22 x 40	0.20	650	MDH500□101M40□□□
		25 x 30	0.20	650	MDH500□101N30□□□
		30 x 25	0.20	650	MDH500□101O25□□□
	120	22 x 45	0.20	680	MDH500□121M45□□□
		25 x 35	0.20	680	MDH500□121N35□□□
		30 x 30	0.20	680	MDH500□121O30□□□
	150	22 x 50	0.20	750	MDH500□151M50□□□
		25 x 45	0.20	750	MDH500□151N45□□□
		35 x 25	0.20	750	MDH500□151P25□□□
	180	25 x 50	0.20	900	MDH500□181N50□□□
		30 x 35	0.20	900	MDH500□181O35□□□
		35 x 30	0.20	900	MDH500□181P30□□□
	220	30 x 45	0.20	1,020	MDH500□221O45□□□
		35 x 35	0.20	1,020	MDH500□221P35□□□
	270	30 x 50	0.20	1,120	MDH500□271O50□□□
		35 x 40	0.20	1,120	MDH500□271P40□□□
330	35 x 45	0.20	1,250	MDH500□331P45□□□	
390	35 x 50	0.20	1,300	MDH500□391P50□□□	