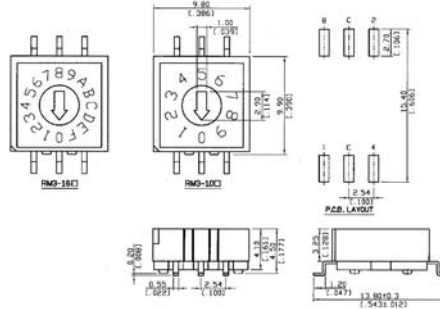


DIP SWITCHES

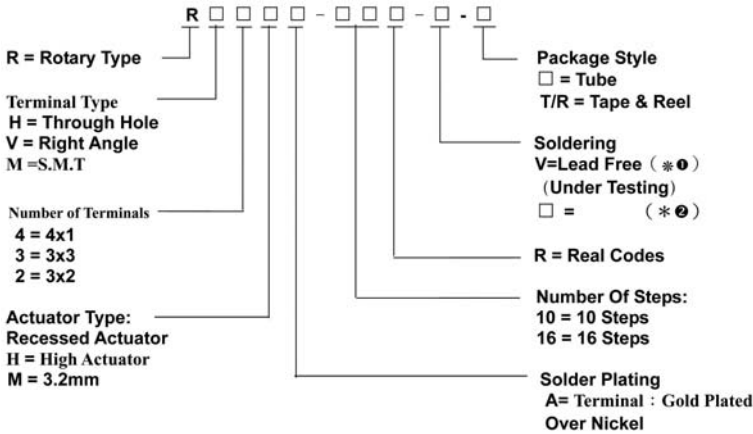
RH/RU/RM series

RM (3X3, 3X2/10 & 16 Pos.)

RM3



How to order



Materials

Base & Cover:UL 94V-0 NYLON Thermoplastic.

Color:Black.

Actuator:UL 94V-0 LCP Termoplastic.

Color:White

Contact:Alloy copper.

Terminal:Brass.

Contact Plating:Gold plated over nickel.

Terminal Plating:Gold plated.

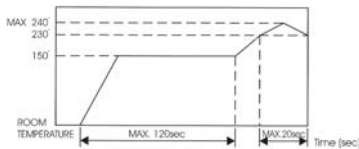
Packaging

◆Tube:48 pcs/tube

◆Tape and Reel:750 pcs/reel (recessed actuator)

250 pcs/reel (high actuator)

◆Temperature Profile (*⊙)



SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
 *MORE UPDATED INFORMATION PLEASE CONSULT DIPTRONICS.

		CODE			
TYPE	POSITION	1	2	4	8
⊙10(H)	0	●	●	●	●
	1	○	●	●	●
	2	●	○	●	●
	3	○	○	●	●
	4	●	●	○	●
	5	○	●	○	●
	6	●	○	○	●
	7	○	○	○	●
	8	●	●	●	○
	9	○	●	●	○
⊙16(H) ●16HC	A	●	○	●	○
	B	○	○	●	○
	C	●	●	○	○
	D	○	○	○	○
	E	●	○	○	○
	F	○	○	○	○

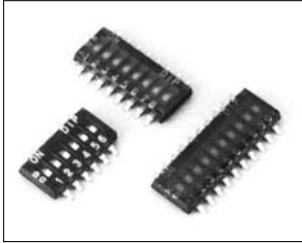
Remark

○=Contact to C ●=No contact

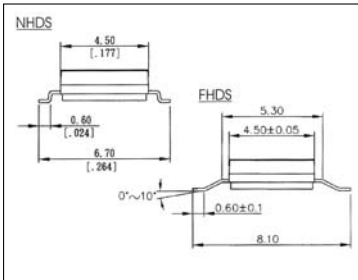
DIP SWITCHES

(F)NHDS series

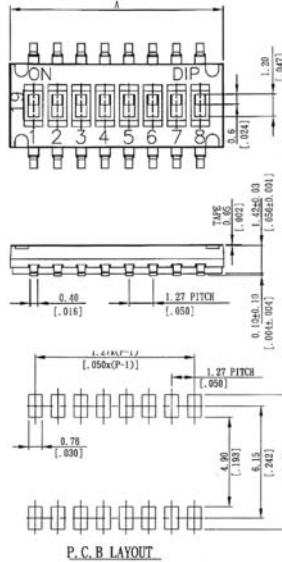
(F)NHDS Series



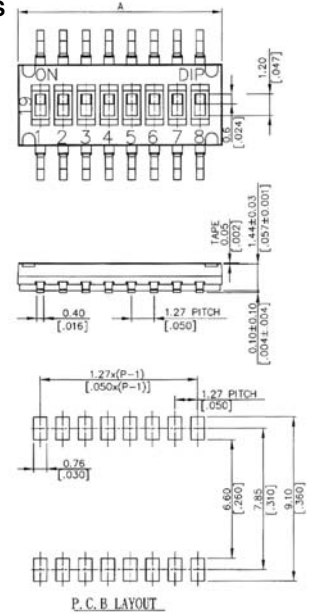
Terminal Type



NHDS



FHDS



General Tolerance: $\pm 0.2\text{mm}$ ($\pm 0.008''$)

How to order

(F)NHDS - □ □ □ □ - □ - □ □ □ □

Package Style:

□ = Tube

T/R = Tape & Reel

Soldering

V = Lead Free (* Ⓞ)
(Under Testing)

□ = (* Ⓞ)

Seal:

□ = Regular

T = Top Tape Sealed

□ = In ON Position

F = In OFF Position

□ = Gold 3u" Min. Plated

A = Gold 10u" Min. Plated

Number Of Positions:

02 = 2 Positions

04 = 4 Positions

06 = 6 Positions

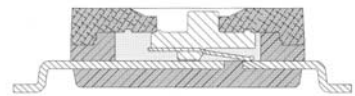
08 = 8 Positions

10 = 10 Positions

F = Half Pitch Dip Switch (Terminal Length 8.1mm)

N = Half Pitch Dip Switch (Terminal Length 6.7mm)

Contact System



◆ Half Pitch (1.27mm) terminal.

◆ Gold-plated electrical contacts.

Packing

◆ (F)(N)HDS-02(-T): 125 pcs/tube

◆ (F)(N)HDS-04(-T): 75 pcs/tube

◆ (F)(N)HDS-06(-T): 54 pcs/tube

◆ (F)(N)HDS-08(-T): 40 pcs/tube

◆ (F)(N)HDS-10(-T): 33 pcs/tube

◆ Tape and Reel: MHDS series: 4000 pcs/reel

FHDS series: 2500 pcs/reel

(F)NHDS series

Specifications

MECHANICAL

Mechanical Life	1000 operations cycles per switch.
Operation Force	500gf Max
Stroke	0.6mm
Operation Temp	- 40°C ~ + 85°C
Storage Temp	- 40°C ~ + 85°C
Vibration Test	MIL-STD-202F METHOD 201A. Frequency: 10-55-10Hz/1 min. Directions: X,Y,Z, three mutually perpendicular directions. Time: 2 hours each direction. High reliability.
Shock Test	MIL-STD-202F METHOD 213B. Condition A. Gravity: 50G (peak value), 11m/sec. Direction and times: 6 sides and 3 times in each direction. High reliability.

ELECTRICAL

Electrical Life	1000 operations cycles per switch.24VDC, 25mA
Non-Switching Rating	100mA, 50VDC
Switching Rating	25mA, 24VDC
Contact Resistance	100mΩ max. at initial.
Insulation Resistance	100MΩ min. (at 500VDC).
Dielectric Strength	300VAC / 1 minute.
Capacitance	5pF max.
Circuit	Single pole single throw.

Material

Base:UL 94V-0 NYLON Thermoplastic.
Color:Black.

Cover:UL94V-0 NYLON Thermoplastic.
Color:Black

Actuators:LCP Thermoplastic.
Color:White

Contact:Alloy copper.

Contact Plating:Gold plated over nickel.

Terminal Plating:Gold plated

Tape:Kapton.

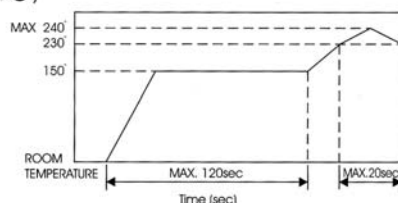
Soldering And Cleaning Processes

- ◆Soldering: vapor phase & IR-reflow soldering can be applied.
- ◆Cleaning:1.Only seal tape type apply to washing process.
 - 2.Do not remove the seal tape before washing.
 - 3.After soldering process, do not continue the washing process immediately. Please wait for at least 3 mins.
 - 4.Apply alcoholic solvents as cleaning agent, do not use other solvents or water.
 - 5.Ultrasonic cleaning is unavailable.
 - 6.The cleaning process per stage is 1 minute max., and the whole cleaning time do not exceed 3 minutes.
 7. Do not impose any external force on switch while washing.
- ◆Any flux enters the switch may fail the conductivity.
- ◆Temperature Profile. (reference)

Models

(F)NHDS-02 (A)	2	3.77 (0.148)
(F)NHDS-04 (A)	4	6.31 (0.248)
(F)NHDA-06 (A)	6	8.85 (0.348)
(F)NHDS-08 (A)	8	11.39 (0.448)
(F)NHDS-10 (A)	10	13.93 (0.548)
(F)PROD. No	No. of Position	DIM. A

(*②)

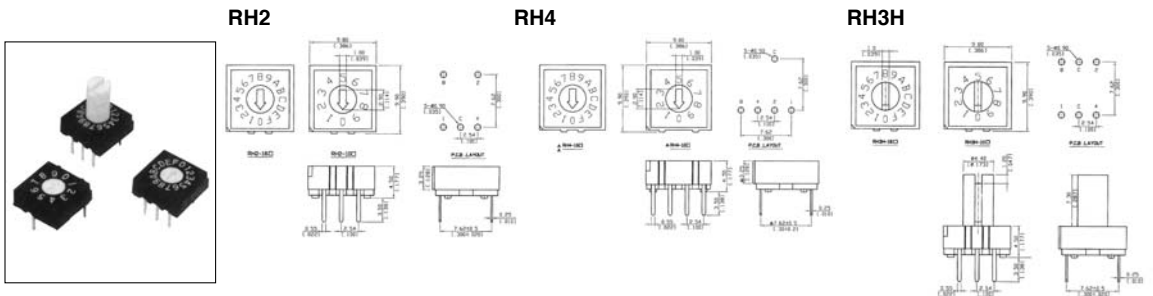


RH/RU/RM series

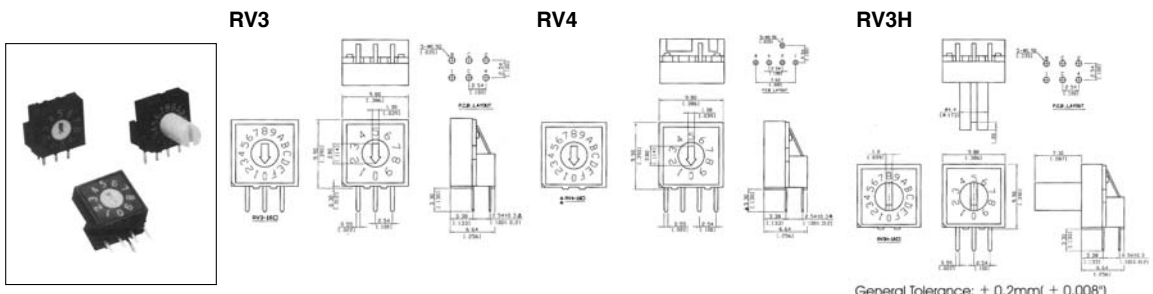
Specifications

Operating Temperature Range	- 25°C ~ + 80°C
Storage Temperature Range	- 40°C ~ + 85°C
Non-Switching Rating	100mA,50VDC.
Switching Rating	24VDC,25mA.
Contact Resistance	(a)100mΩ max. (Initial) (b)200mΩ (final-after test)
Insulation Resistance	100MΩ min. at 250VDC.
Voltage Proof	250VAC for 1 minute.
Electrostatic Capacity	5pF max.
Operating Force	200gf. Cm max.
Vibration	Shall be vibrated in accordance with method 201A of MIL-STD-202F. (a)Frequency:10-55-10Hz 1 min/cycle (b)Direction:3 vertical directions including the direction of operation. (c)Test Time:2 hours each direction.
Shock	Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F. (a)Acceleration:50G (b>Action Time:11 ± 1 m sec. (c)Testing Direction:6 sides. (d)Test Cycle:3 times in each direction.
Solder Ability	230 ± 5°C 3 sec. 75%
Hand Soldering	260 ± 5°C 5 sec.Manual Soldering. 350°C 5 sec.
Humidity	40 ± 2°C 90~95% RH for 96 hours.
Thermal Test	85 ± 2°C for 96 hours.
Cold Test	-40 ± 3°C for 96 hours.
Mechanical Life	200mΩ max. 20,000 steps.
Electrical Life	200mΩ max. 20,000 steps

RH (4X1, 3X3, 3X2/10 & 16 Pos.)



RV (4X1, 3X3, 3X2/10 & 16 Pos.)



General Tolerance: ± 0.2mm (± 0.008")

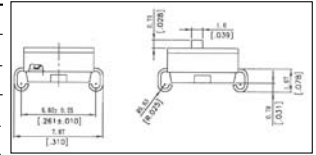
NDI/DM series

Specifications

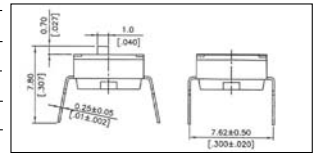
MECHANICAL	
Mechanical Life	2000 operations cycle per switch.
Operation Force	1000gf max
Stroke	1.0mm
Operation Temp	- 20°C ~ + 85°C
Storage Temp	- 40°C ~ + 85°C
Vibration Test	MIL-STD-202F METHOD 201A. Frequency: 10-55-10Hz/1 min. Directions: X,Y,Z, three mutually perpendicular directions. Time: 2 hours each direction. High reliability.
Shock Test	MIL-STD-202F METHOD 213B. Condition A. Gravity: 50G (peak value), 11msec. Direction and times: 6 sides and 3 times in each direction. High reliability.

ELECTRICAL	
Electrical Life	2000 operations cycles per switch.24VDC, 25mA
Non-Switching	100mA, 50VDC
Switching Rating	25mA, 24VDC
Contact Resistance	(a)50MΩ max. at initial. (b)100MΩ max. after life test.
Insulation Resistance	100MΩ min. (at 100VDC).
Dielectric Strength	500VAC / 1 minute.
Capacitance	5pF max.
Circuit	Single pole single throw.

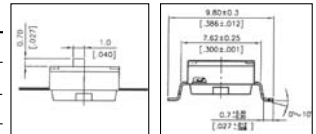
Terminal Type



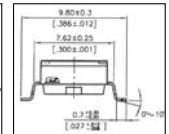
DJ(R) Series



NDI(R) Series



DL(R) Series



DM(R) Series

Features

- ◆Splay terminals allow for automatic insertion by IC in-sertion machine.
- ◆Straight terminals are available for manual insertion.
- ◆NDI series (raised actuator) and NDIR series (recessed actuator) available for different purposes.
- ◆Double contacts offers high reliability.
- ◆Vapor phase solderable, IR-reflow solderable.
 1. Terminal gold plated gives excellent results when soldering.

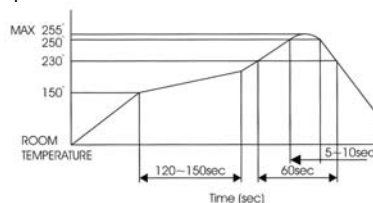
Material

Base & Cover:UL94V-0 PPS HighTemp. Thermoplastic.
Color:Black.
Actuator:UL94V-0 Nylon Thermoplastic.
Color:White
Contact:Alloy Copper.
Terminal:Brass.
Contact Plating:Gold plated over nickel.
Terminal Plating:Gold plated.
Tape:Kapton

Soldering And Cleaning Processes

For best results, please follow these recommendation:

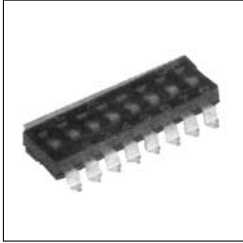
- ◆Keep all switch contacts in their "OFF" position for all operations.
- ◆Hand Soldering:Use a soldering iron of 30 watts, controlled at 350°C approximately 5 seconds while applying.
- ◆Wave Soldering:Recommended solder temperature at 500°F (260°C) max. 5 seconds for through hole type.
- ◆Reflow Soldering:When applying reflow soldering, the peak temperature of the reflow oven should be set to 255°C.
- ◆Any flux enters the switch may fail the conductivity.
- ◆Do not clean the switch body except top tape sealed type, which clean only suitable for spray cleaning method from top of the s/w.
- ◆Temperature Profile:



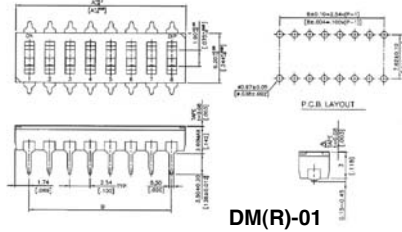
DIP SWITCHES

NDI/DM series

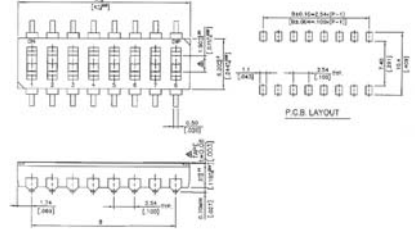
NDI (R) / DM (R) Series



NDI(R)

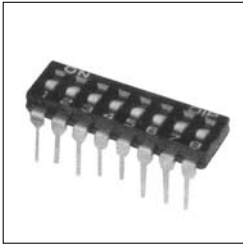


DM(R)

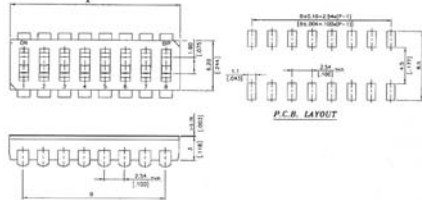


DM(R)-01

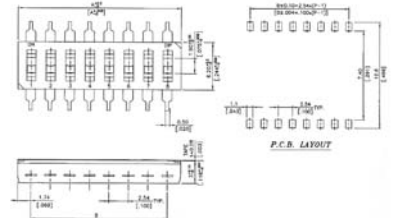
DJ (R) / DL (R) Series



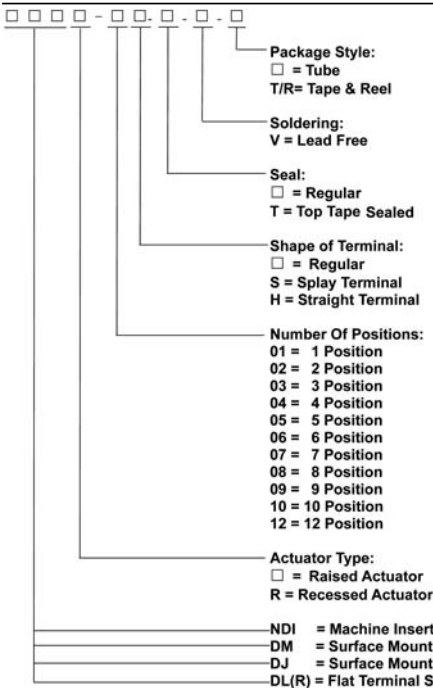
DJ(R)



DL(R)



How to order



Models

DJ-12	DM-12	NDI-12	DL-12	12	31.42[1.237]	27.94[1.100]
DJR-12	DMR-12	NDIR-12	DLR-12			
DJ-10	DM-10	NDI-10	DL-10	10	26.34[1.037]	22.86[.900]
DJR-10	DMR-10	NDIR-10	DLR-10			
DJ-09	DM-09	NDI-09	DL-09	9	23.80[.937]	20.32[.800]
DJR-09	DMR-09	NDIR-09	DLR-09			
DJ-08	DM-08	NDI-08	DL-08	8	21.26[.837]	17.78[.700]
DJR-08	DMR-08	NDIR-08	DLR-08			
DJ-07	DM-07	NDI-07	DL-07	7	18.72[.737]	15.24[.600]
DJR-07	DMR-07	NDIR-07	DLR-07			
DJ-06	DM-06	NDI-06	DL-06	6	16.18[.637]	12.70[.500]
DJR-06	DMR-06	NDIR-06	DLR-06			
DJ-05	DM-05	NDI-05	DL-05	5	13.64[.537]	10.16[.400]
DJR-05	DMR-05	NDIR-05	DLR-05			
DJ-04	DM-04	NDI-04	DL-04	4	11.10[.437]	7.62[.300]
DJR-04	DMR-04	NDIR-04	DLR-04			
DJ-03	DM-03	NDI-03	DL-03	3	8.56[.337]	5.08[.200]
DJR-03	DMR-03	NDIR-03	DLR-03			
DJ-02	DM-02	NDI-02	DL-02	2	6.02[.237]	2.54[.100]
DJR-02	DMR-02	NDIR-02	DLR-02			
	DM-01	NDI-01	DL-01	1	3.48[.137]	-----
	DMR-01	NDIR-01	DLR-01			
PROD.NO.				NO.OF POS.	DIM.A	DIM.B
SCHEMATIC(TYP)						
[1,2,3,3,5,6,7,8,9,10,11,12 POS AVAIL]						

Packing

◆All DIP Switches are shipped in standard IC tubes or in Tape & Reel Package with all poles in the "OFF" position.

PM/PI series

Specifications

MECHANICAL

Mechanical Life	200 operations cycles per switch.
Operation Force	800gf
Operation Temp	- 20°C ~ + 70°C
Storage Temp	- 40°C ~ + 85°C
Vibration Test	MIL-STD-202F METHOD 201A. Frequency: 10-55-10Hz/1 min. Directions: X,Y,Z, three mutually perpendicular directions. Time: 2 hours each direction. High reliability.
Shock Test	MIL-STD-202F METHOD 213B. Condition A. Gravity: 50G (peak value), 11msec. Direction and times: 6 sides and 3 times in each direction. High reliability.

ELECTRICAL

Electrical Life	200 operations cycles per switch.24VDC, 25mA
Non-Switching Rating	100mA, 50VDC
Switching Rating	25mA, 24VDC
Contact Resistance	(a)50mΩ max. at initial. (b)100mΩ max. after life test.
Insulation Resistance	100MΩ min. (at 500VDC).
Dielectric Strength	300VAC / 1 minute.
Capacitance	5pF max.
Circuit	Single pole single throw.

Material

Base & Cover:UL 94V-0 Nylon HighTemp. Thermoplastic.

Color:Black.

Actuator:UL 94V-0 Nylon High Thermoplastic.

Color:White

Contact Plating:Gold plated over nickel.

Terminal Plating:Tin plated..

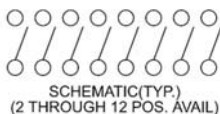
Terminal Long Pin:Alloy copper C5210-EH

Terminal Short Pin: Brass C2680-EH

Tape: Teflon

Models

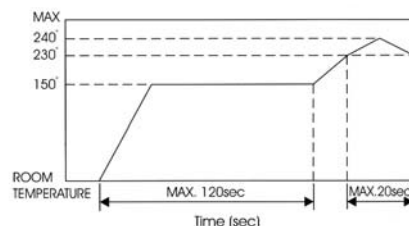
10	27.69(1.090)	27.69(1.090)
8	22.61(.890)	22.61(.890)
6	17.53(.690)	17.53(.690)
4	12.45(.490)	12.45(.490)
2	7.37(.290)	7.37(.290)
POS NO.	A DIM.	A DIM.



Soldering And Cleaning Processes (*②)

For best results, please follow these recommendation:

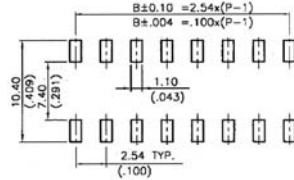
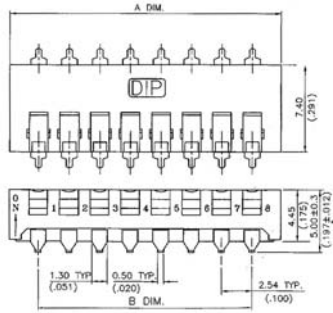
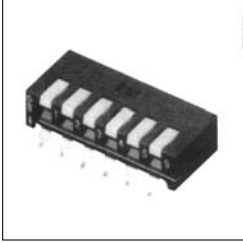
- ◆Keep all switch contacts in their "ON" pposition for all operations.
- ◆Wave soldering:Recommended solder temperature at 500°F (260°C) max 5 seconds. (For through hole type)
- ◆Hand Soldering:Use a soldering iron of 30 watts, controlled at 608°F (320°C) approximately 2 seconds while applying solder.
- ◆Cleaning Process:Flux clean using force rinse, high agitation or trile bath cleaning method. Freon TF or TE give excellent results. When vapor methods are used, do not subject the switch to solents at temperature above 125°F (51°C)
- ◆Reflow Soldering:When applying reflow soldering the peak temperature of the reflow oven should be set to 240°C max.
- ◆Temperature Profile:



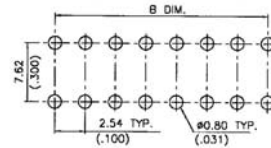
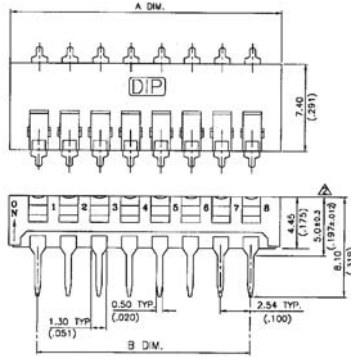
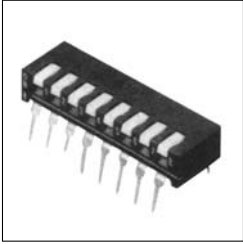
DIP SWITCHES

PM/PI series

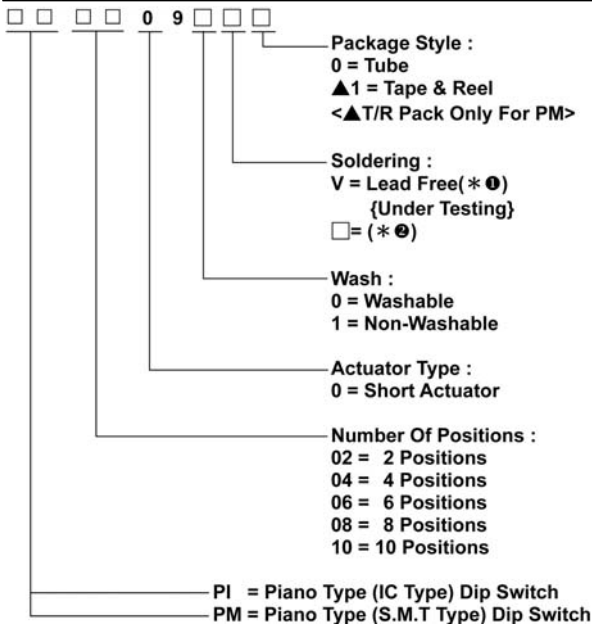
PM Series



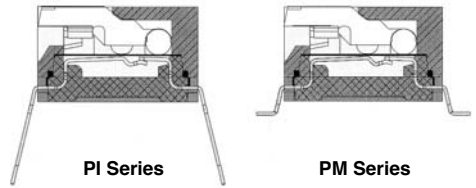
PI Series



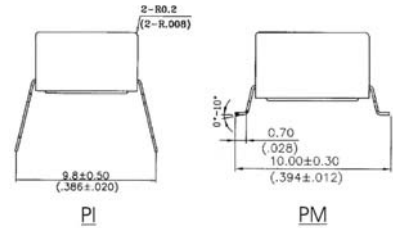
How to order



Contact System



Terminal Type



Packing

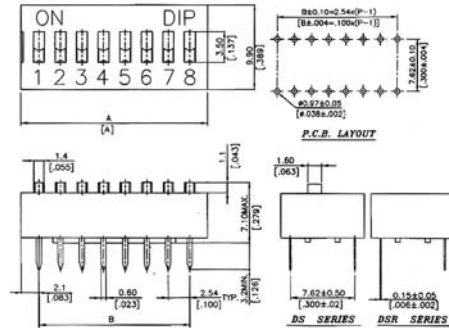
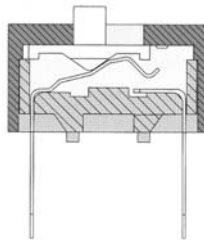
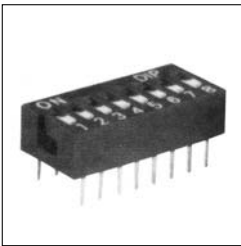
◆ All DIP Switches are shipped in standard IC tubes or Tape & Reel Package with all poles in the "ON" position.

DS/DA/DP series

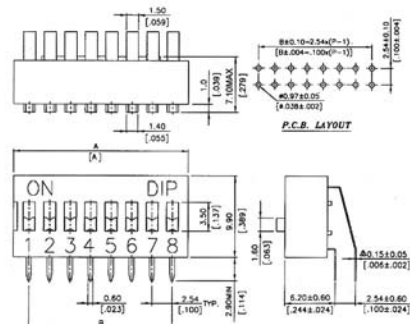
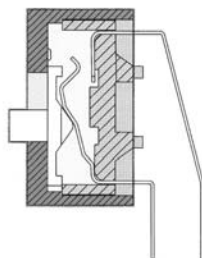
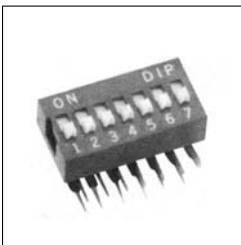
Specifications

MECHANICAL	
Mechanical Life	2000 operations per switch.
Operation Force	4000gf max. (DP series). 1000gf max. (DS & DA series).
Stroke	2.0mm
Operation Temp	- 20°C ~ + 70°C
Storage Temp	- 40°C ~ + 85°C
Vibration Test	MIL-STD-202F METHOD 201A. Frequency: 10-55-10Hz/1 min. Directions: X,Y,Z, three mutually perpendicular directions.
Shock Test	Time: 2 hours each direction. High reliability.
	MIL-STD-202F METHOD 213B.
	Condition A. Gravity: 50G (peak value), 11msec. Direction and times: 6 sides and 3 times in each direction. High reliability.
ELECTRICAL	
Electrical Life	2000 operations cycles per switch.24VDC, 25mA
Non-Switching Rating	100mA, 50VDC
Switching Rating	25mA, 24VDC
Contact Resistance	50mΩ max. at initial.
Insulation Resistance	(at 500VDC) 100MΩ min.
Dielectric Strength	500VAC / 1 minute.
Capacitance	5pF max.
Circuit	Single pole single throw.
Marking	Special side or top marking optional.

DS(R) Series Slide Type



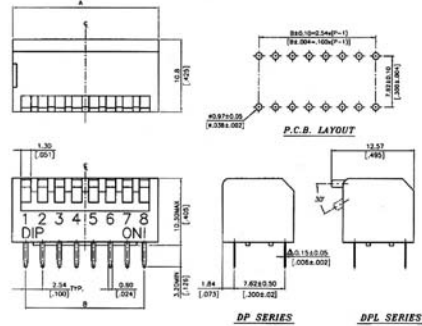
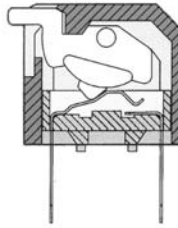
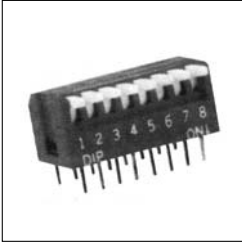
DA Series Right Angle Type



DIP SWITCHES

DS/DA/DP series

DP (L) Series Piano Type



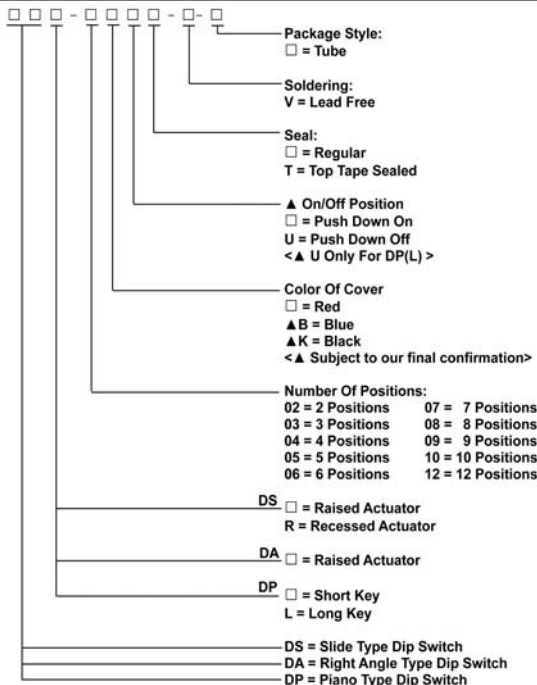
Materials

- Base :UL 94V-0 PBT Thermoplastic.
- Color:Black.
- Cover:UL94V-0 PBT thermoplastic.
- Color:Red, Black, Blue.
- Actuators:UL 94V-0 PBT Thermoplastic.
- Color:White
- Contact:Phos phor bronze with gold plated over nickel.
- Top Seal:Polyester film.
- Potting Material:Epoxy.

Soldering And Cleaning Processes

- For best results, please follow these recommendation:
- ◆Keep all switch contacts in their "OFF" position for all operations.
- ◆Wave Soldering:Recommended solder temperature at 500°F (260°C) max. 5 seconds.
- ◆Hand Soldering:use a soldering iron of 30 watts, controlled at 608°F (320°C) approximately 2 seconds while applying solder.
- ◆Any flux enters the switch may fail the conductivity.
- ◆Do not clean the switch body except with top tape sealed type, which can only spray of cleaning method from top s/w.
- ◆Make sure switch is in "OFF" position during soldering process, or it will decrease the operating force and meanwhile increase the contact resistance.

How to order



Models

DS-12 DSR-12	DA-12	DP-12 DPL-12	12	32.04[1.261]	31.84[1.254]
DS-10 DSR-10	DA-10	DP-10 DPL-10	10	26.96[1.061]	26.76[1.054]
DS-09 DSR-09	DA-09	DP-09 DPL-09	9	24.42[.961]	24.22[.954]
DS-08 DSR-08	DA-08	DP-08 DPL-08	8	21.88[.861]	21.68[.854]
DS-07 DSR-07	DA-07	DP-07 DPL-07	7	19.34[.761]	19.14[.754]
DS-06 DSR-06	DA-06	DP-06 DPL-06	6	16.80[.661]	16.60[.654]
DS-05 DSR-05	DA-05	DP-05 DPL-05	5	14.26[.561]	14.06[.554]
DS-04 DSR-04	DA-04	DP-04 DPL-04	4	11.72[.461]	11.52[.454]
DS-03 DSR-03	DA-03	DP-03 DPL-03	3	9.18[.361]	8.98[.354]
DS-02 DSR-02	DA-02	DP-02 DPL-02	2	6.64[.261]	6.44[.254]
PROD. NO.		NO. OF POS.	DIM.A (DR,DPL)		DIM.A (DS,DSR,DA)
SCHEMATIC(TYP)					