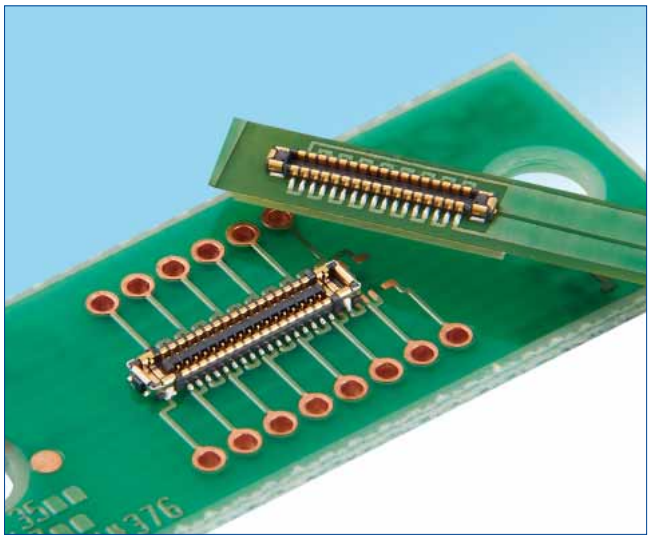
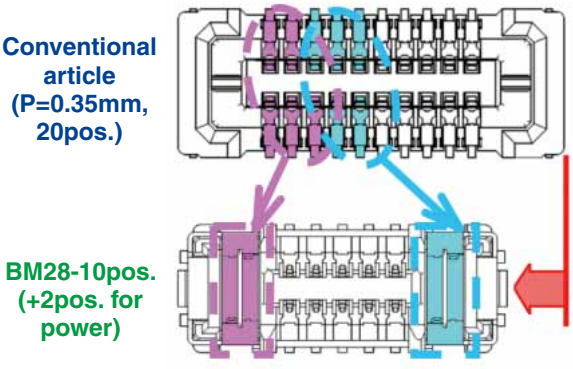
0.35mm pitch, 0.6mm height, Board to Board or Board to FPC Connectors with Rated Current Up to 5A

BM28 Series





Power lines are concentrated into 2 power contacts instead of conventional multiple signal contacts.

■Features

1. Rated current 5A

2 Power contacts up to 5A with 0.2A contacts for signal, space-saving connector.

2. Highly reliable contact design

2-point contact design for both power & signal ensures a highly reliable contact

3. Good mating operation

Guide ribs ensure 0.3mm self-alignment. Clear tactile click prevents partial mating, increases mating operability.

4. Supports USB3.1 Gen.2 (10Gbps) transmission

Signal connector supports USB3.1 Gen.2 transmission signals.

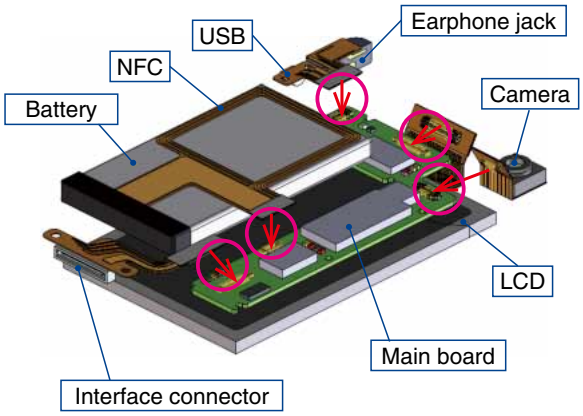
■Usage

Devices designed to be thinner and smaller, such as mobile phone, wearable device, tablet PC.

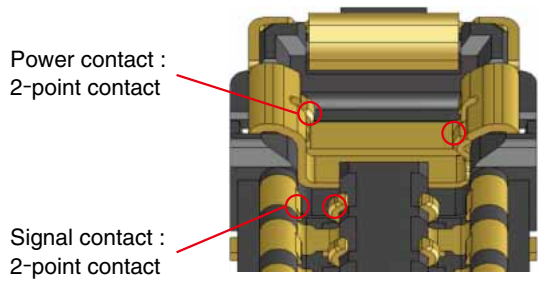
■Environmental

・Halogen-free*
As defined by IEC 61249-2-21
Br : 900ppm max, Cl : 900ppm max
Br+Cl :1500ppm max

Usage specification



Contact design



■Product Specifications

Ratings	Rated current	Power contact : 5A Signal contact : 40 contacts max. 0.3A 44 contacts min. 0.2A (Note 1)	Operating temperature range	-40 to 85℃ (Note 2)	Storage temperature range	-10 to 60℃ (Note 3)
	Rated voltage	30V AC/DC	Operating humidity range	20 to 80%	Storage humidity range	40 to 70% (Note 3)

Items	Specifications	Conditions
1. Contact resistance	Signal contact : 100mΩ max. Power contact : 30mΩ max.	Measured at 20mV AC, 1kHz, and 1mA
2. Insulation resistance	1000MΩ min.	Measured at 100V DC
3. Withstanding voltage	No flashover or dielectric breakdown	150V AC for 1 minute
4. Durability	Contact resistance : Signal contact : 100mΩ max. Power contact : 30mΩ max.	10 mating cycles
5. Vibration	No electrical discontinuity for more than 1μs.	Frequency : 10 to 55Hz ; half amplitude of 0.75mm, 10 cycles in each of 3 axis directions for 5 minutes/cycle
6. Shock resistance	No electrical discontinuity of 1μs or more.	Acceleration : 450m/s^2, duration : 11ms, 3-axis half-sine wave in both directions, 3 cycles for each
7. Humidity	Contact resistance : Signal contact : 100mΩ max. Power contact : 30mΩ max. Insulation resistance : 100MΩ min.	96 hours at a temperature of 40 ±2℃ and a humidity range from 90 to 95%
8. Temperature cycle	Contact resistance : Signal contact : 100mΩ max. Power contact : 30mΩ max. Insulation resistance : 100MΩ min.	-55±3℃ : 30 minutes → 85±2℃ : 30 minutes, 5 cycles
9. Solder heat resistance	No dissolution or melting of the resin that will affect the performance.	Reflow : with recommended temperature profile ; Hand soldering at soldering iron temperature of 350℃ for 3 seconds max.

Note 1 : The total current capacity for connectors with 50 or more signal contacts is 10A for all contacts. (Signal contact only)
Note 2 : Includes temperature rise caused by current flow.
Note 3 : Storage refers to long-term-storage of unused items before they are mounted on the PCB.
Operating temperature / humidity range applies to the state of temporary storage such as non-powered after mounting on the PCB, and during transportation, etc.

■Materials / Finish

Product	Part	Materials	Finish	UL Regulation
Receptacle Header	Insulator	LCP	Black	UL94V-0
	Signal contact	Copper alloy	Gold plated	———
	Power contact	Copper alloy	Gold plated	———

■Product Number Structure

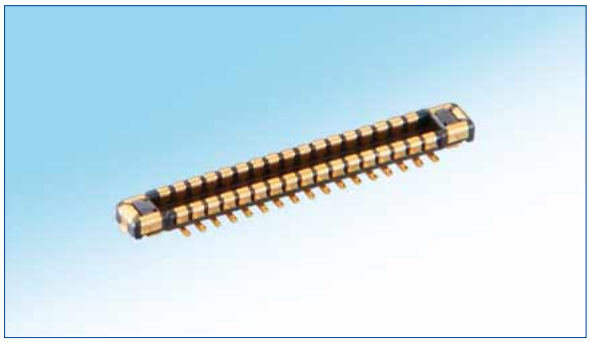
Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

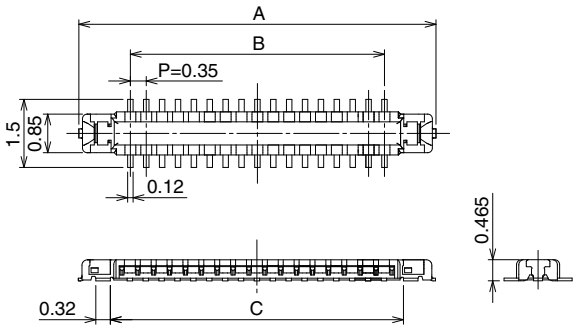
●Receptacle / Header

BM ❶ 28 ❷ B 0.6 ❸ – ＊ ❹ DS ❺ / 2 ❻ – 0.35 ❼ V ❽ (＊＊) ❾

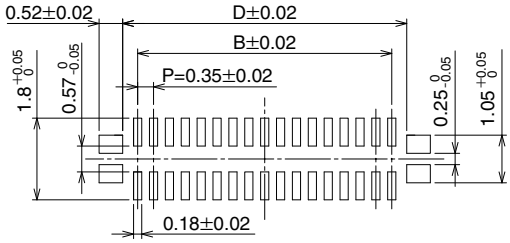
❶ Series Name : BM	❼ Contact Pitch : 0.35mm
❷ Series No. : 28	❽ Termination type V : Straight SMT
❸ Stacking height : 0.6mm	❾ Gold plated specification and packaging status (51) : Gold plate thickness 0.05μm Embossed tape packaging (20,000 pcs/reel) (53) : Gold plate thickness 0.05μm Embossed tape packaging (1,000 pcs/reel)
❹ Number of Signal Contacts : 6, 10, 16, 20, 24, 30, 34, 40, 44, 50, 60	
❺ Connector type DS : Receptacle DP : Header	
❻ Number of Power Contacts : 2	

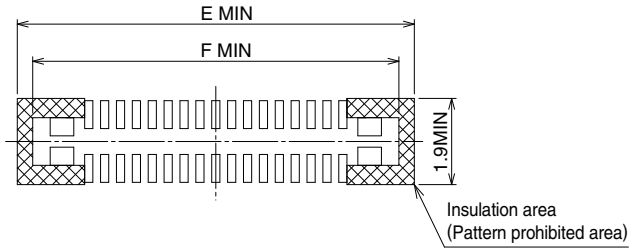
■Header



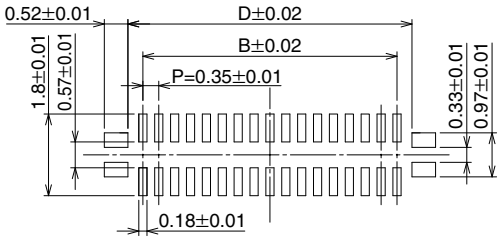


◆Recommended PCB layout





◆Recommended metal mask dimensions (mask thickness : 80μm)

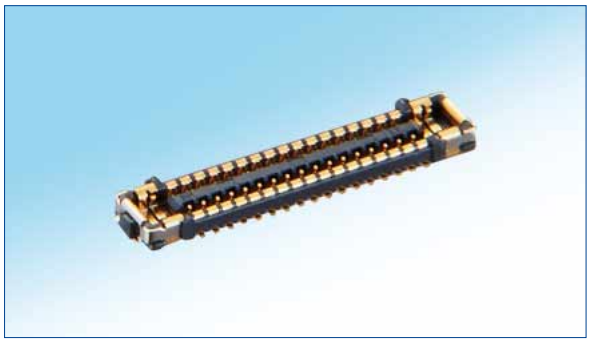


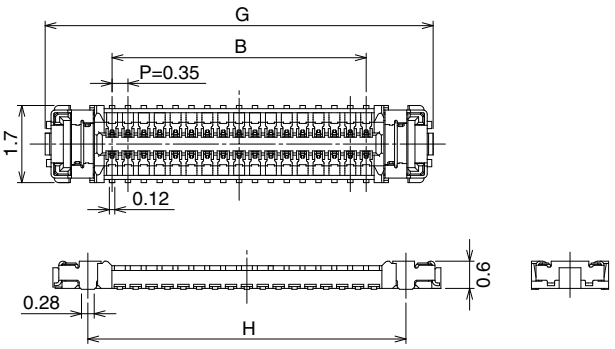
Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F
BM28B0.6-6DP/2-0.35V(**)	673-5047-0 **	6	2.97	0.70	1.56	1.36	3.85	3.17
BM28B0.6-10DP/2-0.35V(**)	673-5043-0 **	10	3.67	1.40	2.26	2.06	4.55	3.87
BM28B0.6-16DP/2-0.35V(**)	673-5066-0 **	16	4.72	2.45	3.31	3.11	5.60	4.92
BM28B0.6-20DP/2-0.35V(**)	673-5039-0 **	20	5.42	3.15	4.01	3.81	6.30	5.62
BM28B0.6-24DP/2-0.35V(**)	673-5024-0 **	24	6.12	3.85	4.71	4.51	7.00	6.32
BM28B0.6-30DP/2-0.35V(**)	673-5020-0 **	30	7.17	4.90	5.76	5.56	8.05	7.37
BM28B0.6-34DP/2-0.35V(**)	673-5064-0 **	34	7.87	5.60	6.46	6.26	8.75	8.07
BM28B0.6-40DP/2-0.35V(**)	673-5018-0 **	40	8.92	6.65	7.51	7.31	9.80	9.12
BM28B0.6-44DP/2-0.35V(**)	673-5049-0 **	44	9.62	7.35	8.21	8.01	10.50	9.82
BM28B0.6-50DP/2-0.35V(**)	480-0397-0 **	50	10.67	8.40	9.26	9.06	11.55	10.87
BM28B0.6-60DP/2-0.35V(**)	673-5037-0 **	60	12.42	10.15	11.01	10.81	13.30	12.62

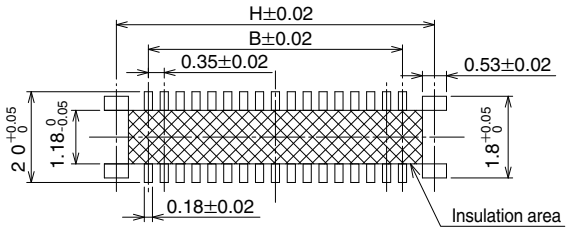
Note 1 : Please place orders in full reel quantities.
Note 2 : This connector has no polarity.

■Receptacle

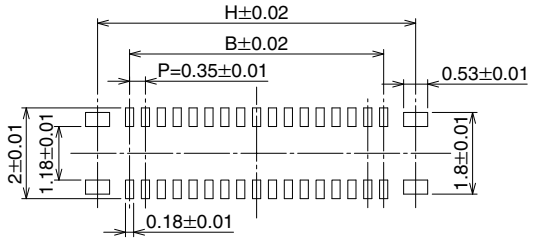




◆Recommended PCB layout



◆Recommended metal mask dimensions (mask thickness : 80μm)



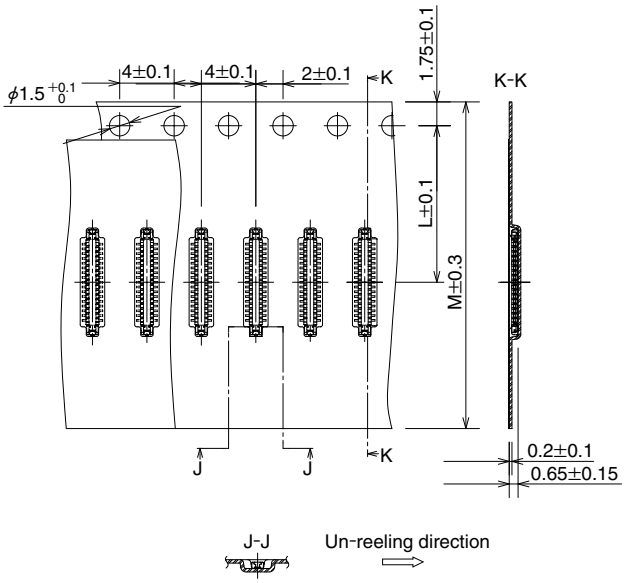
Unit : mm

Part No.	HRS No.	No. of contacts	B	G	H
BM28B0.6-6DS/2-0.35V(**)	673-5048-0 **	6	0.70	3.65	2.11
BM28B0.6-10DS/2-0.35V(**)	673-5044-0 **	10	1.40	4.35	2.81
BM28B0.6-16DS/2-0.35V(**)	673-5067-0 **	16	2.45	5.40	3.86
BM28B0.6-20DS/2-0.35V(**)	673-5040-0 **	20	3.15	6.10	4.56
BM28B0.6-24DS/2-0.35V(**)	673-5025-0 **	24	3.85	6.80	5.26
BM28B0.6-30DS/2-0.35V(**)	673-5021-0 **	30	4.90	7.85	6.31
BM28B0.6-34DS/2-0.35V(**)	673-5065-0 **	34	5.60	8.55	7.01
BM28B0.6-40DS/2-0.35V(**)	673-5019-0 **	40	6.65	9.60	8.06
BM28B0.6-44DS/2-0.35V(**)	673-5050-0 **	44	7.35	10.30	8.76
BM28B0.6-50DS/2-0.35V(**)	480-0396-0 **	50	8.40	11.35	9.81
BM28B0.6-60DS/2-0.35V(**)	673-5038-0 **	60	10.15	13.10	11.56

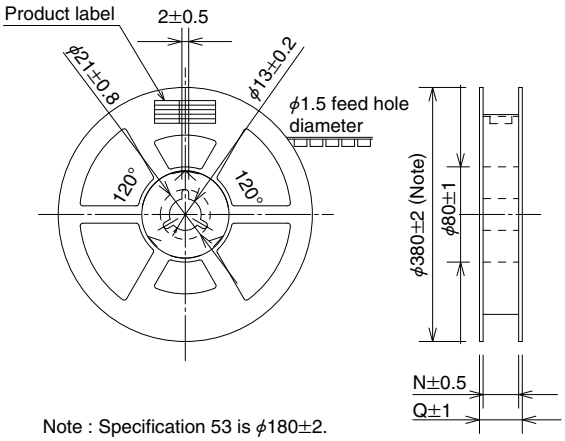
Note 1 : Please place orders in full reel quantities.
Note 2 : This connector has no polarity.

◆Embossed Tape Dimensions (IEC 60286-3, with JIS C 0806)

●Header



●Reel dimensions



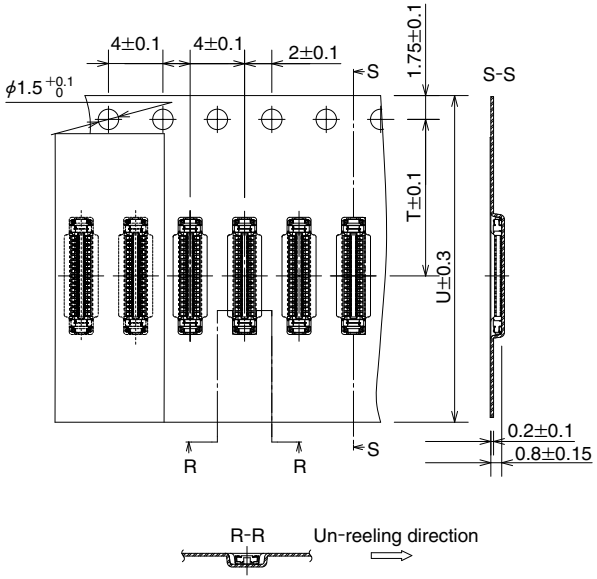
Note : Specification 53 is φ180±2.

Unit : mm

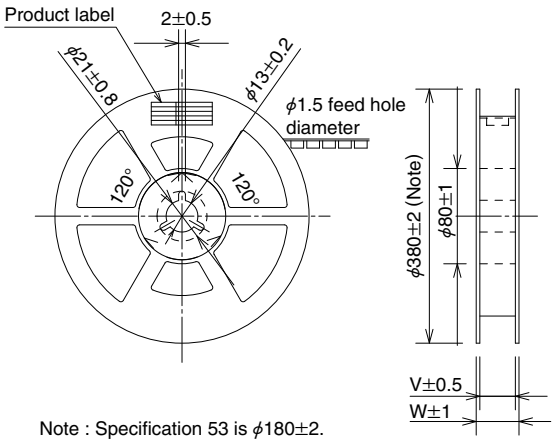
Part No.	No. of contacts	L	M	N	Q
BM28B0.6-6DP/2-0.35V(**)	6	5.5	12	13.5	17.5
BM28B0.6-10DP/2-0.35V(**)	10	5.5	12	13.5	17.5
BM28B0.6-16DP/2-0.35V(**)	16	7.5	16	17.5	21.5
BM28B0.6-20DP/2-0.35V(**)	20	7.5	16	17.5	21.5
BM28B0.6-24DP/2-0.35V(**)	24	7.5	16	17.5	21.5
BM28B0.6-30DP/2-0.35V(**)	30	7.5	16	17.5	21.5
BM28B0.6-34DP/2-0.35V(**)	34	11.5	24	25.4	29.4
BM28B0.6-40DP/2-0.35V(**)	40	11.5	24	25.4	29.4
BM28B0.6-44DP/2-0.35V(**)	44	11.5	24	25.4	29.4
BM28B0.6-50DP/2-0.35V(**)	50	11.5	24	25.4	29.4
BM28B0.6-60DP/2-0.35V(**)	60	11.5	24	25.4	29.4

◆Embossed Tape Dimensions (IEC 60286-3, with JIS C 0806)

●Receptacle



●Reel dimensions

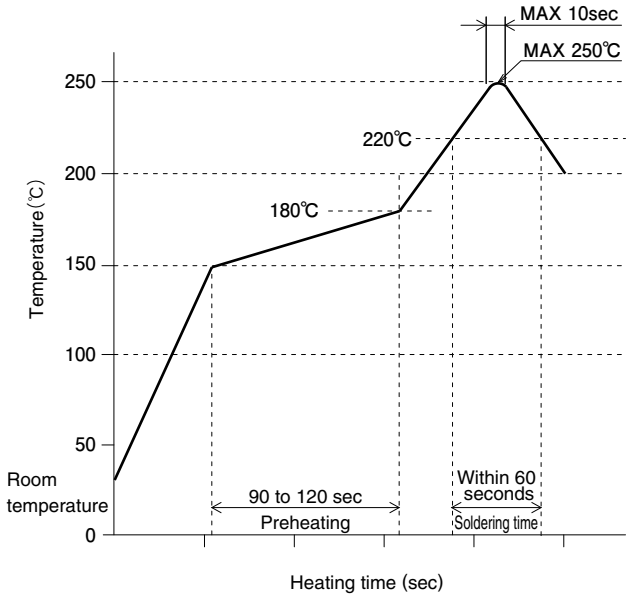


Note : Specification 53 is φ180±2.

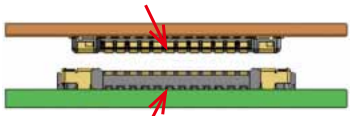
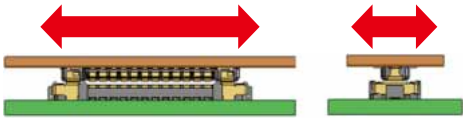
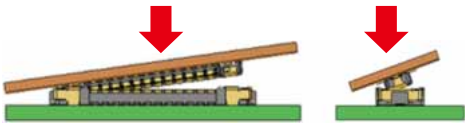
Unit : mm

Part No.	No. of contacts	T	U	V	W
BM28B0.6-6DS/2-0.35V(**)	6	5.5	12	13.5	17.5
BM28B0.6-10DS/2-0.35V(**)	10	7.5	16	17.5	21.5
BM28B0.6-16DS/2-0.35V(**)	16	7.5	16	17.5	21.5
BM28B0.6-20DS/2-0.35V(**)	20	7.5	16	17.5	21.5
BM28B0.6-24DS/2-0.35V(**)	24	7.5	16	17.5	21.5
BM28B0.6-30DS/2-0.35V(**)	30	11.5	24	25.4	29.4
BM28B0.6-34DS/2-0.35V(**)	34	11.5	24	25.4	29.4
BM28B0.6-40DS/2-0.35V(**)	40	11.5	24	25.4	29.4
BM28B0.6-44DS/2-0.35V(**)	44	11.5	24	25.4	29.4
BM28B0.6-50DS/2-0.35V(**)	50	11.5	24	25.4	29.4
BM28B0.6-60DS/2-0.35V(**)	60	11.5	24	25.4	29.4

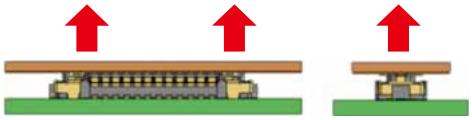
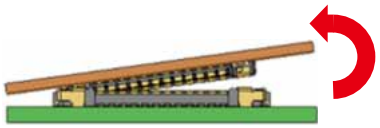
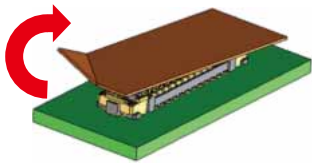
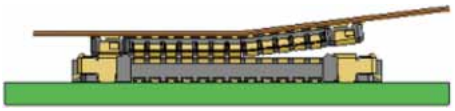
◆Precautions

1.Recommended solder temperature profile	 [Conditions] 1. Peak temperature : Maximum of 250℃ 2. Heat section : 220℃ min., within 60 seconds 3. Preheat section : 150 to 180℃, 90 to 120 seconds 4. Number of reflow cycles : Maximum of 2 cycles Note 1 : The temperature refers to the surface temperature of the PCB in the area of the connector lead.
2. Recommended manual soldering conditions	Soldering iron temperature : 340 ± 10°C ; Soldering time : within 3 seconds
3. Recommended stencil thickness and open area ratio to PCB pattern area	Thickness : 0.08mm Aperture ratio : 100% on the DS side ; 100% for signal contact, and 80% for power contact on the DP side
4. Board warpage	A maximum of 0.02mm at the center of the connector relative to each end of the connector.
5. Cleaning conditions	Cleaning is not recommended. If you clean this product, please evaluate its performance before using it. (Cleaning may impair the mating/unmating properties and lower resistance to environmental factors)
6. Precautions	●Care should be taken when mating/unmating the connector when it is not mounted on the PCB. This could cause damage or deformation of the contacts. ●Avoid supporting the PCB only with the connectors. Support it by other means such as bolts, screws, posts, etc. ●Care should be taken that excessive prying mating/unmating could cause damage. ●In the case of hand soldering, please do not apply any flux, which could cause flux wicking. ●This product may have slight color differences due to production lot variability, but this does not the performance. ●Please refer to the next page for precautions regarding mating/unmating. ●Because the product can disengage if dropped (or other impact), and by FPC routing, it is advised to secure the mated connectors to the board with housings and cushioning materials. ●Caution! Do not use the connector in non-recommended conditions (i.e., rated current, rated voltage, PCB design and operating environment, etc.). Such usage could lead to material outgassing, ignition, or short-circuit, etc. Refer to the specifications and the guidelines for board pattern dimensions, board cautions, and connector treatment. Pleasae contact Hirose if using the connector under conditions other than those described in the specifications and the guidelines is being considered.

●Handle with care when mating a connector

BM28B0.6-*DP/2-0.35V  BM28B0.6-*DS/2-0.35V	
Alignment method OK  NG 	When aligning, look for the guide port without applying excessive force. Caution! If excessive force is applied, the connector could crack or shaved which could lead to a defect in contact resistance.
Guiding condition  Mated condition 	When guided, the connectors are aligned parallel to each other, with longitudinal and lateral movements restricted. Mate them parallel to each other.

●Handle with care when un-mating connectors

OK 	Un-mate connectors parallel to each other.
OK  Pitch direction	If the connector cannot be un-mated parallel it can be removed diagonally from the pitch direction, as shown in the Figure. However, the connector can be broken if the FPC is not rigid. Please confirm rigidity of the FPC at the time of trial production.
NG  Corner direction	Do not pull from the corner, If it is pulled from the corner as shown in the left Figure, the contact and connector could be damaged.
	Please provide a reinforcing plate for the FPC. If the rigidity of the FPC is not sufficient, the connector may break as shown in the left Figure. Please check the action of the FPC to be used repeatedly. A reinforcing plate of 0.3mm or thicker made of glass epoxy material is recommended, or 0.2mm or thicker stainless steel.

Creative Links to World Electronics ®
HRS

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