

### Automotive Grade AC Line Rated Ceramic Disc Capacitors Class X1, 760 V<sub>AC</sub>, Class Y1, 500 V<sub>AC</sub>



**X1 / Y1 Rated  
Safety Capacitors for  
Automotive Applications**

#### KEY BENEFITS

- AEC-Q200 qualified
- Withstand 85 / 85 / 1000 h test
- Pass 1000 temperature cycles (from -55 °C to +125 °C)
- X1, Y1 according to IEC 60384-14.4
- High electrical and mechanical robustness suitable for automotive applications

#### APPLICATIONS

- AC line filtering
- On-board chargers and DC/DC converters for EVs and PHEVs
- Also ideally suited for high quality industrial applications

#### RESOURCES

- Datasheet: AY1 Series - [www.vishay.com/doc?28563](http://www.vishay.com/doc?28563)
- For technical questions contact [cdc@vishay.com](mailto:cdc@vishay.com)
- Material categorization: for definitions, please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### Automotive Grade AC Line Rated Ceramic Disc Capacitors Class X1, 760 V<sub>AC</sub>, Class Y1, 500 V<sub>AC</sub>



#### FEATURES

- AEC-Q200 qualified
- Withstands 85 / 85 / 1000 h test
- Can pass 1000 temperature cycles (from -55 °C to +125 °C)
- Can pass 10 kV pulses (10 per polarity)
- Complying with IEC 60384-14 4<sup>th</sup> edition
- High reliability
- Singlelayer AC disc safety capacitors
- PPAP (AIAG version) is available
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Ceramic Class	2
Ceramic Dielectric	Y5U
Voltage (V <sub>AC</sub> )	500      760
Min. Capacitance (pF)	470
Max. Capacitance (pF)	4700
Mounting	Radial

#### APPLICATIONS

- X1, Y1 according to IEC 60384-14.4
- Application as Y capacitors for AC line filter and primary-secondary coupling on battery chargers for PHEV/EV
- Application as filter capacitors on DC/DC converters for PHEV/EV and HEV

#### DESIGN

The capacitor consists of a ceramic disc which is copper plated on both sides. Connection leads are made of tin plated copper-clad steel having a diameter of 0.6 mm or 0.8 mm.

The capacitors may be supplied with straight leads having a lead spacing of 10.0 mm and 12.5 mm. Encapsulation is made of flame retardant epoxy resin in accordance with UL 94 V-0.

#### CAPACITANCE RANGE

470 pF to 4700 pF

#### RATED VOLTAGE U<sub>R</sub>

IEC 60384-14.4:

(X1): 760 V<sub>AC</sub>, 50 Hz

(Y1): 500 V<sub>AC</sub>, 50 Hz

1500 V<sub>DC</sub>

#### TEST VOLTAGE

Component test (100 %):

4000 V<sub>AC</sub>, 50 Hz, 2 s

Random sampling test (destructive test):

4000 V<sub>AC</sub>, 50 Hz, 60 s

Voltage proof of coating (destructive test):

4000 V<sub>AC</sub>, 50 Hz, 60 s

#### INSULATION RESISTANCE

≥ 10 000 MΩ

#### CAPACITANCE TOLERANCE

± 20 % (code M)

#### DISSIPATION FACTOR

Class 2: max. 2.5 % (1 kHz)

#### OPERATING TEMPERATURE RANGE

-55 °C to +125 °C

#### TEMPERATURE CHARACTERISTICS

Class 2: Y5U

#### SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60058-1)

Class 2: 40 / 125 / 21

#### COATING

According to UL 94 V-0

Epoxy resin, isolating, flame retardant

#### APPROVALS

IEC 60384-14.4

UL 60384-14

DIN EN 60384-14

CSA E60384-1:03, CSA E60384-14:09

CQC (IEC 60384-14)

#### PACKAGING

Bulk, tape and reel, taped ammpack

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