

METAL-SHELL MICRO CIRCULAR CONNECTORS

High-Density Connectors For Rugged Reliability And Configuration Flexibility

METAL-SHELL MICRO CIRCULAR CONNECTORS

Rugged Connectors with Flexible Configurations

HIGH-SPEED CONNECTIVITY

- Gigabit Ethernet, USB 2.0, and IEEE 1394 compatible

DURABLE

- High-performance materials
- Individual fluorosilicone O-rings on all contacts
- IP67 sealing
- 2000 mating cycles

FLEXIBLE CONFIGURATIONS

- Three coupling styles: push-pull, bayonet, threaded
- Common internal design
- Signal only and hybrid signal/power versions available
- Lightweight materials save space and weight

TE Connectivity (TE) offers a broad range of Metal-Shell Micro Circular connectors, all designed for rugged durability and space and weight savings in commercial aerospace applications and military vehicles, radios, and soldier-worn equipment.

More Choice

We give you more options in Metal-Shell Micro Circular connectors:

- Bayonet, push-pull, or threaded couplings
- Pin and socket or spring probe contacts
- Signal and hybrid signal/power versions
- Inline receptacles
- Band strap for termination of braided metallic shielding
- Range of shell sizes and positions

More Performance

Metal-Shell Micro Circular connectors from TE provide rugged reliability to withstand vibration and shock, and feature excellent electrical performance, a high mating life cycle, and IP67 environmental sealing.

Performance Characteristics

ELECTRICAL

- **Compatibility:** 1 Gb/s Ethernet, USB 2.0, IEEE 1394, Cat 5e
- **Contact Current-Carrying Capacity (1 pin):**
  Signal: 2 amps max.
  Power: 5 amps max.
- **Operating Voltage:** 200 VAC max.
- **Termination Resistance:** 30 milliohms max.

MECHANICAL AND ENVIRONMENTAL

- **Durability:** 2000 mating cycles
- **Operating Temperature:** -55°C to +150°C
- **Sealing:** IP67
- **Coupling Options:** Push-pull, bayonet, threaded
- **Shell Sizes/Positions:**
  M11 shell, 11 positions
  M15 shell, 14 positions
  M14 shell, 19 positions
  M22 shell, 30 positions
- **Wire Size:**
  7 and 19 Positions: 24 AWG (7 strands max.)
  14 and 30 Positions: 24 AWG (19 strands max.)
  Power Pin: 22 AWG (19 strands max.)
- **Salt Spray Resistance:** 120 hours

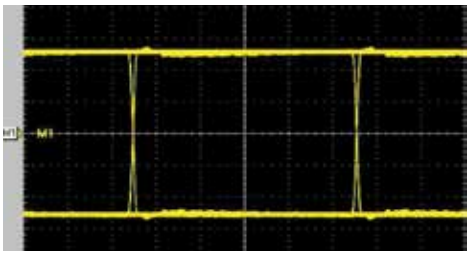
MATERIALS

- **Shell:** Brass, black tin-nickel plated
- **Insert:** LCP
- **Contacts:** Brass, plated gold over nickel
- **O-Ring:** Fluorosilicone

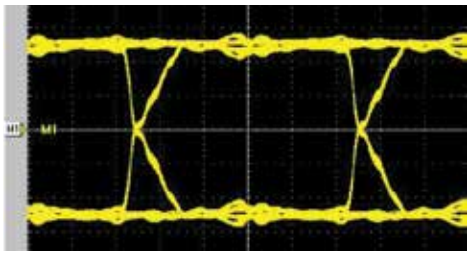
TECHNICAL DOCUMENTS

- **Product Specification:**
  108-78938 (for 7 and 19 positions)
  108-78967 (for 14 and 30 positions)
- **Qualification Test Report:**
  501-78493 (for 7 and 19 positions)
  501-78526 (for 14 and 30 positions)

Eye Pattern: Spring Probe Contact System Mask per USB 2.0 Specification, 480 Mb/s



Input



Output

TE Components . . . TE Technology . . . TE Know-how . . .

AMP | Agastat | CII | Hartman | Kilovac | Microdot | Nanonics | Polamco | Raychem | Rochester | DEUTSCH
SEACON Phoenix | L.L. Rowe | Phoenix Optix | SEACON

Get your product to market faster with a smarter, better solution.

Signal Connectors: Pin and Socket Contacts

Shell Size	No. of Pos.	Coupling	Keying	Part No.				
				Plug, Wire Solder Cups	Receptacle, Wire Solder Cup	Receptacle, PCB Solder Tail	Dust Cap Option*	
							Plugs	Receptacles
M11	7	Push-Pull	N	2174219-1	2174222-1	2174225-1	2822605-x	2201013-x
			A	2174219-2	2174222-2	2174225-2		
			B	2174219-3	2174222-3	2174225-3		
		Bayonet	N	2174220-1	2174223-1 2260439-1**	2174226-1	2229015-x	2201014-x
			A	2174220-2	2174223-2	2174226-2		
			B	2174220-3	2174223-3	2174226-3		
		Threaded	N	2174221-1	2174224-1	2174227-1	—	2201015-x
			A	2174221-2	2174224-2	2174227-2		
			B	2174221-3	2174224-3	2174227-3		
M14	19	Push-Pull	N	2174210-1	2174213-1	2174216-1	—	2201010-x
			A	2174210-2	2174213-2	2174216-2		
			B	2174210-3	2174213-3	2174216-3		
		Bayonet	N	2174211-1	2174214-1	2174217-1	2287626-x	2201011-x
			A	2174211-2	2174214-2	2174217-2		
			B	2174211-3	2174214-3	2174217-3		
		Threaded	N	2174212-1	2174215-1	2174218-1	—	2201012-x
			A	2174212-2	2174215-2	2174218-2		
			B	2174212-3	2174215-3	2174218-3		

* -x suffix is length of wire rope: -1 = 70 mm • -2 = 100 mm • -3 = 120 mm • -4 = 150 mm. Consult TE for availability of dust caps not listed here.
**In-Line Receptacle

Signal Connectors: Spring Probe Contacts

Shell Size	No. of Pos. (Signal)	Coupling	Keying	Part No.				
				Plug, Solder Cups	Receptacle, Solder Cups	Receptacle, PCB Solder Tail	Dust Cap Option*	
							Plugs	Receptacles
M11	7	Push-Pull	N	2174200-1	2174204-1	2174207-1	2822605-x	2201013-x
			A	2174200-2	2174204-2	2174207-2		
			B	2174200-3	2174204-3	2174207-3		
		Bayonet	N	2174201-1	2174205-1	2174208-1	2229015-x	2201014-x
			A	2174201-2	2174205-2	2174208-2		
			B	2174201-3	2174205-3	2174208-3		
		Threaded	N	2174202-1	2174206-1	2174209-1	—	2201015-x
			A	2174202-2	2174206-2	2174209-2		
			B	2174202-3	2174206-3	2174209-3		
M14	19	Push-Pull	N	2174191-1	2174194-1	2174197-1	—	2201010-x
			A	2174191-2	2174194-2	2174197-2		
			B	2174191-3	2174194-3	2174197-3		
		Bayonet	N	2174192-1	2174195-1	2174198-1	—	2201011-x
			A	2174192-2	2174195-2	2174198-2		
			B	2174192-3	2174195-3	2174198-3		
		Threaded	N	2174193-1	2174196-1	2174199-1	—	2201012-x
			A	2174193-2	2174196-2	2174199-2		
			B	2174193-3	2174196-3	2174199-3		

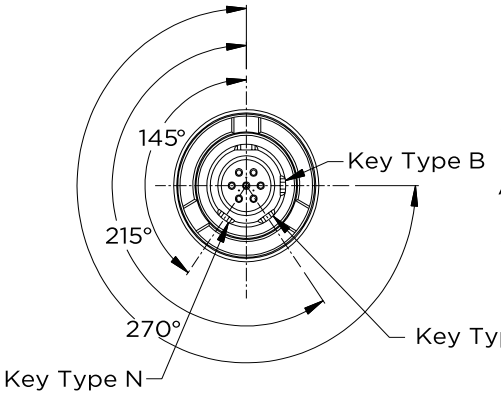
* -x suffix is length of wire rope: -1 = 70 mm • -2 = 100 mm • -3 = 120 mm • -4 = 150 mm. Consult TE for availability of dust caps not listed here.

Hybrid Signal + Power Connectors: Pin and Socket Contacts

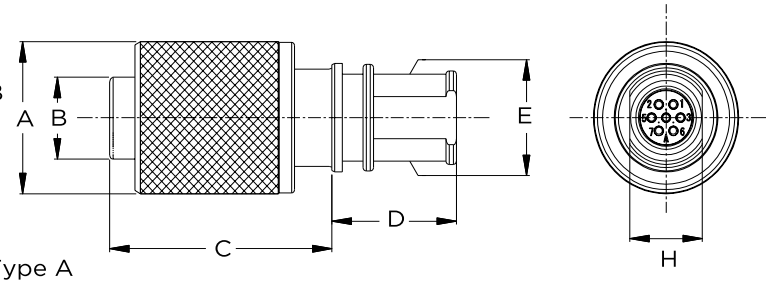
Shell Size	No. of Pos.	Coupling	Keying	Part No.		
				Plug, Solder Cups	Receptacle, In-Line	Receptacle, PCB Solder Tail
M15	14 (12 Signal, 2 Power)	Bayonet	N	2201481-1	4-287069-1	2201482-1
			A	2201481-2	—	2201482-2
M22	30 (28 Signal, 2 Power)	Threaded	N	2201712-1	2288255-1	2201713-1
			A	2201712-2	—	2201713-2

Plug Connectors

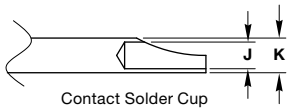
Keying



Plug Connectors, Solder Cup



Coupling	No. of Pos.	Power Contacts	A (Dia.)	B (Dia.)	C	D	E (Dia.)	H	Key Type
Push-Pull	7	—	14	6.96	21.45	12	8	7	N, A, B
	19	—	17	9.36	21.85	11.45	8.65	8	N, A, B
Bayonet	7	—	14	7.62	21.45	12	8	7	N, A, B
	19	—	17	10.16	21.75	11.45	8.65	8	N, A, B
	14	2	19	12.16	21.95	16	11	10	N
Threaded	7	—	14	7.62	21.45	12	8	7	N, A, B
	19	—	16	10.16	21.45	11.45	8.65	8	N, A, B
	30	2	25	18.4	13.3	16	18.5	16	N

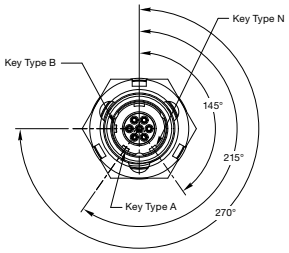


Contact Solder Cup Dimensions

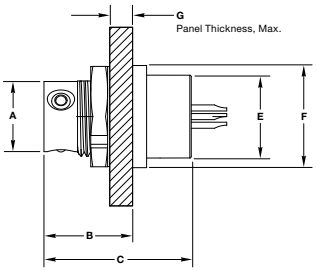
No. of Pos.	Power Contacts	Signal		Power	
		J	K	J	K
7, 19	—	0.65	0.85	—	—
14	2	0.9	1.15	1.2	1.5
30	2	0.76	1	1	1.3

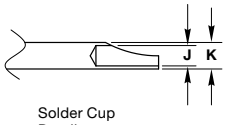
Receptacle Connectors

Keying

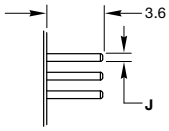


Panel-Mount Receptacle

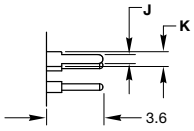




Solder Cup Detail



Solder Tail Detail (7 and 19 Position)



Solder Tail Detail (14 and 30 Position)

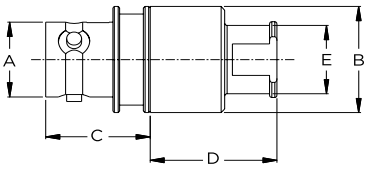
Panel-Mount Contacts

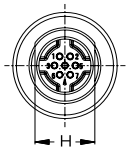
Contact Type	No. of Pos.	Power Contacts	Signal		Power	
			J	K	J	K
Solder Cup	7, 19	—	0.65	0.85	—	—
Solder Tail	7, 19	—	.5	—	—	—
	14	2	.5	.85	.7	1.15
	30	2	.5	.85	.7	1.16

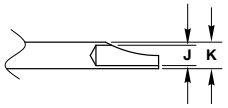
Panel-Mount Receptacle

Coupling	No of Pos.	A (Dia.)	B	C	E (Dia.)	F (Dia.)	G
Push-Pull	7	9.82	12.41	20.64	11.6	14.3	3.2
	19	12.36	12.41	20.73	13.4	18	3.2
Bayonet	7	9.85	15.41	20.6	11.6	14.3	2.8
	19	12.05	15.41	20.5	14.4	18	2.8
	14	14.05	15.41	20.7	14.7	—	3.0
Threaded	7	10.54	13.44	18.6	11.6	14.3	3.2
	19	13.34	13.44	18.4	14.4	18	3.2
	30	—	13.15	19.7	19.3	—	3.6

In-Line Receptacle







Solder Cup Detail

Contacts

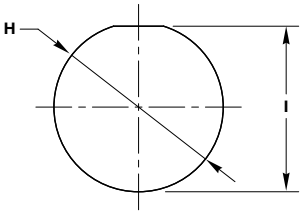
Coupling	No. of Pos.	Power Contacts	Signal Pin		Power Pin	
			J	K	J	K
Bayonet	7	—	0.65	0.85	—	—
	14	2	0.65	0.85	0.9	1.15
Threaded	30	2	0.65	0.85	0.9	1.15

In-Line Receptacle

Coupling	No of Pos.	Power Contacts	A (Dia.)	B (Dia.)	C	D	E (Dia.)	H
Bayonet	7	-	9.85	14	14	17	9	8
	14	2	14.05	18	14	14.7	15.9	15
Threaded	30	2	21.12	24	12	22	18.5	16

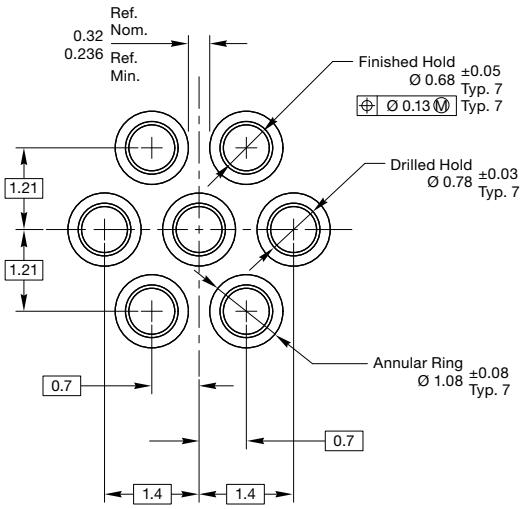
Panel Cutout Dimensions

Shell Size	H (Dia.)	I
M11	11.2	10.95
M14	14.4	13.5
M15	16.2	15.3
M22	22.5	21.5

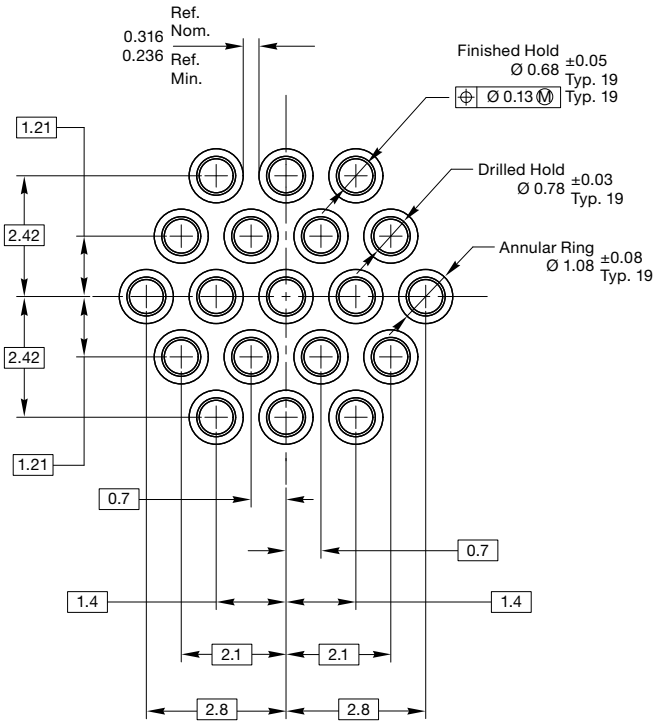


Panel Cutout

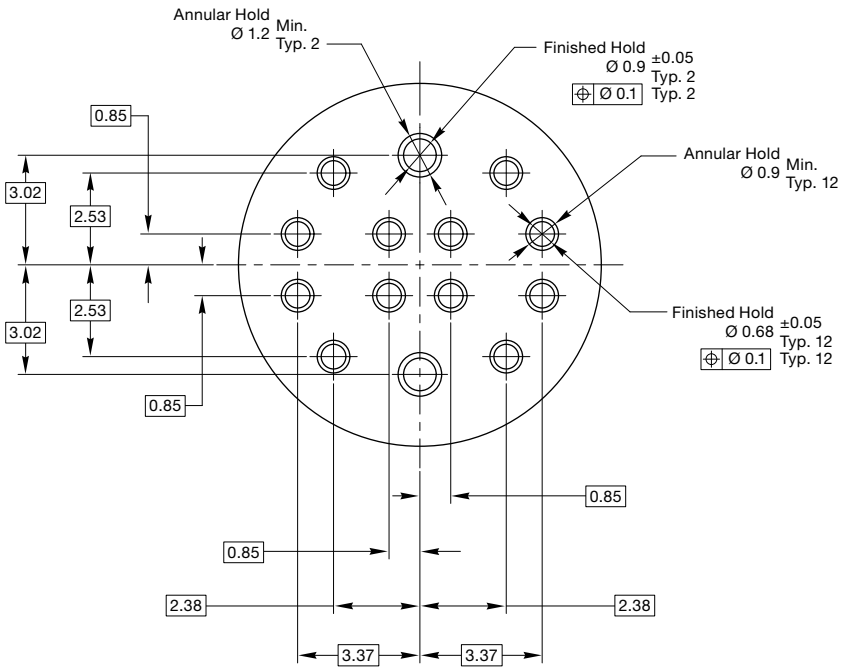
PCB Layouts for Solder Tail Receptacles



7-Position Receptacle

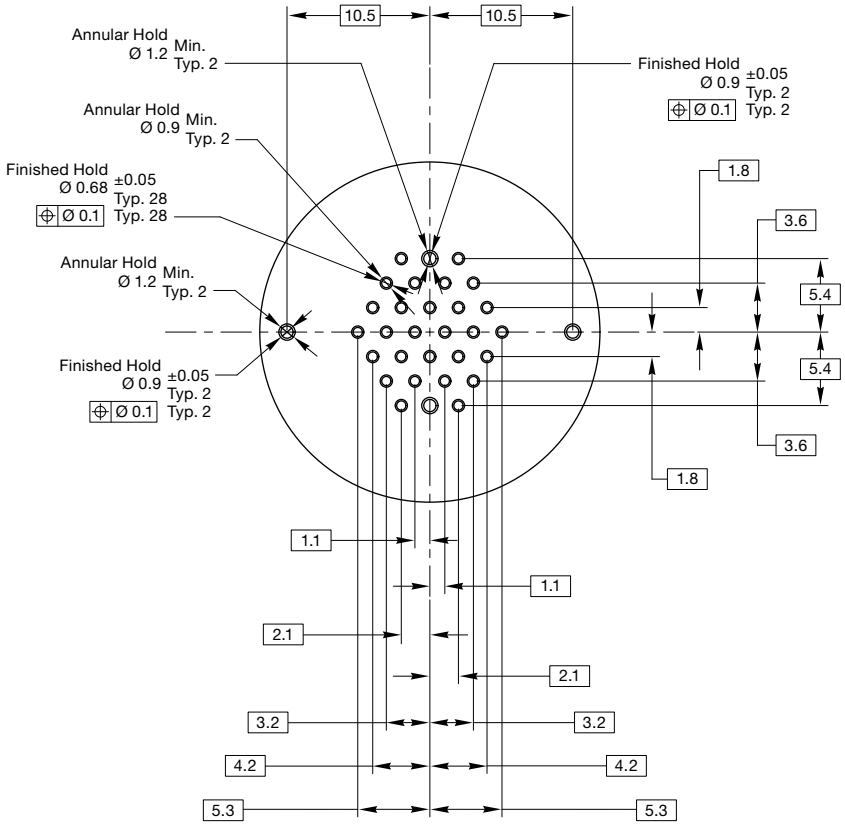


19-Position Receptacle



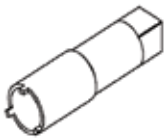
14-Position Hybrid Receptacle

PCB Layouts for Solder Tail Receptacles and Accessories



30-Position Hybrid Receptacle

Nut Jig for 7P Receptacle Connectors
Part No. 2288181-1



Use with connectors 2174206-*, 2174209-*, 2174204-*, 2174207-*, 2174205-*, 2174208-*

For More Information

TE Technical Support Center

North America	+1 800 522 6752
Asia Pacific	+86 0 400 820 6015
Austria	+43 1 905 601 228
Baltic Regions	+46 8 5072 5000
Benelux	+31 73 6246 999
Czech Republic	+420 800 701 462
France	+33 1 34 20 86 86
Germany	+49 6251 133 1999
Hungary	+36 809 874 04
Italy	+39 011 401 2632
Nordic	+46 8 5072 5000
Poland	+48 800 702 309
Russia	+7495 790 790 2
Spain/Portugal	+34 93 2910366
Switzerland	+41 52 633 66 26
United Kingdom	+44 800 267 666

Follow us on Twitter for all the latest product news @TEConnectivity, and on Facebook, TEConnectivity.

te.com/metal-shell

© 2015 TE Connectivity Ltd. family of companies. All Rights Reserved.

1-1773857-8 ADM/RRD 2.5M 06/2015

TE, TE Connectivity and the TE connectivity (logo) are trademarks of the TE Connectivity Ltd. family of companies.

Other products, logos, and company names mentioned herein may be trademarks of their respective owners.

While TE has made every reasonable effort to ensure the accuracy of the information herein, nothing herein constitutes any guarantee that such information is error-free, or any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. The TE entity issuing this publication reserves the right to make any adjustments to the information contained herein at any time without notice. All implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose are expressly disclaimed. The dimensions herein are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice.

Consult TE for the latest dimensions and design specifications.

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

TE Connectivity:

1-350945-0 2008571-3 2149966-1 5174225-5 ROX9J100R SC30R33KT SMA-A0102FTDL10K 1-917659-5 828801-6 MPT100C8K2F 1622820-6 ROX9J120R ROX9J2K4 ROX9J4K3 320552 539635-1 641763-1 322335 363549-000 7-2178711-4 967116-2 1-316080-2 1801174-1 ROX9J820R T4112401051-000 173796-E 2132781-3 336330-1 ROX9J160R SMF3100KJT