

Automotive Grade AC Line Rated Ceramic Disc Capacitors Class X1, 760 V_{AC}, Class Y1, 500 V_{AC}



**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
- For technical questions contact cdc@vishay.com
- Material categorization: for definitions, please see www.vishay.com/doc?99912



Automotive Grade AC Line Rated Ceramic Disc Capacitors Class X1, 760 V_{AC}, Class Y1, 500 V_{AC}



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 4th 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

AUTOMOTIVE
GRADE

RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

QUICK REFERENCE DATA

DESCRIPTION	VALUE	
Ceramic Class	2	
Ceramic Dielectric	Y5U	
Voltage (V _{AC})	500	760
Min. Capacitance (pF)	470	
Max. Capacitance (pF)	4700	
Mounting	Radial	

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

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_R

IEC 60384-14.4:

(X1): 760 V_{AC}, 50 Hz

(Y1): 500 V_{AC}, 50 Hz

1500 V_{DC}

TEST VOLTAGE

Component test (100 %):

4000 V_{AC}, 50 Hz, 2 s

Random sampling test (destructive test):

4000 V_{AC}, 50 Hz, 60 s

Voltage proof of coating (destructive test):

4000 V_{AC}, 50 Hz, 60 s

INSULATION RESISTANCE

≥ 10 000 MΩ

CAPACITANCE TOLERANCE

± 20 % (code M)

DISSIPATION FACTOR

Class 2: max. 2.5 % (1 kHz)