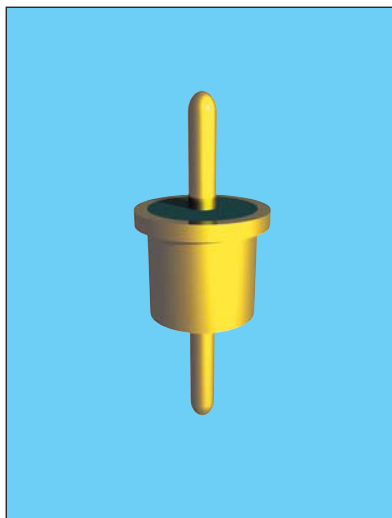


Solder-In Style High Temp EMI Filters

ZZ Series – .118 Dia. – Circuits Available - C



APPLICATIONS

The ZZ series is intended for use as a high reliability alternative to a commonly available commercial filter type. Due to its smaller body diameter, capacitance is limited. It does provide effective filtering in the MICROWAVE frequency spectrum from 100 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.

Alternate lead lengths or special capacitance values are available upon request.

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

CHARACTERISTICS

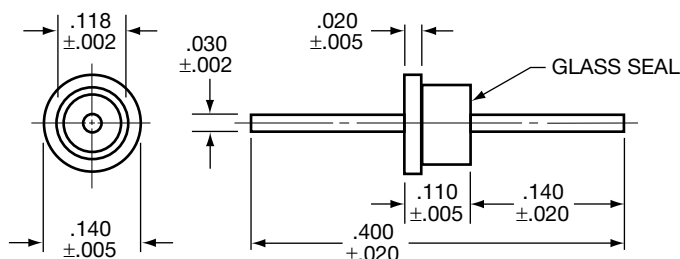
- High temperature construction withstands 300°C installation temperatures.
- Features rugged monolithic discoidal capacitor construction.
- Glass hermetic seal on one end with epoxy seal on the opposite end.
- High purity gold plating provides excellent solderability or compatibility with thermal and ultrasonic wire bonding.

SPECIFICATIONS

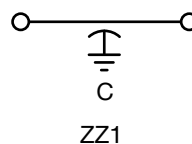
1. Finish: Gold standard – Silver and solder coat available
2. Material:
Case: Cold rolled steel
Leads: Alloy 52 steel
3. Operating Temperature Range:
-55°C to +125°C
4. Insulation Resistance:
At 25°C: 1,000 megohm-microfarad min., or 100,000 megohms min., whichever is less
At 125°C: 100 megohm-microfarad 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

STANDARD CONFIGURATION

(See Note 1)



CIRCUIT DIAGRAMS



millimeters (inches)

0.05 (.002)	3.05 (.120)
0.13 (.005)	3.43 (.135)
0.51 (.020)	3.56 (.140)
1.02 (.040)	3.68 (.145)
2.79 (.110)	10.16 (.400)
2.95 (.116)	— —

(See Note 2)

Notes:

1. Glass seal on end opposite flange.
2. Metric equivalent dimensions given for information only.

Solder-In Style High Temp EMI Filters

ZZ Series – .118 Dia. – Circuits Available - C

SPECIFICATIONS

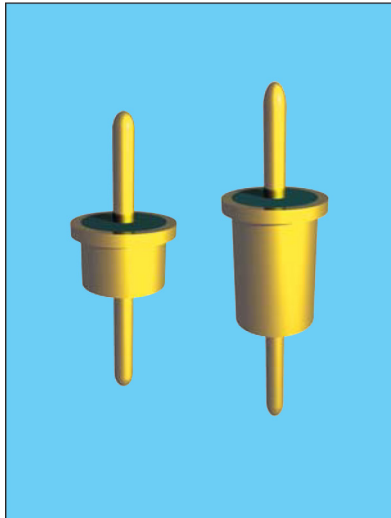
P/N	Current (A)	CKT	DC Voltage	CAP Min. (pF)	Insertion Loss ¹ Per MIL-STD-220, +25°C				
					1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
ZZ1C3-250H	5	C	50	25	–	–	–	10	15
ZZ1C3-500H	5	C	50	50	–	–	1	15	25
ZZ1C3-101H	5	C	50	100	–	–	3	20	30
ZZ1C3-102H	5	C	50	1000	–	4	20	31	55
ZZ1C3-152H	5	C	50	1500	–	5	21	42	55
ZZ1A3-250H	5	C	100	25	–	–	–	10	15
ZZ1A3-500H	5	C	100	50	–	–	1	15	25
ZZ1A3-101H	5	C	100	100	–	–	3	20	30
ZZ1A3-102H	5	C	100	1000	–	4	18	36	55
ZZ1A3-152H	5	C	100	1500	–	5	21	42	55
ZZ1B3-250H	5	C	200	25	–	–	–	10	15
ZZ1B3-500H	5	C	200	50	–	–	1	15	25
ZZ1B3-101H	5	C	200	100	–	–	3	20	30
ZZ1B3-102H	5	C	200	1000	–	4	18	36	55

¹ Insertion loss limits are based on theoretical values.
Actual measurements may vary due to internal capacitor resonances and other design constraints.

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

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.

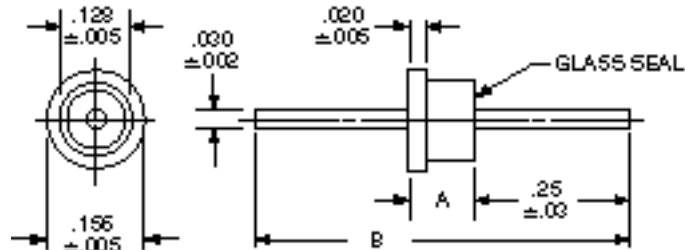
CHARACTERISTICS

- 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.

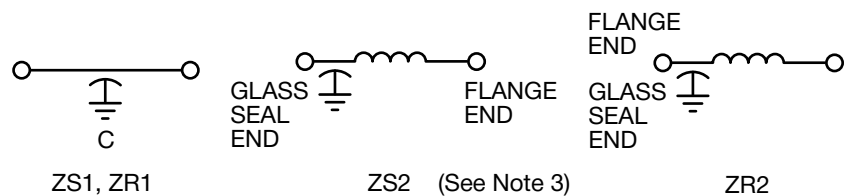
SPECIFICATIONS

1. Finish: 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	B
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

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

SPECIFICATIONS

P/N	Current (A)	CKT	DC Voltage	CAP Min.	Insertion Loss ¹ Per MIL-STD-220, +25°C					
					500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
ZS1C2-501H	5	C	50	500 pF	–	–	–	15	30	50
ZS1C2-102H	5	C	50	1000 pF	–	–	4	20	31	55
ZS1C2-122H	5	C	50	1200 pF	–	–	5	20	35	55
ZS1C2-272H	5	C	50	2700 pF	–	–	10	25	40	60
ZS1C2-502H	5	C	50	5000 pF	–	–	15	30	45	60
ZS1C2-103H	5	C	50	0.010 µF	–	4	20	35	48	60
ZS1C2-153H	5	C	50	0.015 µF	–	7	25	40	50	60
ZS2C2-501H	5	L	50	500 pF	–	–	–	15	30	50
ZS2C2-102H	5	L	50	1000 pF	–	–	4	20	33	55
ZS2C2-122H	5	L	50	1200 pF	–	–	5	20	37	55
ZS2C2-272H	5	L	50	2700 pF	–	–	10	25	40	60
ZS2C2-502H	5	L	50	5000 pF	–	–	15	30	45	60
ZS2C2-103H	5	L	50	0.010 µF	–	4	20	38	50	60
ZS2C2-153H	5	L	50	0.015 µF	–	7	25	42	50	60
ZS1A2-101H	5	C	100	100 pF	–	–	–	3	20	30
ZS1A2-501H	5	C	100	500 pF	–	–	–	15	30	50
ZS1A2-102H	5	C	100	1000 pF	–	–	4	20	31	55
ZS1A2-122H	5	C	100	1200 pF	–	–	5	20	35	55
ZS1A2-272H	5	C	100	2700 pF	–	–	10	25	40	60
ZS1A2-502H	5	C	100	5000 pF	–	–	15	30	45	60
ZS1A2-103H	5	C	100	0.010 µF	–	4	20	35	48	60
ZS1A2-153H	5	C	100	0.015 µF	–	7	25	40	50	60
ZS2A2-100H	5	L	100	10 pF	–	–	–	–	5	10
ZS2A2-250H	5	L	100	25 pF	–	–	–	–	10	15
ZS2A2-101H	5	L	100	100 pF	–	–	–	3	20	30
ZS2A2-501H	5	L	100	500 pF	–	–	–	15	30	50
ZS2A2-102H	5	L	100	1000 pF	–	–	4	20	33	55
ZS2A2-122H	5	L	100	1200 pF	–	–	5	20	37	55
ZS2A2-272H	5	L	100	2700 pF	–	–	10	25	40	60
ZS2A2-502H	5	L	100	5000 pF	–	–	15	30	45	60
ZS2A2-103H	5	L	100	0.010 µF	–	4	20	38	50	60
ZS2A2-153H	5	L	100	0.015 µF	–	7	25	42	50	60

continued

¹ Insertion loss limits are based on theoretical values.
Actual measurements may vary due to internal capacitor resonances and other design constraints.

NOTE: 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.

Solder-In Style High Temp EMI Filters

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

SPECIFICATIONS

P/N	Current (A)	CKT	DC Voltage	CAP Min.	Insertion Loss ¹ Per MIL-STD-220, +25°C					
					500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
ZS1B2-100H	5	C	200	10 pF	–	–	–	–	4	10
ZS1B2-250H	5	C	200	25 pF	–	–	–	–	10	15
ZS1B2-101H	5	C	200	100 pF	–	–	–	3	20	30
ZS1B2-501H	5	C	200	500 pF	–	–	–	15	30	50
ZS1B2-102H	5	C	200	1000 pF	–	–	4	20	31	55
ZS1B2-122H	5	C	200	1200 pF	–	–	5	20	35	55
ZS1B2-272H	5	C	200	2700 pF	–	–	10	25	40	60
ZS2B2-100H	5	L	200	10 pF	–	–	–	–	5	10
ZS2B2-250H	5	L	200	25 pF	–	–	–	–	10	15
ZS2B2-101H	5	L	200	100 pF	–	–	–	3	20	30
ZS2B2-501H	5	L	200	500 pF	–	–	–	15	30	50
ZS2B2-102H	5	L	200	1000 pF	–	–	4	20	33	55
ZS2B2-122H	5	L	200	1200 pF	–	–	5	20	37	55
ZS2B2-272H	5	L	200	2700 pF	–	–	10	25	40	60

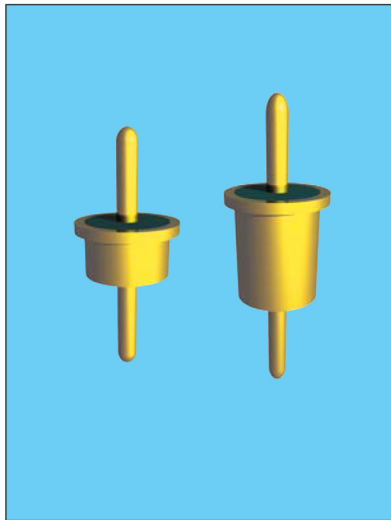
¹ Insertion loss limits are based on theoretical values.
Actual measurements may vary due to internal capacitor resonances and other design constraints.

NOTE: 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.

Solder-In Style High Temp EMI Filters

YS/YR Series – .165 Dia. – Circuits Available – C & L



APPLICATIONS

The YS series provides increased filtering in the MICROWAVE frequency spectrum from 1 MHz through 10 GHz. Previously unavailable in the industry as a solder-in device, this unique design offers higher values of capacitance than were previously available. 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.

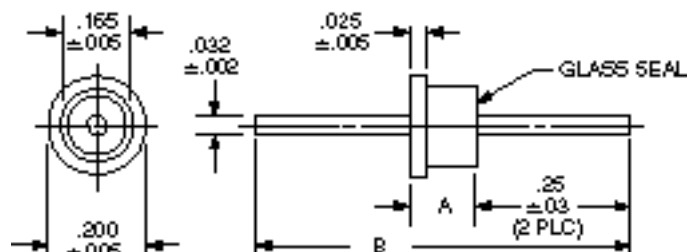
CHARACTERISTICS

- Meets or exceeds the applicable portions of MIL-F-28861/15. 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.

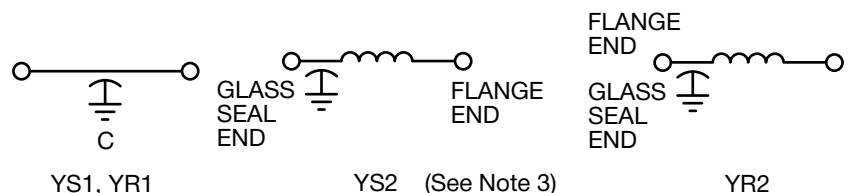
SPECIFICATIONS

1. Plating: Gold standard – Silver 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)	4.19 (.165)
0.13 (.005)	5.08 (.200)
0.64 (.025)	6.35 (.250)
0.8 (.03)	16.51 (.650)
0.81 (.032)	19.05 (.750)
3.81 (.150)	—

(See Note 4)

Circuit Diagram	Dimensions	
	A ±.005	B Ref.
L	.250	.750
C	.150	.650

Notes:

1. Outline drawing shows standard YS configuration. Also available with glass seal at the opposite end, YR reverse configuration.
2. MIL-F-28861/15 style A equivalent to standard YS configuration. Style B is reverse YR configuration.
3. For YS2 or YR2 L-Section Filters inductor always positioned at epoxy-filled end.
4. Metric equivalent dimensions given for information only.

MIL-F-28861/15 (See Note 2)

Dash No.	Config.
001 through 004	A
005 through 008	B

Solder-In Style High Temp EMI Filters

YS/YR Series – .165 Dia. – Circuits Available – C & L

SPECIFICATIONS

P/N	Current (A)	CKT	DC Voltage	CAP Min.	Insertion Loss ¹ Per MIL-STD-220, +25°C					
					500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
YS1C2-152H	5	C	50	1500 pF	–	–	5	21	42	55
YS1C2-502H	5	C	50	5000 pF	–	–	15	34	50	60
YS1C2-103H	5	C	50	0.010 µF	–	4	20	35	53	60
YS1C2-153H	5	C	50	0.015 µF	–	7	25	40	55	60
YS1C2-203H	5	C	50	0.020 µF	–	8	27	41	60	65
YS1C2-273H	5	C	50	0.027 µF	4	10	30	42	65	70
YS1C2-503H	5	C	50	0.050 µF	9	15	35	44	70	70
YS1C2-753H	5	C	50	0.075 µF	12	18	37	46	70	70
YS1C2-104H	5	C	50	0.100 µF	14	20	38	48	70	70
YS2C2-152H	5	L	50	1500 pF	–	–	6	22	48	55
YS2C2-502H	5	L	50	5000 pF	–	–	15	35	55	60
YS2C2-103H	5	L	50	0.010 µF	–	4	20	36	57	60
YS2C2-153H	5	L	50	0.015 µF	–	7	25	45	60	60
YS2C2-203H	5	L	50	0.020 µF	–	8	27	46	62	65
YS2C2-273H	5	L	50	0.027 µF	4	10	30	48	65	70
YS2C2-503H	5	L	50	0.050 µF	9	15	36	50	70	70
YS2C2-753H	5	L	50	0.075 µF	12	18	37	51	70	70
YS2C2-104H	5	L	50	0.100 µF	14	20	39	52	70	70
YS1A2-152H	5	C	100	1500 pF	–	–	5	21	42	55
YS1A2-502H	5	C	100	5000 pF	–	–	15	34	50	60
YS1A2-103H	5	C	100	0.010 µF	–	4	20	35	53	60
YS1A2-153H	5	C	100	0.015 µF	–	7	25	40	55	60
YS1A2-203H	5	C	100	0.020 µF	–	8	27	41	60	65
YS1A2-273H	5	C	100	0.027 µF	–	10	30	42	65	70
YS1A2-503H	5	C	100	0.050 µF	9	15	35	44	70	70
YS1A2-753H	5	C	100	0.075 µF	12	18	37	46	70	70
YS2A2-152H	5	L	100	1500 pF	–	–	6	22	48	55
YS2A2-502H	5	L	100	5000 pF	–	–	15	35	55	60
YS2A2-103H	5	L	100	0.010 µF	–	4	20	36	57	60
YS2A2-153H	5	L	100	0.015 µF	–	7	25	45	60	60
YS2A2-203H	5	L	100	0.020 µF	–	8	27	46	62	65
YS2A2-273H	5	L	100	0.027 µF	–	10	30	48	65	70
YS2A2-503H	5	L	100	0.050 µF	9	15	36	50	70	70
YS2A2-753H	5	L	100	0.075 µF	12	18	37	51	70	70

¹ Insertion loss limits are based on theoretical values.
Actual measurements may vary due to internal capacitor resonances and other design constraints.

continued

NOTE: 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.

Solder-In Style High Temp EMI Filters

YS/YR Series – .165 Dia. – Circuits Available – C & L

SPECIFICATIONS

P/N	Current (A)	CKT	DC Voltage	CAP Min.	Insertion Loss ¹ Per MIL-STD-220, +25°C					
					500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
YS1B2-152H	5	C	200	1500 pF	–	–	5	21	42	55
YS1B2-502H	5	C	200	5000 pF	–	–	15	34	50	60
YS1B2-103H	5	C	200	0.010 µF	–	4	20	35	53	60
YS1B2-153H	5	C	200	0.015 µF	–	7	25	40	55	60
YS1B2-203H	5	C	200	0.020 µF	–	8	27	41	60	65
YS1B2-273H	5	C	200	0.027 µF	4	10	30	42	65	70
YS2B2-152H	5	L	200	1500 pF	–	–	6	22	48	55
YS2B2-502H	5	L	200	5000 pF	–	–	15	35	55	60
YS2B2-103H	5	L	200	0.010 µF	–	4	20	36	57	60
YS2B2-153H	5	L	200	0.015 µF	–	7	25	45	60	60
YS2B2-203H	5	L	200	0.020 µF	–	8	27	46	62	65
YS2B2-273H	5	L	200	0.027 µF	4	10	30	48	65	70

¹ Insertion loss limits are based on theoretical values.

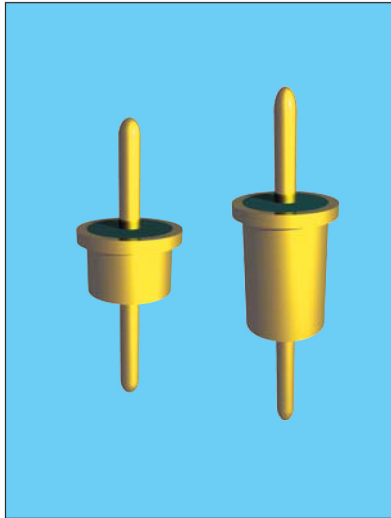
Actual measurements may vary due to internal capacitor resonances and other design constraints.

NOTE: 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.

Solder-In Style High Temp EMI Filters

XS/XR Series – .250 Dia. – Circuits Available – C & L



APPLICATIONS

The YS series provides increased filtering in the MICROWAVE frequency spectrum from 1 MHz through 10 GHz. Previously unavailable in the industry as a solder-in device, this unique design offers higher values of capacitance than were previously available. 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.

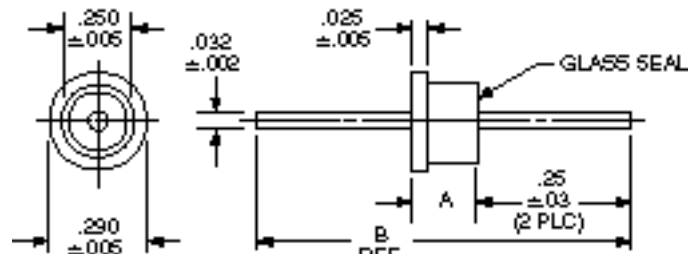
CHARACTERISTICS

- Meets or exceeds the applicable portions of MIL-F-28861/15. 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.

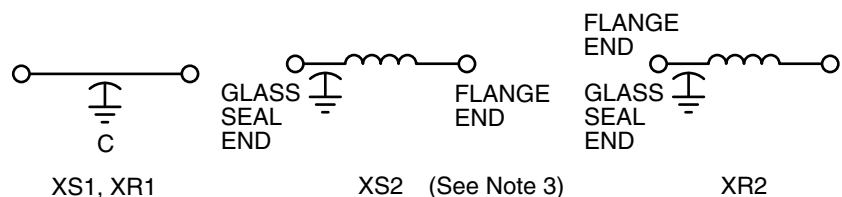
SPECIFICATIONS

1. Plating: Gold standard – Silver 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)	3.81 (.150)
0.13 (.005)	6.35 (.250)
0.64 (.025)	7.37 (.290)
0.8 (.03)	16.51 (.650)
0.81 (.032)	19.05 (.750)

(See Note 4)

Circuit Diagram	Dimensions	
	A	B
L	.250	.750
C	.150	.650

Notes:

1. Outline drawing shows standard XS configuration. Also available with glass seal at the opposite end, XR reverse configuration.
2. MIL-F-28861/14 configuration A is equivalent to standard XS configuration. B is reverse XR configuration.
3. For XS2 or XR2 L-Section Filters inductor always positioned at epoxy-filled end.
4. Metric equivalent dimensions given for information only.

MIL-F-28861/14 (See Note 2)

Dash No.	Config.
001 through 006	A STD
007 through 012	B REV

Solder-In Style High Temp EMI Filters

XS/XR Series – .250 Dia. – Circuits Available – C & L

SPECIFICATIONS

P/N	Current (A)	CKT	DC Voltage	CAP Min.	Insertion Loss ¹ Per MIL-STD-220, +25°C					
					500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
XS1C2-503H	5	C	50	0.050 µF	9	15	35	44	70	70
XS1C2-753H	5	C	50	0.075 µF	12	18	37	46	70	70
XS1C2-104H	5	C	50	0.100 µF	14	20	38	48	70	70
XS1C2-154H	5	C	50	0.150 µF	17	24	38	50	70	70
XS1C2-254H	5	C	50	0.250 µF	21	31	40	55	70	70
XS2C2-503H	5	L	50	0.050 µF	9	15	36	50	70	70
XS2C2-753H	5	L	50	0.075 µF	12	18	37	51	70	70
XS2C2-104H	5	L	50	0.100 µF	14	20	39	52	70	70
XS2C2-154H	5	L	50	0.150 µF	17	26	40	53	70	70
XS2C2-254H	5	L	50	0.250 µF	21	31	40	56	70	70
XS1A2-503H	5	C	100	0.050 µF	9	15	35	44	70	70
XS1A2-753H	5	C	100	0.075 µF	12	18	37	46	70	70
XS1A2-104H	5	C	100	0.100 µF	14	20	38	48	70	70
XS2A2-503H	5	L	100	0.050 µF	9	15	36	50	70	70
XS2A2-753H	5	L	100	0.075 µF	12	18	37	51	70	70
XS2A2-104H	5	L	100	0.100 µF	14	20	39	52	70	70
XS1B2-153H	5	C	200	0.015 µF	–	5	25	40	55	60
XS1B2-223H	5	C	200	0.022 µF	2	8	26	40	58	70
XS2B2-153H	5	L	200	0.015 µF	–	5	25	45	60	60
XS2B2-223H	5	L	200	0.022 µF	2	8	27	45	65	70
XS1L2-103H	5	C	300	0.010 µF	–	3	20	35	52	60
XS2L2-103H	5	L	300	0.010 µF	–	3	20	38	55	60

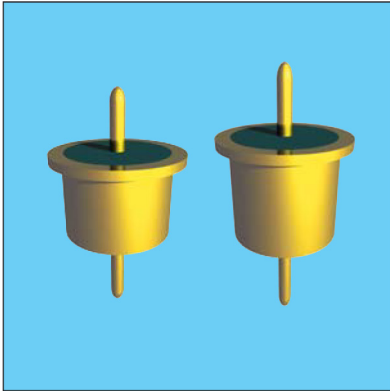
¹ Insertion loss limits are based on theoretical values.
Actual measurements may vary due to internal capacitor resonances and other design constraints.

NOTE: 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.

Solder-In Style High Temp EMI Filters

WS/WR Series – .400 Dia. – Circuits Available – C & L



APPLICATIONS

The WS series expands greatly upon the XS and YS offerings by providing increased filtering in the HF through MICROWAVE frequency spectrum from 500 KHz up to 10 GHz. The larger diameter of the WS series means even higher values of capacitance, a rated DC current of 15 Amps, plus 125 VAC/400 Hz ratings are available. Designed to be soldered into a package, bracket or bulkhead (and maintain hermeticity), it is ideal for low to medium impedance circuits where large amounts

of capacitance to ground can be tolerated. 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.

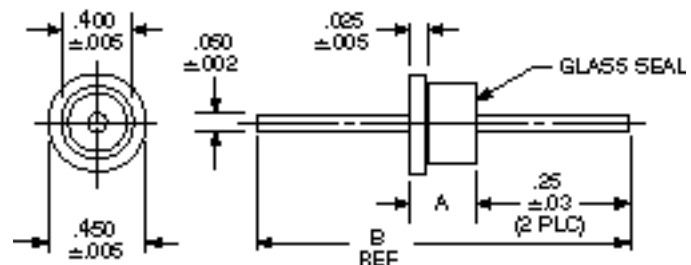
CHARACTERISTICS

- Meets or exceeds the applicable portions of MIL-F-28861/13. 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.

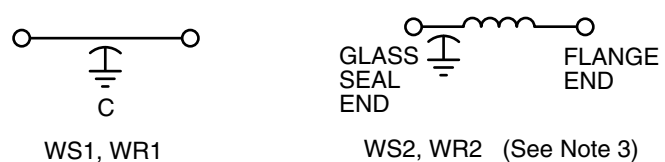
SPECIFICATIONS

1. Plating: Gold standard – Silver 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: 15 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)	6.35 (.250)
0.13 (.005)	7.62 (.300)
0.64 (.025)	10.16 (.400)
0.8 (.03)	11.43 (.450)
1.27 (.050)	17.78 (.700)
5.08 (.200)	20.32 (.800)

(See Note 4)

Circuit Diagram	Dimensions	
	A ±.005	B Ref.
L	.300	.800
C	.200	.700

Notes:

1. Outline drawing shows standard WS configuration. Also available with glass seal at the opposite end, WR reverse configuration.
2. MIL-F-28861/13 configuration "A" is equivalent to standard WS configuration. "B" is reverse WR configuration.
3. For WS2 or WR2 L-Section Filters inductor always positioned at epoxy-filled end.
4. Metric equivalent dimensions given for information only.

MIL-F-28861/14 (See Note 2)

Dash No.	Config.
001 through 008	A
009 through 016	B

Solder-In Style High Temp EMI Filters

WS/WR Series – .400 Dia. – Circuits Available – C & L

SPECIFICATIONS

P/N	Current (A)	CKT	DC Voltage	CAP Min.	Insertion Loss ¹ Per MIL-STD-220, +25°C					
					500 KHz	1 MHz	10 MHz	100 MHz	1000 MHz	10 GHz
WS1C2-154H	15	C	50	0.150 μ F	17	24	38	50	70	70
WS1C2-504H	15	C	50	0.500 μ F	26	34	42	58	70	70
WS1C2-754H	15	C	50	0.750 μ F	31	37	43	62	70	70
WS1C2-125H	15	C	50	1.200 μ F	33	37	52	70	70	70
WS2C2-154H	15	L	50	0.150 μ F	17	26	40	53	70	70
WS2C2-504H	15	L	50	0.500 μ F	26	36	44	60	70	70
WS2C2-754H	15	L	50	0.750 μ F	31	40	44	64	70	70
WS2C2-125H	15	L	50	1.200 μ F	33	38	53	70	70	70
WS1N2-704H	15	C	70	0.700 μ F	30	36	41	60	70	70
WS2N2-704H	15	L	70	0.700 μ F	30	38	42	62	70	70
WS1A2-154H	15	C	100	0.150 μ F	17	24	38	50	70	70
WS1A2-504H	15	C	100	0.500 μ F	26	34	42	58	70	70
WS1A2-754H	15	C	100	0.750 μ F	31	37	43	62	70	70
WS1A2-105H	15	C	100	1.000 μ F	31	40	48	64	70	70
WS2A2-154H	15	L	100	0.150 μ F	17	26	40	53	70	70
WS2A2-504H	15	L	100	0.500 μ F	26	34	44	60	70	70
WS2A2-754H	15	L	100	0.750 μ F	31	40	44	64	70	70
WS2A2-105H	15	L	100	1.000 μ F	31	41	50	65	70	70
WS1L2-503H	15	C	200*	0.050 μ F	7	15	34	42	70	70
WS1L2-154H	15	C	200*	0.150 μ F	17	24	38	50	70	70
WS2L2-503H	15	L	200*	0.050 μ F	7	15	34	44	70	70
WS2L2-154H	15	L	200*	0.150 μ F	17	26	40	53	70	70
WS1E2-103H	15	C	400	0.010 μ F	–	4	20	34	50	60
WS1E2-503H	15	C	400	0.050 μ F	7	15	34	44	70	70
WS2E2-103H	15	L	400	0.010 μ F	–	4	20	35	55	60
WS2E2-503H	15	L	400	0.050 μ F	7	15	34	44	70	70

* Rated 200 VDC or 125 VAC/400 Hz.

¹ Insertion loss limits are based on theoretical values.
Actual measurements may vary due to internal capacitor resonances and other design constraints.

NOTE: 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.