



# MIL-DTL-32139 Nano D-sub Connectors

## R06 SMT Series

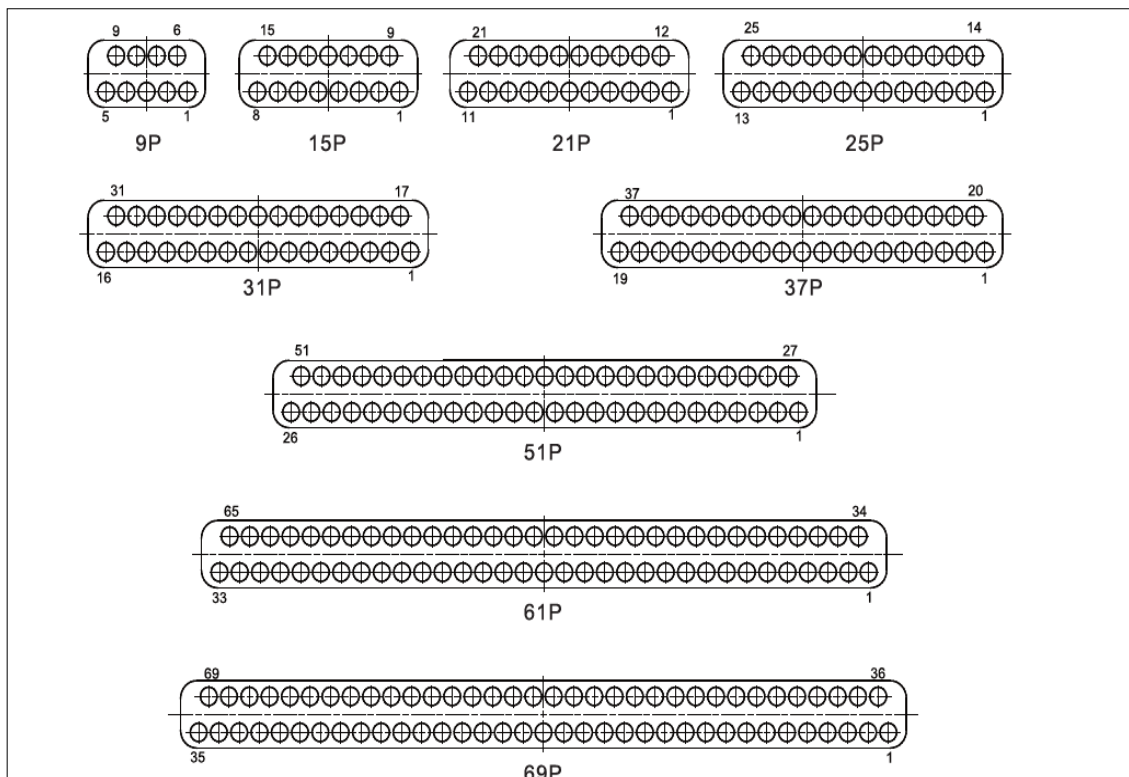
### Brief introduction

- Contacts:9,15,21,25,31,37,51,65,69
- Twist flexible micro pin (twist pin), 0.635mm pitch, micro miniature outline dimension
- Screw nut locking, it is gently when insert and extract, stably locked
- It is used for all kinds for electric circuit system interconnection which have high density, micro, light, highly reliable requirement, it can meet light and miniaturize demand
- Plug with twist pin, receptacle with socket, free terminal with locking screw, fixed terminal with nut, standard mated connector locked by screw and nut
- Standard: MIL-DTL-32139
- Undefined tolerance is $\pm 0.13$

### Specification

- |                     |   |                          |                                  |
|---------------------|---|--------------------------|----------------------------------|
| ■ Environment:      | -55°C~+125°C  | ■ Contact resistance:    | $\leq 21\text{m}\Omega$          |
| ■ Vibration:        | 10Hz~2000Hz 196m/s <sup>2</sup>   | ■ Insulation resistance: | $\geq 5000\text{M}\Omega$ 100VDC |
| ■ Shock:            | 980m/s <sup>2</sup> 6ms   | ■ Dielectric strength:   | 250V                             |
| ■ Rated current:    | 1A  | ■ Machine life:          | 200 times                        |
| ■ Random vibration: | power spectrum density 0.4G <sup>2</sup> /Hz, r.m.s value of total acceleration 23.1G |                          |                                  |

### Contact layout



Remark: The above layout is view from plug mate side end face



## How to order


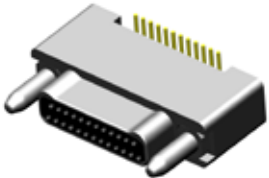
<b>Series</b>	R06	-2	2	1	-M	2	-9	PI	-TH
<b>Contact row:</b> 2 — tow rows									
<b>Shell plating:</b> 2 — nickel plating									
<b>Contact plating:</b> 1 — gold plating									
<b>Tail termination type :</b> M— SMT									
<b>Mounting style:</b> 2— vertical SMT 3 — horizontal SMT 8 — straddle flexible SMT									
<b>Contact number:</b> 9、15、21、25、31、37、51、65、69									
<b>Contact type</b> PI — pin in plug RH— socket in receptacle									
<b>Locking component type:</b> JC— locking screw(straight slot) JC1— locking screw(hex, not recommend) TH— connect nut NH— guide hole with nut mounted DZ— guide pin TH1— solder nut SH— solder guide hole									

## Choose mating connector

- When choosing mating connector with locking accessories usually choose the locking component which one side with connect nut(TH), the other side with locking screw(JC).
- When choosing product with guide accessories,connector without locked component but only with guide component,it need fix on mounting panel after mated,for avoiding connector take off. When choosing mating connector with guide components usually choose the guide component which one side with guide pin, the other side with guide hole

## R06 Vertical SMT Plug Series

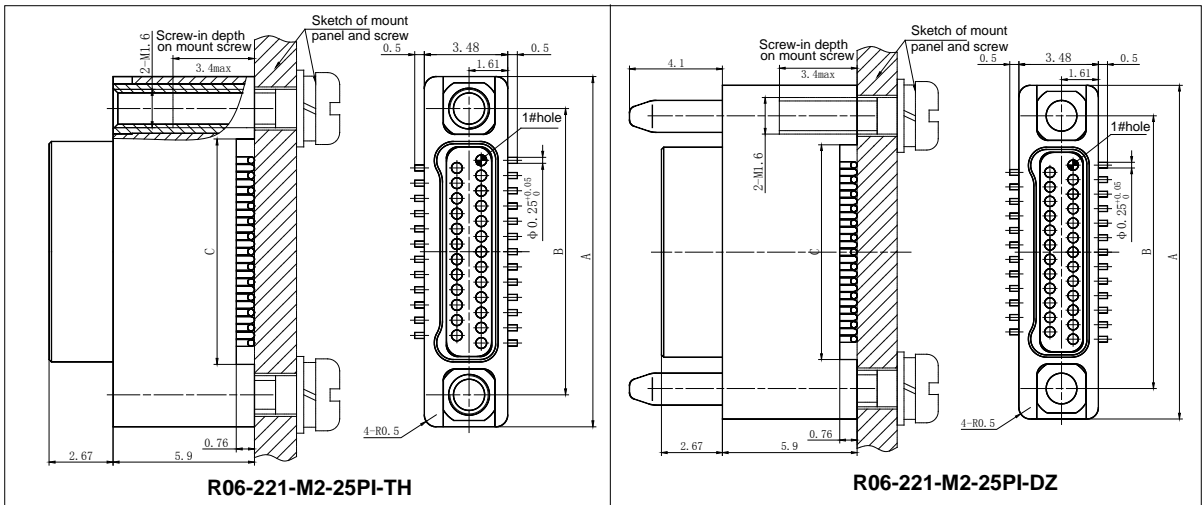
### Order marks

Series	R06	-2	2	1	-M	2	-25	PI	-TH	 <p>R06-221-M2-25PI-TH</p>  <p>R06-221-M2-25PI-DZ</p>
<b>Contact row:</b> 2 — tow rows										
<b>Shell plating:</b> 2 — nickel plating										
<b>Contact plating:</b> 1 — gold plating										
<b>Tail termination type :</b> M— SMT										
<b>Mounting style:</b> 2— vertical SMT										
<b>Contact number:</b> 9、15、21、25、31、37、51、65、69										
<b>Contact type:</b> PI — pin in plug										
<b>Locking component type:</b> TH— connect nut DZ— guide pin										

### Remark

- R06-221-M2-25PI-TH usually mated with receptacle which have locking screw, R06-221-M2-25PI-DZ usually mated with receptacle which have guide hole

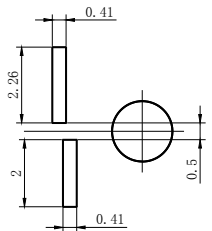
### Outline dimension



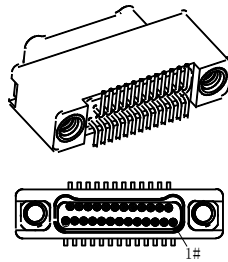
Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9pins	9.63	6.86	4.31	15pins	11.53	8.76	6.22	21pins	13.44	10.67	8.13
25pins	14.71	11.94	9.4	31pins	16.61	13.84	11.3	37pins	18.52	15.75	13.21
51pins	22.96	20.19	17.65	65pins	27.41	24.64	22.10	69pins	28.68	25.91	23.37

Remark: All dimensions are in mm

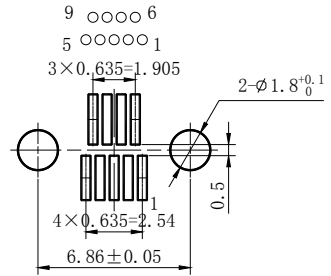
### Suggested PCB Layout



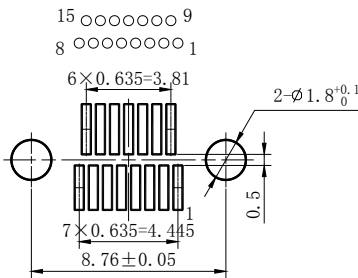
Lead footprint dimension



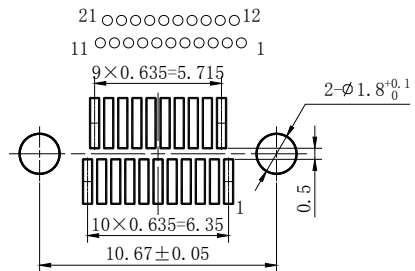
**R06-221-M2-9PI-TH**



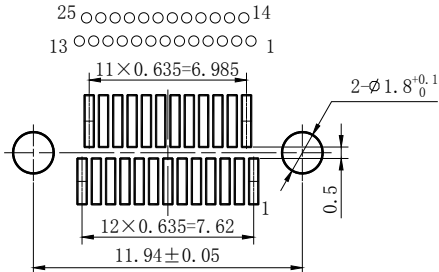
**R06-221-M2-15PI-TH**



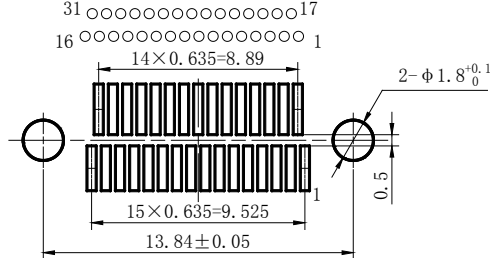
**R06-221-M2-21PI-TH**



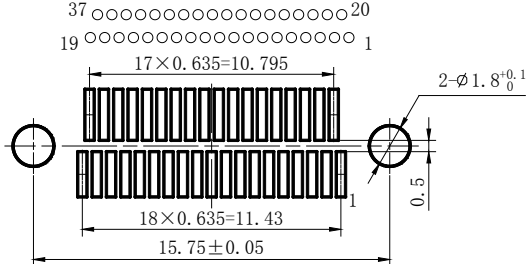
**R06-221-M2-25PI-TH**



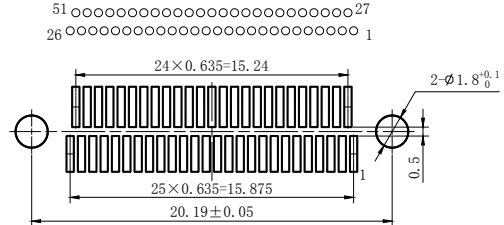
**R06-221-M2-31PI-TH**



**R06-221-M2-37PI-TH**



**R06-221-M2-51PI-TH**



**R06-221-M2-65PI-TH**



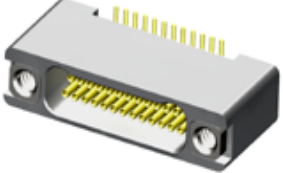
**R06-221-M2-69PI-TH**



Remark: All dimensions are in mm

## R06 Vertical SMT Receptacle Series

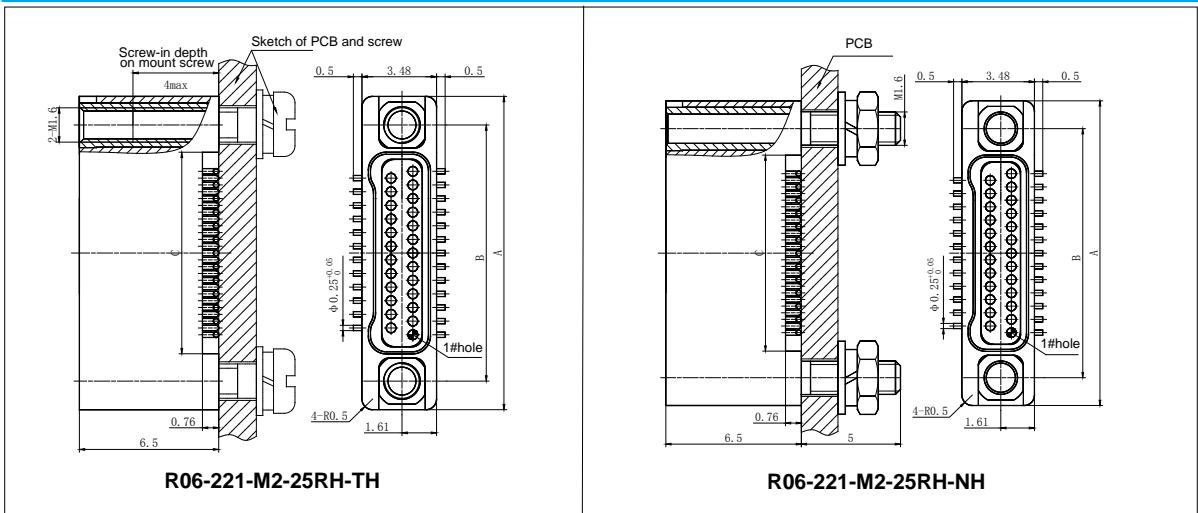
### Order marks

<b>Series</b>	R06	-2	2	1	-M	2	-25	RH	-TH	 <p><b>R06-221-M2-25RH-TH</b></p>
<b>Contact row:</b> 2 — tow rows										
<b>Shell plating:</b> 2 — nickel plating										
<b>Contact plating:</b> 1 — gold plating										
<b>Tail termination type :</b> M— SMT										
<b>Mounting style:</b> 2— vertical SMT										
<b>Contact number:</b> 9、15、21、25、31、37、51、65、69										
<b>Contact type:</b> RH— socket in receptacle										
<b>Locking component type:</b> TH— connect nut NH— guide hole with nut mounted										

### Remark

- R06-221-M2-25RH-TH usually mated with plug which have locking screw, R06-221-M2-25RH-NH usually mated with plug which have guide pin

### Outline dimension

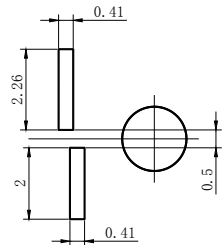


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9pins	9.63	6.86	4.31	15pins	11.53	8.76	6.22	21pins	13.44	10.67	8.13
25pins	14.71	11.94	9.4	31pins	16.61	13.84	11.3	37pins	18.52	15.75	13.21
51pins	22.96	20.19	17.65	65pins	27.41	24.64	22.10	69pins	28.68	25.91	23.37

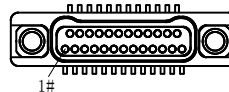
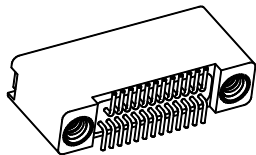
Remark: All dimensions are in mm



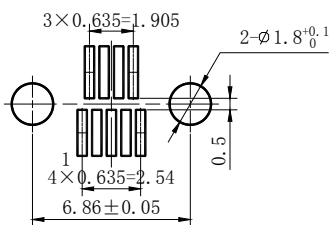
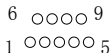
### Suggested PCB Layout



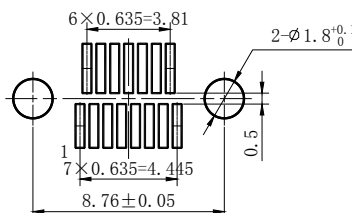
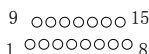
Lead footprint dimension



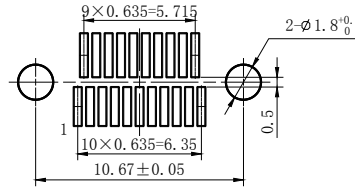
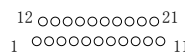
R06-221-M2-9RH-TH



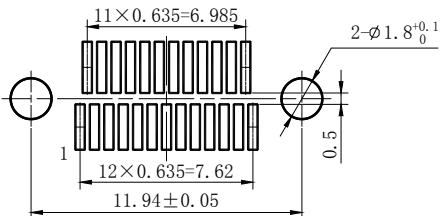
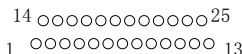
R06-221-M2-15RH-TH



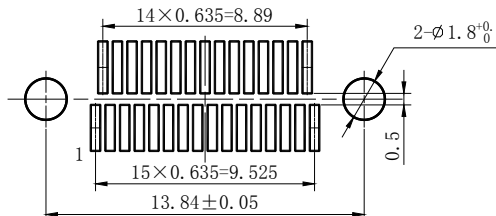
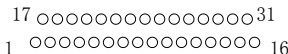
R06-221-M2-21RH-TH



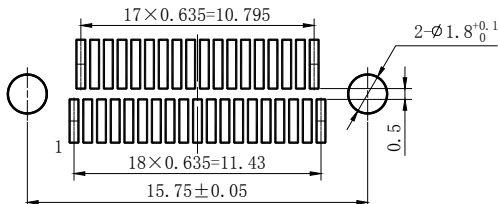
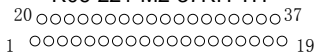
R06-221-M2-25RH-TH



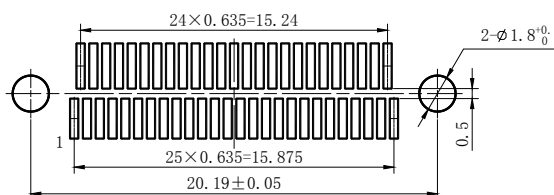
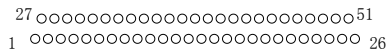
R06-221-M2-31RH-TH



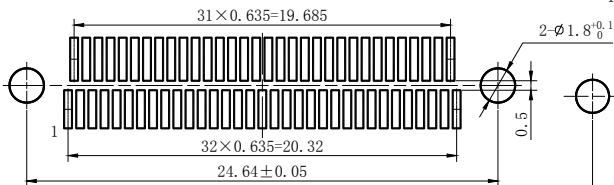
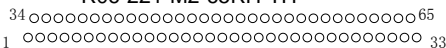
R06-221-M2-37RH-TH



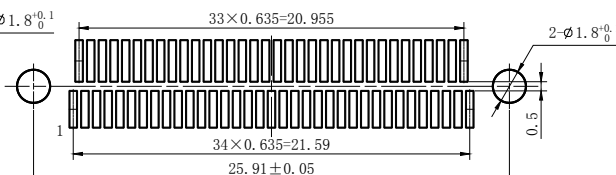
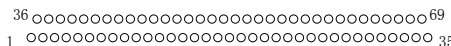
R06-221-M2-51RH-TH



R06-221-M2-65RH-TH



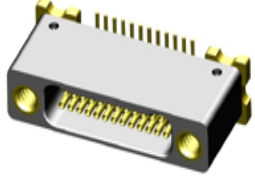
R06-221-M2-69RH-TH



Remark: All dimensions are in mm

## R06 Vertical SMT Receptacle with Solder Locking Component Series

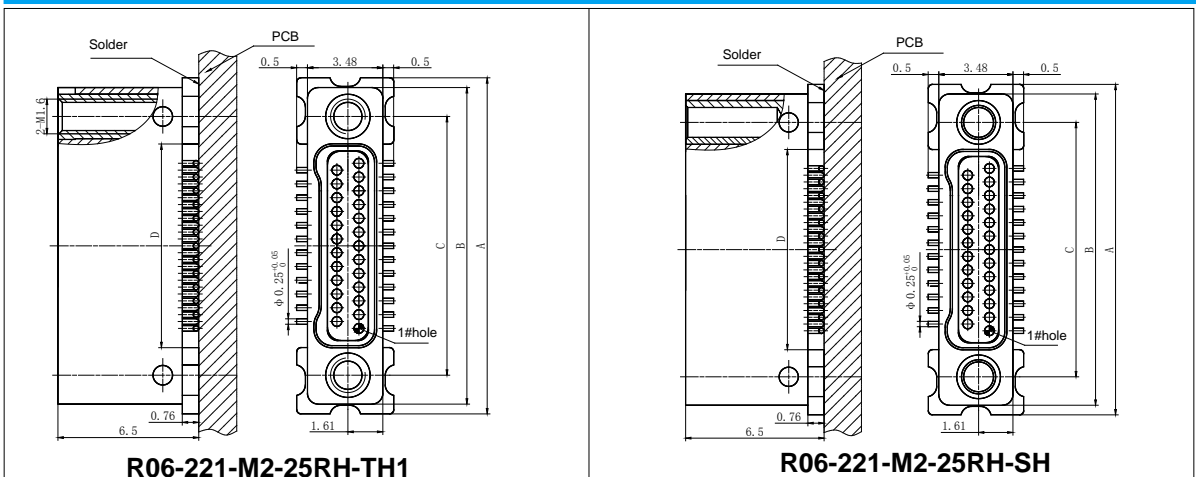
### Order marks

<b>Series</b>	R06	-2	2	1	-M	2	-25	RH	-TH1	 <p><b>R06-221-M2-25RH-TH1</b></p>
<b>Contact row:</b>	2 — tow rows									
<b>Shell plating:</b>	2 — nickel plating									
<b>Contact plating:</b>	1 — gold plating									
<b>Tail termination type :</b>	M— SMT									
<b>Mounting style:</b>	2— vertical SMT									
<b>Contact number:</b>	9、15、21、25、31、37、51、65、69									
<b>Contact type:</b>	RH— socket in receptacle									
<b>Locking component type:</b>	TH1— solder nut									
	SH— solder guide hole									

### Remark

- Connector of mounting hole solder by SMT, suit for PCB which can't design mounting hole
- R06-221-M2-\*\*RH-TH1 usually mated with plug which have locking screw, R06-221-M2-\*\*RH-SH usually mated with plug which have guide pin

### Outline dimension

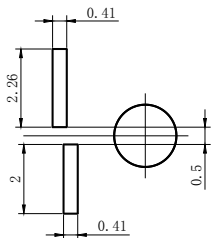


Pin count	Dimension				Pin count	Dimension			
	A	B	C	D		A	B	C	D
9pins	10.43	9.63	6.86	4.31	15pins	12.33	11.53	8.76	6.22
21pins	14.24	13.44	10.67	8.13	25pins	15.51	14.71	11.94	9.4
31pins	17.41	16.61	13.84	11.30	37pins	19.32	18.52	15.75	13.21
51pins	23.76	22.96	20.19	17.65	65pins	28.21	27.41	24.64	22.10
69pins	29.48	28.68	25.91	23.37					

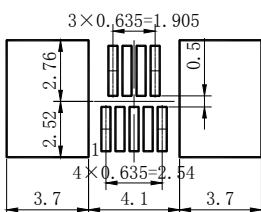
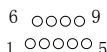
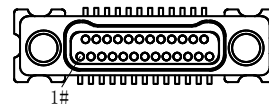
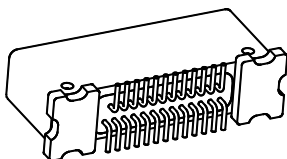
Remark: All dimensions are in mm



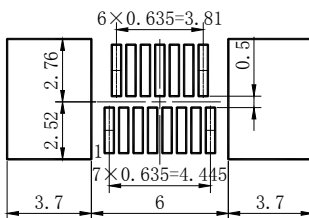
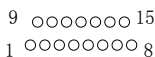
### Suggested PCB Layout



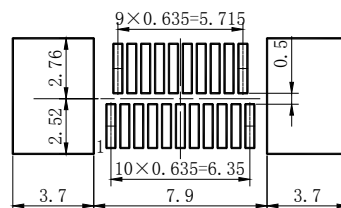
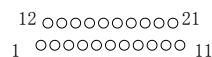
Lead footprint dimension



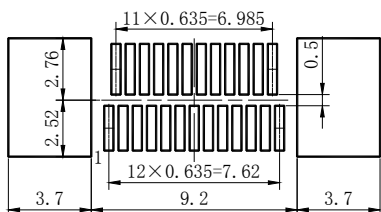
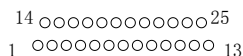
R06-221-M2-9RH-TH1



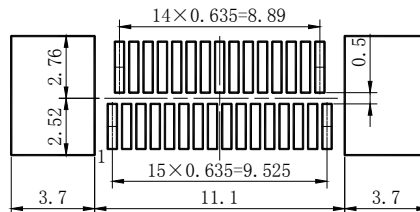
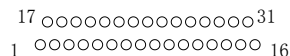
R06-221-M2-15RH-TH1



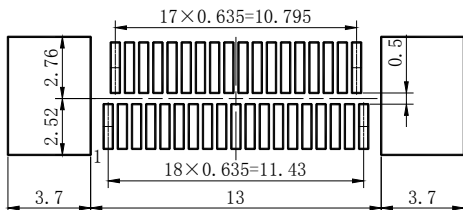
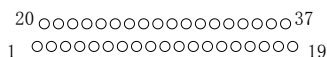
R06-221-M2-21RH-TH1



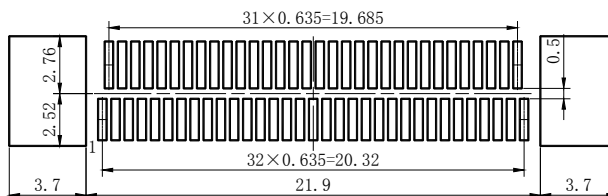
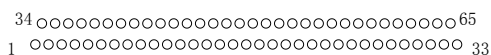
R06-221-M2-25RH-TH1



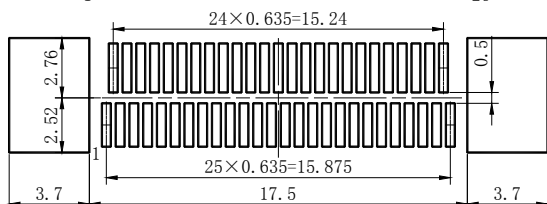
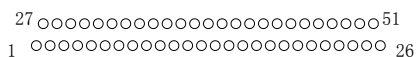
R06-221-M2-31RH-TH1



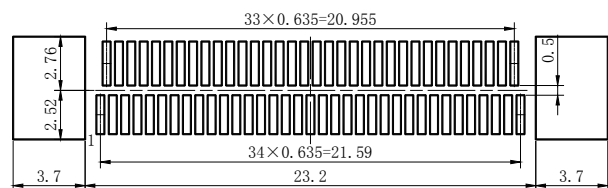
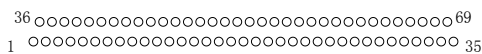
R06-221-M2-37RH-TH1



R06-221-M2-65RH-TH1



R06-221-M2-51RH-TH1



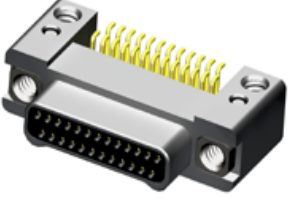
R06-221-M2-69RH-TH1

Remark: All dimensions are in mm



## R06 Horizontal SMT Plug Series

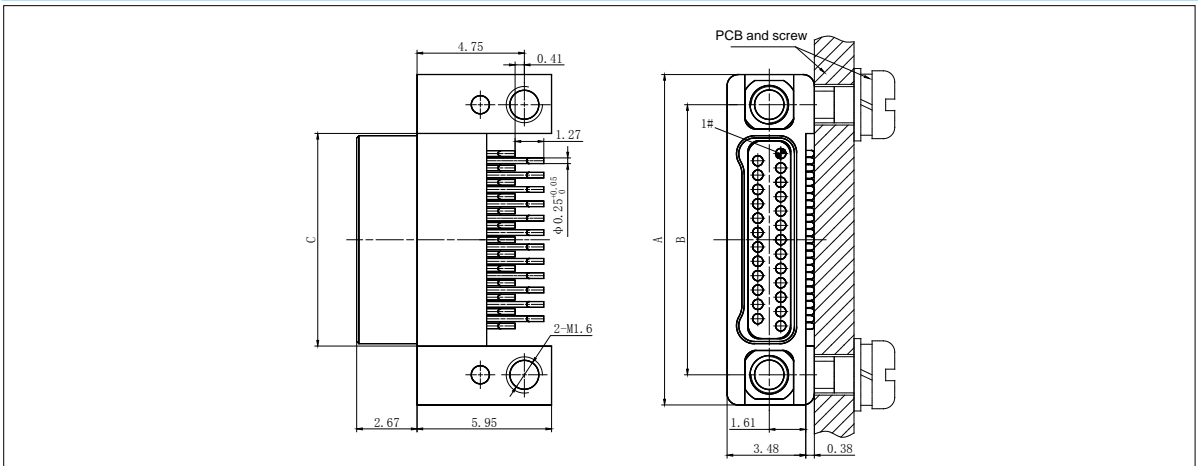
### Order marks

<b>Series</b>	R06	-2	2	1	-M	3	-25	PI	-TH	 <p><b>R06-221-M3-25PI-TH</b></p>
<b>Contact row:</b>										
2 — tow rows										
<b>Shell plating:</b>										
2 — nickel plating										
<b>Contact plating:</b>										
1 — gold plating										
<b>Tail termination type :</b>										
M — SMT										
<b>Mounting style:</b>										
3 — horizontal SMT										
<b>Contact number:</b>										
9、15、21、25、31、37、51、65、69										
<b>Contact type:</b>										
PI — pin in plug										
<b>Locking component type:</b>										
TH — connect nut										

### Remark

- R06-221-M3-25PI-TH usually mated with receptacle which have locking screw

### Outline dimension

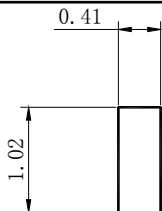


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9pins	9.63	6.86	4.31	15pins	11.53	8.76	6.22	21pins	13.44	10.67	8.13
25pins	14.71	11.94	9.4	31pins	16.61	13.84	11.3	37pins	18.52	15.75	13.21
51pins	22.96	20.19	17.65	65pins	27.41	24.64	22.10	69pins	28.68	25.91	23.37

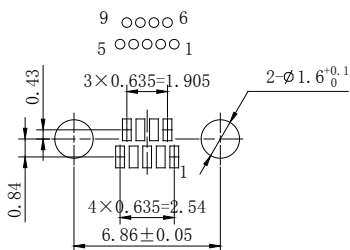
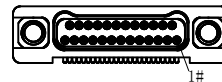
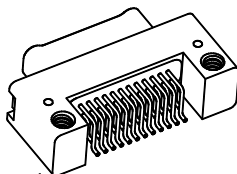
Remark: All dimensions are in mm



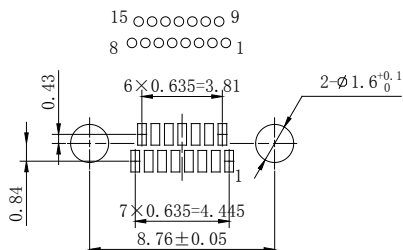
### Suggested PCB Layout



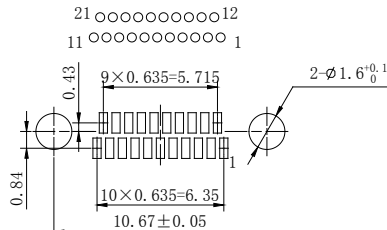
Lead footprint dimension



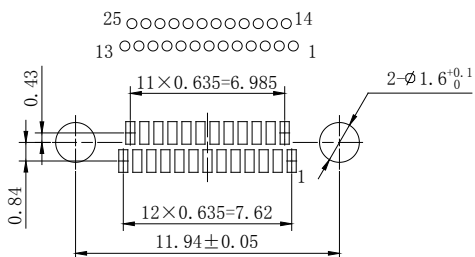
R06-221-M3-9PI-TH



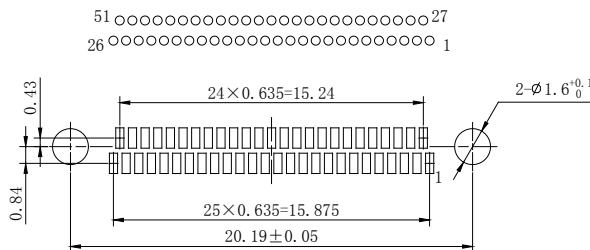
R06-221-M3-15PI-TH



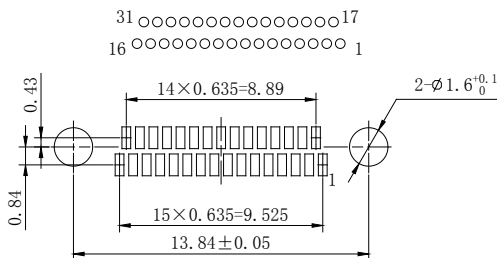
R06-221-M3-21PI-TH



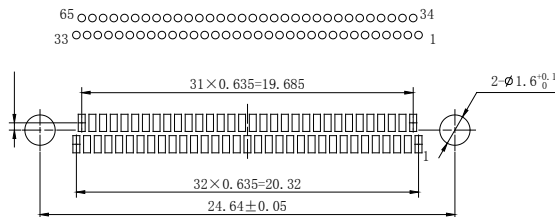
R06-221-M3-25PI-TH



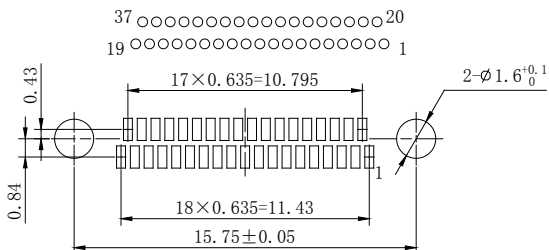
R06-221-M3-51PI-TH



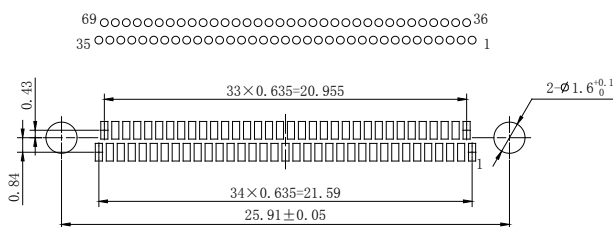
R06-221-M3-31PI-TH



R06-221-M3-65PI-TH



R06-221-M3-37PI-TH

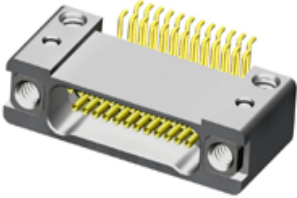


R06-221-M3-69PI-TH

Remark: All dimensions are in mm

## R06 Horizontal SMT Receptacle Series

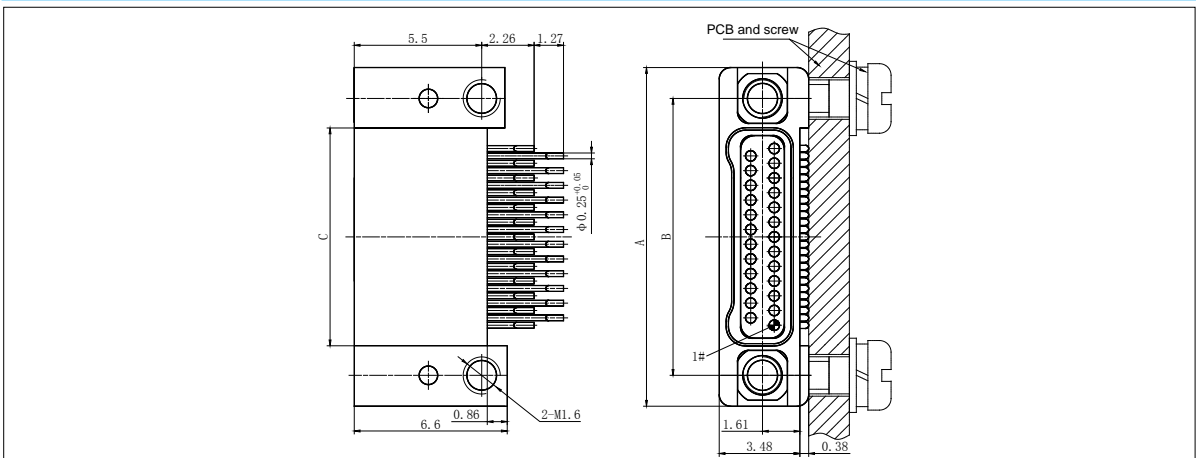
### Order marks

<b>Series</b>	R06	-2	2	1	-M	3	-25	RH	-TH	 <p><b>R06-221-M3-25RH-TH</b></p>
<b>Contact row:</b>										
2 — tow rows										
<b>Shell plating:</b>										
2 — nickel plating										
<b>Contact plating:</b>										
1 — gold plating										
<b>Tail termination type :</b>										
M— SMT										
<b>Mounting style:</b>										
3 — horizontal SMT										
<b>Contact number:</b>										
9、15、21、25、31、37、51、65、69										
<b>Contact type:</b>										
RH— socket in receptacle										
<b>Locking component type:</b>										
TH— connect nut										

### Remark

- R06-221-M3-\*RH-TH usually mated with plug which have locking screw

### Outline dimension

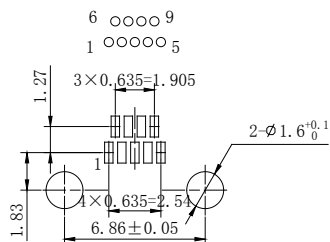
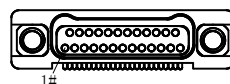
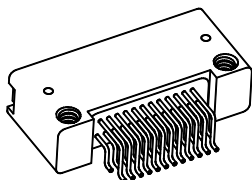
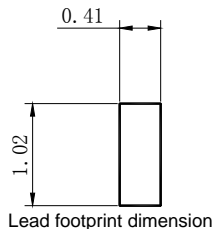


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9pins	9.63	6.86	4.31	15pins	11.53	8.76	6.22	21pins	13.44	10.67	8.13
25pins	14.71	11.94	9.4	31pins	16.61	13.84	11.3	37pins	18.52	15.75	13.21
51pins	22.96	20.19	17.65	65pins	27.41	24.64	22.10	69pins	28.68	25.91	23.37

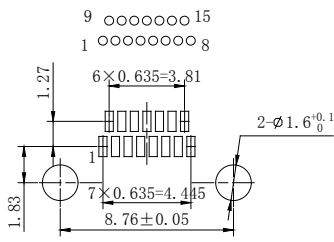
Remark: All dimensions are in mm



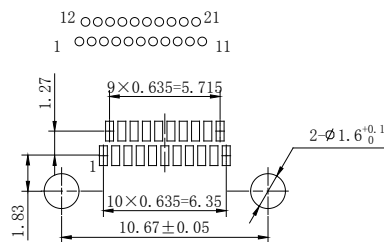
### Suggested PCB Layout



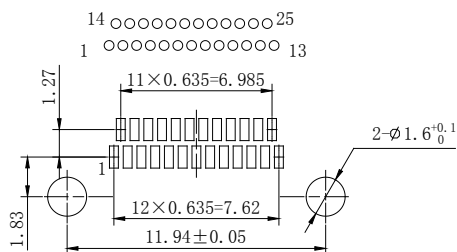
**R06-221-M3-9RH-TH**



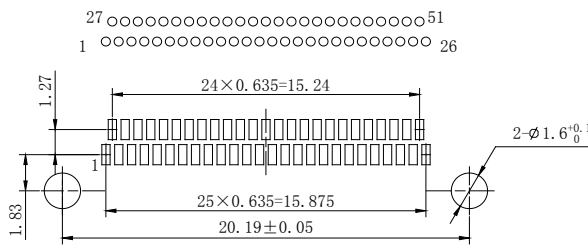
**R06-221-M3-15RH-TH**



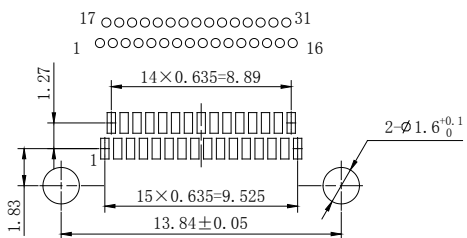
**R06-221-M3-21RH-TH**



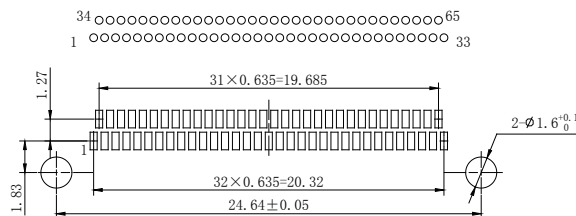
**R06-221-M3-25RH-TH**



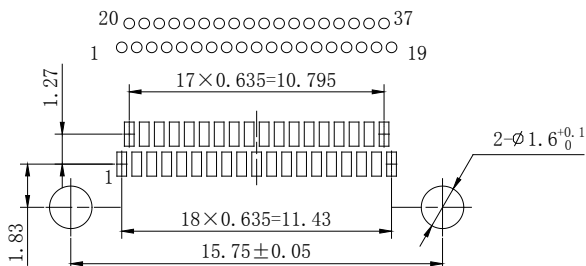
**R06-221-M3-51RH-TH**



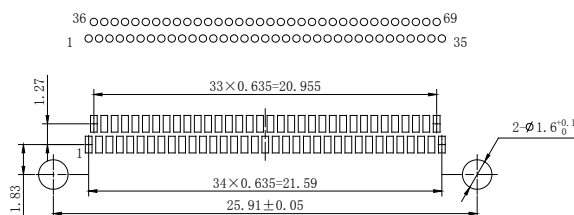
**R06-221-M3-31RH-TH**



**R06-221-M3-65RH-TH**



**R06-221-M3-37RH-TH**




**R06-221-M3-69RH-TH**

Remark: All dimensions are in mm

# R06 Straddle Flexible SMT Plug Series

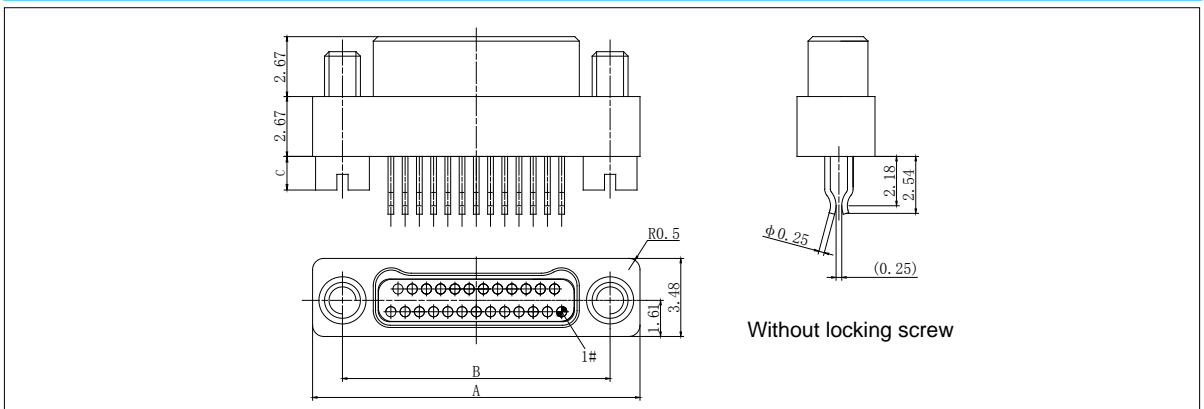
## Order marks

Series	R06	-2	2	1	-M	8	-25	PI	-JC	 <p><b>R06-221-M8-25PI-JC</b></p>
<b>Contact row:</b> 2 — tow rows										
<b>Shell plating:</b> 2 — nickel plating										
<b>Contact plating:</b> 1 — gold plating										
<b>Tail termination type :</b> M— SMT										
<b>Mounting style:</b> 8 — straddle flexible SMT										
<b>Contact number:</b> 9、15、21、25、31、37、51、65、69										
<b>Contact type:</b> PI — pin in plug										
<b>Locking component type:</b> JC— locking screw(straight slot, C dimension=1.5mm) JC1— locking screw(hex, not recommend , C dimension=2.1mm)										

### Remark

- Connector is free mounted,not fixed,usually mated with receptacle which have nut
- Recommended JC(straight slot screw) types of screws,tight by miniature straight screwdriver
- When choose JC1(hex) type of screws,tight by 1.27mm subtense hex screwdriver.
- PC tail solder on flexible PCB,PCB thickness is 0.25MAX.

## Outline dimension

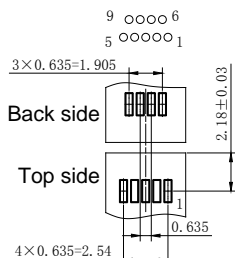
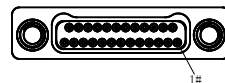
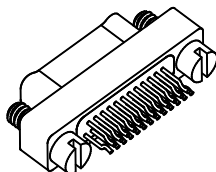
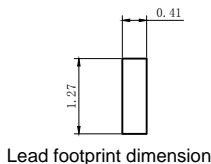


Pin count	Dimension		Pin count	Dimension		Pin count	Diension	
	A	B		A	B		A	B
9pins	9.63	6.86	15pins	11.53	8.76	21pins	13.44	10.67
25pins	14.71	11.94	31pins	16.61	13.84	37pins	18.52	15.75
51 pins	22.96	20.19	65pins	27.41	24.64	69pins	28.68	25.91

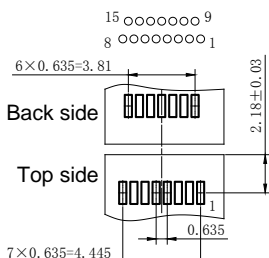
Remark: All dimensions are in mm



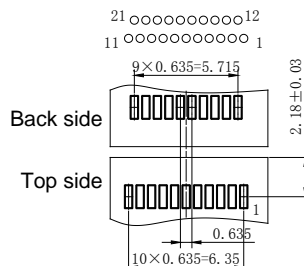
### Suggested PCB Layout



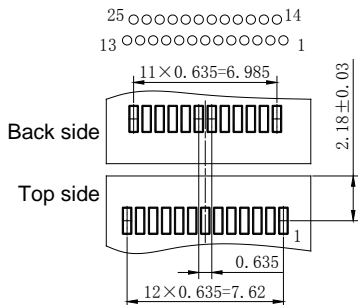
**R06-221-M8-9PI-JC**



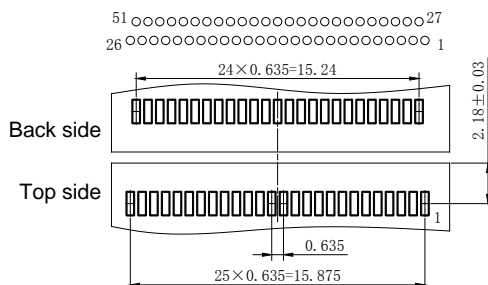
**R06-221-M8-15PI-JC**



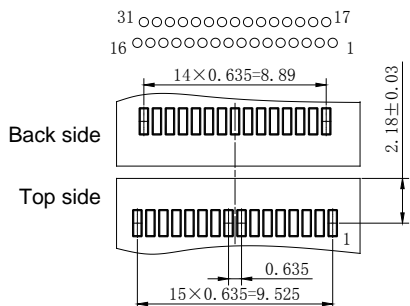
**R06-221-M8-21PI-JC**



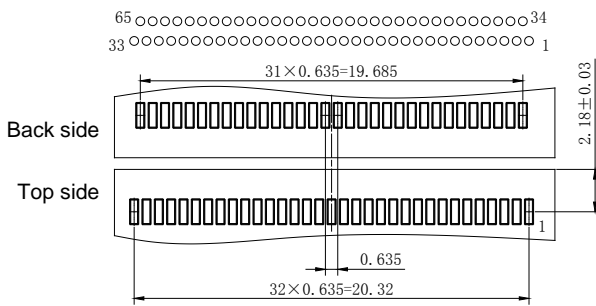
**R06-221-M8-25PI-JC**



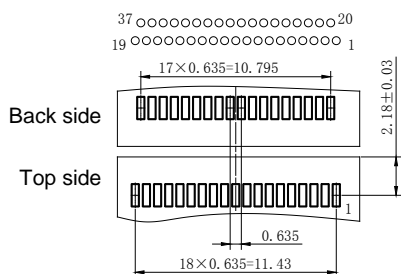
**R06-221-M8-51PI-JC**



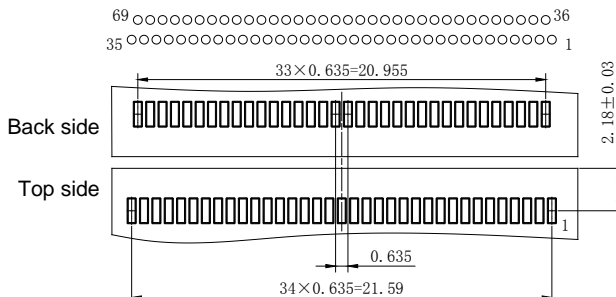
**R06-221-M8-31PI-JC**



**R06-221-M8-65PI-JC**



**R06-221-M8-37PI-JC**

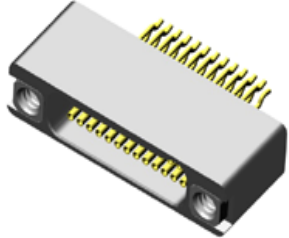


**R06-221-M8-69PI-JC**

Remark: All dimensions are in mm

# R06 Straddle Flexible SMT Receptacle Series

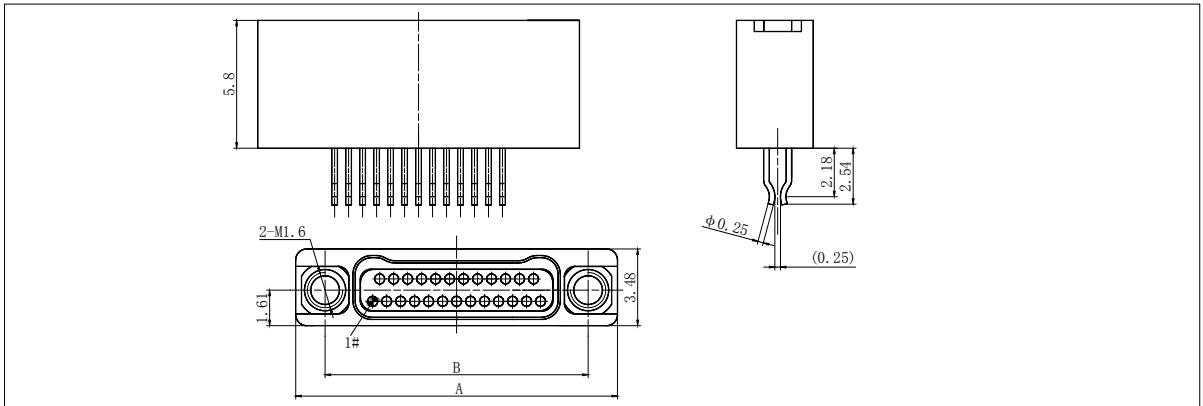
## Order marks

Series	R06	-2	2	1	-M	8	-25	RH	-TH	 <p><b>R06-221-M8-25RH-TH</b></p>
<b>Contact row:</b>										
2 — tow rows										
<b>Shell plating:</b>										
2 — nickel plating										
<b>Contact plating:</b>										
1 — gold plating										
<b>Tail termination type :</b>										
M— SMT										
<b>Mounting style:</b>										
8 — straddle flexible SMT										
<b>Contact number:</b>										
9、15、21、25、31、37、51、65、69										
<b>Contact type:</b>										
RH— socket in receptacle										
<b>Locking component type:</b>										
TH— connect nut										

### Remark

- Connector is free mounted,not fixed,usually mated with plug which have screw
- PC tail solder on flexible PCB,PCB thickness is 0.25MAX.

## Outline dimension

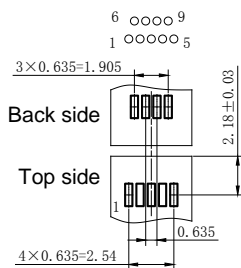
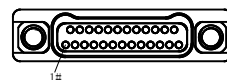
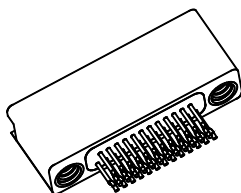
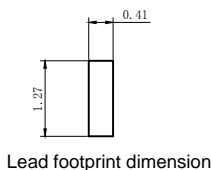


Pin count	Dimension		Pin count	Dimension		Pin count	Diension	
	A	B		A	B		A	B
9pins	9.63	6.86	15pins	11.53	8.76	21pins	13.44	10.67
25pins	14.71	11.94	31pins	16.61	13.84	37pins	18.52	15.75
51pins	22.96	20.19	65pins	27.41	24.64	69pins	28.68	25.91

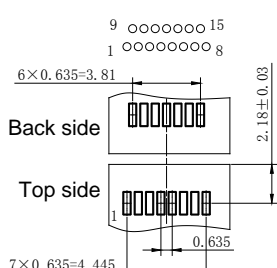
Remark: All dimensions are in mm



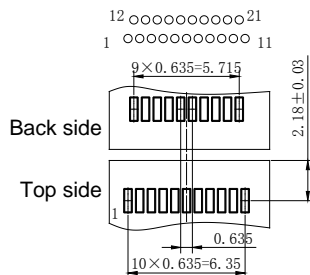
### Suggested PCB Layout



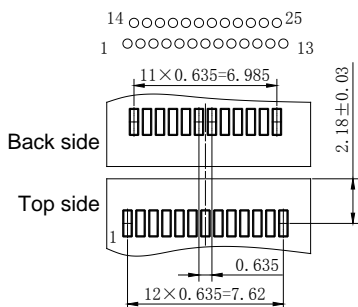
**R06-221-M8-9RH-TH**



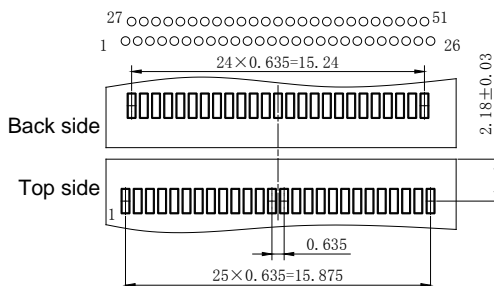
**R06-221-M8-15RH-TH**



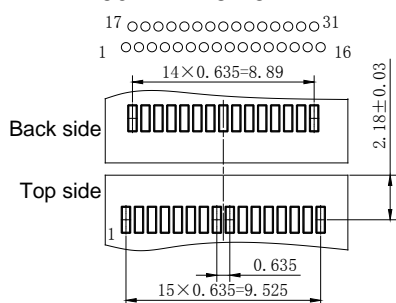
**R06-221-M8-21RH-TH**



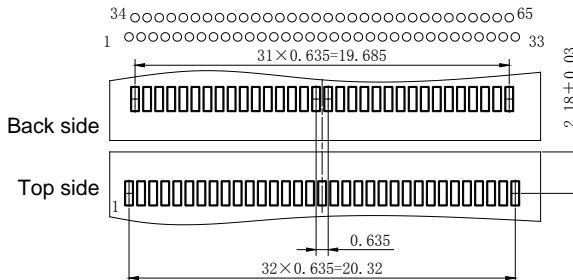
**R06-221-M8-25RH-TH**



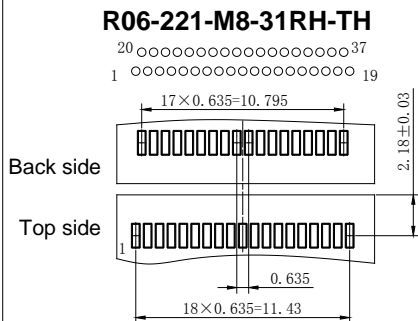
**R06-221-M8-51RH-TH**



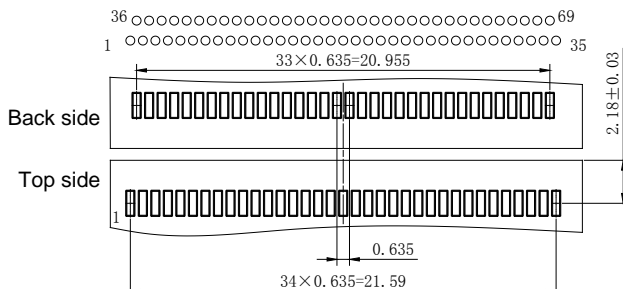
**R06-221-M8-31RH-TH**



**R06-221-M8-65RH-TH**



**R06-221-M8-37RH-TH**



**R06-221-M8-69RH-TH**

Remark: All dimensions are in mm