

# KINGTEK ELECTRONICS TECHNOLOGY CORP.

## **DSIC series DIP Switch**

### **STANDARD SPECIFICATION**

#### **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**: 1,000MOhm 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**: -30deg C to +85deg C.
- 1.8 **Storage Temperature**: -40deg 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 Finished code :
  - G**: Full Gold Plated (Contact area & Terminal with gold-plated )
  - S**: Contact – Gold plated with Terminal Tin-plated
- 2.2 Plated code :
  - E**: 3 u" Gold -Plated
  - F**: 10u" Gold -Plated
  - A**: 12u" Gold -Plated
  - B**: 20u" Gold -Plated
  - G**: 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 / Whit 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	<b>Contact Resistance</b>	To be measure with AC 1 KHz +/-200Hz (Max 20mV, Max 50mA) or 10mA, 5V DC.	Max 50 mOhm
4.2	<b>Insulation Resistance</b>	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 1,000MOhm
4.3	<b>Dielectric Breakdown Voltage</b>	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	<b>Switch Capacitance</b>	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	<b>Operation Force</b>	Applied in the direction of operation.	1,000gf Max
5.2	<b>Terminal Strength</b>  <b>MIL-STD-202F</b> <b>Method : 211A</b> <b>Condition : C</b>	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	<b>Operation Strength</b>	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.

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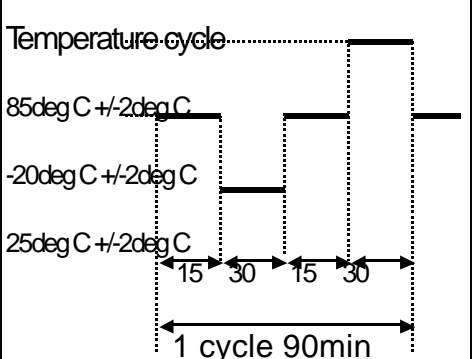
#### 6. RELIABILITY

<p><b>6.1</b></p>	<p><b>Cold Resistance</b>  <b>JIS-C5021</b></p>	<p>Switch for testing being kept in the conditions at -40 +/-2deg 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 100mOhm Insulation resistance Min 1,000 MOhm Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation</p>
<p><b>6.2</b></p>	<p><b>Dry Heat Resistance</b>  <b>JIS-C5022</b></p>	<p>Switch for testing being kept in the conditions at 55+/-2deg 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 1,000gf Max. There shall be no defects in appearance or in the mechanical functions.</p>
<p><b>6.3</b></p>	<p><b>Humidity Resistance</b>  <b>MIL-STD-202F</b> <b>Method : 103B</b> <b>Condition : C</b></p>	<p>Switch for testing being kept in the conditions at 40+/-2deg 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 100mOhm Insulation resistance Min 10MOhm Dielectric breakdown voltage: AC 500V 1 minute no breakdown insulation Operating force 800gf Max.</p>
<p><b>6.4</b></p>	<p><b>Vibration Test</b>  <b>MIL-STD-202F</b> <b>Method : 201A</b> <b>Condition : A</b></p>	<p>The range of vibration: 10 ~ 55Hz Total width of vibration: 1.5mm 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 Amplitude : 0.03inch~0.06inch Duration: 2 hours each (Total 6 hours)</p>	<p>There should be no defects in appearance or in the mechanical functions.</p>

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<p><b>6.5</b></p>	<p><b>Shock Test</b></p> <p><b>MIL-STD-202F</b>  <b>Method : 213B</b>  <b>Condition : A</b></p>		<p>Contact resistance  Max 100mOhm  Insulation resistance  Min 1,000 MOhm  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><b>6.6</b></p>	<p><b>Thermal Shock</b></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>85deg C +/-2deg C  -20deg C +/-2deg C  25deg C +/-2deg C</p> <p>15 30 15 30</p> <p>1 cycle 90min</p>	<p>Contact resistance  Max 100 mOhm  Insulation resistance  Min 1,000 MOhm  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>

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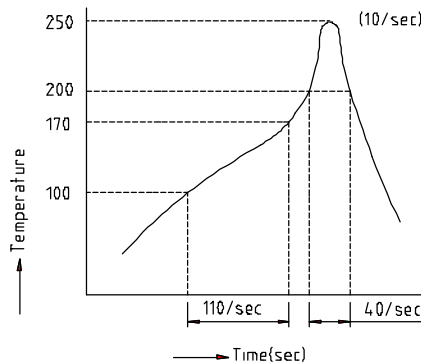
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ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
6.7	<b>Resistance to Soldering Heat</b>  <b>JIS-C5034</b>	<b>Reflow Soldering</b> P.C. board terminal at 250 +/-10deg C, 10 +/-1 second Should be operated in OFF positions when soldering <b>Wave Soldering :</b> Soldering temperature: 230 +/-5deg C Immersing time: 3+/-0.5 second <b>Iron Tip :</b> 30W Iron / ceramic Tip Temp. : 320+/-5deg C / 3 sec per pin	Contact resistance Max 50mOhm Insulation resistance Min 1,000MOhm 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	<b>Salt-Spray Test</b>  <b>MIL-STD-202F</b> <b>Method : 101D</b> <b>Condition : B</b>	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 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.
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#### **7. DURABILITY**

ITEM	TEST DESCRIPTION	TEST CONDITIONS	SPECIFICATION
7.1	<b>Operation Life With No Load</b>	3,000 cycle operation at a rate of 15 ~20 cycle / minute	Contact resistance Max 100 mOhm Insulation resistance Min 1,000 MOhm with DC 250V Dielectric breakdown voltage: AC 250 V 1 minute no breakdown insulation
7.2	<b>Operation Life With Load</b>	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.