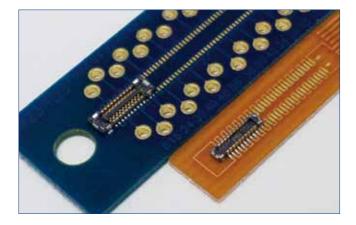
# 0.35mm Pitch, 0.6 and 0.8mm Height, Board to Board or Board to FPC Connectors

### **BM23FR Series**



# Features

### 1. Space-saving design

Compact design ideal for mobile devices (See Fig.1) •Pitch : 0.35mm, Width : 1.98mm, Stacking height : 0.6/0.8mm

### 2. Robust [Breaking Strength : 90N]

Metal guides prevent housing damage due to incorrect mating. (See Fig.2)

### 3. Highly reliable contact design

2-point contact design for signal contact ensures high reliability. (See Fig.3)

#### 4. Good mating operation

Wide self alignment range with metal guides offers enhanced mating operation. (0.4mm in pitch direction, 0.35mm in width direction) Furthermore, a clear tactile click generated by the unique locking contact design insures complete mating.

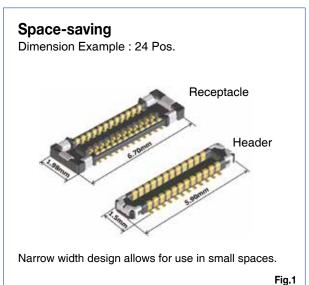
### 5. Supports USB 3.1 Gen.2 (10Gbps) transmission

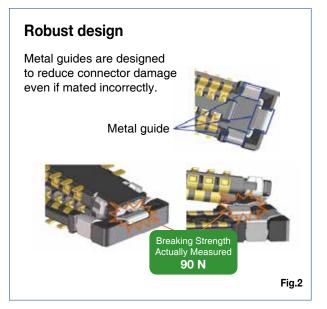
Signal contacts support USB3.1 Gen.2 transmission speed.

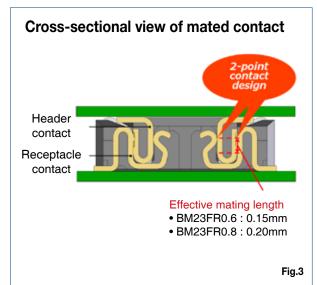
# Environmental

#### ·Halogen-free\*

As defined by IEC 61249-2-21 Br : 900ppm max., Cl : 900ppm max. Br+Cl : 1,500ppm max.









## Product Specifications

Detiner	Rated current	0.3A	Operating temperature range			Storage temperature range	-10°C to 60°C (Note2)				
Ratings	Rated voltage	30V AC/DC	Operating humidity range	20%	to 80%	Storage humidity range	40% to 70% (Note2)				
Items Specifications						Conditions					
1. Contact re	esistance	100mΩ max.			Measured	d at 20mV AC, 1kHz, and	I 1mA				
2. Insulation	resistance	50MΩ min.			Measured	d at 100V DC					
3. Withstand	ding voltage	No flashover or ins	ulation breakdown		100V AC for 1 minute						
4. Durability		Contact resistance		10 mating cycles							
5. Vibration No electrical discontinuity for more than 1µs.					Frequency: 10 to 55Hz, single amplitude : 0.75mm in 3 axis directions for 5 minutes, 10 cycles						
6. Shock res	5. Shock resistance No electrical discontinuity of 1µs or more.					Acceleration : 490m/s <sup>2</sup> , duration of pulse : 11ms at 3 times for 3 directions					
Contact resistance : 100mΩ max.   Insulation resistance : 25mΩ min.					96 hours at temperature of 40±2°C and a humidity range from 90 to 95%						
8. Temperature cycle Contact resistance: 100mΩ max. Insulation resistance: 50MΩ min.					-55°C for 30 minutes $\rightarrow$ 85°C for 30 minutes, 5 cycles						
9. Soldering heat resistanceNo dissolution or melting of the resin that will affect the performance.					Reflow: with recommended temperature profile; Hand soldering at soldering iron temperature of 350°C for 3 seconds max.						

Note 1 : Includes temperature rise caused by current flow.

Note 2: 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.

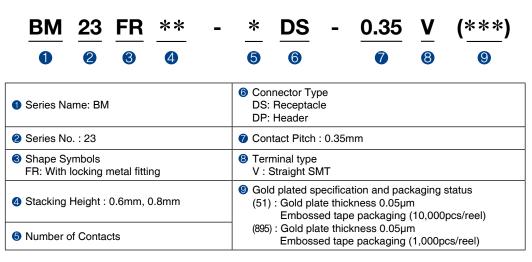
# Materials / Finish

Product	Part	Material	Finish	UL Regulation
	Insulator	LCP	Black	UL94V-0
Receptacle Header	Contact	Copper alloy	Gold plating	
	Metal Fitting	Copper alloy	Gold plating	

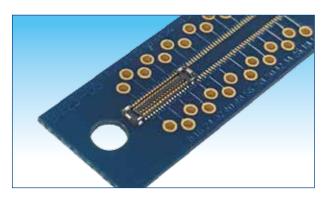
# Product Number Structure

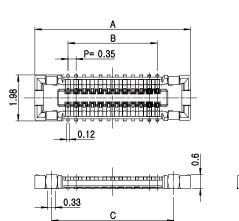
Refer to the chart below when determining the product specifications from the product number. Please select from the product numbers listed in this catalog when placing orders

#### Receptacle / Header



# H=0.6mm Receptacle

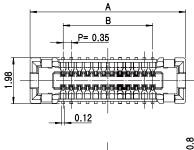


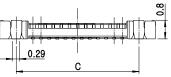




# H=0.8mm Receptacle

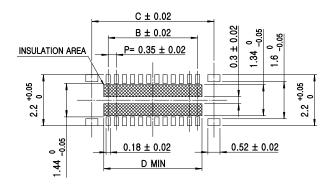




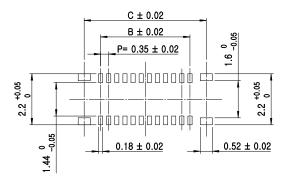




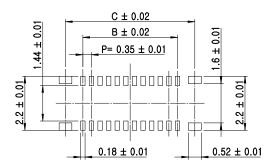
# Recommended PCB layout [H=0.6 mm]



### Recommended PCB layout [H=0.8 mm]



### Recommended metal mask dimensions (mask thickness : 100μm) [0.6mm and 0.8mm common]



Unit : mm

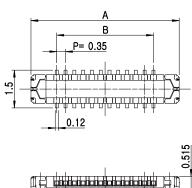
		1				
Part No.	HRS No.	No. of contacts	А	В	С	D
BM23FR0.6-6DS-0.35V(***)	480-0287-0 **	6	3.55	0.70	2.11	1.08
BM23FR0.6-8DS-0.35V(***)	480-0360-0 **	8	3.90	1.05	2.46	1.43
BM23FR0.6-10DS-0.35V(***)	480-0258-0 **	10	4.25	1.40	2.81	1.78
BM23FR0.6-12DS-0.35V(***)	480-0371-0 **	12	4.60	1.75	3.16	2.13
BM23FR0.6-16DS-0.35V(***)	480-0295-0 **	16	5.30	2.45	3.86	2.83
BM23FR0.6-20DS-0.35V(***)	480-0272-0 **	20	6.00	00 3.15		3.53
BM23FR0.6-24DS-0.35V(***)	480-0260-0 **	24	6.70	.70 3.85		4.23
BM23FR0.6-30DS-0.35V(***)	480-0327-0 **	30	7.75	7.75 4.90		5.28
BM23FR0.6-34DS-0.35V(***)	480-0274-0 **	34	8.45	5.60	7.01	5.98
BM23FR0.6-40DS-0.35V(***)	480-0390-0 **	40	9.50	6.65	8.06	7.03
BM23FR0.6-50DS-0.35V(***)	480-0382-0 **	50	11.25 8.40		9.81	8.78
Part No.	HRS No.	No. of contacts	A		3	С
BM23FR0.8-10DS-0.35V(***)	480-0298-0 **	10	4.25		40	2.81
BM23FR0.8-18DS-0.35V(***)	480-0469-0 **	18	5.65 2.80		80	4.21
BM23FR0.8-60DS-0.35V(***)	480-0300-0 **	60	13.00	10	.15	11.56

Note 1 : Please place orders in full reel quantities.

Note 2 : This connector has no polarity.

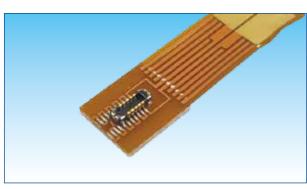
Note 3 : The specification number(895) in the Part No. changes to(95) in the HRS No.

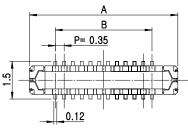






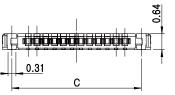
# H=0.8mm Header





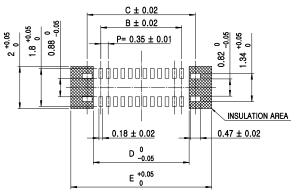
С

0.31

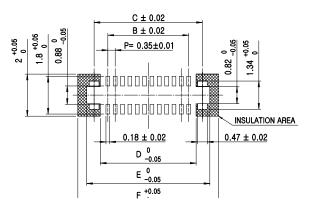


# P

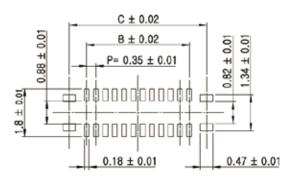
# Recommended PCB layout [H=0.6mm]



### Recommended PCB layout [H=0.8mm]



### Recommended metal mask dimensions (mask thickness : 100μm) [0.6mm and 0.8mm common]



Unit : mm

									Unit . mini
Part No.	HRS No.	No. of contacts	А	В	(	C	D		Е
BM23FR0.6-6DP-0.35V(***)	480-0286-0 **	6	2.75 0.70		2.	2.00			3.55
BM23FR0.6-8DP-0.35V(***)	480-0361-0 **	8	3.10	1.05	2.	35	1.76		3.90
BM23FR0.6-10DP-0.35V(***)	480-0257-0 **	10	3.45	1.40	2.	70	2.11		4.25
BM23FR0.6-12DP-0.35V(***)	480-0364-0 **	12	3.80	1.75	3.	05	2.46		4.60
BM23FR0.6-16DP-0.35V(***)	480-0290-0 **	16	4.50	2.45	3.	75	3.16		5.30
BM23FR0.6-20DP-0.35V(***)	480-0273-0 **	20	5.20	3.15	4.	45	3.86		6.00
BM23FR0.6-24DP-0.35V(***)	480-0259-0 **	24	5.90	0 3.85		15	4.56		6.70
BM23FR0.6-30DP-0.35V(***)	480-0328-0 **	30	6.95	4.90	4.90 6.20		.0 5.61		7.75
BM23FR0.6-34DP-0.35V(***)	480-0275-0 **	34	7.65	5.60	6.	.90 6.31			8.45
BM23FR0.6-40DP-0.35V(***)	480-0391-0 **	40	8.70	6.65	7.	95	7.36		9.50
BM23FR0.6-50DP-0.35V(***)	480-0383-0 **	50	10.45	8.40	9.	70	9.11		11.25
Part No.	HRS No.	No. of contacts	A	В	С	D		E	F
BM23FR0.8-10DP-0.35V(***)	480-0297-0 **	10	3.45	1.40	2.70	2.11	I 3.	41	4.25
BM23FR0.8-18DP-0.35V(***)	480-0468-0 **	18	4.85	2.80	4.10	3.51	1 4.	81	5.65
BM23FR0.8-60DP-0.35V(***)	480-0299-0 **	60	12.20	10.15	11.45	10.8	6 12	.16	13.00

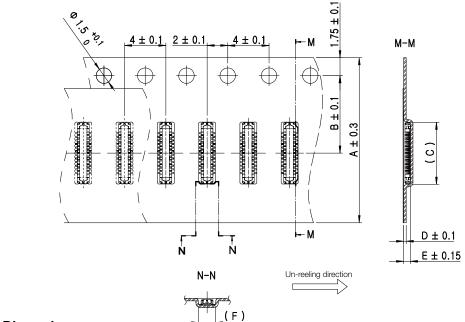
Note 1 : Please place orders in full reel quantities.

Note 2 : This connector has no polarity.

Note 3 : The specification number(895) in the Part No. changes to(95) in the HRS No.

### Embossed Tape Dimensions (IEC 602286-3, with JIC C 0806)

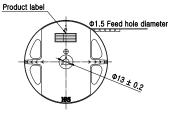
#### Receptacle

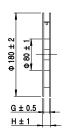




►10,000pcs/reel

Product label 01.5 Feed hole diameter  $0_{1,3} \pm 0.2$   $G \pm 0.5$  $H \pm 1$  ▶1,000pcs/reel





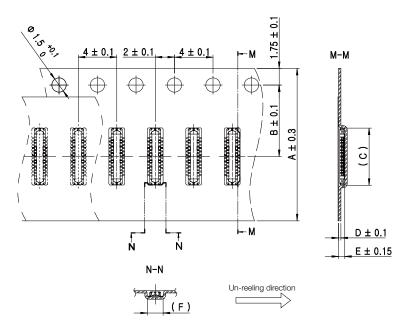
Unit : mm

	1	1		1	r				1	1	
Part No.	HRS No.	No. of contacts	А	В	С	D	E	F	G	H	I
BM23FR0.6-6DS-0.35V(***)	480-0287-0 **	6	12	5.5	3.66	0.25	0.8	2.07	13.5	17.5	330
BM23FR0.6-8DS-0.35V(***)	480-0360-0 **	8	12	5.5	4.01	0.25	0.8	2.07	13.5	17.5	330
BM23FR0.6-10DS-0.35V(***)	480-0371-0 **	10	16	7.5	4.36	0.25	0.8	2.07	17.5	21.5	380
BM23FR0.6-12DS-0.35V(***)	480-0295-0 **	12	16	7.5	4.71	0.25	0.8	2.07	17.5	21.5	330
BM23FR0.6-16DS-0.35V(***)	480-0272-0 **	16	16	7.5	5.41	0.25	0.8	2.07	17.5	21.5	330
BM23FR0.6-20DS-0.35V(***)	480-0260-0 **	20	16	7.5	6.11	0.25	0.8	2.07	17.5	21.5	380
BM23FR0.6-24DS-0.35V(***)	480-0327-0 **	24	16	7.5	6.81	0.25	0.8	2.07	17.5	21.5	380
BM23FR0.6-30DS-0.35V(***)	480-0274-0 **	30	24	11.5	7.86	0.25	0.8	2.07	25.5	29.5	330
BM23FR0.6-34DS-0.35V(***)	480-0390-0 **	34	24	11.5	8.56	0.25	0.8	2.07	25.5	29.5	380
BM23FR0.6-40DS-0.35V(***)	480-0382-0 **	40	24	11.5	9.61	0.25	0.8	2.07	25.5	29.5	330
BM23FR0.6-50DS-0.35V(***)	480-0371-0 **	50	24	11.5	11.36	0.25	0.8	2.07	25.5	29.5	330
Part No.	HRS No.	No. of contacts	А	В	С	D	E	F	G	н	I
BM23FR0.8-10DS-0.35V(***)	480-0298-0 **	10	16	7.5	4.36	0.3	1.0	2.07	17.5	21.5	330
BM23FR0.8-18DS-0.35V(***)	480-0469-0 **	18	16	7.5	5.76	0.3	1.0	2.07	17.5	21.5	330
BM23FR0.8-60DS-0.35V(***)	480-0300-0 **	60	24	11.5	13.11	0.3	1.0	2.07	25.5	29.5	330

Note 1 : The specification number(895) in the Part No. changes to(95) in the HRS No.

### Embossed Tape Dimensions (IEC 602286-3, with JIC C 0806)

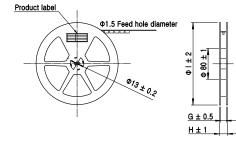
### Header

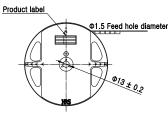


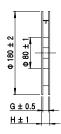
#### Reel Dimensions

►10,000pcs/reel

▶1,000pcs/reel





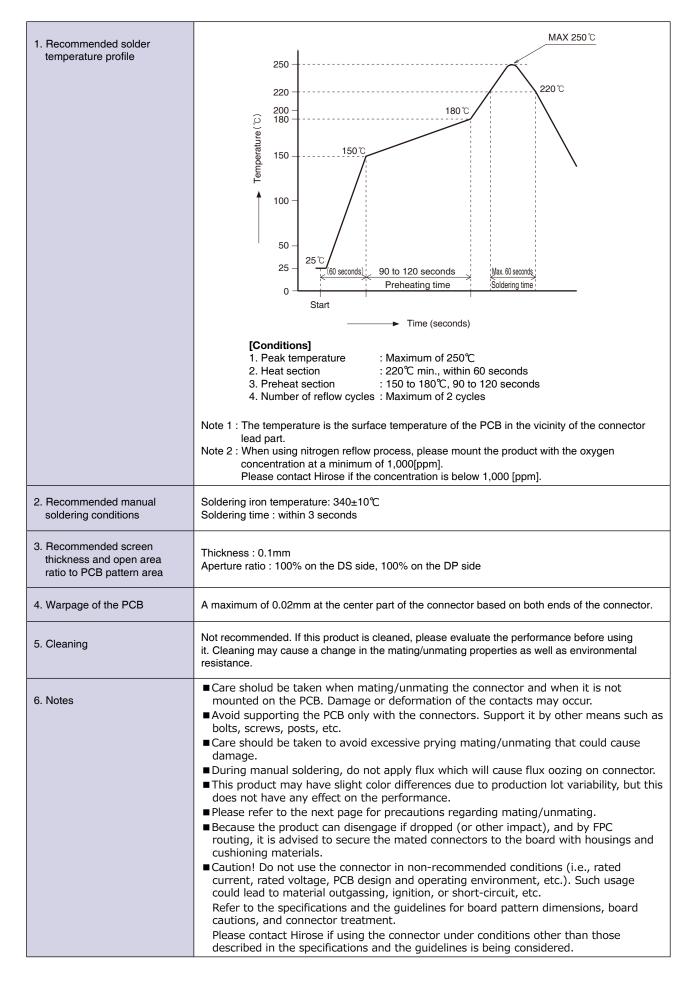


Unit	:	mm
•••••	•	

Part No.	HRS No.	No. of contacts	А	В	с	D	E	F	G	н	I
BM23FR0.6-6DP-0.35V(***)	480-0286-0 **	6	12	5.5	2.85	0.25	0.65	1.58	13.5	17.5	330
BM23FR0.6-8DP-0.35V(***)	480-0361-0 **	8	12	5.5	3.20	0.25	0.65	1.58	13.5	17.5	330
BM23FR0.6-10DP-0.35V(***)	480-0257-0 **	10	12	5.5	3.55	0.25	0.65	1.64	13.5	17.5	380
BM23FR0.6-12DP-0.35V(***)	480-0364-0 **	12	12	5.5	3.90	0.25	0.65	1.64	13.5	17.5	330
BM23FR0.6-16DP-0.35V(***)	480-0290-0 **	16	16	7.5	4.60	0.25	0.65	1.64	17.5	21.5	330
BM23FR0.6-20DP-0.35V(***)	480-0273-0 **	20	16	7.5	5.30	0.25	0.65	1.64	17.5	21.5	380
BM23FR0.6-24DP-0.35V(***)	480-0259-0 **	24	16	7.5	6.00	0.25	0.65	1.64	17.5	21.5	380
BM23FR0.6-30DP-0.35V(***)	480-0328-0 **	30	16	7.5	7.05	0.25	0.65	1.64	17.5	21.5	330
BM23FR0.6-34DP-0.35V(***)	480-0275-0 **	34	16	7.5	7.75	0.25	0.65	1.64	17.5	21.5	380
BM23FR0.6-40DP-0.35V(***)	480-0391-0 **	40	24	11.5	8.80	0.25	0.65	1.64	25.5	29.5	330
BM23FR0.6-50DP-0.35V(***)	480-0383-0 **	50	24	11.5	10.55	0.25	0.65	1.64	25.5	29.5	330
Part No.	HRS No.	No. of contacts	А	В	с	D	E	F	G	н	I
BM23FR0.8-10DP-0.35V(***)	480-0297-0 **	10	12	5.5	3.55	0.3	0.78	1.64	13.5	17.5	330
BM23FR0.8-18DP-0.35V(***)	480-0468-0 **	18	16	7.5	4.95	0.3	0.78	1.64	17.5	21.5	330
BM23FR0.8-60DP-0.35V(***)	480-0299-0 **	60	24	11.5	12.30	0.3	0.78	1.64	25.5	29.5	330

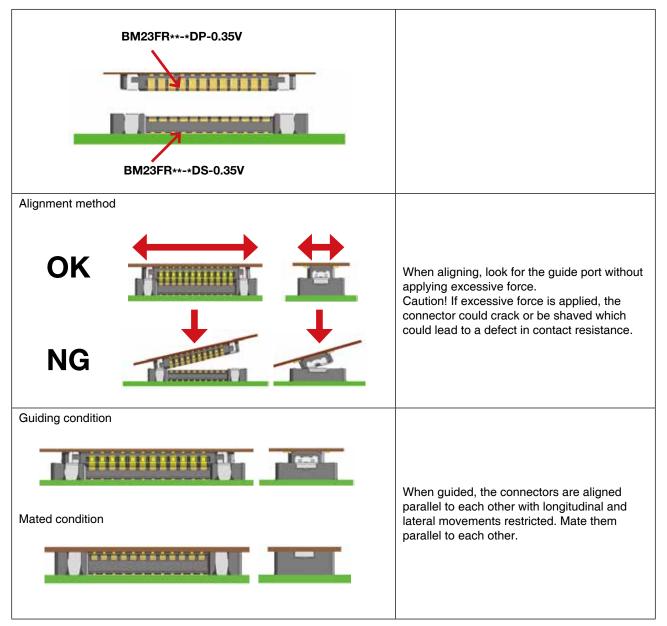
Note 1 : The specification number (895) in the Part No. changes to (95) in the HRS No.

### Precautions



HRS 9

### Handle with care when mating a connector



### • Handle with care when un-mating connectors

ок		Un-mate connectors parallel to each other.
ок	Pitch direction	If the connector cannot be un-mated parallel, it can be removed diagonally from the pitch direction, as shown in the left 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.
NG	Televisie	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, or 0.2mm or thicker stainless steel is recommended

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