EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

WH Series

- Standard series for general purpose
- Wide temperature range from -40℃~+105℃
- Endurance: +105℃2,000hours
- **RoHS Compliant**



◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃(6.3 to 100Vdc)　　−25 to +105℃(160 to 450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: I≦0.03CV or 4uA（at 1minute） I≦0.01CV or 3uA（at 2minute） Whichever is greater 160 to 450Vdc: CV≤1,000: I≦0.1CV+40μA (After 1 minutes); I≦0.03CV+15μA (After 5 minutes); CV>1,000: I≦0.04CV+100μA (After 1 minutes); I≦0.02CV+25μA (After 5 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃)

Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3	10	16	25	35	50	63	100	160~250	350~400	450
	tanδ (Max.)	0.26	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.20	0.24	0.24

When nominal capacitance exceeds 1,000 uF, add 0.02 to the value above for each 1,000 uF increase. (at 20℃, 120Hz)

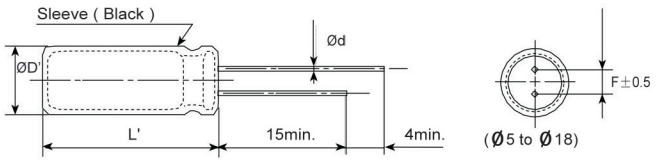
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3	10	16	25	35	50	63	100	160~250	350~400	450
	Z(−25℃)/Z(+20℃)	5	4	3	2					3	6	6
	Z(−40℃)/Z(+20℃)	12	10	8	5	4	3			-	-	-

(at 120Hz)

Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.	
	Capacitance change	≤±20% of the initial value
	D.F. (tanδ)	≤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℃ after exposing them for 1,000 hours at 105℃ without voltage applied.	
	Capacitance change	≤±20% of the initial value
	D.F. (tanδ)	≤200% of the initial specified value
	Leakage current	≤ 200% of the initial specified value

◆ DIMENSIONS [mm]



ØD	5	6.3	8		10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5		5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.							
L'	L+2max.							

◆ PART NUMBER SYSTEM

E WH 2E M 2R2 E11 O-- T

- T — Sleeve Code: PVC is "C" PET is "T"
- O-- — Terminal code
- E11 — Size code
- 2R2 — Capacitance code
- M — Capacitance tolerance code
- 2E — Voltage code
- WH — Series code
- E — Category

※Sleeve Code and Terminal Code should follow the part number system

◆ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz) / Cap.(uF)	50	120	300	1k	10k	100k
Cap.<10	0.65	1.00	1.35	1.75	2.30	2.50
10≤Cap.<100	0.75	1.00	1.25	1.50	1.75	1.80
100≤Cap.≤1000	0.80	1.00	1.15	1.30	1.40	1.50
Cap.>1000	0.85	1.00	1.03	1.05	1.08	1.08

The endurance of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.