

Precautions

■ Precautions for Safe Use

Use the DIP Switch within the rated voltage and current ranges, otherwise the DIP Switch may have a shortened durability, radiate heat, or burn out. This particularly applies to the instantaneous voltages and currents when switching.

■ Correct Use

● Mounting

Normally the default striker setting is OFF for slide-type DIP Switches and the default rotor setting is 0 for Rotary DIP Switches. Do not change these settings when mounting, soldering, washing or drying Switches. The striker may be deformed by heat generated during soldering.

1. Automatic Insertion Machine

Use a body stopper system for the chute stopper of automatic insertion machines. When mounting Switches using an insertion machine incorporating a half-lead stopper, make sure the machine will not deform the terminals of the Switch, or improper insertion may result. Check actual mounting conditions prior to using a half-lead stopper system.

A printed circuit board that is 1.2 to 1.6 mm thick is recommended.

Holes on the PCB should be at least 0.9 mm in diameter for automatic insertion.

2. Manual or IC Socket Insertion

Commercially available insertion tools are recommended for mounting ICs on PCBs.

Terminal pitch, dimensions and other features are identical to that of standard ICs for IC socket compatibility. (except for the Surface-mounting types)

Align the terminals so they slide in simultaneously when the Switch is inserted into socket holes or into mounting holes pre-drilled at the specified dimensions. Apply downward force on the Switch until the terminals are properly seated on the PCB.

Do not try to remove a Switch by inserting a screwdriver between it and the PCB, and then twisting the screwdriver to peel the Switch off. Use a commercially available inserter/remover to remove the Switch.

● Soldering

Observe the following conditions when soldering the DIP Switch.

Models available for Automatic Soldering Bath Also available for Manual soldering
A6TN, A6T, A6TR, A6E, A6ER, A6D, A6DR, A6R, A6RV, A6K A6KV, A6A, A6C, A6CV
Models available for Reflow Soldering Not available for Manual soldering (*)
A6HR, A6HF, A6SN, A6H, A6S-H, A6SR, A6RS, A6KS, A6KSV

*A6SN models are able to be manual soldered.

1. General Precautions for Soldering

Make sure that the actuator of slide-type DIP Switches is set fully to either ON or OFF. (For A6TN, A6SN, A6E and A6ER models, however, set the Switch to OFF before soldering.) Make sure that Rotary DIP Switches are correctly set to 0. Misalignment may result in reduced sensitivity due to the soldering heat.

Before soldering the Switch on a PCB, make sure there is no unnecessary space between the Switch and the PCB.

Before soldering the Switch on a multilayer PCB, conduct a test to make sure the Switch will not be deformed by soldering heat on the pattern or land of the multilayer PCB.

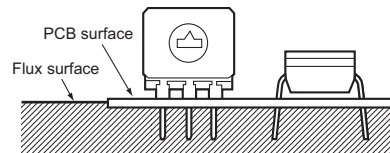
2. Automatic Soldering Bath (Flow Soldering)

Soldering temperature: 260°C max.

Soldering time: 5 s max. for a 1.6-mm thick, single-side PCB for A6TN

Soldering temperature: 265°C

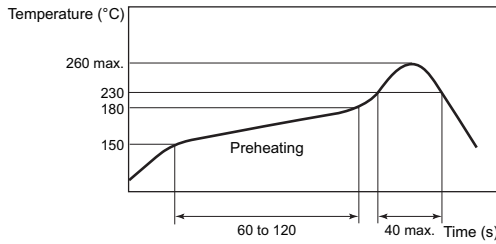
Soldering time: 8 s max. for a 1.6-mm thickness single-side PCB
 Confirm in advance that flux will not bubble up onto the side of the PCB to which the Switch is mounted. Depending on the type of Switch, the flux may have an adverse effect if it enters the Switch.



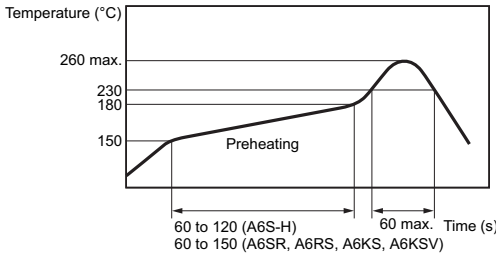
3. Reflow Soldering

Observe the following conditions for reflow soldering.
(Measurement location: Top of Switch)

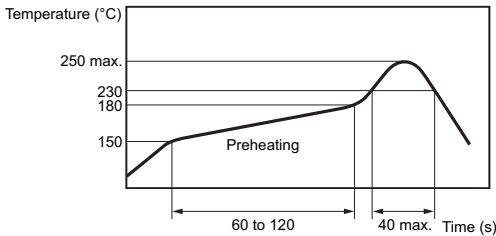
A6HR, A6HF, A6SN Soldering Conditions



A6S-H, A6SR, A6RS, A6KS, and A6KS-V Soldering Conditions



A6H Soldering Conditions



The soldering conditions and the temperature around the Switch may vary with the type of reflow bath. Check the temperature profile and confirm soldering conditions as well as the amount of heat applied to the Switch prior to soldering.

**4. Manual Soldering (Except Surface mounting type
*See Note)**

Soldering temperature: 350°C at the tip of the soldering iron.
Soldering time: 3 s max. (For A6TN and A6SN Soldering temperature: 400°C Soldering time: 4 s max.) for a 1.6-mm thick, single-side PCB

Do not solder the Switch more than twice including any rectification soldering. An interval of five minutes is required between the first and second soldering. (For A6TN and A6SN, soldering is available only once.)

Note: Even though, manual soldering is available for A6SN.

5. Using Flux

Making mistakes in the type of flux or in the amount or method in which it is applied can cause flux to enter the interior of the Switch, with adverse effects on Switch performance. Assess the proper flux, conditions, and methods prior to using it.

● Washing

1. Washable and Non-washable Models

The models for which washing are possible are shown in the following table.

Washable	A6HF, A6TN, A6SN, A6A, A6C A6CV, A6D, A6DR, A6T (with seal tape), A6S-H (with seal tape), A6H (with seal tape)
Non-washable	A6HR, A6R, A6RV, A6RS, A6K, A6KV, A6KS, A6KS-V, A6T (standard/raisedactuator), A6TR, A6SR, A6S-H (standard/raisedactuator), A6E, A6ER

2. Washing Procedure

Ultrasonic cleaning is not available for slide-type DIP Switches with seal tape. These models may be wiped or dipped into washing agents for one minute maximum.

Slide-type DIP Switches with seal tape can be washed as long as the seal tape is not removed or pasted before washing. Non-compliance here will cause the quality of the seal to decline. Washing equipment incorporating more than one washing bath can be used to clean washable models, provided that the washable models are cleaned for one minute maximum per bath and the total cleaning time does not exceed three minutes.

3. Washing Agents

Apply alcohol-based solvents to clean washable models. Do not apply water or any other agents to clean any washable models, as such agents may degrade the materials or performance of the Switch.

4. Washing Precautions

Do not impose any external force on washable models while washing. Do not clean washable models immediately after soldering. The cleaning agent may be absorbed into the incomplete seal through respiration as the Switch cools. Wait for at least three minutes after soldering before cleaning.

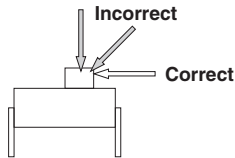
Do not use washable Switches submerged in water or in locations exposed to water.

● Handling

1. Slide-type DIP Switch operation

Do not apply excessive operating force to the Switch. Otherwise the Switch may be damaged or deformed, and the switch mechanism may malfunction as a result. Apply an operating force not exceeding 9.8 N {1,000 gf}. (Actuators may break if they are operated from the tip. Operate the actuators one at a time so that pressure is not concentrated at the tip. (Use a force of 7.8 N {795 gf} or less for the A6TR and A6SR.))

Apply operating force within the range of rated values for A6HR, small sizes piano type. Apply the operating load from the side of the actuator. Do not apply a load from an angle or from above the actuator. Doing so may deform the Switch contact.



Set slide-type DIP Switches with a tiny, rounded object, such as the tip of a ball-point pen or a small screwdriver. Do not set the DIP Switch using tweezers or any other sharp object that may damage it. Do not set the DIP Switch using the point of a mechanical pencil, or lead powder or fragments may fall into the Switch and internal circuit board, causing the DIP Switch to malfunction and reducing the dielectric strength of the circuit board.

Rotary DIP Switch Operation

Models	A6K/A6KS	A6R/A6RV	A6A		A6C/A6CV
Item	Top/Side operation, flat type	Top/Side operation, flat type	Cone type, flat type	Shaft type, wheel type	Top/Side operation type
Screwdriver groove	 Depth: 0.7	 Depth: 1.0	 Depth: 0.9	 Depth: 0.9	 Depth: 1.0
Applicable screwdriver: A	1.8 to 2.1	1.8 to 2.1	3.5 to 3.8		2.0 to 2.4
Applicable screwdriver: B	0.3 to 0.45	0.7 to 0.8	0.4 to 0.5		0.5 to 0.6
Part names					

Note: All units are in millimeters unless otherwise indicated.

Although raised-type and piano-type actuators can be operated by fingertip, do not push too hard or too fast because this will deform or damage the actuator.

When setting or operating the A6H, use narrow-headed tweezers or similar implement (without a sharp end), to enable smooth, horizontal operation. Pushing the actuator at an angle, or applying excessive load from above may damage or deform the actuator and thereby prevent operation.

2. Rotary DIP Switch Operation

Set rotary-type DIP Switches with a flat-blade screwdriver that fits into the screwdriver groove. Using a screwdriver of inappropriate dimensions, or using a tool other than a flat-blade screwdriver may cause damage to the groove that may make the Switch impossible to operate.

Insert the flat-blade screwdriver vertically to operate the Switch. The Switch may be damaged if the screwdriver is inserted at an angle.

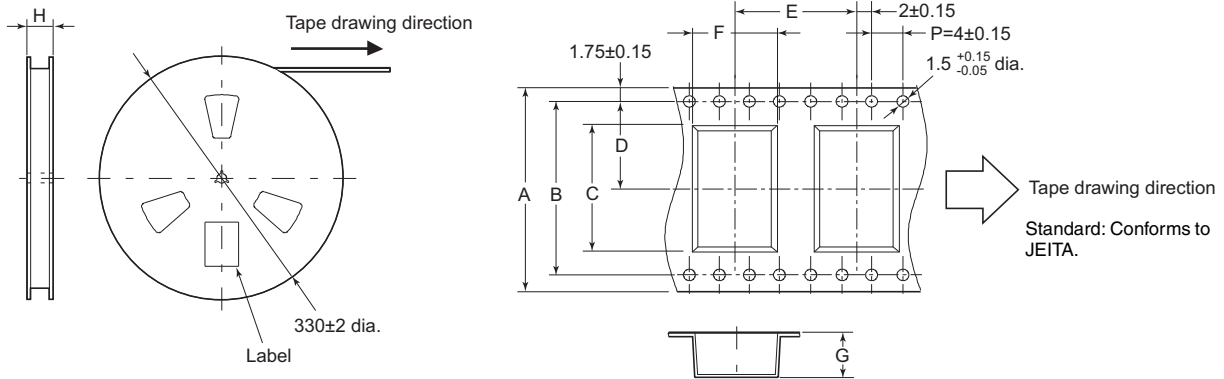
Do not use excessive force to operate the Switch, or it may damage or deform the Switch.

3. Setting

Set the Switch to the correct position before use. An incorrectly aligned position may result in incorrect signals.

● Packing specifications

Note: All units are in millimeters unless otherwise indicated.



Note: A6S-H

The perforations along both sides are for Switches with 7 poles or more.
 The perforations on the bottom of diagram are not provided for Switches with 6 poles or less.
 A6SR
 The perforations along both sides are for Switches with 8 poles or more.
 The perforations on the bottom of diagram are not provided for Switches with 6 poles or less.
 A6SN
 The perforations along both sides are for Switches with 6 poles or more.
 The perforations on the bottom of diagram are not provided for Switches with 5 poles or less.
 Half-pitch models
 The perforations on the bottom of diagram are not provided.

A6S-H Series

No. of poles	1		2		3		4		5		6		7		8		9		10		
	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	
A ^{+0.4} / _{-0.2}	16		16		24	16	24		24		24		32		32		44		44		
B±0.15	---		---		---		---		---		---		28.4		28.4		40.4		40.4		
C	3.78	6.5	6.4		9.07	8.9	11.56		14.2	14		16.6		19.2	21.7	21.5	24.26		26.8		
D	7.5		7.5		11.5	7.5	11.5		11.5		11.5		14.2		14.2		20.2		20.2		
E	16																				
F	10.2		10.2		10.2		10.2		10.2	10.3		10.2	10.2	10.1	10.2	10.1	10.2		10.2		
G	4.65	4.4	5.9		4.9	5.9	4.4	5.9	4.9	5		4.4	5.9	4.9	5	4.4	5.9	4.9	6	4.9	6
H	(22)		(22)		(30)	(22)	(30)		(30)		(30)		(38)		(38)		(50)		(50)		
Standard reel	800		900	700	900	700	900	700	900	800		900	700	900	800	900	700	900	700	900	800
Small reel	400																				

A6SR Series

No. of poles	2		4		6		8		10	
	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
A ^{+0.4} / _{-0.2}	16		24		24		32		44	
B±0.15	---		---		---		28.4		40.4	
C	5.4	10.5	15.6		20.7		25.7			
D	7.5	11.5	11.5		14.2		20.2			
E	16									
F	10.3									
G	5.8									
H	(22)		(30)		(30)		(38)		(50)	
Standard reel	700									

A6RS Series

No. of poles	4×1 Terminal		3×3 Terminal	
	Flat	Shaft	Flat	Shaft
A ^{+0.4} / _{-0.2}	24	32	24	32
B±0.15	---	28.4	---	28.4
C	14.5	14.3	16.4	14.3
D	11.5	14.2	11.5	14.2
E	16		16	20
F	10.3	10	10.2	10
G	5.45	12	5	12.8
H	(30)	(38)	(30)	(38)
Standard reel	750	250	750	200

A6H Series

No. of poles	2		4		6		8		10	
	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
A ^{+0.4} / _{-0.2}	12	12	24		24		24		24	
B±0.15	---		---		---		---		---	
C	4.2	6.6	9.7		11.7		14.4			
D	5.5	5.5	11.5		11.5		11.5			
E	8									
F	7									
G	1.96									
H	(18)		(18)		(30)		(30)		(30)	
Standard reel	4000									
Small reel	500									

A6KS Series

No. of poles	3×3 Terminal		5×2 Terminal			
	Top operation		Top operation		Side operation	
	Flat	Shaft	Flat	Shaft	Flat	Shaft
A	24				16	
C	7.5				13	
D	11.5				7.5	
E	12					
F	7.7				6.6	8.1
G	3.7	6.7	3.7	6.7	7.64	
H	(30)				(22)	
Standard reel	1450	850	1450	850	750	

A6SN Series

No. of poles	2		3		4		5		6		7		8		9		10			
	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised		
A±0.3	24		24		24		24		32		32		44		44		44			
B±0.15	---		---		---		---		28.4		28.4		40.4		40.4		40.4			
C	7.9		10.4		12.9		15.4		18.0		20.5		22.7		25.6		25.5		28.1	
D	11.5		11.5		11.5		11.5		14.2		14.2		20.2		20.2		20.2		20.2	
E	16																			
F	10																			
G	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8	4.8	5.8
H	(28)		(28)		(28)		(28)		(36)		(36)		(50)		(50)		(50)		(50)	
Standard reel	750	700	750	700	750	700	750	700	750	700	750	700	750	700	750	700	750	700	750	700

A6HF Series

No. of poles	2		4		6		8		10	
	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised	Flat	Raised
A	16		16		16		24		24	
B	---		---		---		---		---	
C	4.45		7.0		9.55		12.1		14.6	
D	7.5		7.5		7.5		11.5		11.5	
E	12									
F	8.9									
G	3									
H	(20.4)		(20.4)		(20.4)		(28.4)		(28.4)	
Standard reel	2,000									
Small reel	500									

A6HR Series

No. of poles	2		4		6		8		10	
	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
A	16		16		16		24		24	
B	---		---		---		---		---	
C	4.45		7.0		9.55		12.1		14.6	
D	7.5		7.5		7.5		11.5		11.5	
E	12									
F	8.9									
G	5									
H	(20.4)		(20.4)		(20.4)		(28.4)		(28.4)	
Standard reel	1,000									
Small reel	500									

● **RoHS Compliant**

The "RoHS Compliant" designation indicates that the listed models do not contain the six hazardous substances covered by the RoHS Directive.

Reference: The following standards are used to determine compliance for the six substances.

- Lead : 1,000 ppm max.
- Mercury : 1,000 ppm max.
- Cadmium : 100 ppm max.
- Hexavalent chromium : 1,000 ppm max.
- PBB : 1,000 ppm max.
- PBDE : 1,000 ppm max.