

# Metallized Polypropylene Film Medium/High Power DC-Link Capacitors FHA Series - 450 ~ 3000VDC (Customized Rectangular Case)



## Overview

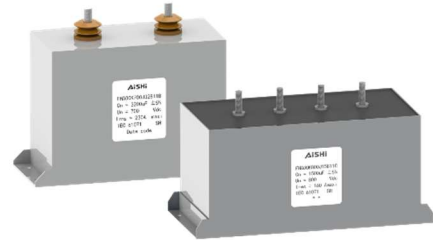
The FHA capacitor is constructed of metallized polypropylene film, sealed with epoxy in aluminum case or stainless-steel casing. These capacitors are suitable for high capacitance requirement of DC-Link circuits.

## Applications

DC Link, DC Filtering circuit. Energy storage, High Voltage Direct Current (HVDC) transmission systems.

## Features

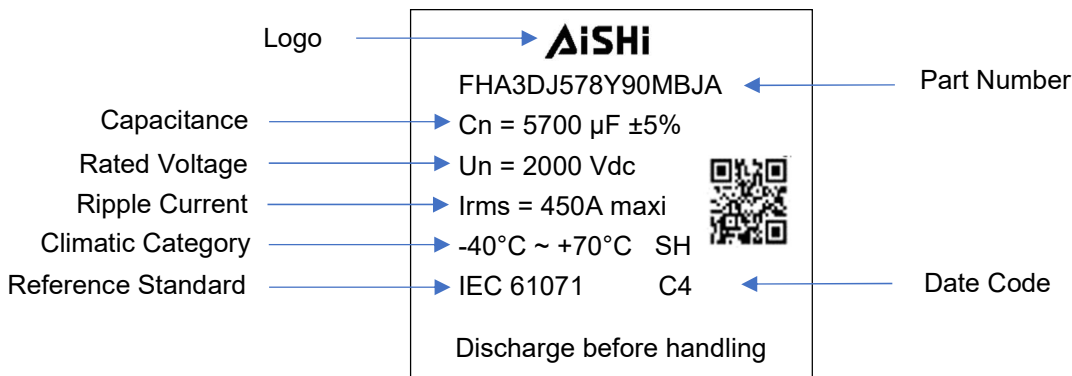
- High capacitance density
- Self-healing technology
- High ripple current
- High performance and high reliability



## Qualification

Reference Standard	IEC 61071
Climate Category	40/70/21 IEC 60068-1

## Marking



## Manufacturing Date Code

Year	Code	Month	Code
2018	A	Jan	1
2019	B	Feb	2
2020	C	Mar	3
2021	D	Apr	4
2022	E	May	5
2023	F	Jun	6

Year	Code	Month	Code
2024	G	Jul	7
2025	H	Aug	8
2026	J	Sep	9
2027	K	Oct	A
2028	L	Nov	N
2029	M	Dec	D

Metallized Polypropylene Film  
 Medium/High Power DC-Link Capacitors  
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**Part Number System**

F	HA	3D	J	578	Y90	MBJ	A
Capacitor Type	Series	Voltage (VDC)	Tolerance	Capacitance (pF)	Case Code	Terminal Code	Bushing Code
F = Film	DC Link, Power Capacitor, Metallized PP Film	450=2W 1000=3K 1100=3M 1500=3U 2000=3D 2500=3E 3000=3F	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Customized Case Code Table	Refer to Terminal Code Table	Refer to Bushing Code Table

**Customized Case Code Table**

Drawing Code 1	Drawing Code 2	Drawing Code 3
A ~ Z	0 ~ 9	0 ~ 9

**Terminal Code**

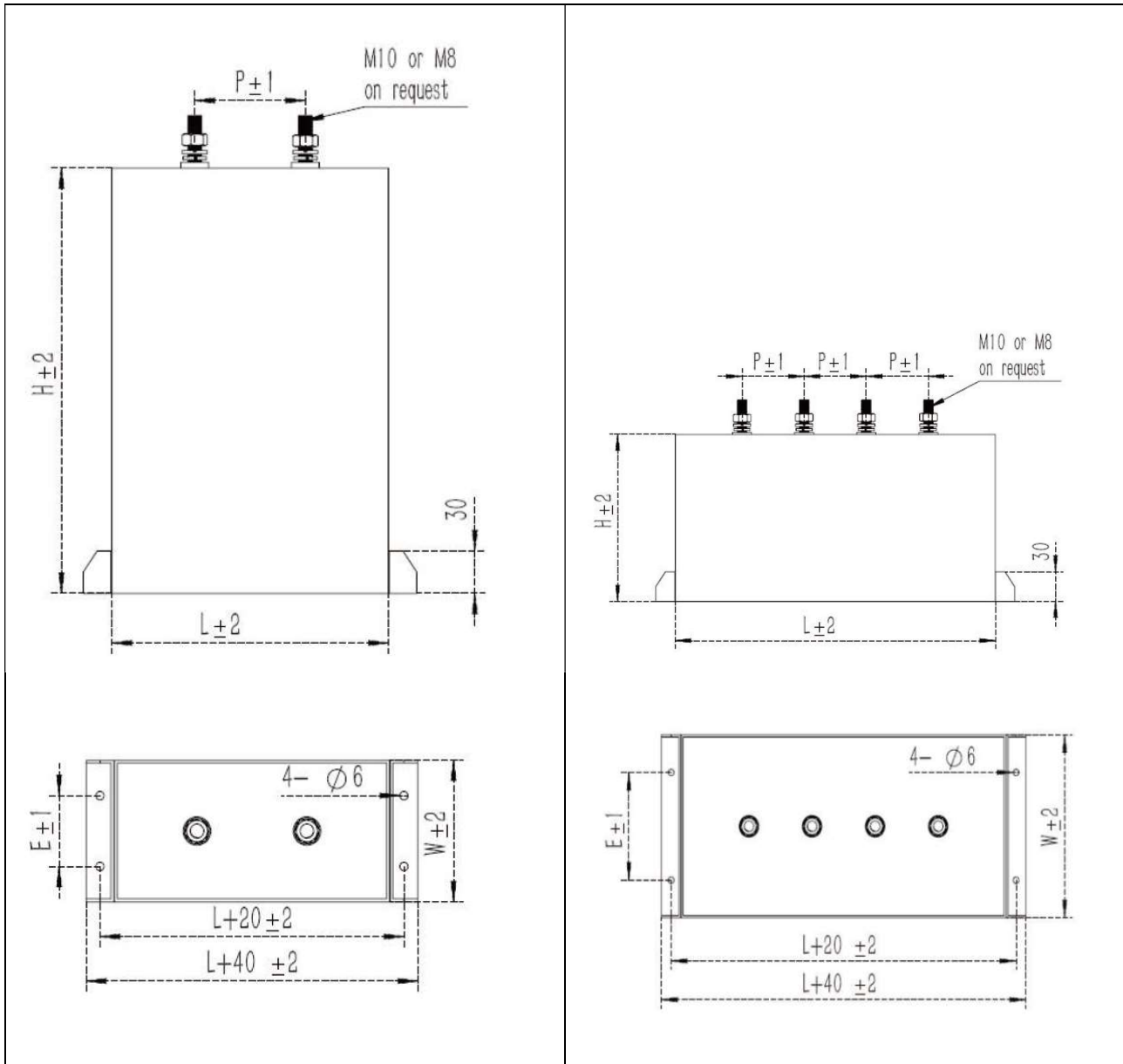
**Bushing Code**

Digit One (Terminal Type)		Digit Two (Terminal Space)		Digit Three (Terminal Size)		Bushing Code	
Male Terminal	M	60mm	A	M5	5	Ø60*30 1 cycle	A
Female Terminal	F	80mm	B	M6	6	Ø60*40 3 cycle	B
		100mm	C	M8	8	Ø40*40 3 cycle	C
		120mm	D	M10	H		
				M12	J		
				M16	K		

**Terminal Configuration**

Fig. 1 – Capacitor with 2 terminals

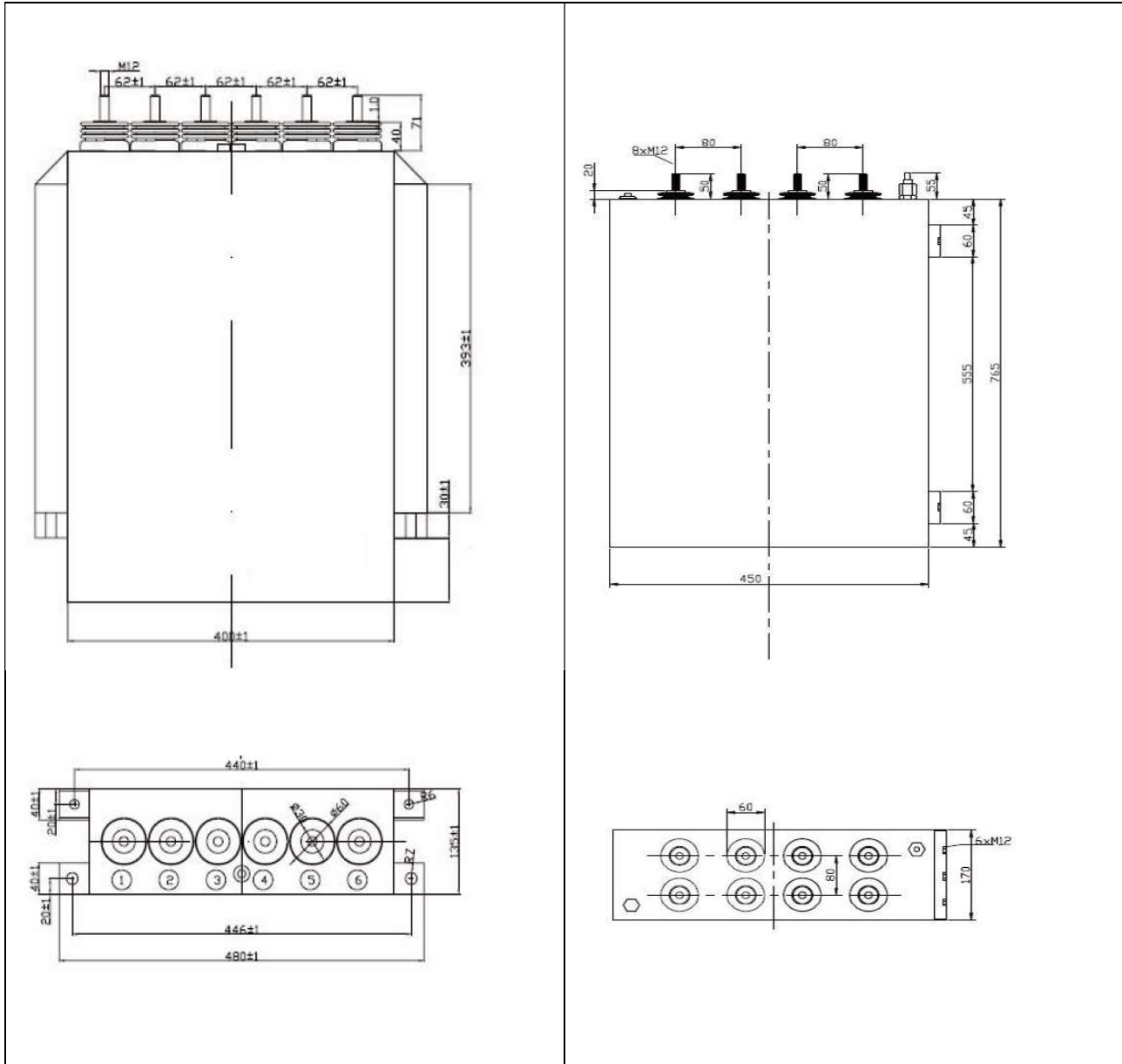
Fig. 2 – Capacitor with 4 terminals



**Terminal Configuration**

Fig. 3 – Capacitor with 6 terminals

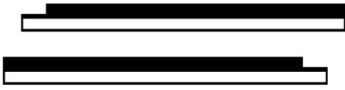
Fig. 4 – Capacitor with 8 terminals



**General Technical Data**

Applications	DC Link / DC Filtering
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 61071
Climatic Category	40/70/21 IEC 60068-1
Rated Temperature $T_R$	+70°C
Operating Temperature Range	-40°C ~ +70°C
Storage Temperature	-40°C ~ +85°C

**Constructions**

Metallized Film	OPP & Al/Zn
Metal Sprayed	Zn
Connection Stripe	Tinned Copper
Case	Stainless Steel or Aluminum Case
Filling	Epoxy resin, flame retardant UL 94 V0
Terminal	Tinned brass with plastic bushing
Film Construction	Mono Structure 

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**Electrical Characteristics**

Voltage Range	450Vdc ~ 3000Vdc
Capacitance Range	1000 $\mu$ F ~ 20,000 $\mu$ F
Capacitance Tolerance	$\pm$ 5% or $\pm$ 10% at +25°C
Capacitance	Measuring Frequency at 100 Hz Measuring Voltage: $1\pm 0.2$ V
Standard Atmospheric Conditions for Static Test	<b>Ambient temperature</b> 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C) <b>Relative humidity</b> 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70 %.) <b>Air pressure</b> 86 kPa to 106 kPa.
Visual examination, Marking (Non-Destructive)	Appearance: no remarkable abnormality
Voltage Between Terminals $U_{TT}$	1.5 $U_n$ / 10s (25 $\pm$ 5°C)
Voltage Between Terminals and Case $U_{TC}$	4000V <sub>AC</sub> 50Hz 10 s
Dissipation factor	$\leq$ 0.0030 (20°C, at 100Hz)
Insulation Resistance IR	IR x C $\geq$ 10,000s at 100Vdc, 1 minutest at 25°C
Hot-Spot	$\leq$ 85°C
Life Expectancy	$\geq$ 100,000 hours at rated voltage and Hot-Spot Temperature T=+70°C
Failure Rate	$\leq$ 100FIT
<b>Overvoltage</b> Apply 110% of rated voltage Apply 115% of rated voltage Apply 120% of rated voltage Apply 130% of rated voltage Apply 150% of rated voltage	<b>Maximum duration within one day</b> 30% of on-load duration 30 mins 5 mins 1 min 30 ms every time, 1000 times during lifetime

### Cautions and Warnings

- Don't exceed the upper category temperature.
- For longtime storage, maximum relative humidity 80%, no dew allowed on the capacitor.
- Do not use or store capacitor in corrosive atmosphere, in the dusty environment's regular maintenance and cleaning especially of the terminals is required to avoid conductive path between terminal / or terminal and ground.
- Don't apply any mechanical stress to the capacitor terminals, and avoid any compressive, tensile or flexural stress.
- Avoid overload of the capacitors
- Do not have unlimited service life expectancy, the max service life expectancy may vary depending on the application the capacitor is used in.

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