

MIL-DTL-32139 Nano D-Sub Connectors

N06 SMT Series

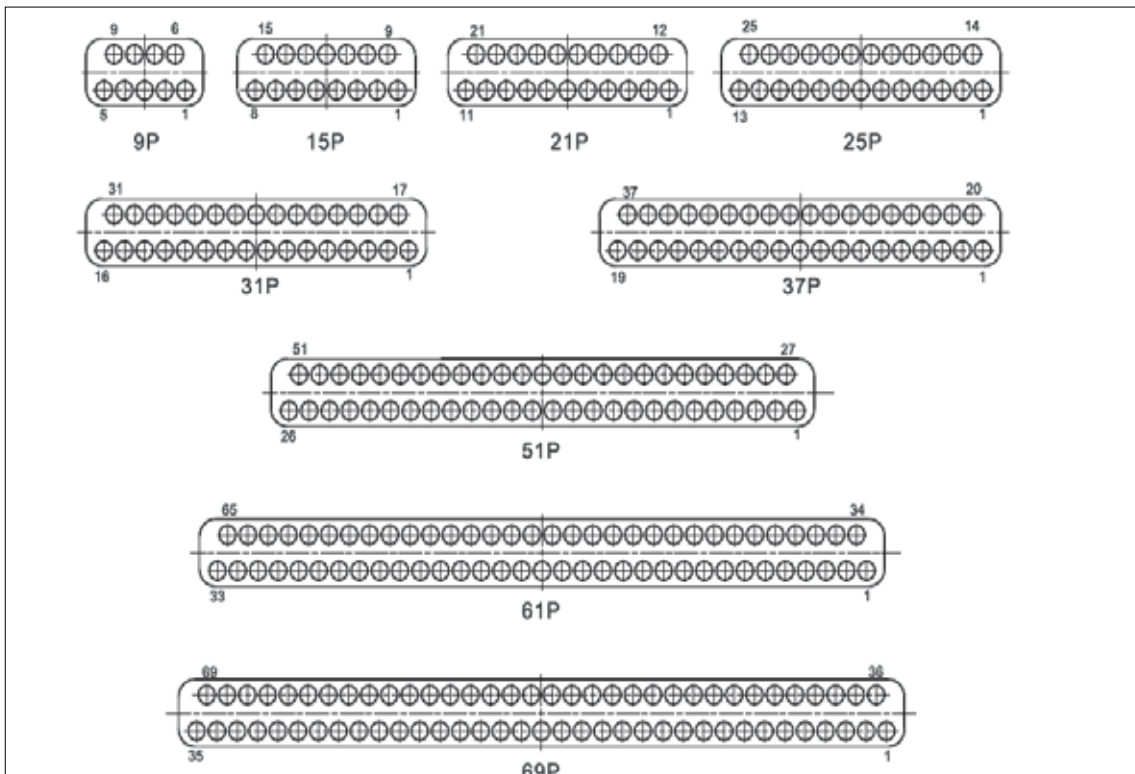
Brief introduction

- Available with no. of contacts: 9,15,21,25,31,37,51,65,69
- Twist pin contacts for improved shock and vibration performance, 0.635mm (0.025") pitch.
- Screw nut locking, easy to insert and extract.
- Commonly used for electrical circuit interconnections with high density, miniaturized, lightweight and high reliability requirements.
- Connector plugs are fitted with twist pin contacts, connector receptacle are fitted with socket contacts
- Standard: MIL-DTL-32139
- Undefined tolerance is $\pm 0.13\text{mm}$

Specification

- | | | | |
|-------------------|--|------------------------|---------------------------|
| Environment: | -55°C ~ +125°C | Contact resistance: | $\leq 21\text{m}\Omega$ |
| Vibration: | 10Hz ~ 2000Hz acc. at 196m/s^2 | Insulation resistance: | $\geq 5000\text{M}\Omega$ |
| Shock: | 980m/s^2 for 6ms | Dielectric strength: | 250V |
| Rated current: | 1A | Mating durability: | 200 Cycles |
| Random vibration: | power spectrum density $0.4\text{G}^2/\text{Hz}$, r.m.s value of total acceleration 23.1G | | |

Contact layout



Note: The above layout is viewed from connector plug mating face

MIL-DTL-32139 Nano D-Sub Connectors

N06 SMT Series

How to order

Series	N06	-2	2	1	-M	2	-9	PI	-TH
Contact row: 2 — two rows									
Shell plating: 2 — nickel plating									
Contact plating: 1 — gold plating									
Tail termination type : M— SMT									
Mounting style: 2— vertical SMT 3 — horizontal SMT 8 — straddle flexible SMT									
Contact number: 9, 15, 21, 25, 31, 37, 51, 65, 69									
Contact type PI — pin in plug RH— socket in receptacle									
Locking component type: JC— locking screw (straight slot) JC1— locking screw (hex, optional) TH— connect nut NH— guide hole with nut mounted DZ— guide pin TH1— solder nut SH— solder guide hole									

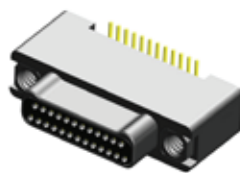
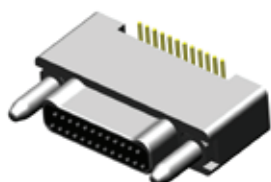
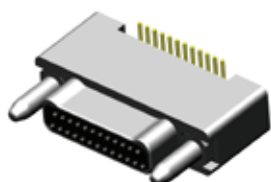
Mating Connector Choice

- When choosing a mating connector pair with locking accessories, choose one side with connect nut (TH) and the other side with locking screw (JC).
- When choosing a mating connector pair with guide accessories, the mated connectors should be fixed on a mounting panel to avoid the connectors from becoming disconnected. When choosing a mating connector pair with guide components, choose one side with guide pin (DZ) and the other side with guide hole (NH).

MIL-DTL-32139 Nano D-Sub Connectors

N06 Vertical SMT Plug Series

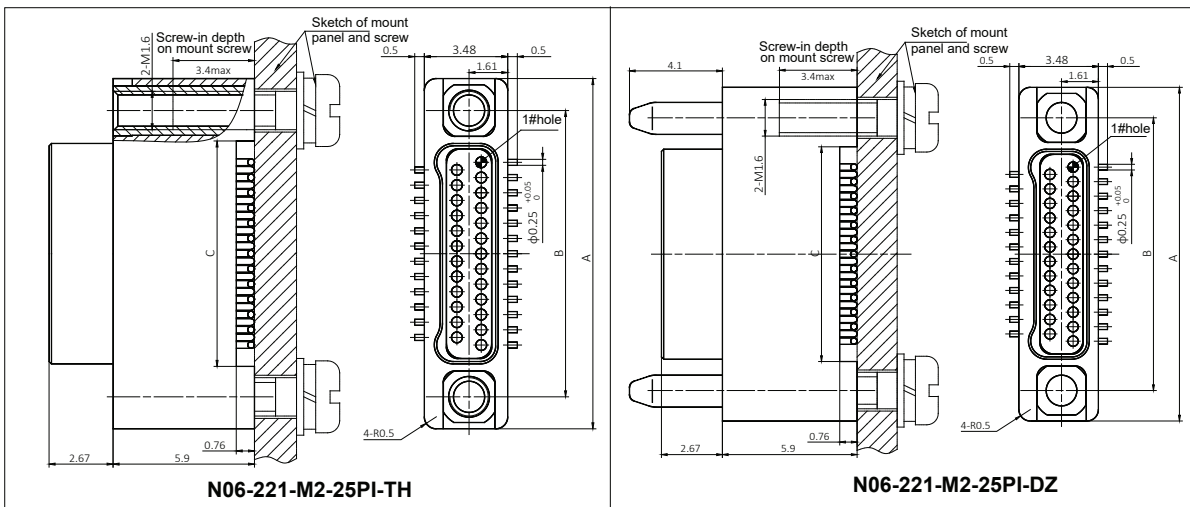
Order Code

Series	N06	-2	2	1	-M	2	-25	PI	-TH	
Contact row:										
2 — two rows										
Shell plating:										
2 — nickel plating										
Contact plating:										N06-221-M2-25PI-TH
1 — gold plating										
Tail termination type :										
M — SMT										
Mounting style:										N06-221-M2-25PI-DZ
2 — vertical SMT										
Contact number:										
9, 15, 21, 25, 31, 37, 51, 65, 69										
Contact type:										
PI — pin in plug										
Locking component type:										
TH — connect nut										
DZ — guide pin										

Notes

- N06-221-M2-25PI-TH is usually mated with a receptacle which has a locking screw, N06-221-M2-25PI-DZ usually mated with a receptacle which has a guide hole

Outline dimension

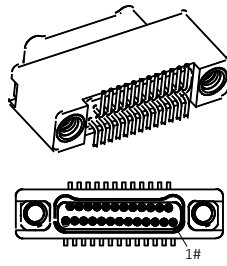
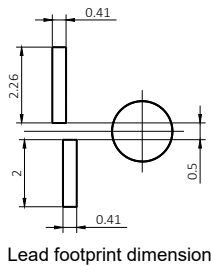


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9 pins	9.63	6.86	4.31	15 pins	11.53	8.76	6.22	21 pins	13.44	10.67	8.13
25 pins	14.71	11.94	9.4	31 pins	16.61	13.84	11.3	37 pins	18.52	15.75	13.21
51 pins	22.96	20.19	17.65	65 pins	27.41	24.64	22.10	69 pins	28.68	25.91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

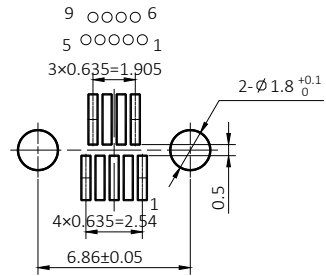
Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

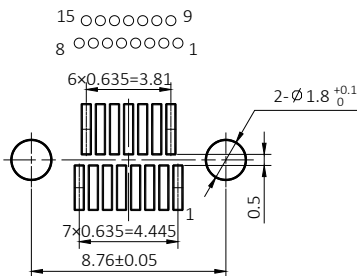
Suggested PCB Layout



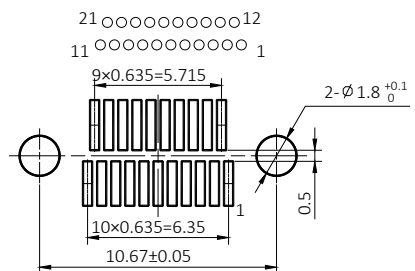
N06-221-M2-9PI-TH



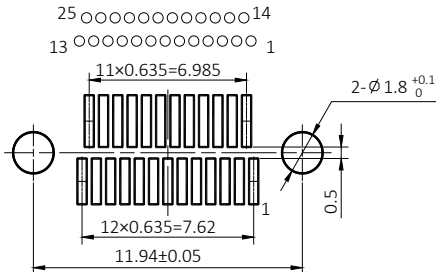
N06-221-M2-15PI-TH



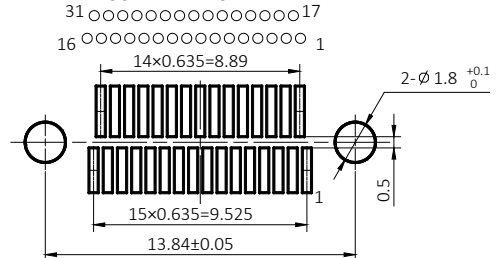
N06-221-M2-21PI-TH



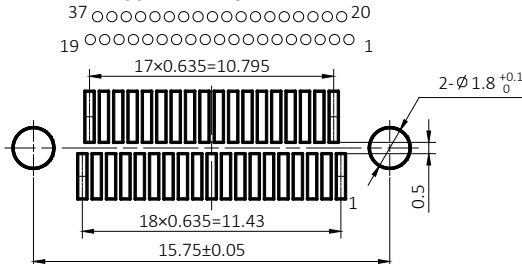
N06-221-M2-25PI-TH



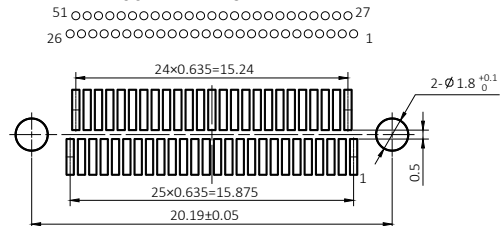
N06-221-M2-31PI-TH



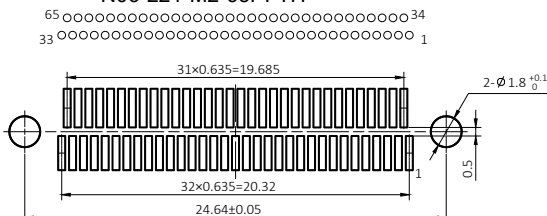
N06-221-M2-37PI-TH



N06-221-M2-51PI-TH



N06-221-M2-65PI-TH



N06-221-M2-69PI-TH



Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

N06 Vertical SMT Receptacle Series

Order Code

Series	N06	-2	2	1	-M	2	-25	RH	-TH
Contact row:	2 — two rows								
Shell plating:	2 — nickel plating								
Contact plating:	1 — gold plating								
Tail termination type :	M— SMT								
Mounting style:	2— vertical SMT								
Contact number:	9, 15, 21, 25, 31, 37, 51, 65, 69								
Contact type:	RH— socket in receptacle								
Locking component type:	TH— connect nut NH— guide hole with nut mounted								



N06-221-M2-25RH-TH

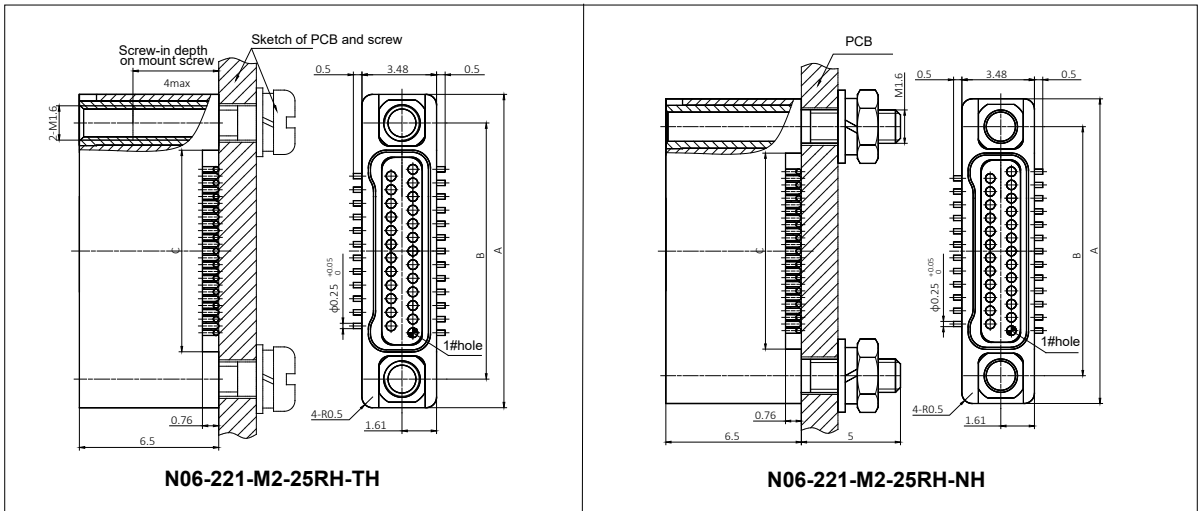


N06-221-M2-25RH-NH

Notes

- N06-221-M2-**RH-TH is usually mated with a plug which has a locking screw, N06-221-M2-**RH-NH is usually mated with a plug which has a guide pin

Outline dimension

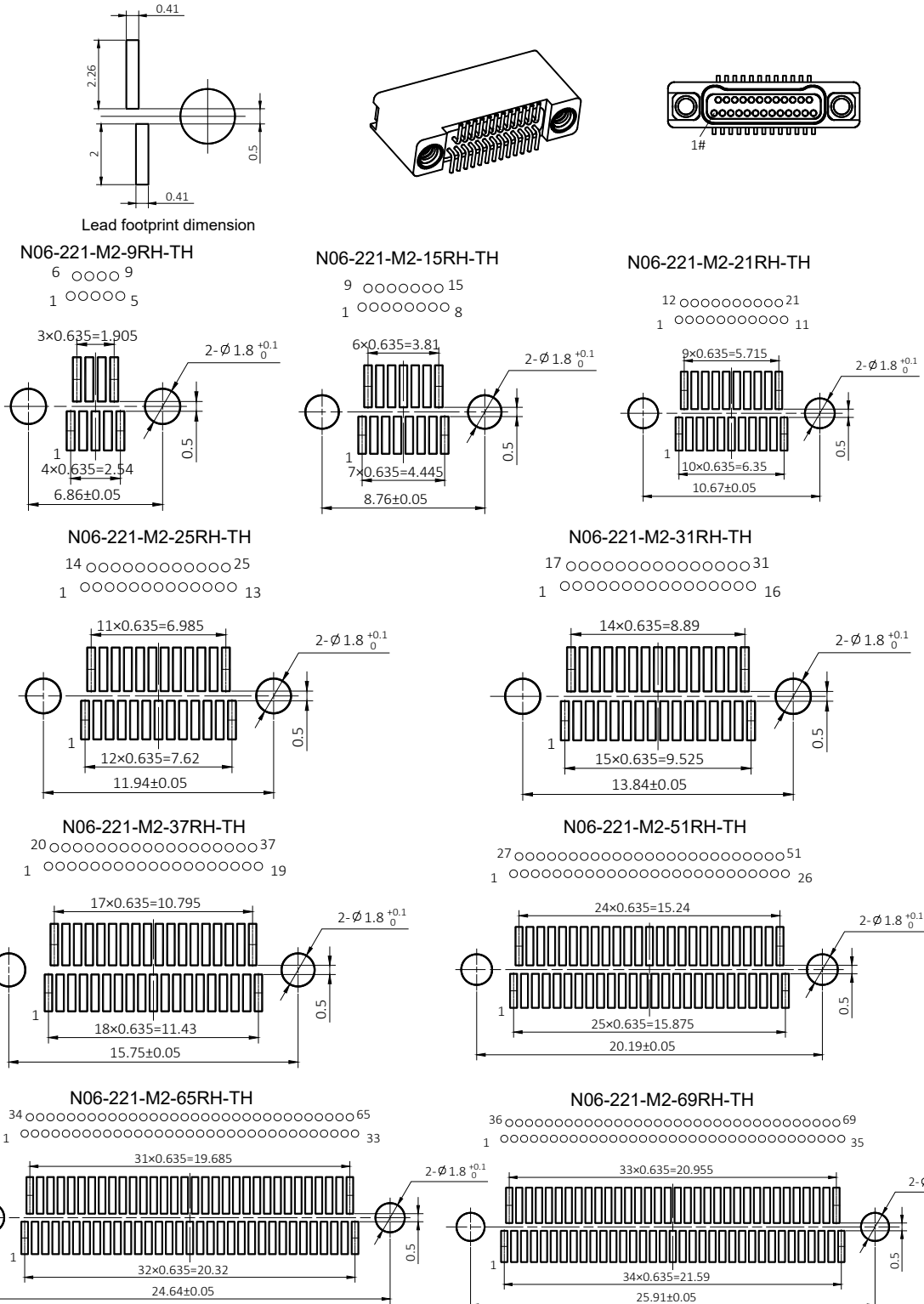


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9 pins	9.63	6.86	4.31	15 pins	11.53	8.76	6.22	21 pins	13.44	10.67	8.13
25 pins	14.71	11.94	9.4	31 pins	16.61	13.84	11.3	37 pins	18.52	15.75	13.21
51 pins	22.96	20.19	17.65	65 pins	27.41	24.64	22.10	69 pins	28.68	25.91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

Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

Suggested PCB Layout



Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

N06 Vertical SMT Receptacle with Solder Locking Component Series

Order Code

Series	N06	-2	2	1	-M	2	-25	RH	-TH1
Contact row:									
2 — two rows									
Shell plating:									
2 — nickel plating									
Contact plating:									
1 — gold plating									
Tail termination type :									
M — SMT									
Mounting style:									
2 — vertical SMT									
Contact number:									
9, 15, 21, 25, 31, 37, 51, 65, 69									
Contact type:									
RH — socket in receptacle									
Locking component type:									
TH1 — solder nut									
SH — solder guide hole									



N06-221-M2-25RH-TH1

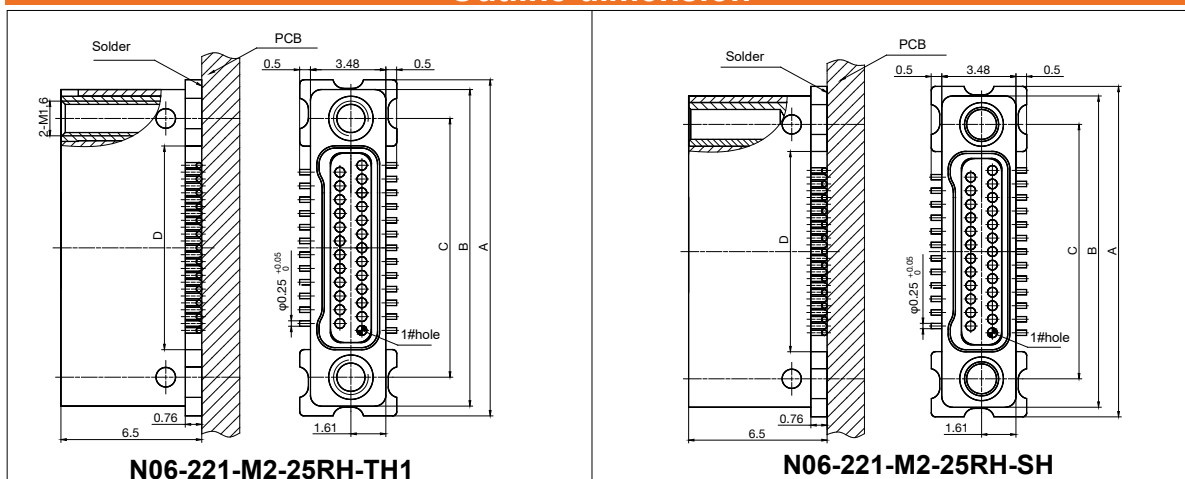


N06-221-M2-25RH-SH

Notes

- Connector is mounted by solder by the SMT process. Suitable where drill holes are not possible on the PCB.
- N06-221-M2-****RH-TH1** is usually mated with a plug which has a locking screw, N06-221-M2-****RH-SH** is usually mated with a plug which has guide pin

Outline dimension

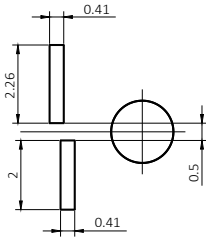


Pin count	Dimension				Pin count	Dimension			
	A	B	C	D		A	B	C	D
9 pins	10.43	9.63	6.86	4.31	15 pins	12.33	11.53	8.76	6.22
21 pins	14.24	13.44	10.67	8.13	25 pins	15.51	14.71	11.94	9.4
31 pins	17.41	16.61	13.84	11.30	37 pins	19.32	18.52	15.75	13.21
51 pins	23.76	22.96	20.19	17.65	65 pins	28.21	27.41	24.64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

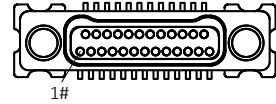
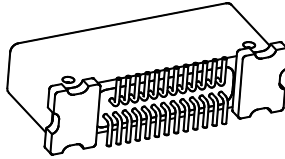
Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

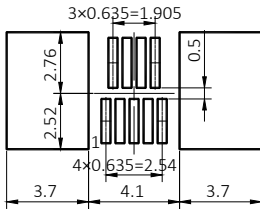
Suggested PCB Layout



Lead footprint dimension

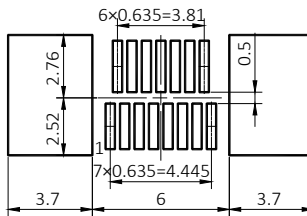


6 ○○○○ 9
1 ○○○○ 5



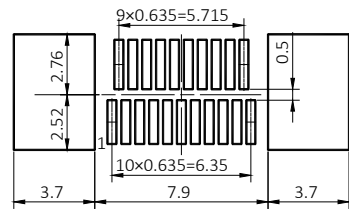
N06-221-M2-9RH-TH1

9 ○○○○○○ 15
1 ○○○○○○○○ 8



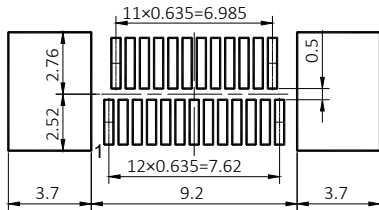
N06-221-M2-15RH-TH1

12 ○○○○○○○○○○ 21
1 ○○○○○○○○○○ 11



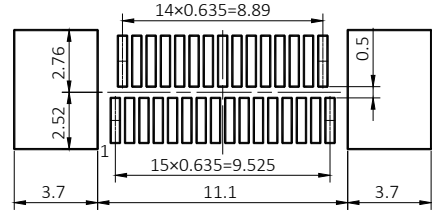
N06-221-M2-21RH-TH1

14 ○○○○○○○○○○ 25
1 ○○○○○○○○○○ 13



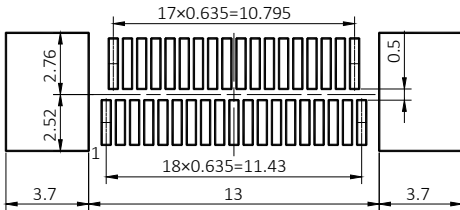
N06-221-M2-25RH-TH1

17 ○○○○○○○○○○ 31
1 ○○○○○○○○○○ 16



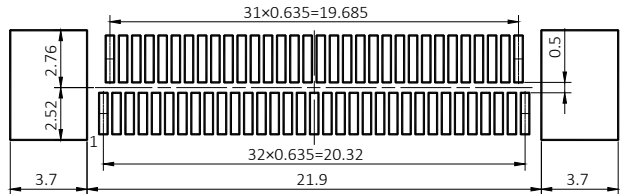
N06-221-M2-31RH-TH1

20 ○○○○○○○○○○ 37
1 ○○○○○○○○○○ 19



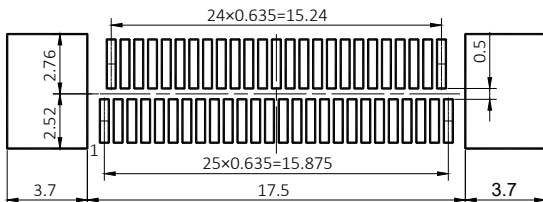
N06-221-M2-37RH-TH1

34 ○○○○○○○○○○ 65
1 ○○○○○○○○○○ 33



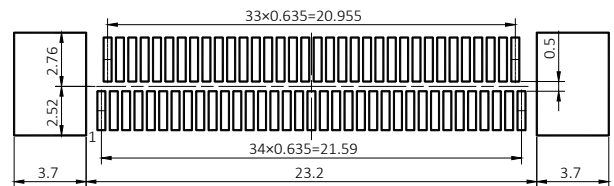
N06-221-M2-65RH-TH1

27 ○○○○○○○○○○ 51
1 ○○○○○○○○○○ 26



N06-221-M2-51RH-TH1

36 ○○○○○○○○○○ 69
1 ○○○○○○○○○○ 35



N06-221-M2-69RH-TH1

Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

N06 Horizontal SMT Plug Series

Order Code

Series	N06	-2	2	1	-M	3	-25	PI	-TH
Contact row:									
2 — two rows									
Shell plating:									
2 — nickel plating									
Contact plating:									
1 — gold plating									
Tail termination type :									
M— SMT									
Mounting style:									
3— Horizontal SMT									
Contact number:									
9, 15, 21, 25, 31, 37, 51, 65, 69									
Contact type:									
PI — pin in plug									
Locking component type:									
TH— connect nut									

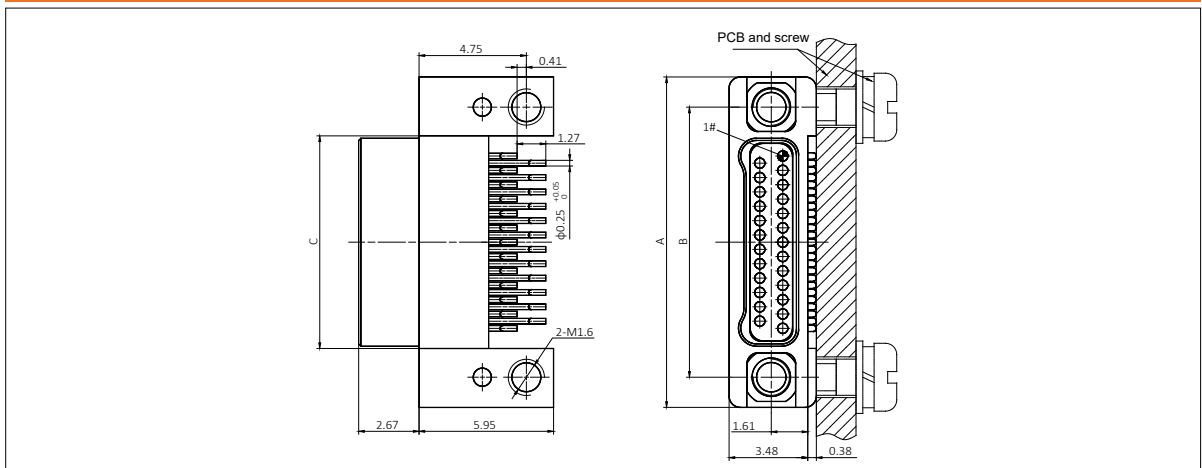


N06-221-M3-25PI-TH

Notes

- N06-221-M3-**PI-TH is usually mated with a receptacle connector which has a locking screw

Outline dimension

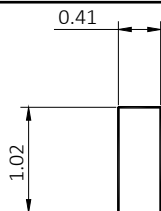


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9 pins	9.63	6.86	4.31	15 pins	11.53	8.76	6.22	21 pins	13.44	10.67	8.13
25 pins	14.71	11.94	9.4	31 pins	16.61	13.84	11.3	37 pins	18.52	15.75	13.21
51 pins	22.96	20.19	17.65	65 pins	27.41	24.64	22.10	69 pins	28.68	25.91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

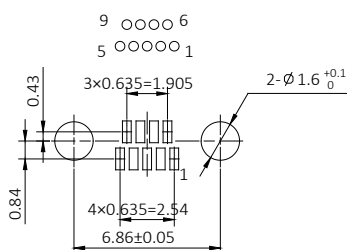
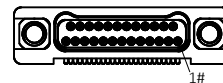
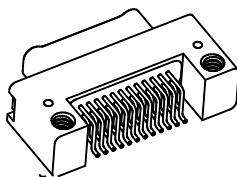
Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

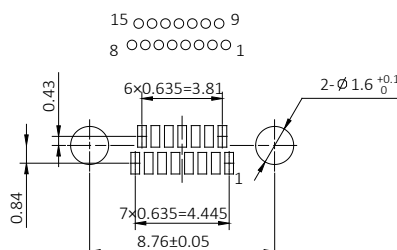
Suggested PCB Layout



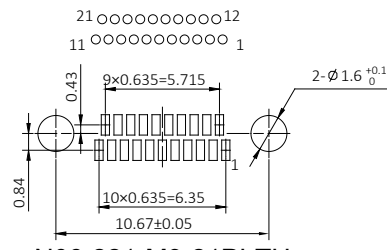
Lead footprint dimension



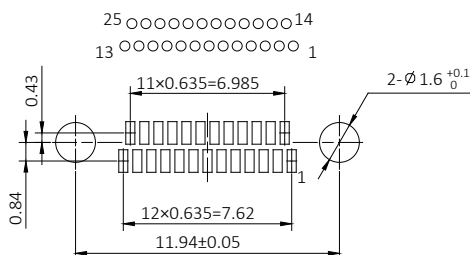
N06-221-M3-9PI-TH



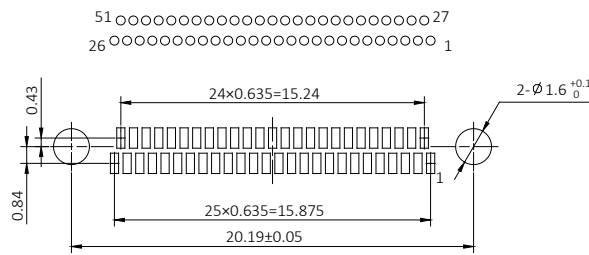
N06-221-M3-15PI-TH



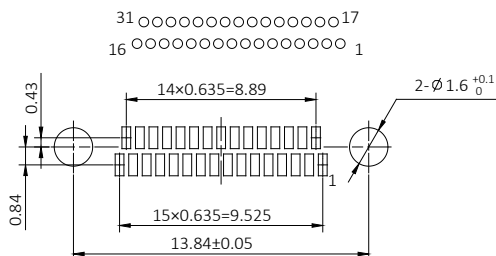
N06-221-M3-21PI-TH



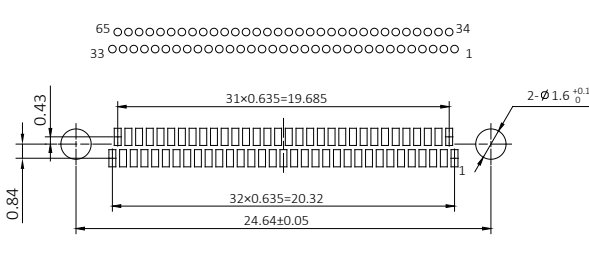
N06-221-M3-25PI-TH



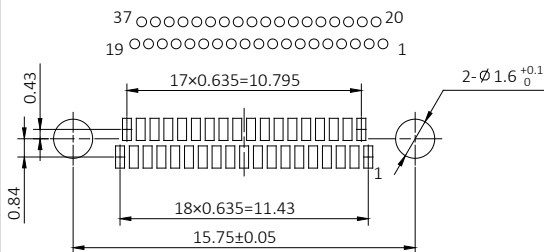
N06-221-M3-51PI-TH



N06-221-M3-31PI-TH



N06-221-M3-65PI-TH



N06-221-M3-37PI-TH



N06-221-M3-69PI-TH

Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

N06 Horizontal SMT Receptacle Series

Order Code

Series	N06	-2	2	1	-M	3	-25	RH	-TH
Contact row:									
2 — two rows									
Shell plating:									
2 — nickel plating									
Contact plating:									
1 — gold plating									
Tail termination type :									
M— SMT									
Mounting style:									
3— Horizontal SMT									
Contact number:									
9, 15, 21, 25, 31, 37, 51, 65, 69									
Contact type:									
RH— socket in receptacle									
Locking component type:									
TH— connect nut									

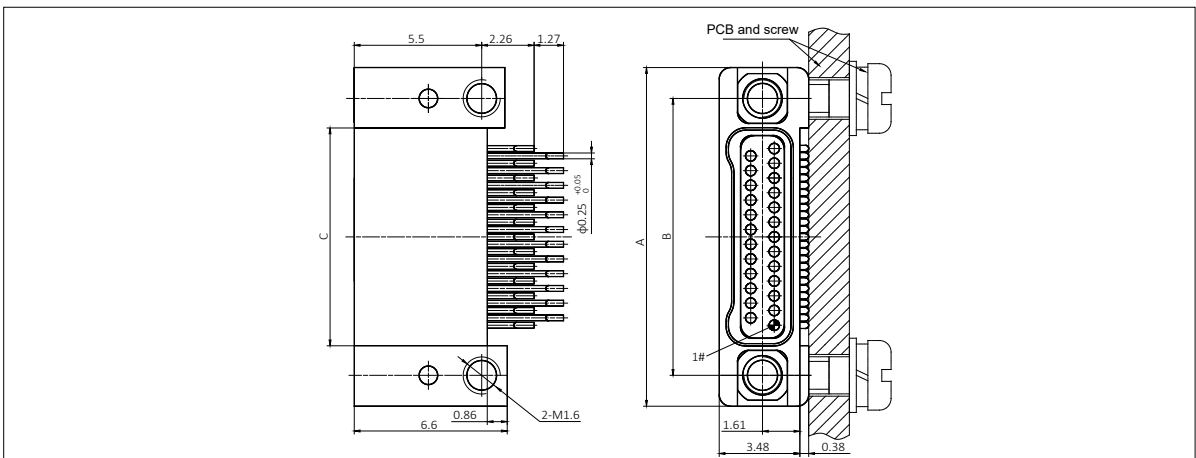


N06-221-M3-25RH-TH

Notes

- N06-221-M3-*RH-TH is usually mated with a plug which has a locking screw

Outline dimension

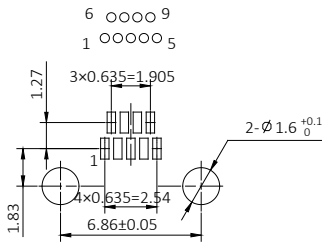
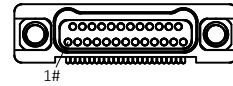
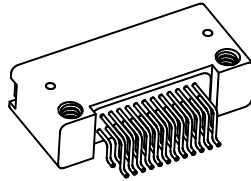
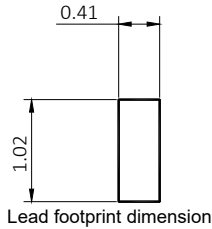


Pin count	Dimension			Pin count	Dimension			Pin count	Dimension		
	A	B	C		A	B	C		A	B	C
9 pins	9.63	6.86	4.31	15 pins	11.53	8.76	6.22	21 pins	13.44	10.67	8.13
25 pins	14.71	11.94	9.4	31 pins	16.61	13.84	11.3	37 pins	18.52	15.75	13.21
51 pins	22.96	20.19	17.65	65 pins	27.41	24.64	22.10	69 pins	28.68	25.91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

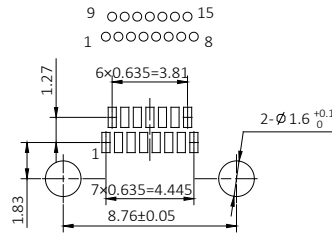
Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

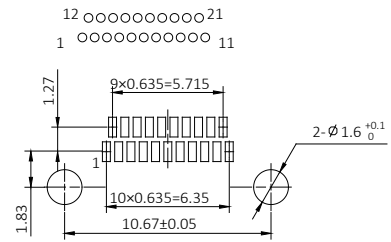
Suggested PCB Layout



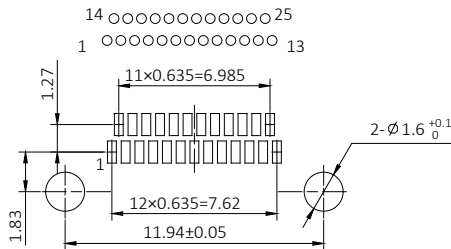
N06-221-M3-9RH-TH



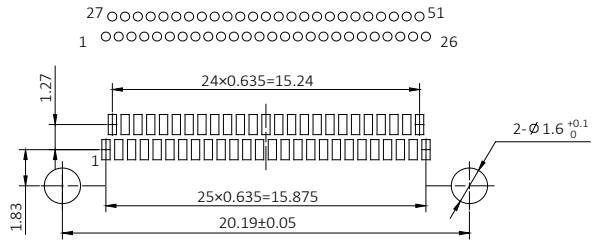
N06-221-M3-15RH-TH



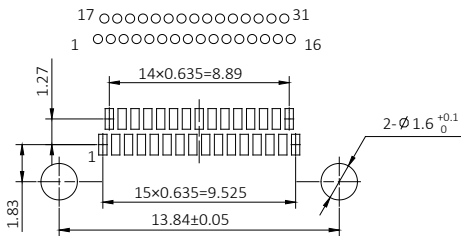
N06-221-M3-21RH-TH



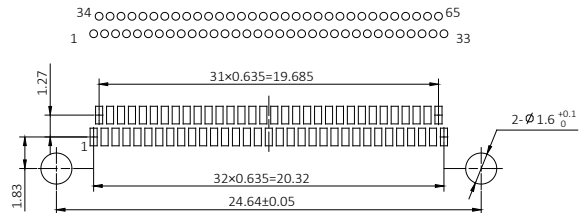
N06-221-M3-25RH-TH



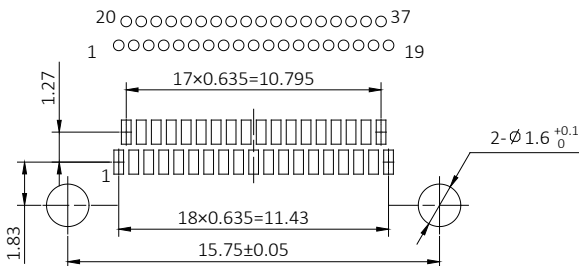
N06-221-M3-51RH-TH



N06-221-M3-31RH-TH



N06-221-M3-65RH-TH



N06-221-M3-37RH-TH



N06-221-M3-69RH-TH

Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

N06 Straddle Flexible SMT Plug Series

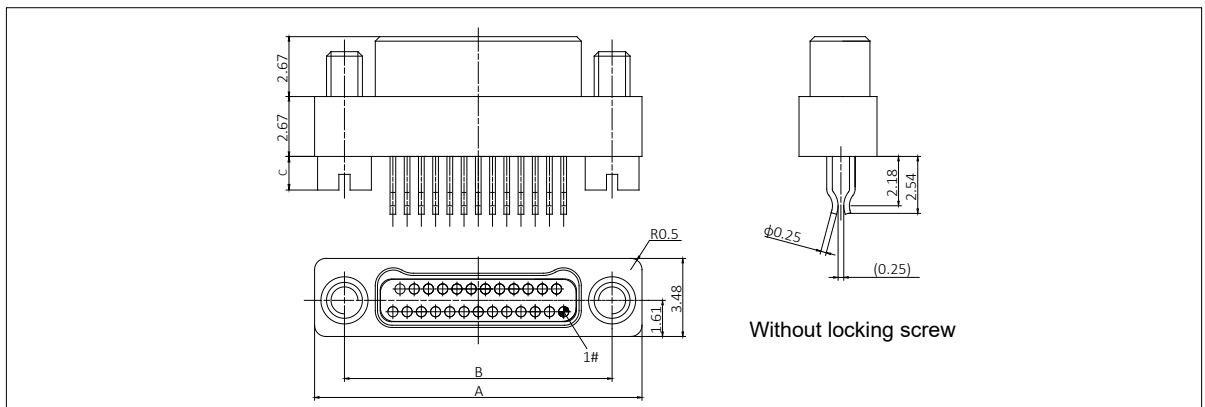
Order Code

Series	N06	-2	2	1	-M	8	-25	PI	-JC	 N06-221-M8-25PI-JC
Contact row:										
2 — two rows										
Shell plating:										
2 — nickel plating										
Contact plating:										
1 — gold plating										
Tail termination type :										
M— SMT										
Mounting style:										
8 — straddle flexible SMT										
Contact number:										
9, 15, 21, 25, 31, 37, 51, 65, 69										
Contact type:										
PI — pin in plug										
Locking component type:										
JC— locking screw(straight slot, C dimension = 1.5mm)										
JC1— locking screw(hex, optional, C dimension = 2.1mm)										

Notes

- Free mounted connector and is usually mated with a receptacle connector which has a connect nut
- Recommended JC (straight slot screw) types of screws, tightened by miniature straight screwdriver
- When choose JC1 (hex) type of screws, tightened by 1.27mm hex screwdriver.
- PC tail SMT solder on flexible PCB. PCB thickness should be 0.25mm MAX.

Outline dimension

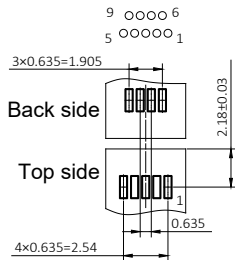
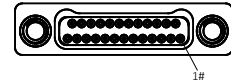
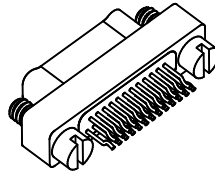
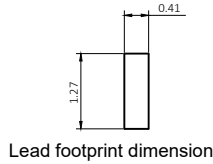


Pin count	Dimension		Pin count	Dimension		Pin count	Dimension	
	A	B		A	B		A	B
9 pins	9.63	6.86	15 pins	11.53	8.76	21 pins	13.44	10.67
25 pins	14.71	11.94	31 pins	16.61	13.84	37 pins	18.52	15.75
51 pins	22.96	20.19	65 pins	27.41	24.64	69 pins	28.68	25.91

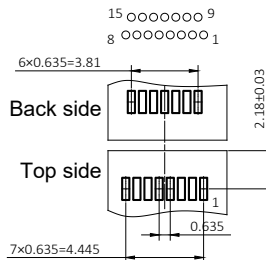
Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

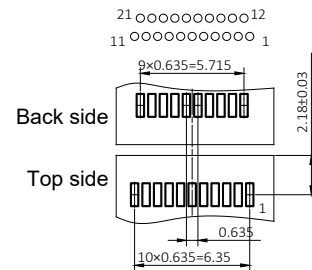
Suggested PCB Layout



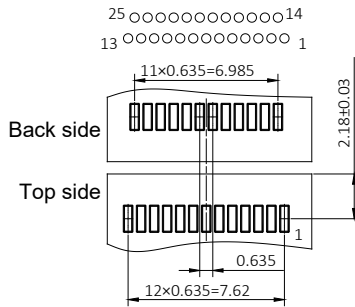
N06-221-M8-9PI-JC



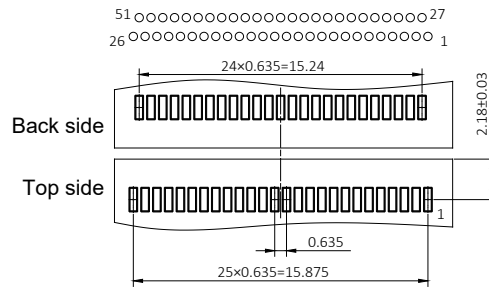
N06-221-M8-15PI-JC



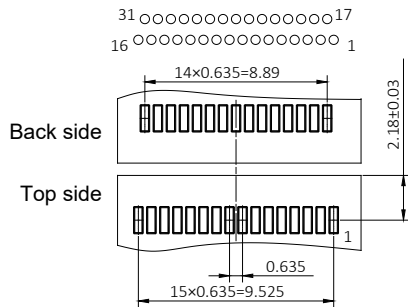
N06-221-M8-21PI-JC



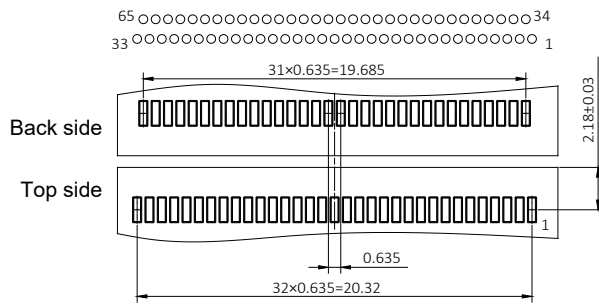
N06-221-M8-25PI-JC



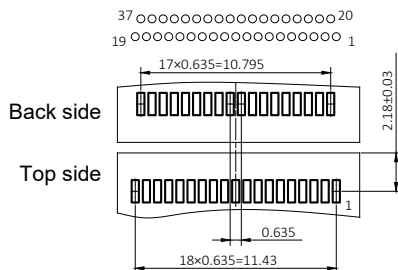
N06-221-M8-51PI-JC



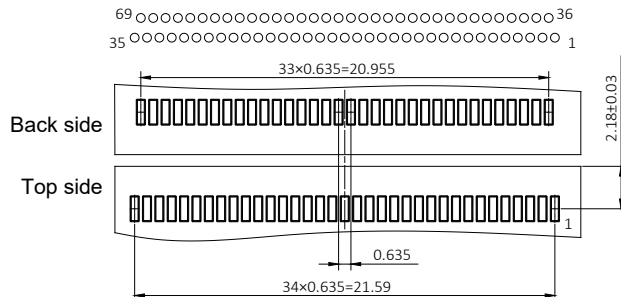
N06-221-M8-31PI-JC



N06-221-M8-65PI-JC



N06-221-M8-37PI-JC



N06-221-M8-69PI-JC

Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

N06 Straddle Flexible SMT Receptacle Series

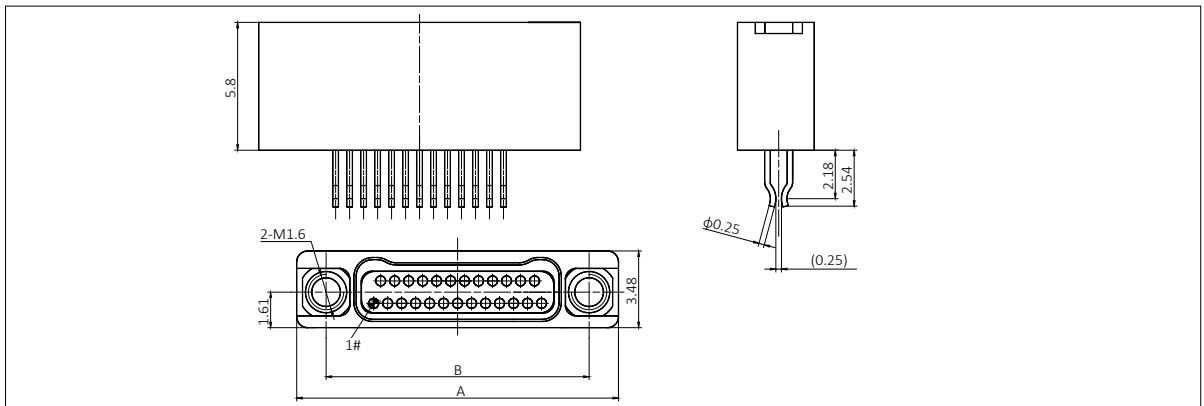
Order Code

Series	N06	-2	2	1	-M	8	-25	RH	-TH	 N06-221-M8-25RH-TH
Contact row:										
2 — two rows										
Shell plating:										
2 — nickel plating										
Contact plating:										
1 — gold plating										
Tail termination type :										
M— SMT										
Mounting style:										
8 — straddle flexible SMT										
Contact number:										
9, 15, 21, 25, 31, 37, 51, 65, 69										
Contact type:										
RH— socket in receptacle										
Locking component type:										
TH— connect nut										

Notes

- Free mounted connector and is usually mated with a plug connector which has a screw
- PC tail SMT solder on flexible PCB. PCB thickness should be 0.25mm MAX.

Outline dimension

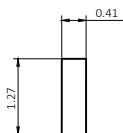


Pin count	Dimension		Pin count	Dimension		Pin count	Dimension	
	A	B		A	B		A	B
9 pins	9.63	6.86	15 pins	11.53	8.76	21 pins	13.44	10.67
25 pins	14.71	11.94	31 pins	16.61	13.84	37 pins	18.52	15.75
51 pins	22.96	20.19	65 pins	27.41	24.64	69 pins	28.68	25.91

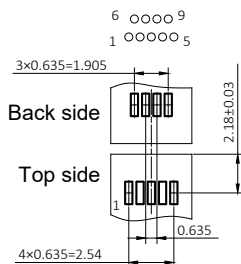
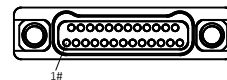
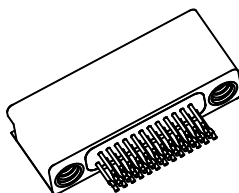
Note: All dimensions are in mm

MIL-DTL-32139 Nano D-Sub Connectors

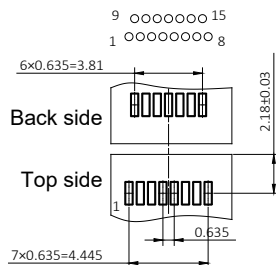
Suggested PCB Layout



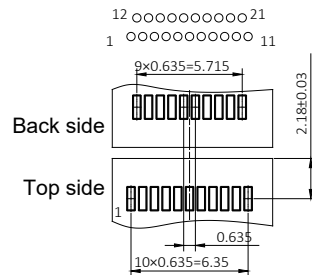
Lead footprint dimension



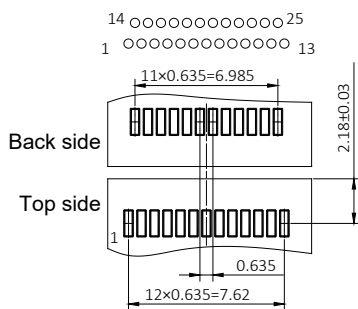
N06-221-M8-9RH-TH



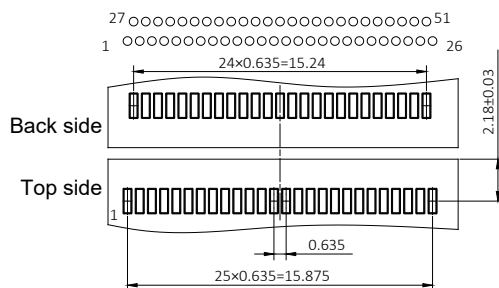
N06-221-M8-15RH-TH



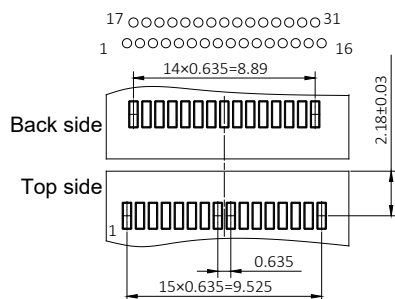
N06-221-M8-21RH-TH



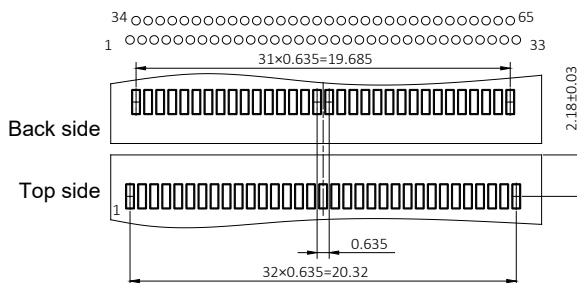
N06-221-M8-25RH-TH



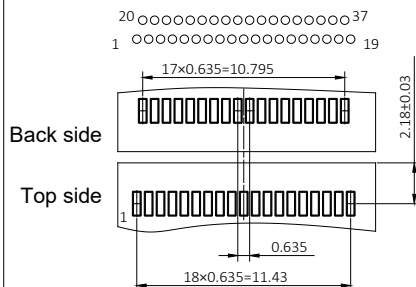
N06-221-M8-51RH-TH



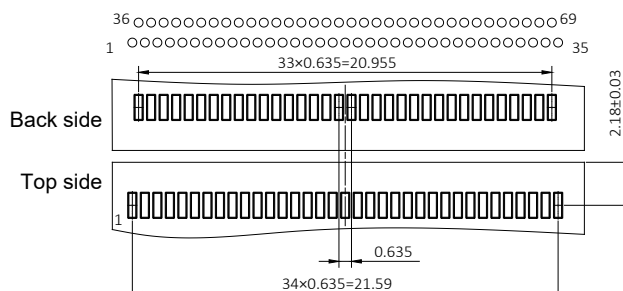
N06-221-M8-31RH-TH



N06-221-M8-65RH-TH



N06-221-M8-37RH-TH



N06-221-M8-69RH-TH

Note: All dimensions are in mm