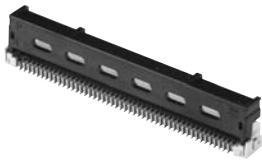


Connectors	FPC Connectors	2
	Floating Connectors	2
	Miniature Circular Connectors	3
	Micro-miniature Circular Connectors	3
	Rectangular Connectors	4
	Micro-miniature Rectangular Connectors	4
	18P Interface Connectors	5
	110P Interface Connectors	5
	IMT-2000 Connectors	5
	USB Connectors	5
	HDMI Connectors	5
	Power Supply Connectors	6
	Optical Connectors	6
	Card Connectors	7
	Modular Jacks	7
	Miniature Jacks	8
	Pin Jacks	8
	Power Jacks	8
	CRT Sockets	9
AC Inlets	9	
Terminals	9	
Switches	Slide Switches	10
	Tactile Push Switches	10
	Double Action Switch	10
	Voltage Selectors	10
	Multi-direction Switches	11
	Push Switches	11
	Detector Switches	11
Input Devices	Switch Units	12
	Touch Panels	12
	Pointing Devices	12
	Analog Joy Stick	12
Assemble Products	Circuit Protectors	13
	Assembled Products	13
Motors/ Solenoides	Motors	14
	DC Solenoids	14
	Applied Equipment of DC Solenoids	14
Acoustic Equipment	Electret Condenser Microphone Units	15
	Microphones	15
	Receiver Units	16
	Micro Speakers	16
	Bluetooth Headset	17
	Earphone-Microphones & Headsets	17
	Headphones & Inner Earphones	17
Others	17	
LCD Modules	LCD Modules for Mobile communication	18
	STN LCD Module for Automobile	18
	Color STN LCD Module	18

## FPC Connectors



HVC3502(96P)



HVC3601



HVC3516



HVC3600(96P)



HVC3609

### ●Introduction

Protection structure is equipped for soldering area of the terminals. This structure prevents dust and also eventually prevents shorting problem caused by dust. After insertion of FPC into the connector, the connection can be easily done by locking the actuator with flipping system.

### ●Applications

PDP TV sets , LCD TV sets

#### Specifications

Rating	0.35 A min. 50 V AC
Contact Resistance	20 mΩ max.
Insulation Resistance	100 MΩ min. (at DC 250 V)
Dielectric Strength	250 V AC/1 minute

Model No.	No. of Poles	Terminal pitch
HVC3502	96	0.4 mm
HVC3601	80	0.4 mm
HVC3516	80	0.5 mm
HVC3600	96	0.5 mm
HVC3609	98	0.5 mm

## Floating Connectors



HVC1032



HVC1033

### ●Introduction

Floating connector is used for connection between two horizontal PC boards, and that makes secure connection absorbing misalignment in not only X and Y directions but in Z direction. This connector is suitable for the smooth detachable lock mechanism contributes to improvement of productivity in customer's production line.

### ●Applications

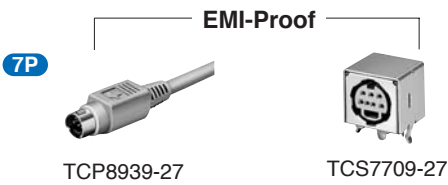
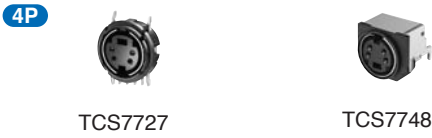
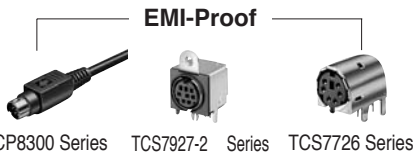
PDP TV sets and LCD TV sets

#### Specifications

Terminal pitch	0.75 mm
Rating	0.5 A min. 50 V AC/DC
Dimension of Floating	-0.5 mm in each direction X, Y and Z
Contact Resistance	40 mΩ max.
Insulation Resistance	100 MΩ min. (at DC 100 V)
Dielectric Strength	250 V AC/1 minute
No. of Poles	80



### Miniature Circular Connectors



#### ● Introduction

Miniature circular connector is a miniaturization of DIN connector. Various types are available such as lock feature and anti-EMI version. This is suitable as an interface connector for OA equipment, audio equipment, amusement equipment and automotive equipment.

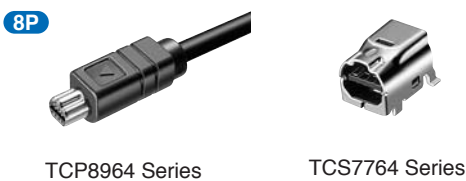
Series No.	No. of Pins or Contacts	Style
TCP8300	3 to 8 pins	Straight type plug
TCS7927-2	4 to 8 pins	Socket for DIP
TCS7726	6 contacts	Socket for DIP
TCS7736	6 contacts	Socket for SMT

#### ● Specifications

Rating	1 A max. 100 V AC or 2 A max. 12 V DC
Insulation Resistance	50 M $\Omega$ min. at 250 V DC
Dielectric Strength	250 V AC / 1 minute
Contact Resistance	30 m $\Omega$ max.
Engaging Force	45 N {4.5 kgf} max.
Separating Force	9 N to 30 N {0.9 kgf to 3 kgf}

### Micro-miniature Circular Connectors

#### SSI Connectors



#### ● Applications

Notebook PCs, PDAs, Digital cameras, etc.

SSI(Super Slim Interface)Connectors

Terminal pitch	0.5 mm
Rating	1 A max. 12 V DC / 0.5 A max. 100 V AC
Height from PC Board	6 mm



### Rectangular Connectors

14P



TCX3143



TCX3142

20P



TCX3110



TCX3111



TCX3112

21P



TCX3173



TCX3174



TCX3175

25P



TCX3116



TCX3135



TCX3115



TCX3117

30P



TCX3169



TCX3170

#### Applications

Audio visual equipment , Office automation equipment

No. of Poles	Model No.	Type	Rating
14	TCX3143	Straight Plug	0.5 A max. 100 V AC 1 A max. 12 V DC
	TCX3142	Right angle Receptacle	
20	TCX3110	Board to board Plug	1 A max. 12 V DC
	TCX3111	Board to board Socket	
	TCX3112	Straight Socket	
21	TCX3173	Right angle Receptacle	3 A max. 12 V DC
	TCX3174	Right angle Socket	
	TCX3175	Straight Plug	
25	TCX3116	Straight Plug	3 A max. 12 V DC
	TCX3135	Right angle Plug	
	TCX3115	Right angle Receptacle	1 A max. 12 V DC
	TCX3117	Straight Socket	
30	TCX3169	Right angle Receptacle	0.5 A max. 100 V AC 1 A max. 12 V DC
	TCX3170	Straight Socket	

### Micro-miniature Rectangular Connectors

#### SSB Connectors

4P



TCX0110



TCX0100

#### SSR Connectors

8P



TCX3166



TCX3171

#### 8P Connectors

8P



TCP8974



TCP8975



TCS7772

#### SPR Connectors

10P



TCX3198



TCX3199



TCX3197

#### 12P Connectors

12P



TCP8978



TCS7775

#### Applications

Notebook PCs, PDAs, Digital cameras, etc.

##### SSB(Super Slim Bus)Connectors

Terminal pitch	0.8 mm
Rating	0.5 A max. 5.25 V DC / 1 A max. 30 V (RMS) AC
Height from PC Board	3.5 mm

##### SSR(Super Slim Rectangular)Connectors

Terminal pitch	0.45 mm
Rating	0.5 A max. 5.25 V DC / 1 A max. 30 V (RMS) AC
Height from PC Board	3.95 mm

##### 8P Connectors

Terminal pitch	0.45 mm
Rating	0.5 A max. 5.25 V DC / 1 A max. 30 V (RMS) AC
Height from PC Board	2.4 mm

##### SPR(Signal and Power Rectangular)Connectors

Terminal pitch	0.45 mm
Rating	0.5 A max. 5.25 V DC / 2.5 A max. 12 V DC
高さ / Height from PC Board	3.95 mm

##### 12P Connectors

Terminal pitch	0.45 mm
Rating	0.5 A max. 5.25 V DC / 2.5 A max. 12 V DC
Height from PC Board	2.55 mm

### 18P Interface Connectors

18P



TCX3183



TCX3182

#### Applications

I / O Connector for Mobile phones

Rating	2 A max. 5.5 V DC
Contact Resistance	50 m max.
Terminal pitch	0.5 mm
Height from PC Board	2.8 mm

### 10P Interface Connectors

10P



TCX3180



TCX3188

#### Applications

Mobile phones

Connector for conform to JEITA RC-5240

### IMT-2000 Connectors



TYX3545 Cable



TCX3217

#### Applications

3G Mobile phones

JConnector for conform to JEITA RC-5238

Connector for composite coaxial 1pole and signal terminal 10 poles



### USB Connectors

#### USB Connectors

Series A



CMS1400

Series B



CMS1410

Series mini B



TCX0102



TCX0101



CMS1700

#### Applications

Notebook PCs, Digital cameras, etc.

USB Connectors

	Model No.	Type	Style
Socket	CMS1400	Series A	Horizontal DIP type
	CMS1402		Vertical DIP type
	CMS1403		Horizontal double DIP type
	CMS1410	Series B	DIP type
Plug	TCX0102		
Socket	TCX0101	Series mini B	Horizontal SMT type
	CMS1700		SMT type



### HDMI Connectors

19P



TCX3191



TCX3219



TCX3229

#### Applications

TV sets, DVD Recorders , Set Top Boxes

Conform to HDMI Standard

#### Specifications

Terminal pitch	0.5 mm
Rating	0.5 A max. 40 V AC
Contact Resistance	30 m max.
Insulation Resistance	100 M min. (at 500 V DC)
Dielectric Strength	500 V AC / 1 minute
Characteristic Impedance	100 ±15 %



### Power Supply Connectors

2P



TCX0075

3P



TCP7331



TCX0076



TCS7331

3P



TCP8927-53



TCS7960-43

#### Applications

Digital cameras, PDAs, Notebook PCs, etc.

Type	No. of Poles	Model No.	Height from PC board	Rating
Rectangular	2	TCX0076	—	2 A max. 30 V DC
		TCX0075	2.6 mm	
	3	TCP7331	4.5 mm	3 A max. 12 V DC
		TCS7331	—	
Circular	3	TCP8927-53	—	7.5 A max. 20 V DC
		TCS7960-43	14 mm	



### Optical Connectors

#### Rectangular type



JFJ3004(Transmitter)  
JFJ4100(Receiver)

with pin jack



JFJ1505(Transmitter)  
JFJ1506(Receiver)



JFJ1510

#### Applications

Audio visual equipment

Type	Mode	Transfer Rate(Mbps)	Supply Voltage	Model No.
Rectangular	Transmitter	13.2	2.7 V to 5.25 V	JFJ3004
		13.2	4.75 V to 5.25 V	JFJ1510
	Receiver	25	4.75 V to 5.25 V	JFJ4100

#### Circular type



TFC1004-010200



TFC1005-010277

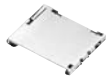
For Automotive equipment

Type	Mode	Transfer Rate	Plugs	Sockets	Housing Color
Circular	Transmitter	4 to 12 Mbps	TFC1004-010200	TFC1005-010277	Black
	Receiver	4 to 12 Mbps	TFC1004-010100	TFC1005-010177	Gray



### Card Connectors

#### mini SD Card Connectors



CCD1226

#### micro SD/mini SD Adapter



CCD1184

#### mini SD/SD Adapter



CCD1180

#### micro SD/SD Adapter



CCD1183

#### micro SD Card Connectors



CCD1350



CCD1360



CCD1361

#### Memory Stick Duo Connectors



CCD1300



CCD1301

#### Express Card Connectors



CCD3015

#### Smart Card Connectors



CCD8065

### Applications

Mobile phones, Digital cameras, PDAs, etc.

#### mini SD Card Connectors

Model No.	Features
CCD1226	Normal type, Push-Push ejection

#### Adapters

Model No.	Features
CCD1180	mini SD Card → SD Card
CCD1183	micro SD Card → SD Card
CCD1184	micro SD Card → mini SD Card

#### micro SD Card Connectors

Model No.	Features
CCD1350	Normal type, Push-Push ejection
CCD1360	Normal type, Push-Push ejection, with Switch
CCD1361	Reverse type, Push-Push ejection, with Switch

#### Memory Stick Duo Connectors

Model No.	Features
CCD1300	Normal type, Push-Push ejection
CCD1301	Reverse type, Push-Push ejection

#### Express Card Connectors

Model No.	Features
CCD3015	Conforms with Express Card/34 and Express Card/54

#### Smart Card Connectors (with detector switch)

Model No.	Standard	Features
CCD8065	ISO (8P)	Double layer, Metal cover, Card slot : Normal

mini SD and micro SD are registered trademarks of SD Association.

Memory Stick Duo is a registered trademark of Sony Corporation.



### Modular Jacks

4P



HJC0234

8P SMD



HJC0296

6P



HJC0283

6P Wing Jack

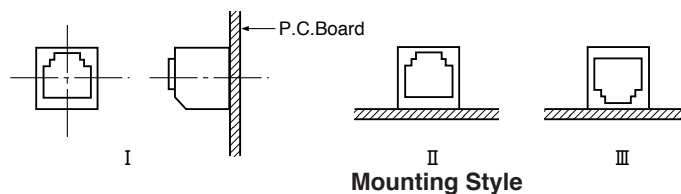


HJC0311

### Applications

Telephones, PCs, etc.

No. of Positions	Model No.	Type	Mounting Style
4	HJC0270	SMD type	I
	HJC0162	DIP type	II
	HJC0234	DIP type	III
6	HJC0271	SMD type	I
	HJC0163	DIP type	II
	HJC0283	DIP type	III
	HJC0311	DIP type	II
8	HJC0272	SMD type	I
	HJC0282	DIP type	II
	HJC0296	SMD type	III

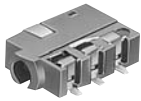




### Miniature Jacks

Various types are available such as 2.5 dia. jacks and 3.5 dia. jacks, SMT type, Through-hole type.

#### 2.5 Dia.



HSJ1621



HSJ1816



HSJ1757

#### 3.5 Dia.



HSJ1636



HSJ1828



HSJ2077

#### Applications

Audio visual equipment, Communication equipment, etc.

#### 2.5 dia. miniature Jacks

Poles	Model No.	Height	Remarks
3P	HSJ1621	3 mm	
3P+Outer ring (4P)	HSJ1795	3.2 mm	1 pole outer ring
4P	HSJ1816	3.7 mm	
4P+Outer ring (5P)	HSJ1817	3.7 mm	1 pole outer ring
4P+Outer ring (6P)	HSJ1757	3.6 mm	2 pole outer ring

#### 3.5 dia. miniature Jacks

Poles	Model No.	Height	Remarks
3P	HSJ1636	4.4 mm	
3P	HSJ1828	3.9 mm	
4P	HSJ1765	4.9 mm	
4P	HSJ2077	4.2 mm	



### Pin Jacks



JPJ1225



JPJ3911



JPJ1139

S端子付[With Y/C Connectors]



JXT1112

#### Introduction

Various types are available such as pin jack only, multiple-jack type and combined type. Combine type is a jack board in which various types of connector such as pin jack, S-terminal and optical connector are integrated. It improves efficiency of design process and assembly process for customer's products.

#### Applications

TV、PDP、DVD、STBなど / TV sets, PDPs, DVDs, STBs, etc.

#### Specifications

Contact Resistance	30 m max.
Insulation Resistance	100 M min. at 500 V DC
Dielectric Strength	500 V AC(r.m.s.) for 1 minute
Insertion Force	30 N max.
Withdrawal Force	1 N to 15 N



### Power Jacks

#### JEITA RC-5320A



HEC3357

#### JEITA RC-5321



HEC8110

#### JEITA RC-5322



HEC7000

#### Applications

Audio visual equipment, Communication equipment, etc.

#### JEITA RC-5320 A Standard

Voltage Classification	Rated Voltage	Model No.	Mounting Style
1	3.15 V DC	HEC3357	SMD
		HEC4306	DIP
2	6.3 V DC	HEC3654	SMD
		HEC3600	DIP
3	10.5 V DC	HEC3150	SMD
		HEC3110	DIP
4	13.5 V DC	HEC3850	SMD
		HEC3800	DIP
5	18 V DC	HEC3900	DIP

#### JEITA RC-5321 Standard (DC-Out)

Voltage Classification	Rated Voltage	Model No.	Mounting Style
2	6.3 V DC	HEC8630	DIP
3	10.5 V DC	HEC8110	DIP

#### JEITA RC-5322 Standard (for Automobile equipment)

Rated Voltage	Model No.
12 V / 24 V DC	HEC7000





### CRT Sockets

#### ● Applications

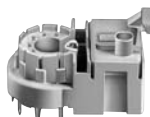
Various types of display for TV, Computers, Measuring instruments. etc.



HPS1521



HPS0720



HPS3200

Name of Neck	Neck Diameter	Model No.	Focus Structures
Small Neck	29 mm	HPS1521	Hi-Bi-Pot
		HPS0720	DAF or DBF
Mini Neck	22.5 mm	HPS3200	Bi-Potential



### AC Inlets

#### ● Applications

Audio visual equipment, Information equipment, etc.



HSC0609



HSC0573



HSC0610



HSC0583

Model No.	Pin center to PC board surface	Mate Plug Style
HSC0609	9.5 mm	
HSC0573	—	
HSC0610	9.5 mm	
HSC0583	—	

### Terminals

2P



TCX0553



TCX0554

3P

Battery Terminal



TCX0561

#### ● Applications

Terminal for Micro Speakers , Receiver Units

Rating	1 A max. 10 V DC
Contact Resistance	30 m max.
Insulation Resistance	1 000 M min.
Dielectric Strength	300 V AC / 1 minute



### Slide Switches



HSW4512



HSW2060



HSW2061



HSW2021



HSW1181

#### ● Applications

Audio visual equipment, Communication equipment, etc.

Type	Model No.	Pole	Position	Style
SMD	HSW4512	1	2	Horizontal
DIP	HSW1055	1	1	Horizontal
	HSW2060	1	2	
	HSW2061	1	3	
	HSW2031	1 or 2	3	
	HSW2023	1 or 2	3	Vertical
	HSW2021	1	2	
	HSW0700	1 or 2	2	
	HSW1181	1 or 2	3	

Please consult our sales department for detail dimensions.



### Tactile Push Switches



HKW0766



HKW0763

#### ● Introduction

Tactile push switch is a long life and high performance product applying processing technology of dome plates and assembly technology.

Model No.	Dimensions (mm)	Features
HKW0766	7.5 × 7.0 × 0.55	Thin type (t 0.55) Long life (2 × 10 <sup>6</sup> cycles)
HKW0763	4.8 × 5.3 × 0.55	Thin type (t 0.55) Long life (5 × 10 <sup>6</sup> cycles)

### Double Action Switch



HKW0770

#### ● Applications

Side button to Mobile phones , Shutter button to Digital cameras

	First click	Second click	Dimensions (mm)	Life (cycles)
Operation Force	0.7 $\pm$ 0.5 -0.3 N	2 $\pm$ 0.5 N	5.7 × 4.4 × 0.77	100 000
Stroke	0.17 $\pm$ 0.12 mm	0.35 $\pm$ 0.12 mm		



### Voltage Selectors



HXW1022

#### ● Introduction

Hosiden's voltage selectors are able to change different supply voltages. Printed voltage indication on the cover can be customized.

Series No.	Features
HXW1022	Slide operation, PCB type. 10 A 250 V AC



### Multi-direction Switches



HXW0767



HXW0801



HXW0768



HXW1768



HXW0783-51



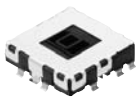
HXW0780



HXW0741



HXW0735



TWK7016



HXW1720

#### High Withstand-load Type



HXW0805-21  
(4 directions)



HXW0805-01  
(8 directions)

#### Introduction

Hosiden is a pioneer of developing multi-direction switches applying insert-molding technology, long-time experienced processing technology of dome plates and contact technology. High reliability product with a unique idea.

#### Applications

Remote control units, Carnavigation System, Mobile phones, DSCs, etc.

Model No.	Operation Function	Dimensions (mm)	Life (cycles)
HXW0767	4 operation directions + center push	7.4 × 7.4 × 1.7	500 000
HXW0801	4 operation directions + center push	6.5 × 6.5 × 2	200 000
HXW0768	4 operation directions + center push	9.8 × 9.8 × 2	300 000
HXW1768	8 operation directions + center push	9.8 × 9.8 × 2	200 000
HXW0783-51	Horizontal Style Shuttle operation	8.8 × 8.3 × 2.3	100 000
HXW0780	Horizontal Style Shuttle operation + center push	11.8 × 11.4 × 2.8	100 000
HXW0741	Verical Style Shuttle operation + center push	6 × 11.6 × 1.6	500 000
HXW0735	Horizontal Style Jog operation + center push	13.3 × 16.8 × 2.7	50 000
TWK7016	4 operation directions + center push	10.5 × 10.5 × 2.5	500 000
HXW1720	4 operation directions + center push + Jog operation	17.4 × 17.4 × 9	100 000 (4 directions & push) 15 000 (Jog)
HXW0805-21	4 operation directions + center push	13.7 × 14.3 × 5.8	1 000 000
HXW0805-01	8 operation directions + center push	13.7 × 14.3 × 5.8	1 000 000

### Push Switches



HPW0317



HPW0352

Model No.	Features
HPW0317	Long stroke push switch with reliable self-cleaning contact usable for medium current (4.5 A 12 V DC).
HPW0352	When pushed, the color of actuator changes to indicate ON or OFF condition. Rating: (0.25 A 30 V DC)

### Detector Switches



HXW0960



HMW1248

Model No.	Features
HXW0960	S-shape miniature switch. High contact reliability with slide contact construction.
HMW1248	Lever operation with 80 degrees for each direction. High contact reliability with slide contact construction.



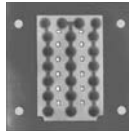
### Switch Units



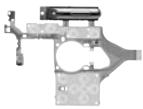
HUW4055



HUW1117



HKW1116



HKW1488



HKW1498



HUW2800

#### ● Introduction

Switch unit is a product with mounting of electronic component devices along with switches on FPC or PCB. Dome plate assembly type is also available with several type processing methods according to customers' needs.

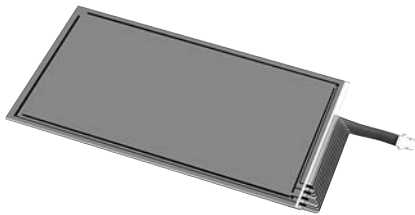
Dome plate is selectable from 4 mm dia. to 6 mm dia.

Also, plating and painting can be applied on visible part depending on customer's request.

#### ● Applications

Mobile phones, Portable MDs, Digital cameras, etc.

### Touch Panels



TWK7101

Pressure sense type(Film resistance type)

Glass-glass type and glass-film type are available.

#### ● Applications

Carnavigation Systems, PDAs, Game machines, etc.

Item	glass - glass	glass - film
Operating force	2 N max.	2 N max.
Linearity	3 % max.	3 % max.
Operating temperature	- 30 to +85	- 30 to +75
Rate of transparent	70 % min.	80 % min.
Rate of reflection	6.5 % max.	15 % max.

### Pointing Devices

#### MUPO

#### Optical USB Mouse

#### MUPO

Smooth operatability with distortion resistance system.

Small and thin design.



TWM6520



TEM2330

Input Voltage	5 V DC
Operation temperature range	0 to 65
Interface	PS / 2

#### Optical USB Mouse

Interface	USB Ver 1.1
Resolution	400 counts / inch
Max. tracking Speed	250 mm / s

### Analog Joy Stick



CFS8207

#### ● Applications

Game machines

Model No.	Center Push	Features
CFS8207	Without	Good lever operatability Automatic return-to-center mechanism Long life, High durability Omni direction output applying variable resistors



### Circuit Protectors



TBC5000



TBC6000



TBC7000



TBC8000



TBX1000



TBX2000

#### ● Applications

Office automation equipment, Audio visual equipment, Vending machines, Motor-driven tools, Motor-bikes, etc.

Series	Rated Voltage	Rated Current ( A )	Reset Formula	Safety Standard
TBC5000	125 V AC 250 V AC	1, 1.25, 1.6, 2, 2.5, 3.15, 3.5, 4, 5, 6.3, 8, 10, 12, 15, 20	Manual Auto	UL, CSA VDE
TBC6000	125 V AC 250 V AC	0.63, 0.8, 1, 1.25, 1.6, 2, 2.5, 3.15, 4, 5	Manual	UL, CSA VDE, DEMKO
TBC7000	125 V AC 30 V DC	20, 25	Manual	—
TBC8000	12 V DC	20, 25	Manual	—
TBX1000	125 V DC 25 V DC	0.63, 0.8, 1, 1.25, 1.6, 2, 2.5	Manual	UL, CSA VDE
TBX2000	125 V AC 250 V AC	4, 5, 6.3, 8, 10, 12, 15, 20	Manual	—

### Assembled Products

#### ● Introduction

In integrating technical capabilities as a general electronics component manufacturer, custom design through production is available for completed products and semi-completed products such as operation panels for Fax machines and copiers, gaming controllers and health-maintenance equipment per customers' needs.



### Remote Control Units



NTR1044



NTR1038



NTR1142



NTR1260



NTR1261



ETR0020



ETR0023



ETR0043



TGX0041

Wired Remote Control Unit

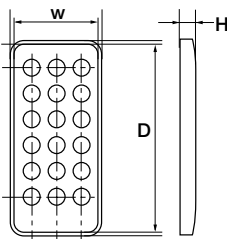
Receiving Module

Remote control units are available in standard type. Custom design through production is also available per customers' requests.

#### ● Applications

Audio-video equipment, Automotive equipment, Housing equipment, Health-maintenance equipment, Toilet equipment, etc.

#### ● Standard card type remote control units



No. of keys	Model No.	Dimensions ( mm )		
		D	W	H
8	NTR1044	56.6	35	6.5
18	NTR1038	86	40	6.5
24	NTR1083	86	54	6.5
24+4	NTR1142	86	50	11.5

### AC Adapters



CBC2051

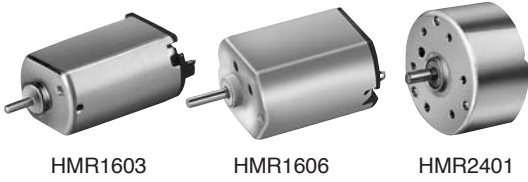


CBC2055

Various types of AC adapters are available including standard types and custom design types to meet customers' requirements.

### Motors

#### DC Motors

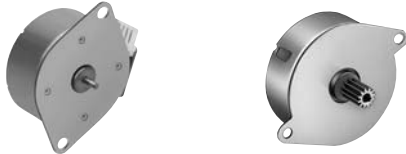


HMR1603

HMR1606

HMR2401

#### Stepping Motors



HMD3552

HMD4200 Series

#### Geared Motors



HMB5069

HMB7013

HMB8018

#### Applications

Office automation equipment, Audio visual equipment, etc.

#### Specifications

Model No.	Rated Voltage (V)	Rated Torque mN·m	Rated Speed s-1 (r/min.)	Rated Current mA	Rotating Direction	Dimensions (DIA x L) mm
HMR1603	4.5	0.245	119 (7,150)	150	CW,CCW	16×24.3
HMR1606	2	0.196	68 (4,100)	150	CW,CCW	16×19.5
HMR2009	12	3.43	63 (3,800)	275	CW,CCW	20.4×32.1
HMR2201	8	1.47	64 (3,850)	180	CW,CCW	22×26
HMR2401	5	1.47	42 (2,500)	300	CW,CCW	24×13.1
HMR2830	12	2.94	60 (3,600)	180	CW,CCW	28×34
HMR3201	24	1.18	41 (2,480)	35	CW,CCW	32×20.5
HMR3604	24	19.6	80 (4,800)	300	CW,CCW	36×60

Model No.	No. of Phase	Driving Mode	1 Step Angle	Operating Voltage (V)	Resistance per Phase	Pull-out Torque
					(Ω)	mN-m/ Frequency
HMD3552	4	2 - 2	7.5°	12	47	11.8 / 333 pps
HMD4231	4	2 - 2	7.5°	24	120	42.1 / 200 pps
HMD4251	4	2 - 2	3.75°	24	110	24.5 / 250 pps
HMD4261	4	2 - 2	7.5°	24	250	11.8 / 250 pps

Model No.	Features	Applications
HMB5069	Simple and robust applying a metal plate for gear case	Copier, others
HMB7013	Compact design applying planetary gear with built-in hole sensor	Housing equipment, others
HMB8018	Compact design applying a stepping motor	Housing equipment, others



### DC Solenoids

#### Applications

Office automation equipment, Audio visual equipment, Home-electronic equipment, Vending machines, Car electronics, Amusement equipment, Warning equipment, etc.

#### Specifications



JPM1316

JPM1210

JPM1239

JPM1571※

JSM0123

JSM5034

DC Solenoids	Item	Power Requirements W	Stroke mm	Attraction Force N{gf}	Dimensions (W)×(H)×(L) (mm)
	Model No.				
	JPM1316	5.2	3	0.74{75}	12×9.5×21
	JPM1210	11.5	2	1.18{120}	13×10×25
	JPM0822	3.5	2	0.98{100}	15×13×19.7
	JPM1239	4.8	4	1.57{160}	19×14.4×40
	JPM1100	3	3	1.08{110}	19×18×30.5
	JPM1571	5.5	1.7	0.441{45}	8.85×5.6×21.5

Self-sustaining Solenoids	Item	Power Requirements W	Stroke mm	Attraction Force N{gf}	Holding Force N{gf}	Dimensions (W)×(H)×(L) (mm)
	Model No.					
	JSM0123	14	0.5	2.94{300}	2.94{300}	13×10×22
	JSM5034	12.5	2	2.94{300}	3.92{400}	16×14×26.5



### Applied Equipment of DC Solenoids

#### Introduction

Solenoid assembly with attached mechanical parts decreases the total cost of the product to use the solenoid assembly

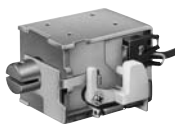
Aggressive activities are promoted to supply solenoids and solenoid assemblies.

#### Solenoids Valves

#### Power Solenoids



JPM1411※



JPM0815



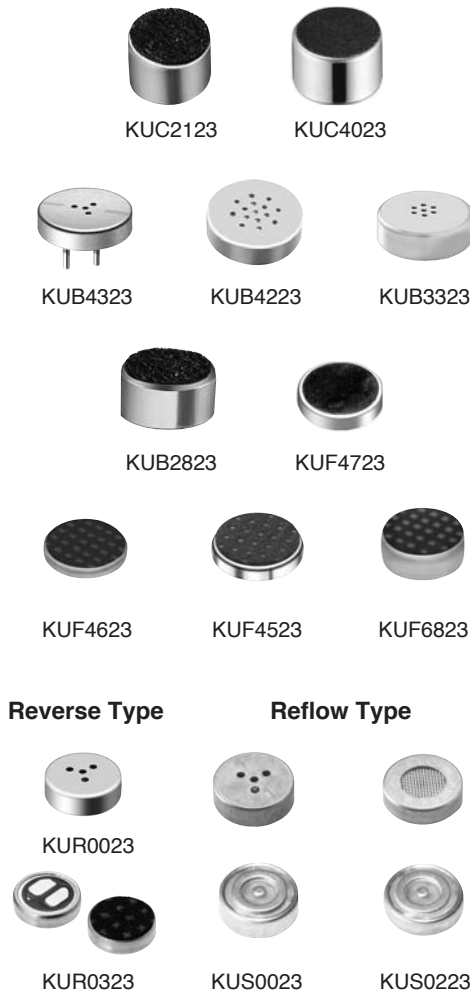
### Electret Condenser Microphone Units

#### Applications

Mobile phones, Digital cameras, Notebook PCs, etc.

#### Specifications

Type	Item Model	Directivity	Sensitivity dB/Pa	Impedance kΩ	Standard Power Supply V DC	Current Consumption (max.)mA	Earth	Dimensions (DIA) x (H) (mm)
Foil Electret	KUC2123	Omni	-45	1.0	4.5	0.8	⊖	9.4 x 6.5
	KUC4023	Omni	-45	1.0	4.5	0.8	⊖	9.7 x 6.7
Back Electret	KUB4323	Omni	-44	2.2	2.0	0.5	⊖	6.0 x 1.5
	KUB4223	Omni	-40	2.2	2.0	0.5	⊖	6.0 x 1.9
	KUB3323	Omni	-45	2.2	2.0	0.5	⊖	6.0 x 2.2
	KUB2823	Omni	-45	2.2	2.0	0.5	⊖	6.0 x 2.7
Front Electret	KUF4723	Omni	-45	2.2	2.0	0.5	⊖	4.0 x 0.9
	KUF4623	Omni	-45	2.2	2.0	0.5	⊖	6.0 x 1.0
	KUF4523	Omni	-45	2.2	2.0	0.5	⊖	6.0 x 1.2
	KUF6823	Bi	-50	2.2	2.0	0.5	⊖	6.0 x 2.2
Reverse	KUR0023	Omni	-45	2.2	2.0	0.5	⊖	4.0 x 1.5
	KUR0323	Omni	-45	2.2	2.0	0.5	⊖	4.0 x 1.0
Reflow	KUS0023	Omni	-45	2.2	2.0	0.5	⊖	4.0 x 1.6
	KUS0223	Omni	-45	2.0	2.0	0.5	⊖	4.0 x 1.3



#### FPC Type



KUF4623

#### Coil Spring Type



KUF4623

KUF4723

#### Leaf Spring Type



KUF4723

KUR0023



### Microphones

#### Hands-Free Microphones



HHM7672



HHM8962



HHM7582



KHM8712



KHM0006

#### For AV Equipment



KXM5136



KHM0002

#### For Video Camera



KZM0009

#### For Mobile Phones



KRJ0003





### Receiver Units



#### Applications

Mobile phones

#### Specifications

Item Model No.	Type	Rated Input (mW)	Impedance ( $\Omega$ ) at 1 kHz	S.P.L. (dB / mW) at 1 kHz	Dimensions (mm)
HDR2113	Dynamic	5	32	112	$\phi 9 \times 2.5$
HDR2136	Dynamic	10	32	109	$\phi 10 \times 2$
HDR2017	Dynamic	10	32	110	$\phi 10 \times 2.5$
HDR2035	Dynamic	10	32	111	$\phi 10 \times 2.5$
HDR2166	Dynamic	10	32	107	$5 \times 10 \times 2.5$
HDR2184	Dynamic	10	32	107	$5 \times 11 \times 2.5$
HDR2209	Dynamic	10	32	109	$5 \times 11 \times 2.5$
HDR2194	Dynamic	10	32	105	$5 \times 15 \times 2.5$
HDR2141	Dynamic	10	32	111	$6 \times 15 \times 2.5$
HDR2150	Dynamic	10	32	111	$6 \times 15 \times 2.5$
HDR2153	Dynamic	10	32	111	$6 \times 15 \times 2.5$



### Micro Speakers



#### Applications

Mobile phones, Notebook PCs, Digital cameras, etc.

#### Specifications

Item Model	Type	Rated Input (mW)	Impedance ( $\Omega$ ) at 2 kHz	S.P.L. (dB / mW / 10cm) at 1 kHz	Dimensions (mm)
HDR9314	Dynamic	300	8	81 / 300	$\phi 10 \times 3.3$
HDR9311	Dynamic	300	8.1	88 / 300	$\phi 12 \times 3.4$
HDR9333	Dynamic	300	8	85.5 / 150	$\phi 13 \times 2.5$
HDR9338	Dynamic	500	8	88 / 200	$\phi 15 \times 2.6$
HDR9160	Dynamic	500	8	92 / 500	$\phi 15 \times 3.4$
HDR2082	Dynamic	200	8	86 / 200	$\phi 16 \times 3.2$
HDR9164	Dynamic	300	8.4	92 / 300	$\phi 16 \times 3.7$
HDR9152	Dynamic	300	7.3	89 / 300	$\phi 18 \times 2.8$
HDR9168	Dynamic	300	7.8	91 / 300	$\phi 18 \times 3.1$
HDR9173	Dynamic	300	8	89 / 300	$14 \times 18 \times 2.5$
HDR9364	Dynamic	400	6.6	84 / 400	$13.2 \times 15.5 \times 2.9$
HDR9350	Dynamic	400	6.2	84 / 400	$14.2 \times 16 \times 3.1$



### Bluetooth Headset



HBG0007

#### ● Applications

Notebook PCs, Mobile phones, Car navigation Systems

#### Specifications

Bluetooth version	2.0+EDR
Supported profile	HSP, HFP
Power Class	Class2 (0 dBm typ.)
Communication range	10 m
Talk time	5 h
Sleep time	150 h
Battery	Li-Polymer (69 mAh)
Mass	9 g approx.



### Earphone-Microphones & Headsets



HBH0100



HBH0103



HBH0090



HBH0058※

#### Specifications

Model	Item	Receiver			Microphone		Mass (g)	
		Type	Rated Input (mW)	Impedance (Ω) at 1 kHz	S.P.L. (dB / mW) at 1 kHz	Impedance kΩ		Sensitivity dB/Pa
HBH0100		Dynamic	1	32	106	2.2k	-44.5	13
HBH0103		Dynamic	1	32	106	2.2k	-44.5	13
HBH0090		Dynamic	1	32	105	2.2k	-44.5	18
HBH0058		Dynamic	1	32	90.5	2.2k	-49	50

Note ; Built-in antenna type for TV is also available as custom design.



### Headphones & Inner Earphones



HDH0250※



HDH0261



HDH0669



HDH0266



HDH0267

#### Specifications

Model	Item	Type	Rated Input (mW)	Impedance (Ω) at 1 kHz	S.P.L. (dB / mW) at 1 kHz	Mass (g)
HDH0250		Dynamic	30	32	98	56
HDH0261		Dynamic	1	16	104.5	14
HDH0669		Dynamic	1	16	103.5	12
HDH0266		Dynamic	1	32	100	12
HDH0267		Dynamic	1	16	103.5	13

### Others

#### IR Headphone



HRH0603

#### Charger for Portable MD (with Amplifier)



EMJ0001※



### LCD Modules for Mobile communication



#### ● Applications

Mobile phones, Pagers, PDAs , Handy-terminals

Specifications( Customer needs )

Display Type	Graphic type	Character type
Display Mode	TN,STN,F-STN	
Display Format	168 x 132 dots	4 rows by 12 columns
Duty Ratio	1 / 132 duty	1 / 34 duty
Supply Voltage	1.8 V to 5.5 V ( Internal power supply )	
Interface	8 bit parallel or serial	4 / 8 bit parallel,IIC or serial



### STN LCD Module for Automobile



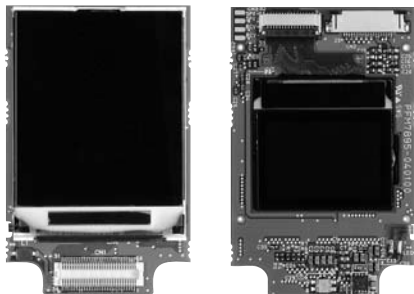
#### ● Applications

Information display for Automobile , Industrial equipment

Specifications( Customer needs )

Contrast Ratio	30( typ. )
Response Time	400 ms( typ. )
Operating Temperature	-30 to +80
Storage Temperature	-40 to +85
Back light	RED LED

### Color STN LCD Module



Main LCD

Sub LCD

#### ● Applications

Mobile phones , PDAs

Specifications( Customer needs )

Item	Main LCD	Sub LCD
Display Format	128(RGB) x 160 dots	96(RGB) x 64 dots
Duty Ratio	1/160 duty	1/64 duty
Supply Voltage	2.8 V	
Interface	16 bit	8 bit