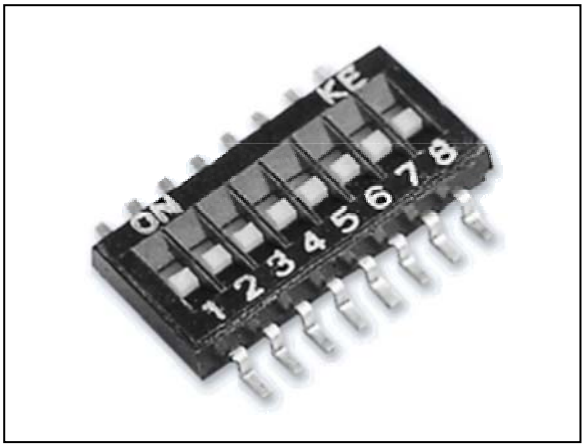
DIP SWITCH DATA SHEET

DSHP Series



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SHENZHEN YIKAI ELECTRONIC CO.,LTD

STANDARD SPECIFICATION

DIP SWITCH (HALF PITCH) 1.27mm

1. Ratings:

1.1. Mechanical Life: 1000 cycles minimum

1.2. Contact Rating: 100 mA at 50 Vdc Non-switching,
25 mA at 24 Vdc, 10 mA at 50 Vdc Switching

1.3. Contact Resistance: 50 mOhms maximum (initial)
100 mOhms maximum (after life)

1.4. Insulation Resistance: Minimum at 100 Vdc between adjacent closed contacts and also across open switch contacts.
Initially: 200 megaohms
After Life: 100 megaohms

1.5. Dielectric Strength: 300 Vac, RMS, minimum voltage measured between adjacent closed contacts and also across open switch contacts.

1.6. Switch Capacitance: 5pF at 1 megahertz.

1.7. Operating Temperature: -30deg C to +85deg C.

1.8. Storage Temperature: -30deg C to +85deg C.

1.9. Test Condition : The standard test shall be 5 ~ 35deg 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+/-2deg C, 65+/-5% RH and 860 ~ 1060 Hpa.

2. Materials and Finishes:

2.1. Contact : Copper alloy, gold plated 3 ì” over nickel

2.2. Terminals: E: Copper alloy, gold plated 3 ì” over nickel
S: Tin-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. Processing:

3.1. Switch Operation and Taping

3.1.1. Use tweezers or ball point pen for operation.

3.1.2. Flux cleaning should be done without removing the tape.

3.1.3. If the tape is removed, it adhered less than before when it is placed back on, possibly causing flux inflow.

3.1.4. Sealed switches withstand aqueous, detergent and isopropyl alcohol washing.

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4. ELECTRICAL CHARACTERISTIC:

ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
4.1	**Contact Resistance**	To be measure with AC 1 KHz +/-200Hz (Max 20mV, Max 50mA) or 10mA, 5V DC.	Max 50 mOHM
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 +/-5 seconds.	Min 100MOHM
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 +/-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.	Max 500gf
5.2	**Terminal Strength**	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 1 minute. 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	**Control Unit 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 (3) above shall be assured.

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6. RELIABILITY

ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
6.1	**Cold Resistance**	Switch for testing being kept in the conditions at -40+/-2deg C in temperature for 250 hours, and in a normal ambient condition for one hour, then to be measured within one hour. (Drops of water being taken away)	Contact resistance (3.1) Max 100mOHM Insulation resistance (3.2) min 100 MOHM Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation
6.2	**Dry Heat Resistance**	Switch for testing being kept in the conditions at 85+/-2deg C in temperature for 250 hours, and in a normal ambient condition for one hour, then to be measured within one hour.	Operating force (4.1) +/-30%gf before test There shall be no defects in appearance or in the mechanical functions.
6.3	**Humidity Resistance**	Switch for testing being kept in the conditions at 40+/-2deg C in temperature and 90~95% RH for 250 hours, and in a normal ambient condition for one hour, then measured within one hour.	Contact resistance (3.1) Max 100mOHM Insulation resistance (3.2) min 100MOHM Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation Operating force (4.1) +/-30%gf before test There should be no defects in appearance or in the mechanical functions.
6.4	**Salt-Spray Test**	The sample is allowed to stand in the test chamber controlled to 35+/-2deg C in temperature and 5+/-1% (weight ratio) salt-water concentration for 24+/-1hour and is subjected to test. Then, salt deposits attached to the sample are washed away with water.	Shall be free from functionally harmful rust.

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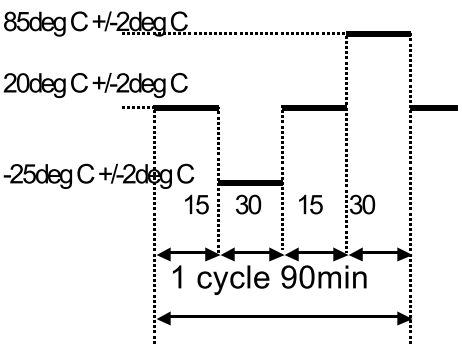
6.5	**Vibration Test**	The range of vibration: 10 ~ 55 Hz Total width of vibration: 1.5 mm The proportion of vibration: 10~55~10 (Hz) approx. 1 minute The variation of the number of vibration: Logarithmic or approx. straight line The directions: 3 vertical directions including operation direction Duration: 2 hours each (Total 6 hours)	Contact resistance (3.1) Max 50mOHM Insulation resistance (3.2) min 100MOHM Dielectric breakdown voltage (3.3) AC500V 1 minute no breakdown insulation Operating force (4.1) +/-30%gf before test As per individual specifications No apparent effect on physical appearance or mechanical functions.
6.6	**Thermal Shock**	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.  	Contact resistance (1.1) Max 100 mOHM Insulation resistance (1.2) min 100 MOHM Dielectric breakdown voltage: AC 500 V 1 minute no breakdown insulation Operating force (2.1) +/-30%gf before test There shall be no defects in appearance or in the mechanical functions
6.7	**Solder Ability**	Soldering temperature: 230+/-5deg C Immersing time: 3+/-0.5 second	More than 75% of the part immersed can be covered with solder.
6.8	**Soldering Temperature**	P.C. board terminal at 270+/-5deg C, 10+/-1 second Should be operated in ON positions when soldering	No defect in appearance shall be observed but the electrical characteristic (3) shall be maintained.

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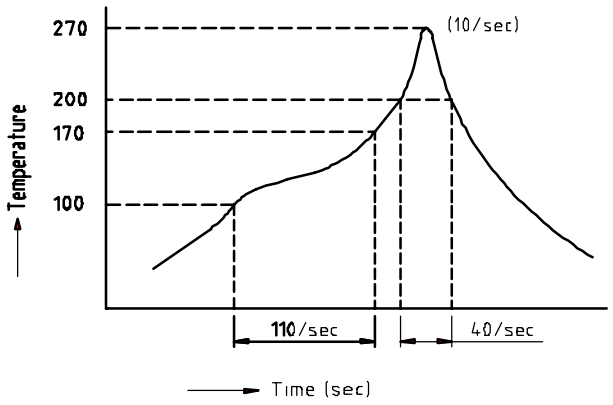
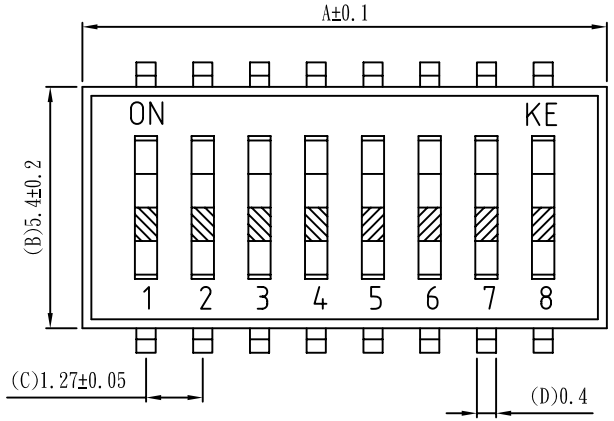
(1) **Reflow soldering:**
Device: In-line or Batch system
Apply reflow soldering only once
(2) When soldering two or more terminals to the common land, use solder resist to solder them independently.

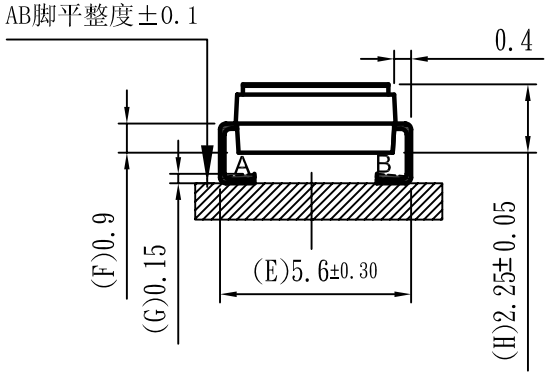


7. DURABILITY

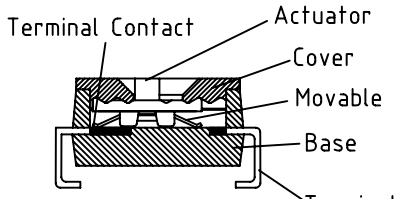
ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
7.1	**Operation Life with No Load**	2,000 cycle operation at a rate of 15 ~20 cycle / minute	Contact resistance (3.1) Max 100 mOHM Insulation resistance (3.2) min 100 MOHM with DC 250V Dielectric breakdown voltage: AC 250 V 1 minute no breakdown insulation Operating force (4.1) +/-30%gf before test There shall be no defects in appearance or in the mechanical functions.
7.2	**Operation Life with Load**	DC 24V 25mA 1,000 cycle operation at a rate of 15 ~ 20 cycle/minute	

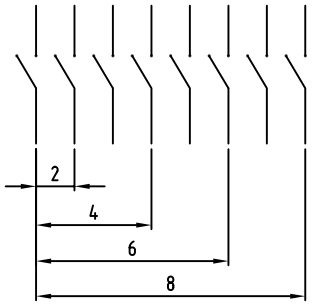
◦ DIMENSIONS

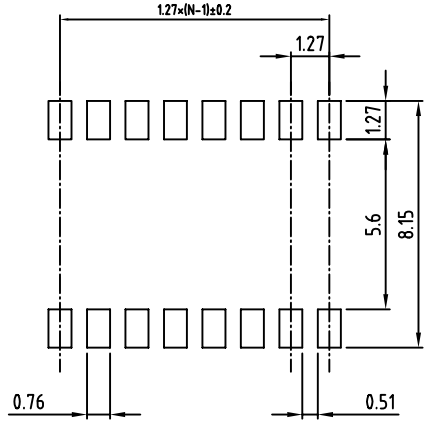




Gold/Gold plated G type P/N	Gold/Gold plated S type P/N	unit	
		mm	inch
DSHP02TJG	DSHP02TJS	4.12	0.16
DSHP04TJG	DSHP04TJS	6.66	0.26
DSHP06TJG	DSHP06TJS	9.20	0.36
DSHP08TJG	DSHP08TJS	11.74	0.46
DSHP10TJG	DSHP10TJS	14.28	0.56







◦ MATERIAL

Part Name	Material	Finished
Base	UL94 V0	Black
Cover	UL94 V0	Black
Actuator	UL94 V0	White
Movable	Beryllium	3μ" Gold
Terminal Contact	Brass	3μ" Gold
Terminal	Brass	1μ" Gold

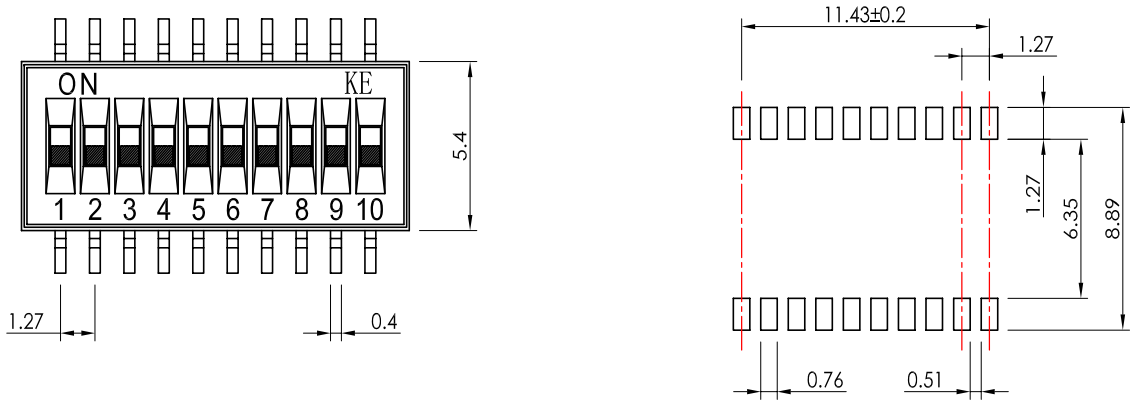
Drawing		Date	05/03/10	Remark:	Product	DSHP Series
Design		Ratio	4:1		P/N	DSHP□□TJGET
Check		Unit	mm		Drawing No.	DSP-DSHP□□ TS-AP
Approved						

版本：V2.2

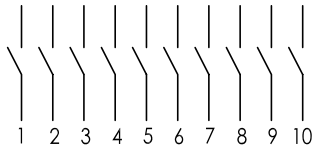
本圖面若與目錄之規格尺寸不符，以本圖面規格尺寸為主。
Below is our main specification if different from catalog.

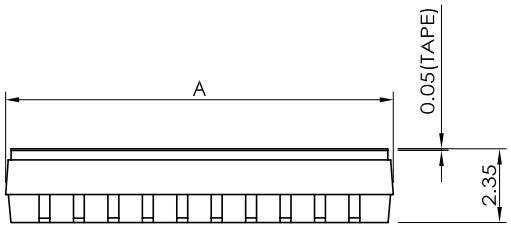
RoHS compliant

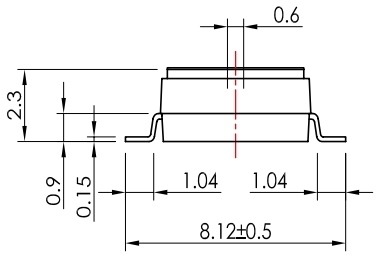
P.C.B. LAYOUT

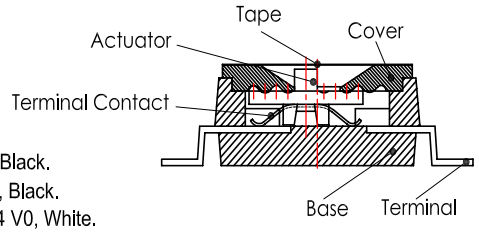


SCHEMATIC









SPECIFICATION

Contact rating: Switching: 25mA at 24V DC / 10mA at 50V DC.
Non-switching: 100mA at 50V DC.
Contact resistance: 50mΩ Max. (initial)
100mΩ Max. (after life)
Insulation resistance: 200MΩ at 100V DC Min. (initially)
100MΩ at 100V DC Min. (after life)
Dielectric strength: 500V AC Min.
Switch capacitance: 5pF at 1 MHz.
Mechanical life: 1,000 cycles Min.
Operation force: 500g Max.
Operation temperature: -30°C ~ +85°C.
Storage temp: -5°C ~ +50°C.
Soldering temperature: 250°C Max for 3 Sec.

MATERIAL

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.
Tape: Polyimide, Amber.

DSHPXX

POLES	A
02	4.14
04	6.68
06	9.22
08	11.76
10	14.30

版本 VER.	符號 SYMBOL	修 改 內 容 ALTERATION	更新日期 DATE
V2.1	A		
V2.0	無	新繪製	2007.10.18

產品 PRODUCT	Dip Switch		型號 MODEL NO.	
製圖 DRAWN BY	核圖 CHECKED BY	主管 APPROVED BY	單位 UNIT	mm
Jack Liao	Alex Lin	Margaret Lee	比例 SCALE	4 : 1
			公差 TOLERANCE	.X=±0.3mm, .XX=±0.2mm

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