

MIL-C-81659 Rack and Panel Filter Connectors

TDPX



TDPX filter connectors are used primarily on commercial and military aircraft for radio and instrumentation equipment and are available in single thru four gang version with standard ARINC shells and polarizing posts. They are intermateable with the standard DPX connectors and available in 9 contact arrangements.

Meets applicable portions of MIL-Spec.

Note: The TDPX replaces the obsolete DPXJ Series

Performance and Material Specifications

MATERIALS AND FINISHES

Description	Material	Finish
Shell	Aluminum alloy	Cadmium plate (yellow chromate)
Contacts	Copper alloy	Gold over suitable underplate
Insulator	High grade plastic	none
Interfacial and Peripheral Seals	Neoprene rubber	none
Ground Plane	Beryllium copper	Silver plate
Polarizing Posts	Stainless steel	Passivate

ELECTRICAL

Contacts Size	20 & 22		20, 16 & 22		16
	Low Freq.	Mid Freq.	Std. Freq.	High Freq.	Low Freq.
Available Filter					
Catalog Reference	L	M	T	H	L
Voltage Rating	200 VDC - 120 VAC rms 400 Hz				
Current Rating (Amp DC)	5 amp	7.5 amp - size #20, 20 amp - size #16		20 amp	
Insulation Resistance, 2 min. electrification time max. at 25°C and 100 VDC	5,000 megohms minimum @ 100 VDC				
DWV, sea level, with 500 microamps max. charge/discharge current	300 VDC	500 VDC		500 VDC	
Capacitance at 1 KHz, 0.1 V rms picofarads	32,000	8,000	2,300	850	32,000
	45,000	12,000	5,000	1,300	45,000
Attenuation per MIL-STD-220 at 25°C with no applied voltage or current.	Freq. MHz		Attenuation (dB)		
	0.1	2 min.	-	-	2 min.
	1	15 min.	2 min.	-	15 min.
	2	20 min.	5 min.	2 min.	20 min.
	10	35 min.	20 min.	12 min.	35 min.
	100	60 min.	55 min.	50 min.	60 min.
500 to 10,000	65 min.	60 min.	55 min.	50 min.	60 min.
Filter Type	Pi	Pi	Pi	Pi	Pi

†=Check Factory for availability of Size 22 "T" filters.

How to Order - Single Gang

T DPX E B - 57 L 34 P - 00 01

FILTER SERIES INDICATOR

SERIES PREFIX

ENVIRONMENTAL

SHELL STYLE

CONTACT ARRANGEMENT

CAPACITANCE INDICATOR

SHELL TYPE

CONTACT TYPE

MODIFICATION

POLARIZING POSITION

FILTER SERIES INDICATOR

T - Transverse Monolith

SERIES PREFIX

Single gang DPX

ENVIRONMENTAL

E - For interfacial (pin)
Delete for standard

SHELL STYLE

B - Polarized ARINC B shell (preferred)
D - DPXA flange (less polarizing posts)

CONTACT ARRANGEMENT

See page 318.

CAPACITANCE INDICATOR

L - Low Frequency

M - Mid Frequency

T - Standard Frequency

Note: Use of "T" omitted in past nomenclature.

H - High Frequency

N - No filters this gang. Standard DPX insert assembly.

SHELL TYPE

33 - Male (plug)

34 - Female (receptacle)

CONTACT TYPE

P-Pin; S-Socket

MODIFICATION

TDPXD

None

TDPXB

03 - Mounting holes countersunk 100° to .230 (5.84) dia.

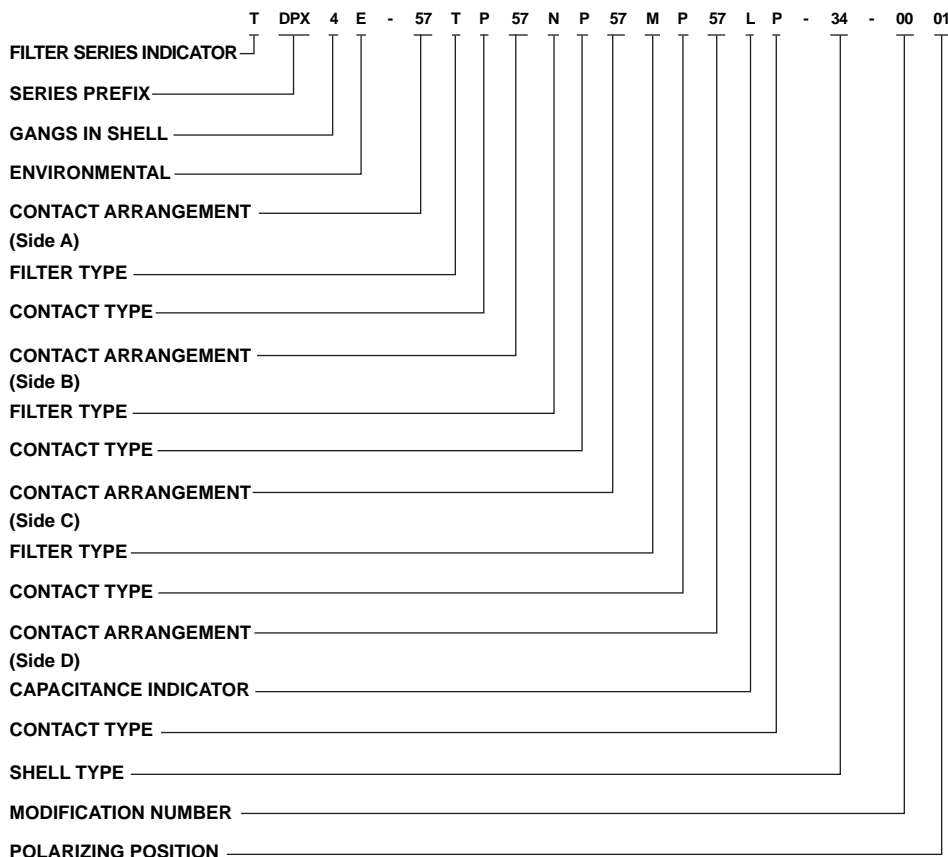
23 - With floating eyelets.

Consult factory.

POLARIZING POSITION

See pages 67 - 68.

How to Order - Multiple Gang



FILTER SERIES INDICATOR

T - Transverse Monolith

SERIES PREFIX

DPX - DPX series with solder termination.

GANGS IN SHELL

2, 3, and 4 gang

ENVIRONMENTAL

E - For interfacial (pin)
Delete for standard.

CONTACT ARRANGEMENT

See page 31 for applicable arrangements. Please specify each arrangement number as indicated in ordering nomenclature for 2, 3, or 4 gang.

CAPACITANCE INDICATOR (Each gang, as desired)*

L - Low Frequency

M - Mid Frequency

T - Standard Frequency

Note: Use of "T" omitted in past nomenclature

H - High Frequency

N - No filter this gang. Standard DPX insert assembly.

CONTACT TYPE

P for pin; S for socket. Designation follows each arrangement as ordered for 2, 3, or 4 gang versions. (Printed circuit contact/termination is available. Consult factory for specifications.)

SHELL TYPE

33B for male (ARINC B)

34B for female (ARINC B)

33 for male

34 for female

Note: ARINC B specified for DPX2 only.

POLARIZING POSITION (see pages 67-68)

The last two digits in the four-digit dash number refer to the polarizing post position. When the last two digits are omitted, the polarizing posts will be assembled in position 01, but the position number is not stamped on the connector. This allows the customer to position the posts themselves and then stamp the appropriate number on the shell. If the last two digits are 00, the polarizing posts are deleted.

MODIFICATION NUMBERS

- 0001 indicates standard design for all styles.

TDPX2-33B:

- 0301 - Mounting holes .120 dia.
Countersunk 100° to .230 dia.

TDPX2-34:

- 0101 - With #4-40 clinch nuts in mounting holes.

TDPX3-34:

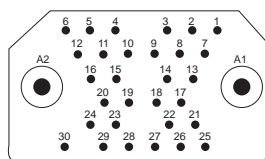
- 0101 - With 6 #4-40 clinch nuts in mounting holes.

TDPX4-34:

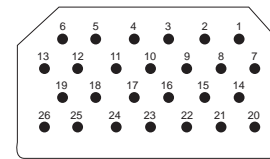
- 0101 - With 10 #4-40 clinch nuts in mounting holes.

Contact Arrangements

Arrangement No.
No. of Contacts & Wire Size

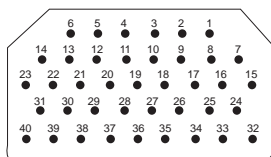


32C2
30 #20, 2 coax

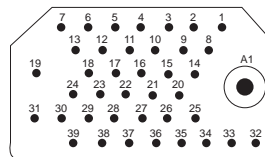


26
26 #16

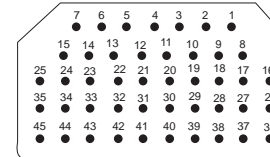
Arrangement No.
No. of Contacts & Wire Size



40
40 #20

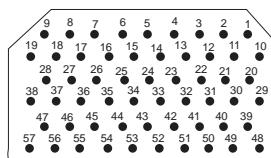


40C1
39 #20, 1 coax

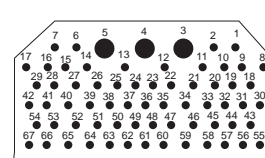


45
45 #20

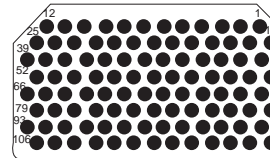
Arrangement No.
No. of Contacts & Wire Size



57
57 #20



67
64 #20, 3 #16



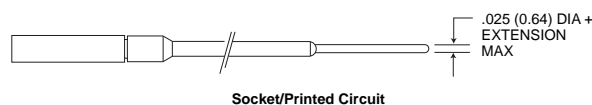
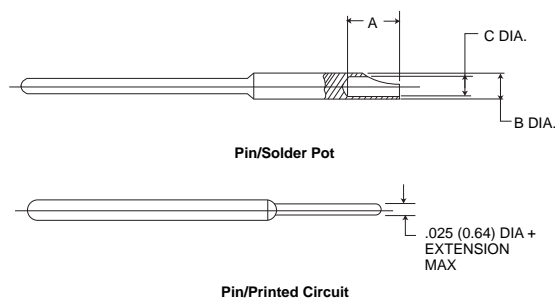
106*
106 #22

NOTE: Consult factory for part numbers for special combinations of filter, group contacts and power contacts, and for availability of filter socket contacts, for each contact arrangement.

Contacts - Pin and Socket

Standard Contact Terminations

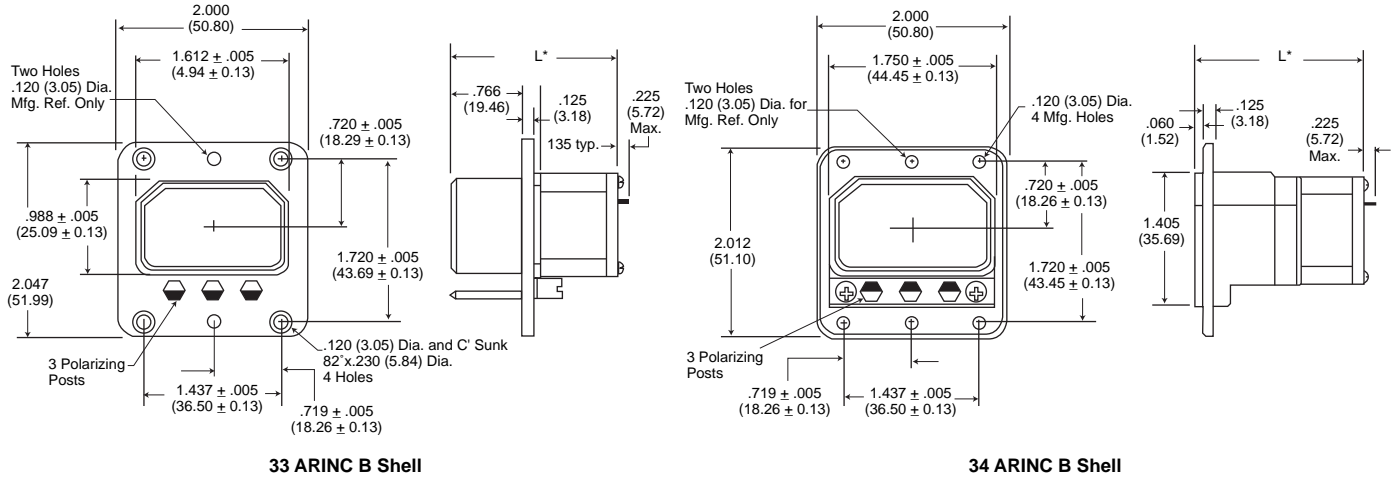
Finish: Gold plate per MIL-G-45204, Type 1, Class 1, over nickel plate per QQ-N-290.



Contact Size	A	B	C	PC Tail Extension Max.
20	.125 (3.18)	.065 (1.65)	.048 (1.22)	.200 (5.08), .285 (7.24), .375 (9.52)
	.110 (2.79)	.061 (1.55)	.043 (1.09)	
16	.170 (4.32)	.103 (2.62)	.078 (1.98)	.200 (5.08), .285 (7.24), .375 (9.52)
	.150 (3.81)	.097 (2.46)	.069 (1.75)	
22	.115 (2.92)	.005 (1.40)	.040 (1.02)	.200 (5.08), .285 (7.24), .375 (9.52)
	.095 (2.41)	.051 (1.30)	.036 (0.91)	

Single Gang

TDPXB

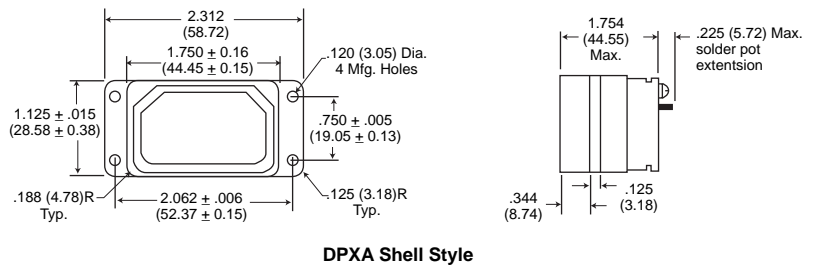


33 ARINC B Shell

34 ARINC B Shell

* This length varies between the limits of 1.750 (44.45) and 1.437 (36.25) depending on the particular construction as determined by contact arrangement.

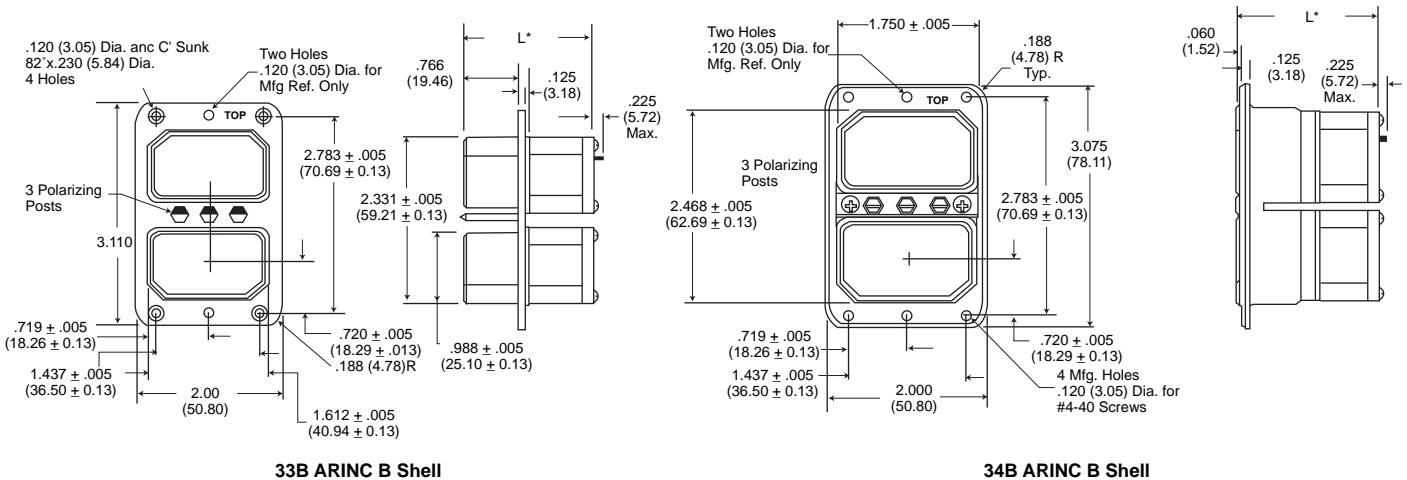
TDPXD



DPXA Shell Style

Two Gang

TDPX2



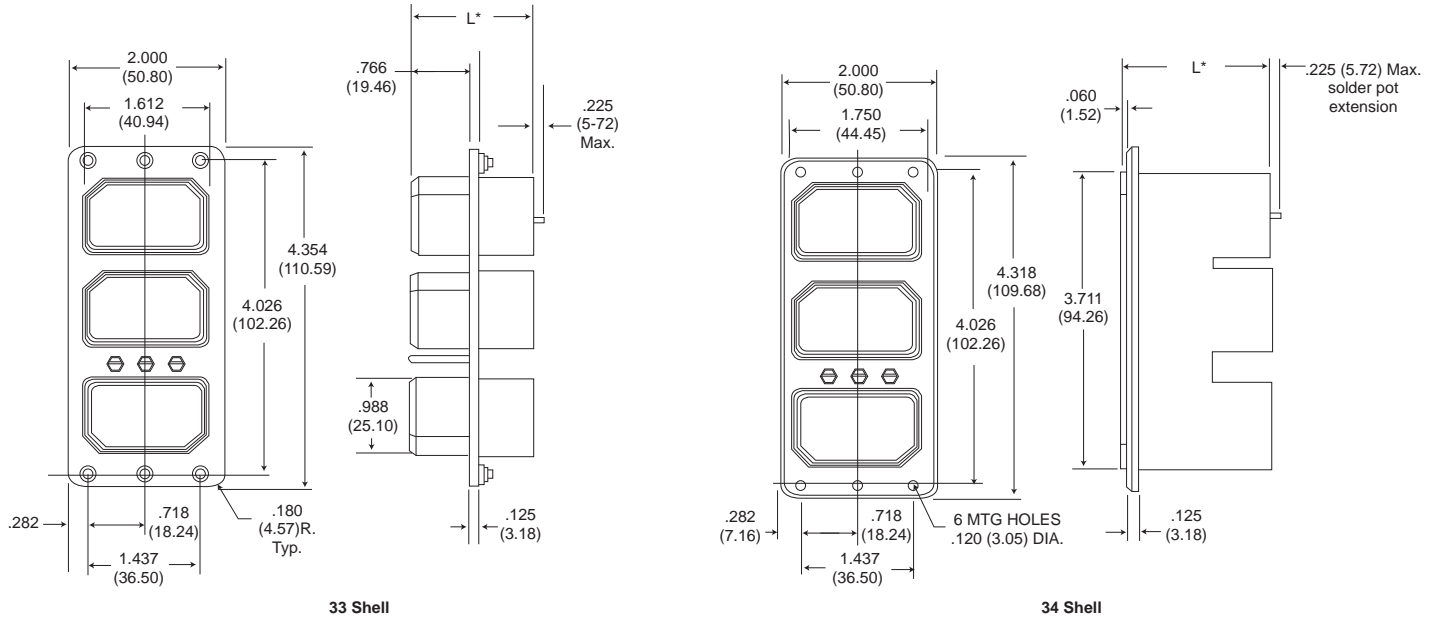
33B ARINC B Shell

34B ARINC B Shell

* This length varies between the limits of 1.750 (44.45) and 1.437 (36.25) depending on the particular construction as determined by contact arrangement.

Three Gang

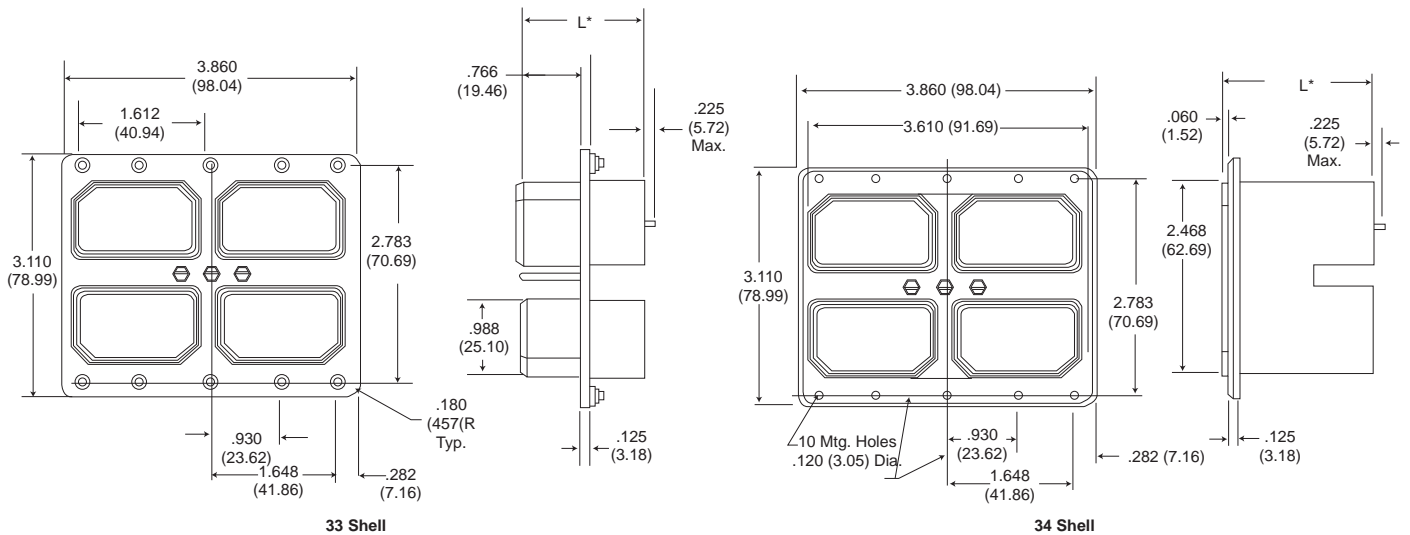
TDPX3



* This length varies between the limits of 1.750 and 1.437 depending upon particular construction as determined by contact arrangement.

Four Gang

TDPX4



* This length varies between the limits of 44.45 and 36.25 depending upon particular construction as determined by contact arrangement.

Panel Cutouts - Pages 69-71.



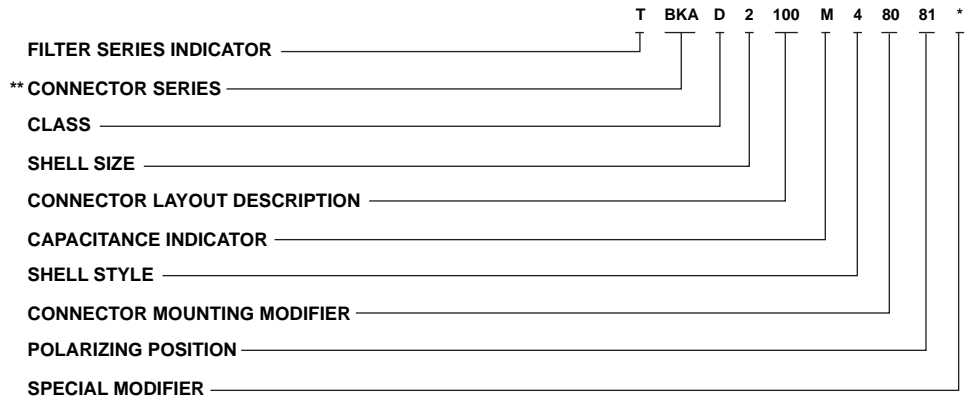
TBKAD/E connectors represent a major milestone in presenting a new rack and panel connector for support of the air transportation market.

Several important design concerns have been addressed and solved in this series. High mating forces of pluggable modules in a rack have been reduced by approximately two-thirds. Filter adaptations include either single module or tandem (dual) module with crimp piggyback rear release contacts.

In the ARINC 600 connector series, size 22 contacts are the only size that utilize the Pos-Align Connector Construction feature. The hooded socket extends from its receptacle insulator in the filter design.

- Low insertion force contacts.
- Non-environmental versions.
- Polarizing posts that are removable from the mating face.
- Field replaceable inserts for size 22 and power contacts.
- Field replaceable filter modules with size 22 contacts.
- Up to 800 size 22 contacts in one connector.
- Crimp piggy back and pi contacts for filter module.
- Uses standard DPX crimp, insertion/extraction tooling.
- Waveguide connections available.

How to Order



FILTER SERIES INDICATOR

T - Transverse Monolith

CONNECTOR SERIES

BKA (Per ARINC 600)

** Consult factory for availability.

CLASS

D - Non-environmental
(rear release, crimp contacts)

CONNECTOR LAYOUT DESCRIPTION

Three digit number contained within the shell layout indicates total number of contacts available

Connector Layout	Shell Size	Shell Cavity Identification					
		A	B	C	D	E	F
-060	1	-	60	-	-	-	-
-A060	1	60	-	-	-	-	-
-120	1	60	60	-	-	-	-
-100	2	-	-	100	-	-	-
-300	2	150	150	-	-	-	-
-400	2	150	150	100	-	-	-
-600	3	150	150	-	150	150	-
-800	3	150	150	100	150	150	100

SHELL SIZE

- 1-Max. contact capacity - 125
- 2-Max. contact capacity - 400
- 3-Max. contact capacity - 800

CAPACITANCE INDICATOR

- L - 32,000-45,000 PF
- M - 8,000-12,000 PF
- T - 3,300-5,000 PF
- H - 850-1,300 PF

SHELL STYLE

- 3-Plug (rack side) consult factory
- 4-Receptacle (box side)

CONNECTOR MOUNTING MODIFIER

- 00-Standard design .148 dia. holes
- 01-With #6-32 ESMA (#12 NCFMA2-62) clinch nuts

Connector Size	# of Clinch Nuts Receptacle
1	4
2	6
3	10

- 02-Size 1 receptacle only - less 3 printed circuit board mounting lugs
- 03-With #4-40 ESMA (#22 NCFMA2-40) clinch nuts

Connector Size	# of Clinch Nuts Receptacle
1	4
2	6
3	10

- 08-Size 2 and 3 receptacle only-with #4-40 ESMA (#22 NCFMA2-40) clinch nuts (all mounting holes)

- 09-Size 2 and 3 receptacle only-with #6-32 ESMA (#12 NCFMA2062) clinch nuts (all mounting holes)

- 23-with floating eyelets (.048 min. radial float) 4 corner holes per connector

Consult factory if other modifications are required.

POLARIZING POSITION

- 01 thru 99 (per ARINC 600)

Blank-Polarizing posts or keys not installed but supplied with connector

SPECIAL MODIFIER

Consult factory

Performance and Material Specifications

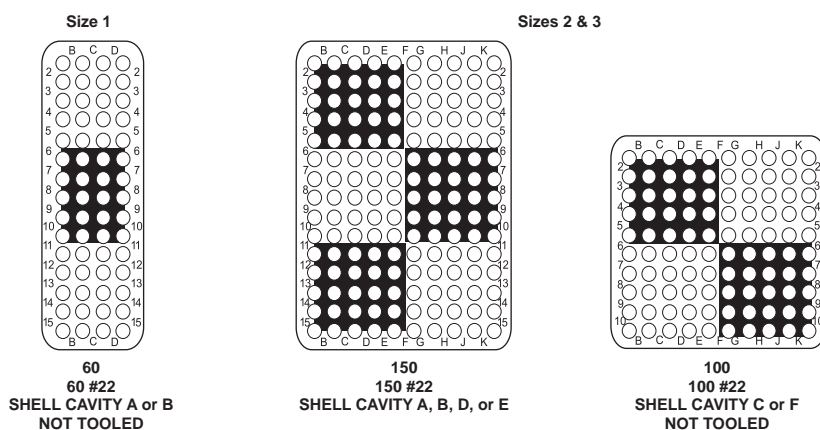
MATERIALS AND FINISHES		BKAD	SPECIFICATIONS
Shell	Material	Aluminum Alloy	QQ-A-591/A380
	Finish	Clear chromate over cadmium	QQ-P-416
Insulator	Material	Thermoplastic	N/A
Contacts	Material	Copper alloy	AA-C-533
	Finish	Gold over nickel	
	Termination	Crimp	N/A
Ground Spring	Material	Coper alloy	
	Finish	Sliver	

ELECTRICAL DATA (Size #16, Size #20 and Size #22)

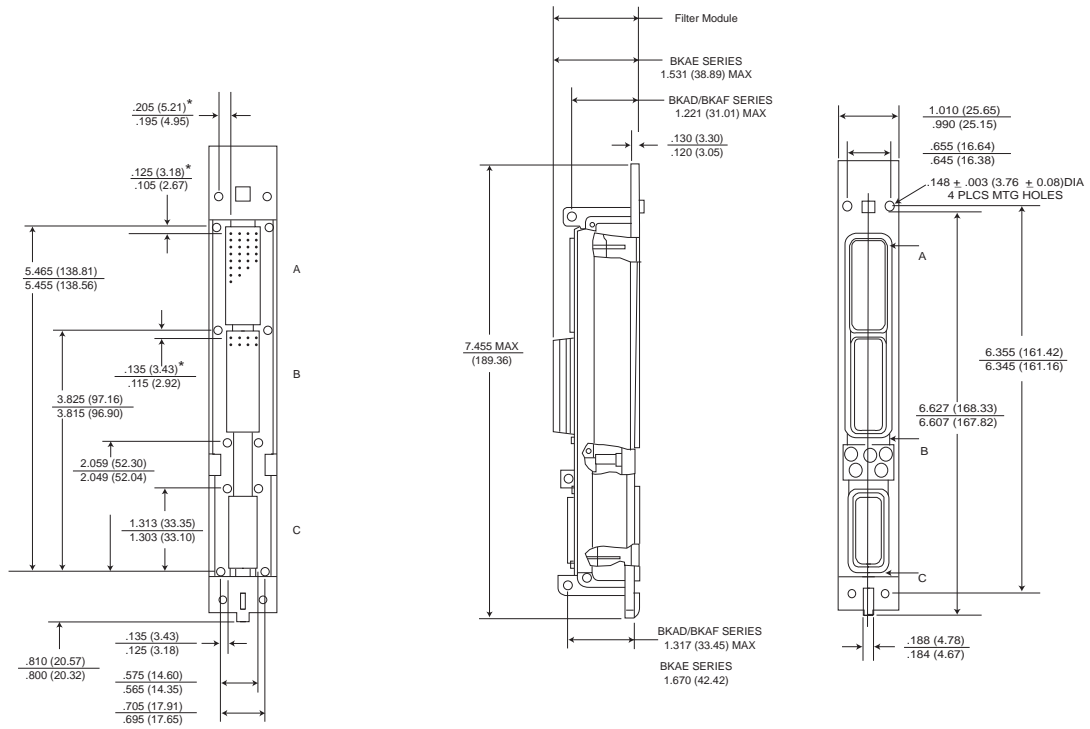
Filter Description	Low Freq.	Mid Freq.	Std Freq.	High Freq.	
Catalog Indicator	L	M	T	H	
Voltage Rating	200 VDC-120 VAC rms 400 Hz				
Current Rating (amp DC)	15 amp size 16, 7.5 size 20, 5.0 amp size 22				
Insulation Resistance, 2 min. electrification time max. at 25°C	5,000 megohms min. @ 100 VDC				
DWV, sea level, with 500 microamps max. charge/discharge	300V DC size 22 500V DC size 16 & 20	500VDC	500VDC	500VDC	
Capacitance at 1 KHz 0.1 V rms Picofarads	32000 45000	8000 12000	3300 5000	850 1300	
Attenuation per MIL-STD-220 @ 25°C with no applied voltage or current	Freq. MHz				
	0.1	2 min.	-	-	
	1.0	10 min.	2 min.	-	
	2	16 min.	7 min.	2 min.	
	10	40 min.	18 min.	8 min.	2 min.
	100	60 min.	55 min.	45 min.	30 min.
	500 to 1000	65 min.	60 min.	55 min.	45 min.
Filter Type/Construction	Pi	Pi	Pi	Pi	

Consult factory for higher or mixed attenuation values and higher voltage ratings.

Contact Arrangements (Receptacle-Engaging Face Shown)



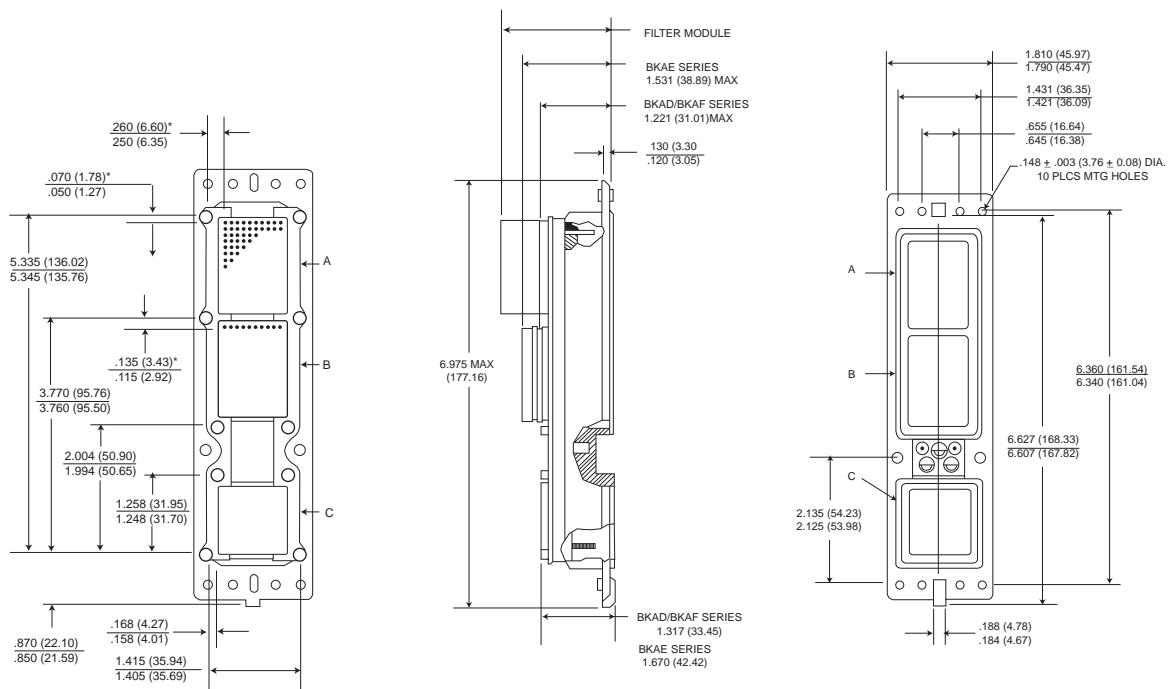
Size 1 Receptacle



Retainer Plate

* This dimension indicates distance from centerline of retaining screw to the centerline of first contact cavity.

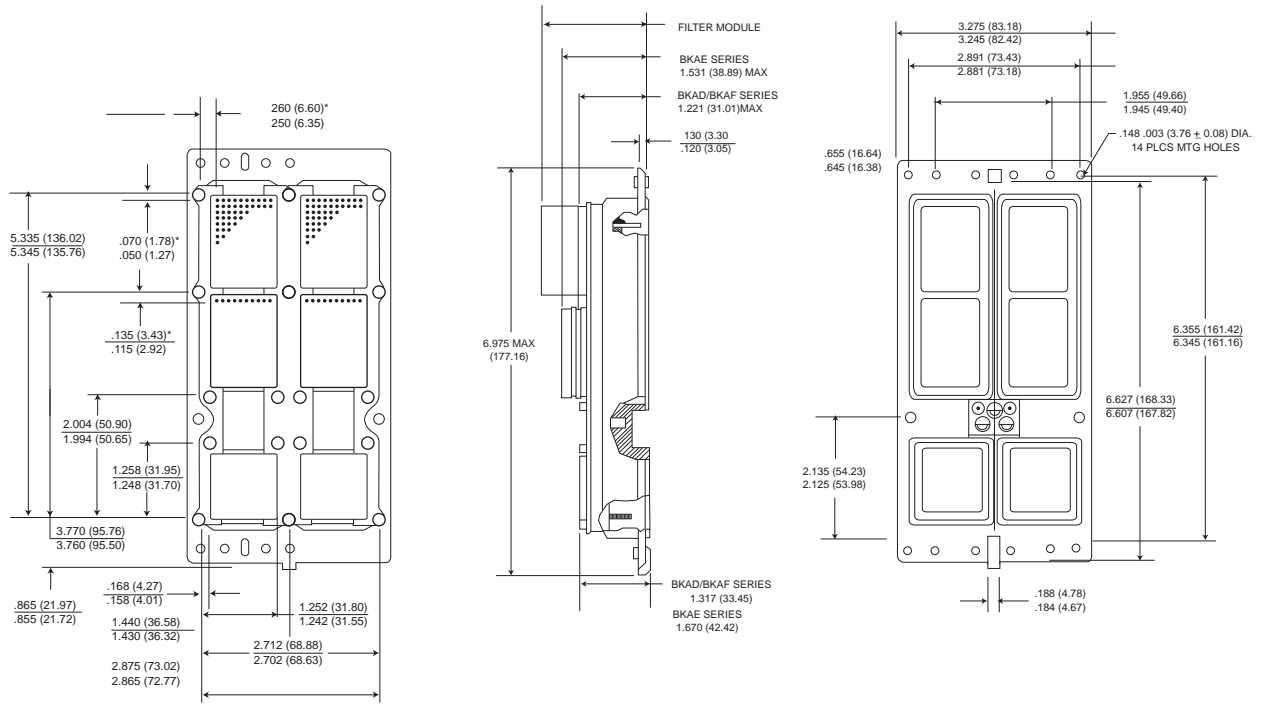
Size 2 Receptacle



Retainer Plate

* This dimension indicates distance from centerline of retaining screw to the centerline of first contact cavity.

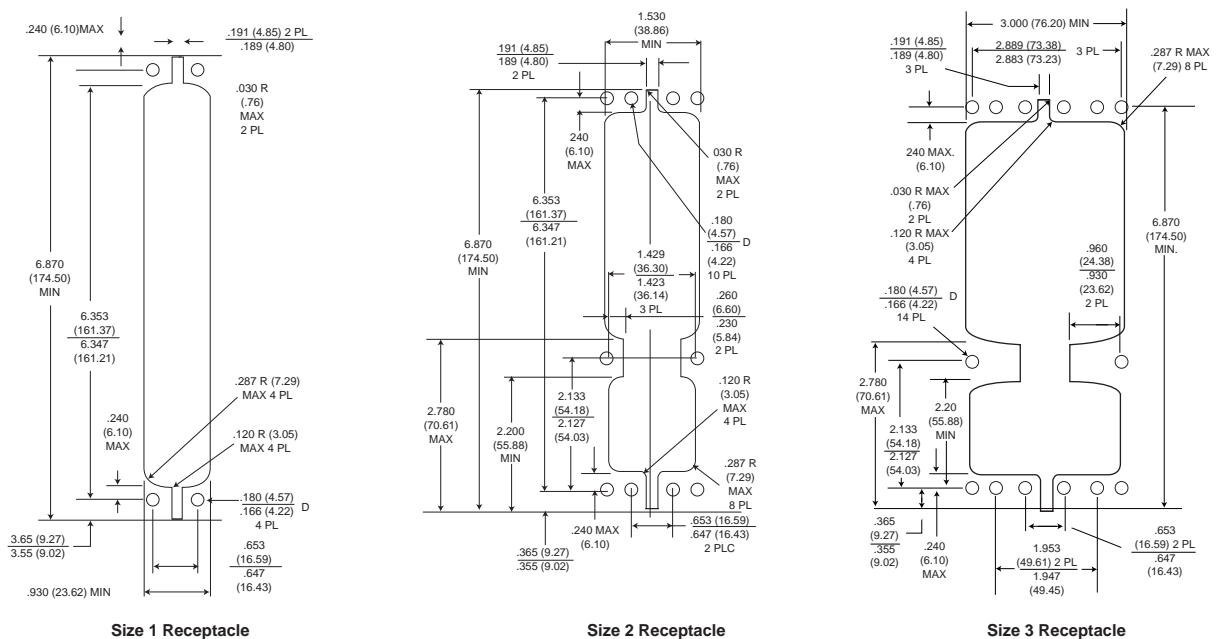
Size 3 Receptacle



Retainer Plate

* This dimension indicates distance from centerline of retaining screw to the centerline of first contact cavity.

Panel Cutouts



Size 1 Receptacle

Size 2 Receptacle

Size 3 Receptacle