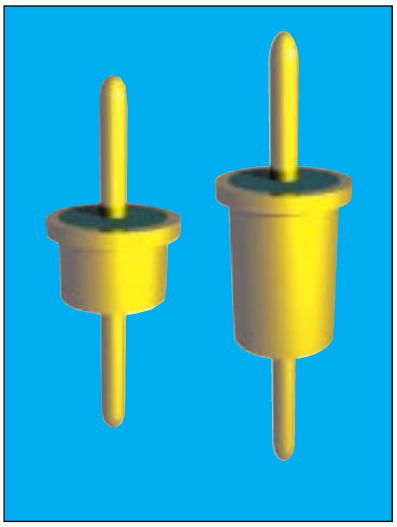
Solder-In Style High Temp EMI Filters

ZS/ZR Series – .128 Dia. – Circuits Available – C & L



APPLICATIONS

The ZS series provides effective filtering in the MICROWAVE frequency spectrum from 10 MHz through 26 GHz. Designed to be soldered into a package, bracket or bulkhead (and maintain hermeticity), it is ideal for high impedance circuits where large capacitance values are not practical. In the "L" section version an internal ferrite bead element provides both inductance and series resistance (lossy characteristic) which improves insertion loss and provides superior transient performance.

Alternate lead lengths or special capacitance values may be ordered.

Custom packages or bracket assemblies utilizing this feedthru can be furnished to your specifications.

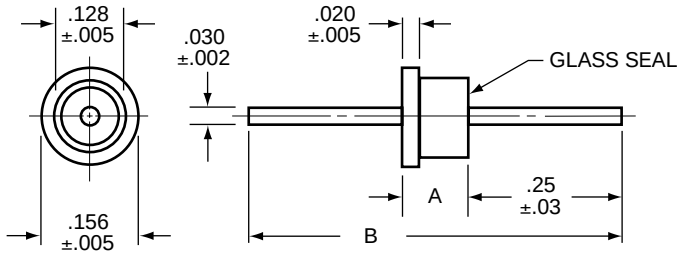
CHARACTERISTICS

- Meets or exceeds the applicable portions of MIL-F-28861/12. See QPL listings.
- High temperature construction withstands 300°C installation temperatures.
- Features rugged monolithic discoidal capacitor construction.
- Glass hermetic seal on one end with epoxy seal on the opposite end.
- High purity gold plating provides excellent solderability or compatibility with thermal and ultrasonic wire bonding.

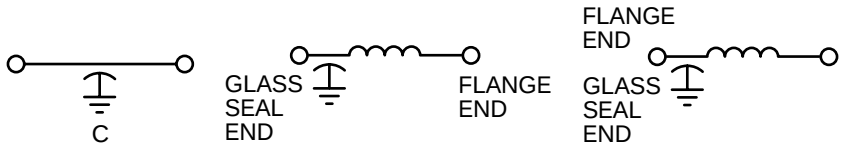
SPECIFICATIONS

1. Plating: Gold standard –
   Silver and solder coat available
2. Material:
   Case: Cold rolled steel
   Leads: Alloy 52 steel
3. Operating Temperature Range:
   -55°C to +125°C
4. Insulation Resistance:
   At 25°C: 1,000 megohm-microfarad min., or 100,000 megohms min., whichever is less
   At 125°C: 100 megohm-microfarad min., or 10,000 megohms min., whichever is less
5. Dielectric Withstanding Voltage (DWV):
   R-level designs:
   2.0 times rated DC voltage
   Class B, Class S designs:
   2.5 times rated DC voltage
6. DC Resistance (DCR): .01 ohm, maximum
7. Dissipation Factor (DF): 3% maximum
8. Rated DC Current: 5 Amps, maximum
9. Maximum Installation Temperature: 300°C
10. Supplied with 60/40 solder preform for easy installation
11. Insertion Loss for the "C" and "L" circuits are equivalent due to the saturation characteristic of the ferrite bead element at full rated current. At lower currents the "L" becomes much more effective.

STANDARD CONFIGURATION



CIRCUIT DIAGRAMS



millimeters (inches)

0.05 (.002)	3.25 (.128)
0.13 (.005)	3.96 (.156)
0.51 (.020)	5.08 (.200)
0.76 (.030)	6.4 (.25)
0.8 (.03)	15.88 (.625)
2.79 (.110)	18.16 (.715)

(See Note 4)

Circuit Diagram	Dimensions A ±.005	Dimensions B Nom.
L	.200	.715
C	.110	.625

Notes:

1. Outline drawing shows standard ZS configuration. Also available with glass seal at the opposite end, ZR reverse configuration.
2. MIL-F-28861/12 style FS70 equivalent to standard ZS configuration. Style FS71 is reverse ZR configuration.
3. For ZS2 or ZR2 L-Section Filters inductor always positioned at epoxy-filled end.
4. Metric equivalent dimensions given for information only.

MIL-F-28861/12 (See Note 2)

Dash No.	Style
001 through 016, 033 and 034	FS70
017 through 032, 035 and 036	FS71

Solder-In Style High Temp EMI Filters

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SPECIFICATIONS

					Insertion Loss[2] Per MIL-STD-220, +25°C					
AVX P/N	Current AMP	CKT	DC Voltage	CAP[1] Min.	500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
ZS1C2-501H	5	C	50	500	–	–	–	15	30	50
ZS1C2-102H	5	C	50	1000	–	–	4	20	31	55
ZS1C2-122H	5	C	50	1200	–	–	5	20	35	55
ZS1C2-272H	5	C	50	2700	–	–	10	25	40	60
ZS1C2-502H	5	C	50	5000	–	–	15	30	45	60
ZS1C2-103H	5	C	50	.010	–	4	20	35	48	60
ZS1C2-153H	5	C	50	.015	–	7	25	40	50	60
ZS2C2-501H	5	L	50	500	–	–	–	15	30	50
ZS2C2-102H	5	L	50	1000	–	–	4	20	33	55
ZS2C2-122H	5	L	50	1200	–	–	5	20	37	55
ZS2C2-272H	5	L	50	2700	–	–	10	25	40	60
ZS2C2-502H	5	L	50	5000	–	–	15	30	45	60
ZS2C2-103H	5	L	50	.010	–	4	20	38	50	60
ZS2C2-153H	5	L	50	.015	–	7	25	42	50	60
ZS1A2-101H	5	C	100	100	–	–	–	3	20	30
ZS1A2-501H	5	C	100	500	–	–	–	15	30	50
ZS1A2-102H	5	C	100	1000	–	–	4	20	31	55
ZS1A2-122H	5	C	100	1200	–	–	5	20	35	55
ZS1A2-272H	5	C	100	2700	–	–	10	25	40	60
ZS1A2-502H	5	C	100	5000	–	–	15	30	45	60
ZS1A2-103H	5	C	100	.010	–	4	20	35	48	60
ZS1A2-153H	5	C	100	.015	–	7	25	40	50	60
ZS2A2-100H	5	L	100	10	–	–	–	–	5	10
ZS2A2-250H	5	L	100	25	–	–	–	–	10	15
ZS2A2-101H	5	L	100	100	–	–	–	3	20	30
ZS2A2-501H	5	L	100	500	–	–	–	15	30	50
ZS2A2-102H	5	L	100	1000	–	–	4	20	33	55
ZS2A2-122H	5	L	100	1200	–	–	5	20	37	55
ZS2A2-272H	5	L	100	2700	–	–	10	25	40	60
ZS2A2-502H	5	L	100	5000	–	–	15	30	45	60
ZS2A2-103H	5	L	100	.010	–	4	20	38	50	60
ZS2A2-153H	5	L	100	.015	–	7	25	42	50	60

continued

[1] Decimal point values indicate capacitance in microfarads. Non-decimal point values indicate capacitance in picofarads.

[2] Insertion loss limits are based on theoretical values. Actual measurements may vary due to internal capacitor resonances and other design constraints.

NOTE: AVX Filters' Standard configurations (e.g. ZS, YS, XS, WS) have the hermetic glass seal opposite the flange end. All parts are capable of the reverse configuration with the glass seal at the flange end. All parameters are otherwise identical. The part number changes from "S" to "R" (e.g., standard = ZS1C2-153H; reverse = ZR1C2-153H).

For special multi-unit assemblies see Multi-Component Filter Brackets section.

How To Order

Notes

NOTE 1: CAPACITANCE CODE

All AVX Filters part numbers, with exception of certain cylindrical styles, show total filter capacitance using the 3-digit EIA code. The first two digits are significant: the last digit is the multiplier.

Example: 103=10000 picofarads
125=1200000 picofarads
(1.2 microfarads)

It is important to note that π filters and multisection filters are described using the EIA code from the standpoint of total capacitance. Capacitance is understood to be specified as "guaranteed minimum value" (GMV) unless otherwise specified. AVX Filters can supply ±20% or other specified tolerances at an additional charge. Contact AVX Filters Applications Engineering for further information.

NOTE 2: RELIABILITY CODES

The customer must select the reliability code to be consistent with the filter application. As a minimum, all catalog filters are available as R-level designs.

Options:

"-" signifies an R-level filter design without the optional R-level high-rel screening

"R" R-level design with optional R-level high-rel screening also specified

"B" Class B design with Group A screening per M28861 for Class B filters

"S" Class S design with Group A screening per M28861 for Class S (space grade) filters

Please refer to the catalog section on Reliability for additional information on how to select reliability codes.

NOTE 3: SPECIAL DESIGN CODE (ASSIGNED BY AVX FILTERS)

A special suffix to the standard part number will be added by AVX Filters Applications Engineering to describe special designs or designs that are controlled by customer specifications. It is important to note that even in those instances where a customer drawing describes a standard catalog design it is AVX Filters policy to assign a special part number to the customer drawing for configuration control.

NOTE 4: VOLTAGE CODES AND FILTER VOLTAGE RATINGS

IMPORTANT: please contact AVX Filters Applications Engineering when considering DC-rated filter designs for possible use in AC applications. As a general rule, DC designs may be derated for AC applications. Let us assist you.

The voltage code letters must be selected consistent with the capabilities as outlined in the product selection tables for a given filter type. It is important to note that the same code letter may signify a different voltage rating depending upon filter type. For example: the "L" code signifies a 200 VDC/125 VAC rating for a bolt-style filter, but it describes a 300 VDC/125 VAC design when applied to a JD-style filter.

NOTE 5: TERMINAL AND LEADWIRE CODES

Non-standard terminal configurations including special materials or finishes are available. Please indicate a description and/or outline drawing when requesting a non-standard terminal (code "3").

NOTE 6: SPECIAL INFORMATION FOR CYLINDRICAL STYLE FILTERS

L-section filter designs must be specified with regard to "standard" or "reverse" configuration. The L-section filter is normally utilized with the capacitor on the high impedance side of the circuit and the inductor looking into the low impedance side. Compact filter types such as the BK2 or CK2 button filters with ferrite bead inductors are only supplied with the bead assembled into the threaded end. GK2 and JD2 L-section filters are normally supplied with a schematic or other marking to indicate location of the inductor.

AC-rated catalog designs incorporate reduced values of capacitance to limit reactive current heating (and subsequent filter temperature rise) to safe levels. Do not specify a DC-rated filter with larger capacitance for an AC application without contacting AVX Filters Applications Engineering.

How To Order

Part Number Construction

SOLDER-IN STYLE

Z	S	2	C	2	–	1 0 3	H	X X

Basic Style
zz
Z
Y
X
W

Glass Seal Orientation
S - Standard
R - Reverse
Q - Hermetic (Glass Both Sides)
N - No Glass (Epoxy Both Sides)

Circuit
0 - Non-Feed Thru Post
1 - Feed Thru
2 - L-Section

Voltage
A - 100 VDC
B - 200 VDC
C - 50 VDC
E - 400 VDC/ 230 VAC
F - 500 VDC
G - 1000 VDC
K - 250 VDC
L - 300 VDC or 200 VDC/ 115 VAC
M - 350 VDC
N - 70 VDC

Lead
2 - Nickel Iron (Standard)
3 - Special
4 - Aluminum Compatible with seating flange (Std. Lead)
5 - Aluminum Compatible with seating flange (Special Lead)
D - Aluminum Compatible with centering flange (Std. Lead)
E - Aluminum Compatible with Centering flange (Special Lead)
F - Aluminum Compatible with Special Design

Reliability Code
See Notes

3-Digit Capacitor Code
(In pF)

Use "H" to specify Hi-Temperature (300°C) Rated Design
Y - Solder

Special Design
(Customer DWG. or QPL Designation)

BOLT STYLE

SB	2	A	1	–	1 0 3	X X

Basic Style

SA-4-40	Epoxy Sealed
SG-6-32	Epoxy Sealed
SB-8-32	Epoxy Sealed
SM-8-32	Hermetic Sealed
SH-10-32	Epoxy Sealed
SJ-12-28	Epoxy Sealed
SC-12-32	Epoxy Sealed (.187 Hex)
SP-12-32	Epoxy Sealed (.250 Hex)
SN-12-32	Hermetic Sealed
SL-1/4-28	Epoxy Sealed
SD-5/16-24	Epoxy Sealed
SF-5/16-32	Epoxy Sealed

Circuit
1 - Feedthru (C)
2 - L-Section (L)
3 - Pl-Section (π)

Voltage
A - 100 VDC
B - 200 VDC
C - 50 VDC
F - 500 VDC
G - 1000 VDC
H - 150 VDC
J - 600 VDC
K - 250 VDC
L - 200 VDC/ 125 VAC
M - 350 VDC
N - 70 VDC

Terminal
1 - Copper
2 - Steel
3 - Special Lead Design
4 - Beryllium Copper

Reliability Code
(-See Note 2)

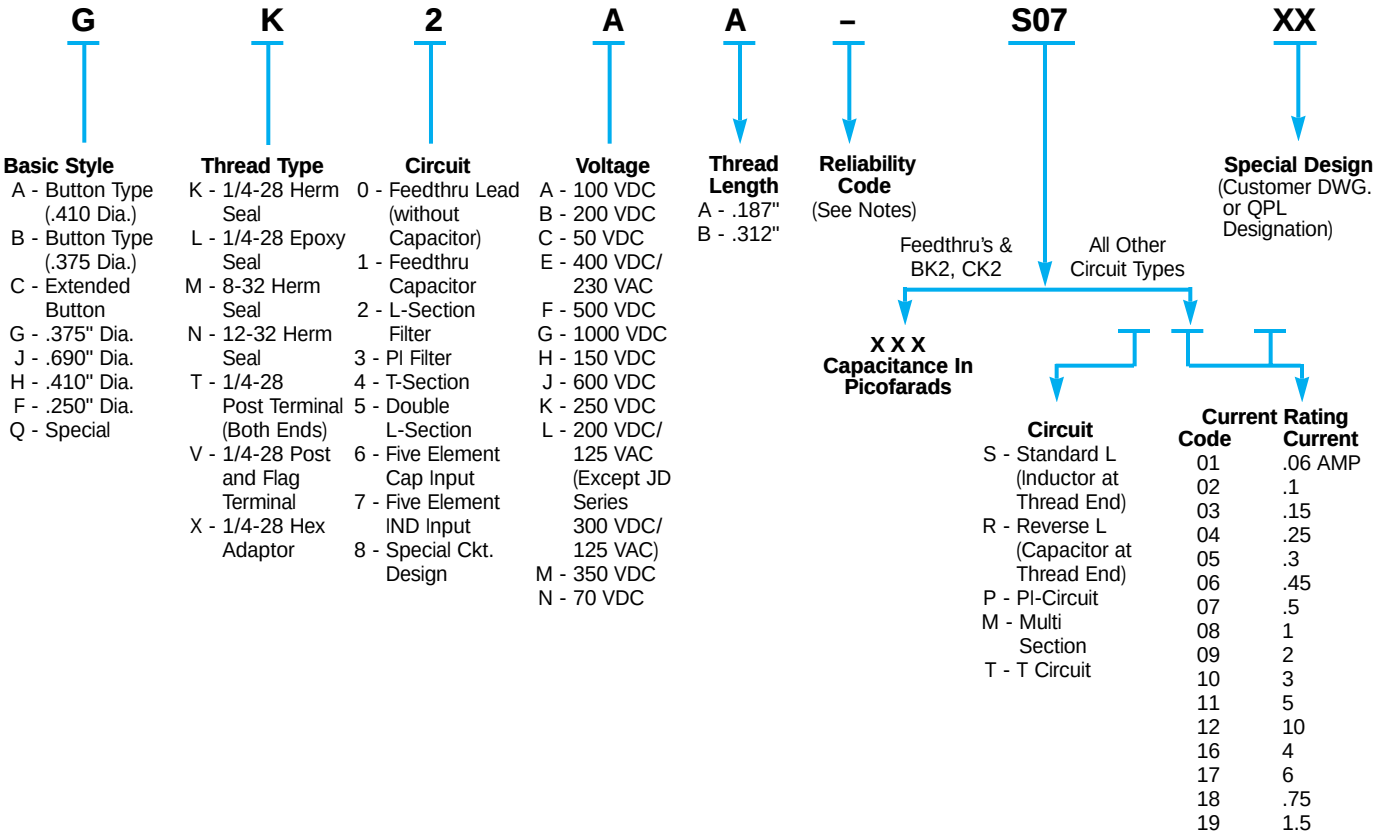
3-Digit Capacitor Code
(-See Note 1)

Special Design
(-See Note 3)

How To Order

Part Number Construction

CYLINDRICAL STYLE



Please contact the factory for Filter Plates and other custom product part numbers.