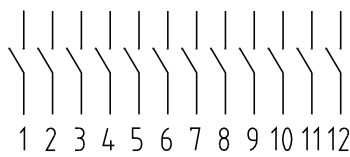
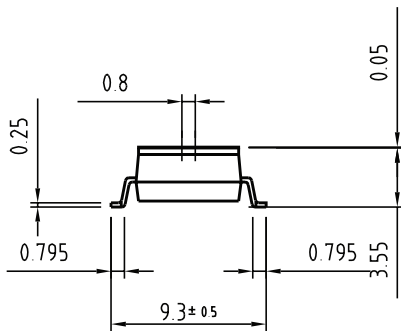
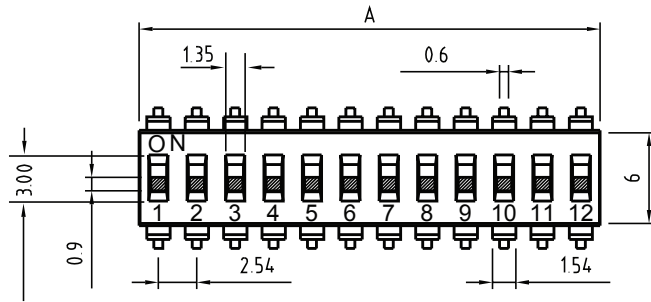
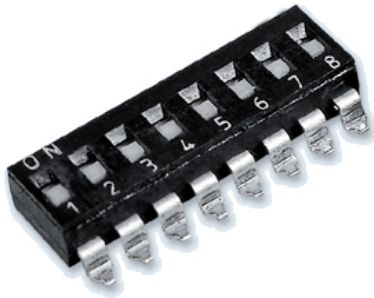


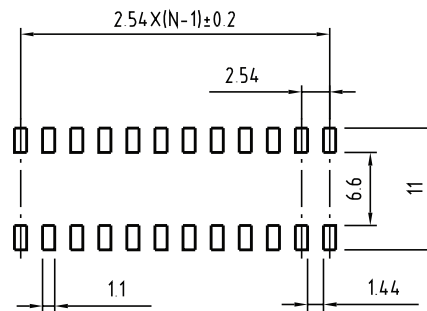
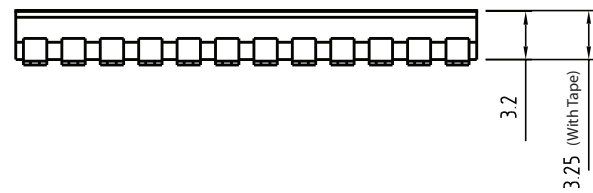
DIP Switches

Machine Insertable Type Dip Switches

DX236 Series



SCHMATIC



P.C.B LAYOUT

Unit: MM

How to order:

DX236

1 TYPE OF TERMINALS:
S SMT Terminals

2 NO. OF POSITIONS:

Code	Positions	A (mm)
01	1	2.54
02	2	5.08
03	3	7.62
04	4	10.16
05	5	12.70
06	6	15.24
07	7	17.78
08	8	20.32
09	9	22.86
10	10	25.40
12	12	30.48

3 ACTUATOR & TAPE SEALING :

- A Raised Actuator
- N Recessed Actuator Without Tape Sealed
- T Recessed Actuator With Tape Sealed
- NT Recessed Actuator in ON-Position with Tape Sealed

4 GOLD PLATING:

- 04 Gold 4 μ" Min.
- 10 Gold 10 μ" Min.
- 12 Gold 12 μ" Min.
- 20 Gold 20 μ" Min.
- 30 Gold 30 μ" Min.

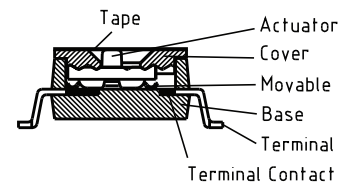
5 PLATING MATERIAL:

- U Contact Gold Plated;Terminals Gold Plated
- T Contact Gold Plated;Terminals Tin Plated

6 PACKAGE STYLE:

- B Tube
- R Tape & Reel

Material:



Part Name	Material	Plating
Base	PPS UL94 V0	Black
Cover	PPS UL94 V0	Black
Actuator	Nylon UL94 V0	White
Movable	Copper Alloy	Gold
Terminal Contact	Brass	Gold
Terminal	Brass	Gold / Tin
Tape	Polyimide	Amber

SPECIFICATIONS

1. Ratings:

- 1.1 **Mechanical Life** : 3000 cycles minimum
- 1.2 **Contact Rating**: 100mA at 50 Vdc non-switching; 25 mA at 24 Vdc, 10 mA at 50 Vdc Switching.
- 1.3 **Contact Resistance**:
 - 50 milliohms maximum (initial)
 - 100 milliohms maximum (after test)
- 1.4 **Insulation Resistance**: 1,000M Ω Minimum at 500 Vdc between adjacent closed contacts and Also across open switch contacts.
- 1.5 **Dielectric Strength**: 500 Vac, RMS, minimum voltage measured between adjacent closed contacts and also across open switch contacts.
- 1.6 **Switch Capacitance**: 5pF at 1 MHz
- 1.7 **Operating Temperature**: -40 $^{\circ}$ C to +85 $^{\circ}$ C.
- 1.8 **Storage Temperature**: -40 $^{\circ}$ C to +85 $^{\circ}$ C.
- 1.9 **Test condition** : The standard test shall be 5 ~ 35 $^{\circ}$ C temperature and 45 ~ 85% relative humidity 860 ~ 1060 Hpa atmospheric pressure unless otherwise specified. In case of any question happen, retest condition shall specify by temperature 20 \pm 2 $^{\circ}$ C, 65 \pm 5%RH and 860 ~ 1060 Hpa.

2. Materials and Platings:

- 2.1 Plating code :
 - U**: Full Gold Plated (Contact area & Terminal with gold-plated)
 - T**: Contact – Gold plated with Terminal Tin-plated
- 2.2 Plated code :
 - 04**: 4u" Gold-Plated
 - 10**: 10u" Gold-Plated
 - 12**: 12u" Gold-Plated
 - 20**: 20u" Gold-Plated
 - 30**: 30u" Gold-Plated
- 2.3 **Base** : UL 94 V0 grade PPS Thermoplastic / Black color
- 2.4 **Cover** : UL 94 V0 grade PPS Thermoplastic / Black color
- 2.5 **Actuator** : UL 94 V0 grade NYLON Thermoplastic / White color

3. Switch Operation and Taping:

- 3.1 Use tweezers or ball point pen for operation.
- 3.2 Flux cleaning should be done without removing the tape
- 3.3 If the tape is removed, it adhered less than before when it is placed back on, possibly causing flux inflow.
- 3.4 Sealed switches withstand aqueous, detergent and isopropyl alcohol washing.

4. ELECTRICAL CHARACTERISTIC :

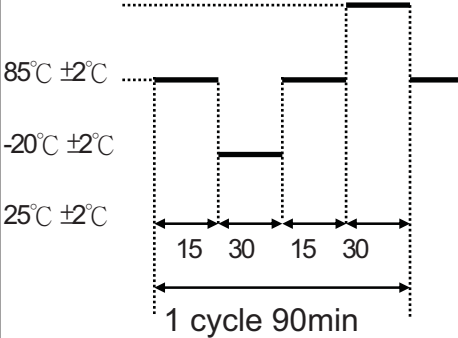
ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
4.1	Contact Resistance	To be measure with AC 1 KHz \pm 200Hz (Max 20mV, Max 50mA) or 10mA, 5V DC.	Max 50 m Ω
4.2	Insulation Resistance	To be measured with an insulation measuring device of 500V DC between all the terminals and between the terminals and the frame for 1 minute \pm 5 seconds.	Min 1,000M Ω
4.3	Dielectric Breakdown Voltage	AC 500V (50-60Hz, 2mA current) being applied between all the adjacent terminals and between the terminal and frame for 1 minute.	No breakdown insulation
4.4	Switch Capacitance	To be measured with frequency 1MHz \pm 10KHz Applied between adjacent terminal and circuit.	Max 5PF

5. MECHANICAL CHARACTERISTIC :

ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
5.1	Operation Force	Applied in the direction of operation.	1,000gf Max
5.2	Terminal Strength MIL-STD-202F Method : 211A Condition : C	Measurement in made with a static load applied to the foot of the control unit in the operating direction. A static force of 500gf being applied in one direction on the tip of the terminal for 5~10seconds. One time each terminal.	No bending or deflection experienced. The terminal may be bent, but shall not break or damage the insulation material.
5.3	Operation Strength	A load of 1Kgf is applied in the operating direction and pulling direction of the control unit for 15 seconds.	Electrical characteristic of the above shall be assured.

6. RELIABILITY

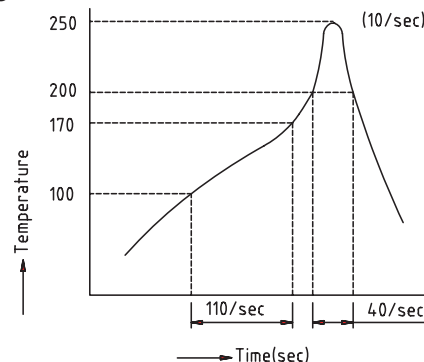
<p>6.1</p>	<p>Cold Resistance JIS-C5021</p>	<p>Switch for testing being kept in the conditions at $-40 \pm 2^{\circ}\text{C}$ in temperature for 96 hours, and in a normal ambient condition for one hour, then to be measured within one hour. (Drops of water being taken away)</p>	<p>Contact resistance Max $100\text{m}\Omega$ Insulation resistance Min $1,000\text{M}\Omega$ Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation</p>
<p>6.2</p>	<p>Dry Heat Resistance JIS-C5022</p>	<p>Switch for testing being kept in the conditions at $55 \pm 2^{\circ}\text{C}$ in temperature for 96 hours, and in a normal ambient condition for one hour, then to be measured within one hour.</p>	<p>Operating force $1,000\text{gf}$ Max. There shall be no defects in appearance or in the mechanical functions.</p>
<p>6.3</p>	<p>Humidity Resistance MIL-STD-202F Method : 103B Condition : C</p>	<p>Switch for testing being kept in the conditions at $40 \pm 2^{\circ}\text{C}$ in temperature and 90~95% RH for 96 hours, and in a normal ambient condition for one hour, then measured within one hour.</p>	<p>Contact resistance Max $100\text{m}\Omega$ Insulation resistance Min $10\text{M}\Omega$ Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation Operating force 800gf Max.</p>
<p>6.4</p>	<p>Vibration Test MIL-STD-202F Method : 201A Condition : A</p>	<p>The range of vibration: $10 \sim 55\text{Hz}$ Total width of vibration: 1.5mm The proportion of vibration: $10 \sim 55 \sim 10(\text{Hz})$ approx. 1 minute The variation of the number of vibration: Logarithmic or approx. straight line The directions: 3 vertical directions including operation direction Amplitude : $0.03\text{inch} \sim 0.06\text{inch}$ Duration: 2 hours each (Total 6 hours)</p>	<p>There should be no defects in appearance or in the mechanical functions.</p>

<p>6.5</p>	<p>Shock Test</p> <p>MIL-STD-202F Method : 213B Condition : A</p>		<p>Contact resistance Max 100mΩ Insulation resistance Min 1,000 MΩ Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation Operating force 1,000gf Max. There shall be no defects in appearance or in the mechanical functions.</p>
<p>6.6</p>	<p>Thermal Shock</p>	<p>After 5 cycle testing under the following conditions, the sample is allowed to stand under normal temperature and humidity conditions for 1 hour, and measurement is made within 1 hour after that. Water drops should be eliminated.</p> <p>Temperature cycle</p>  <p>85°C ±2°C -20°C ±2°C 25°C ±2°C</p> <p>15 30 15 30</p> <p>1 cycle 90min</p>	<p>Contact resistance Max 100 mΩ Insulation resistance Min 1,000 MΩ Dielectric breakdown voltage: AC 500 V 1 minute no breakdown insulation Operating force 1,000gf Max.</p> <p>There shall be no defects in appearance or in the mechanical functions</p>

ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
6.7	Resistance to Soldering Heat JIS-C5034	Reflow Soldering P.C. board terminal at $245 \pm 5^{\circ}\text{C}$, 3~5 second Should be operated in OFF positions when soldering Wave Soldering : Soldering temperature: $245 \pm 5^{\circ}\text{C}$ Immersing time: 3 ± 0.5 second Iron Tip : 30W Iron / ceramic Tip Temp. : $320 \pm 5^{\circ}\text{C}$ / 3 sec per pin	Contact resistance Max $50\text{m}\Omega$ Insulation resistance Min $1,000\text{M}\Omega$ Dielectric breakdown voltage AC500V 1 minute no breakdown insulation Operating force 1,000gf Max

(1) **Reflow soldering:**

Device :In-line or Batch system
 Apply reflow soldering only once



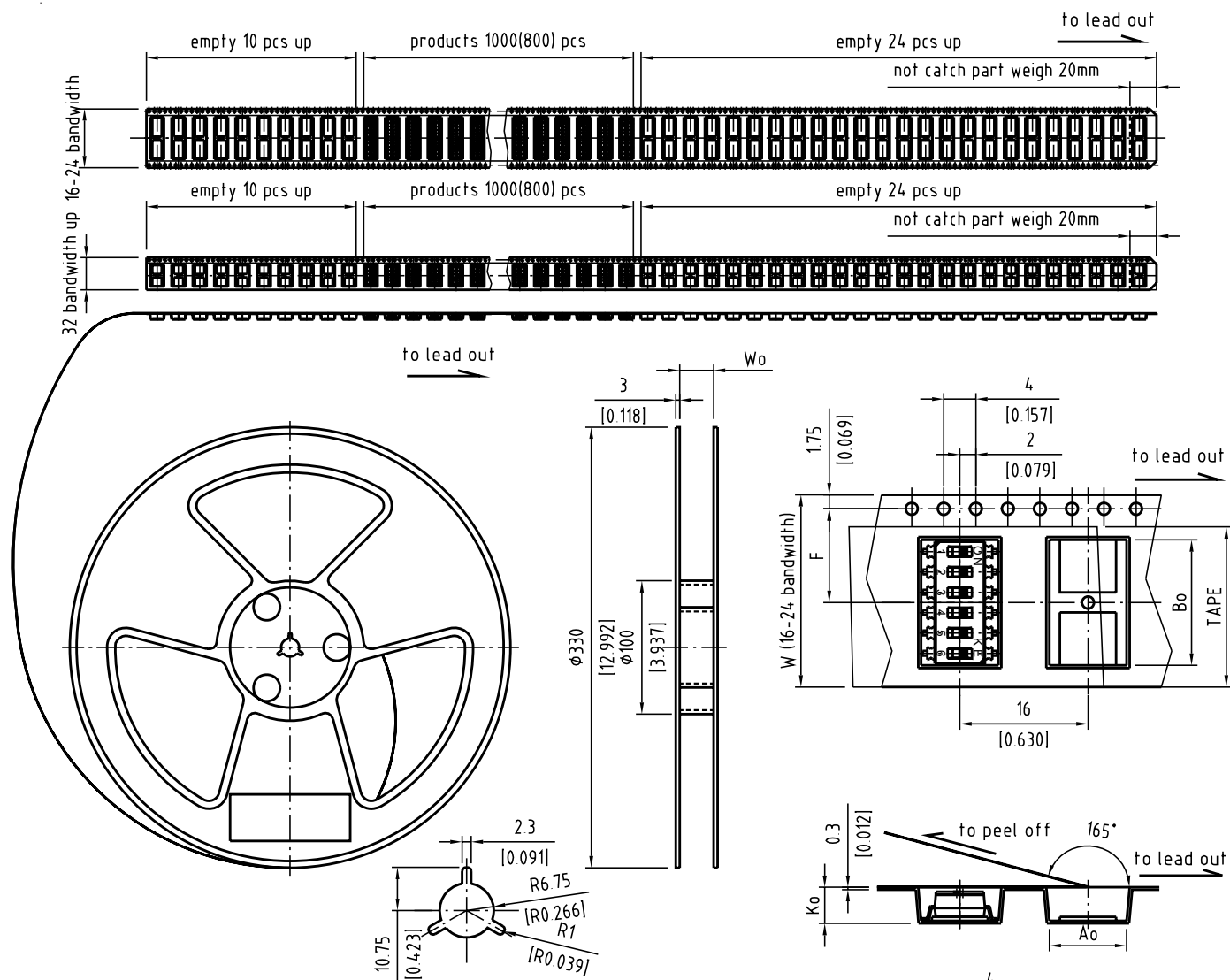
(2) When soldering two or more terminals to the common land, use solder resist to solder them independently.

6.8	Salt-Spray Test MIL-STD-202F Method : 101D Condition : B	The sample is allowed to stand in the test chamber controlled to $35 \pm 2^{\circ}\text{C}$ in temperature and $5 \pm 1\%$ (weight ratio) salt-water concentration for 48 ± 1 hour and is subjected to test. Then, salt deposits attached to the sample are washed away with water.	Shall be free from functionally harmful rust. There shall be no defects in appearance or in the mechanical functions.
-----	---	---	--

7. DURABILITY

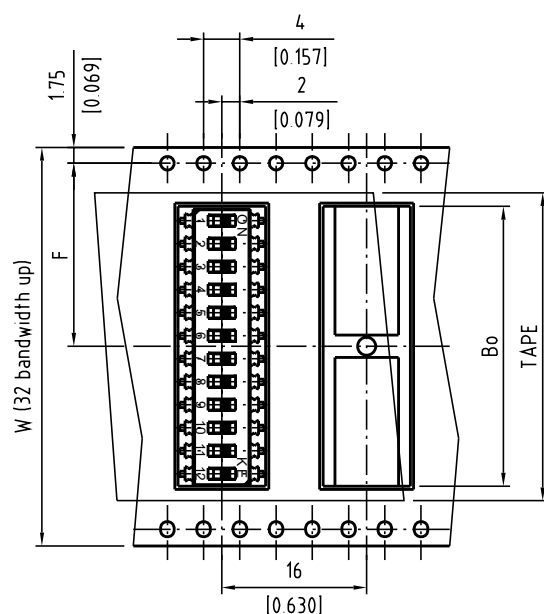
ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
7.1	Operation Life With No Load	3,000 cycle operation at a rate of 15 ~20 cycle / minute	Contact resistance Max 100 m Ω Insulation resistance Min 1,000 M Ω with DC 250V Dielectric breakdown voltage: AC 250 V 1 minute no breakdown insulation
7.2	Operation Life With Load	DC 2AV 25mA 2,000 cycle operation at a rate of 15 ~ 20 cycle / minute	Operating force : 1,000gf Max. There shall be no defects in appearance or in the mechanical functions.

8. TAPE & REEL PACKAGING



description	material	color	cope
Reel (HP9450)	PS	blue	resist static electricity

Specifications	W	POP	Wo	Ao	Bo	Ko(L)	Ko(S)	F
16	1	1	16.5	9.65	2.94	5.2	4.2	7.5
	2	2	16.5	9.65	5.48	5.2	4.2	7.5
	3	3	16.5	9.65	8.02	5.2	4.2	7.5
24	4	4	24.5	9.65	10.56	5.2	4.35	11.5
	5	5	24.5	9.65	13.10	5.2	4.35	11.5
	6	6	24.5	9.65	15.64	5.2	4.35	11.5
32	7	7	32.5	9.65	18.18	5.2	4.35	14.2
	8	8	32.5	9.65	20.72	5.2	4.35	14.2
44	9	9	44.5	9.65	23.26	5.2	4.35	20.2
	10	10	44.5	9.65	25.80	5.2	4.35	20.2
	12	12	44.5	9.65	30.88	5.2	4.35	20.2



peel off point : edge catch the reverse 165-180° to isolate
 peel off speed : 300mm/sec
 peel off strength : 0.2-0.7N (about 20-70gf)