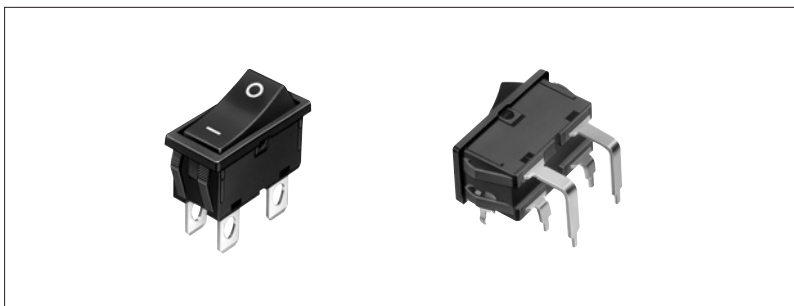


# 16A 250V AC Power Switch

SDDJF Series

Low-profile and large capacity type suitable for copiers and printers.

- Power
- Push
- Slide
- Rotary
- Encoders
- Jog Shuttle
- Telephone-hook
- Detector
- Vibration Sensors
- Dual-in-line Package Type
- Multi Control Devices
- TACT



Car Use

## Features

- Conforms to safety standards for electrical equipment.
- Reduced depth dimension enables a superior space-saving factor.
- The snap-in type for easy mounting.
- Positive lock connectors (fasten terminal #250) are available.
- Two types of circuit layouts are available: single-pole single-throw, and double-poles single-throw.
- Can withstand a rush current of 160A.

## Applications

- For power units in information/office devices that require large currents, including photo copiers and laser printers
- General devices including LCDs and other home appliances
- Switching power sources

## Ratings and Safety Standards

Items	Specifications
UL CSA	16A 250V AC
SEMKO	16 (6) /250~
VDE	16 (6) /250~
BS	16 (6) /250~
Ratings satisfying local electrical appliance and material safety law	125V 16A $\mp$

## Products Line

Circuit arrangement	Travel (mm)	Operating force	Mounting method	Terminal style	Marking (Knob)	Minimum packing unit (pcs.)	Products No.	Drawing No.
SPST	5.2	3 $\pm$ 2N	Snap-in	Lead	● mark	100	SDDJF10100	1
					I-O mark		SDDJF10200	
DPST		6 $\pm$ 3N			● mark		SDDJF30100	2
					I-O mark		SDDJF30200	
		3 $\pm$ 2N		● mark	SDDJF31000		3	
				I-O mark	SDDJF31100			

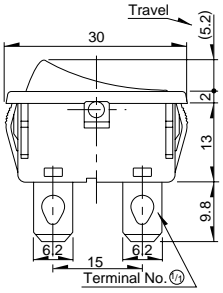
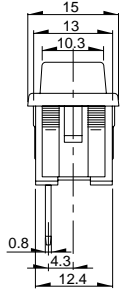
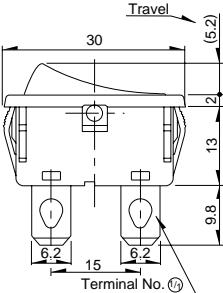
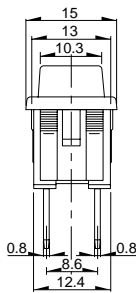
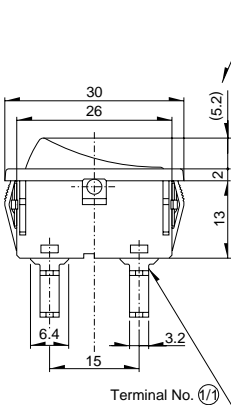
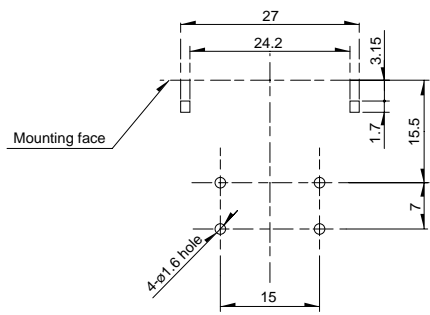
## Note

Fasten terminal (#250) is also used as a lead terminal. (Use a positive lock connector type.)

For other detailed specifications, see P.63

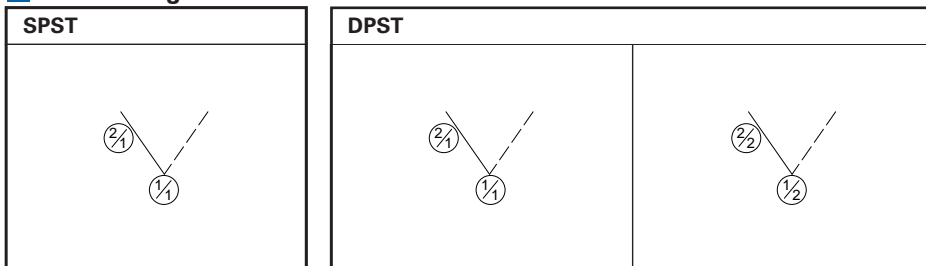
**Dimensions**

Unit : mm

No.	Style (ON position)	
1	<p><b>Lead (SPST)</b></p> 	
2	<p><b>Lead (DPST)</b></p> 	
3	<p><b>Right angle (DPST)</b></p> 	<p><b>PC board mounting hole dimensions</b></p> 

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- Push Type
- Rocker Type**
- Slide Type

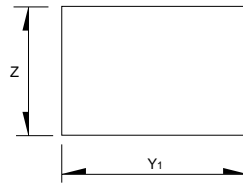
**Circuit Diagram**



**Mounting Hole Dimensions**

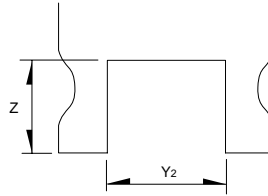
Square-Shaped Hole Unit : mm

Thickness of mounting board	Y <sub>1</sub>	Z
0.75 to 1.25	28.2	12.9
1.25 to 2.00	28.4	



U-Shaped Hole Unit : mm

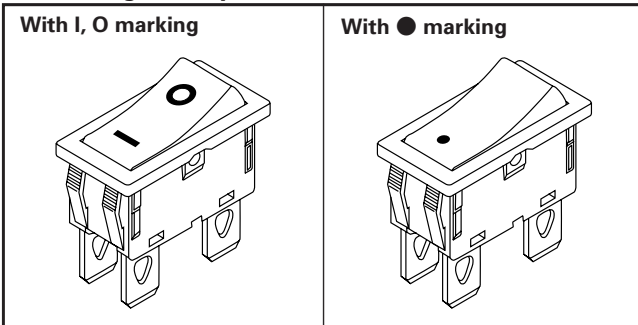
Thickness of mounting board	Y <sub>2</sub>	Z
0.75 to 1.1	28.4	12.9
1.1 to 1.7	28.6	
1.7 to 2	28.8	



**Note**

Verify the performance under actual product conditions before use.

**Marking Variety**



**Notes**

1. Consult with us for other markings.
2. The standard color of the knob and casing is black. Other colors (gray, ivory) are available upon request.

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## Products Specifications

Items	Type		Rocker			Slide		
	Series		SDDJE	SDDJF	SDKA	SDKG SDKH	SDKP	SDKT
Operating temperature range			-10°C to +60°C					
Rating			6A/96A 250V~	16 (6) /250~	20A 250V~	5A 250V AC		6A 125V AC
Electrical performance	Contact resistance		100mΩ max.			50mΩ max. (SDKG) 100mΩ max. (SDKH)	100mΩ max.	10mΩ max.
	Insulation resistance		500MΩ min. 500 V DC			500MΩ min. (SDKG) 100MΩ min. (SDKH) 500V DC	500MΩ min. 500V DC	1000MΩ min. 500V DC
	Voltage proof		2,000V AC for 1 min.					1,000V AC for 1 min.
Mechanical performance	Robustness of terminal		10N for 1 min.	60N for 1 min.	100N for 1 min.	10N for 1 min.		
	Robustness of actuator	Operating direction	25N		50N		30N	
		Perpendicular direction	25N	50N			10N	
	Vibration		10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively					
	Solderability		230±5°C, 3±0.5s	—		230±5°C, 3±0.5s		
	Resistance to soldering heat	Manual soldering	350±10°C, 3±0.5s		—		350±10°C, 3±0.5s	
Dip soldering		※260±10°C, 10±1s		—		260±5°C, 10±1s		
Durability	Operating life		10,000 cycles			100 cycles		20,000 cycles
			Load : As ratings			Without load		Load : As ratings
Environmental performance	Cold		-20±2°C for 96h					
	Dry heat		85±2°C for 96h					
	Damp heat		40±2°C, 90 to 95%RH for 96h					

### Note

※Dip soldering can be used on SDDJE For PC board terminal and SDDJF right angle terminal types only.

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## Safety Standards

### 1. Safety Standards Outline

Safety standards are established by a country or an organization representing it to protect general users from electrical shock and fire hazards. It establishes standards for electrical devices and components. For electrical equipment manufacturers, utilizing switches that have been safety-approved ensures the safety of the switch. The use of a safety-approved switch also simplifies at least one part of the process of obtaining certification by safety testing.

### 2. Major Safety Standards

#### (1) Electrical Appliance and Material Safety Law

The conventional [Electrical Appliance and Material Control Law] has changed to [Electrical Appliance and Material Safety Law] and has been enforced since April 1, 2001. Electrical appliances are categorized into special electric appliances and parts (formerly Class A) and Electrical appliances other than the special electric appliances (formerly Class B). Special electric appliances are required to receive goodness of fit test at a certified test agency and to store the certificate. Also, penal provisions have been reinforced.

#### (2) UL (Underwriters Laboratories Inc.)

Underwriters Laboratories Inc. (UL) is the American safety approving organization. Its purpose is to ensure consumer safety and protect them from fire hazards. State law requires that equipment to be exported to the United States utilize UL approved power switches or power switches meeting UL standards and capable of passing UL tests.

#### (3) CSA (Canadian Standards Association)

Canadian Standards Association (CSA) is the Canadian safety testing association and tests electrical and other equipment to ensure the safety of individuals and prevent fire hazards. Provincial law requires that the power switches used in equipment for export to Canada be CSA approved or meet CSA standards.

#### (4) SEMKO (Svenska Elektriska Materielkontrollanstalten)

Svenska Elektriska Materielkontrollanstalten (SEMKO) is the Swedish safety testing organization. Its purpose is to prevent electrical shock and fires due to home electrical appliances. Nearly all electrical appliances sold in Sweden must be approved by SEMKO.

#### (5) BS (British Standard)

British Standard (BS) is the industrial and safety standards of Great Britain. It is made up of such organizations as the BSI and BEAB. It conducts investigations of electrical equipment for verification of safety. Electrical devices do not have to conform to this standard but those that do have a competitive advantage in the marketplace.

#### (6) VDE (Verband Deutscher Electrotechniker)

Verband Deutscher Electrotechniker (VDE) is the German safety testing organization. It is particularly concerned with preventing hazards to human life and fires. Approval is not mandatory but fines are levied against those companies whose unapproved products cause accidents. Therefore, in reality, conformity is a necessity.

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## Safety Standards

### 3. Standard Certification System

#### (1) CB Scheme

This is the international system to simplify the safety certification processes of each country for the purpose of using a safety test certificate (CB Scheme) based on the IEC standard issued by the certification test agency. This system can be used for the power switch to acquire the certificates of European countries and China because the IEC and EN standards conform.

#### (2) Mutual authentication system of the North American nations

A mutual authentication system is effective with the UL (in the U.S.A.) and CSA (in Canada) and the "C-UL-US" makes UL approved goods sellable in Canada, while the "NRTL/C" makes CSA approved goods sellable in the U.S.A.

### 4. Explanation of Safety Standard Terms

#### 1. Three insulation classes of the safety standards of IEC standards

Switches are classed according to their type of insulation.

##### (a) Switches for Class I Appliances

Switches for use with appliances utilizing power plugs with ground pins having a normal level of insulation.

##### (b) Switches for Class II Appliances

Switches for use with appliances having no ground pin and utilizing double or reinforced insulation.

#### 2. Micro-gap Construction

This construction is one of the classifications of switches under the IEC standard. Switches in this class have a contact gap of less than 3mm. These switches bear the  $\mu$  mark. In some case, use of Micro-gap switches may be limited in IEC standard. (Can not be utilized with outdoor electrical implements or computer equipment without power plugs.)

#### 3. Switches not covered in the Electrical Appliance and Material Safety Law

Switches with [structure specialized for building into machines] are precluded from the special electric appliances and parts, and are not required to undergo a goodness of fit test. However, the technology standard must satisfy no less than the special electric appliances and parts. The major reasons for preclusion from the Electrical Appliance and Material Safety Law are as follows: All of our power switches are precluded.

(1) All except for unipolar/single-throw, unipolar/double-throw, bipolar/single-throw.

(2) All with signal changing-over switch attached.

(3) All with lead, fasten, wire-wrapping and printed terminals.

(4) All without knobs and handles for manual operation.

#### 4. Approval type number

The approval type number means the type number on the safety standard described in the safety standard approval certificate or approval list. Therefore, the approval type number is different from the product number. There are cases where the approval type number varies with the acquired standard, rating, etc. even in the same series of products. When the set manufacturer applies for the set safety standard, the application must be made with the approval type number for the switch to be used.

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# Safety Standards

## 5. Meaning of the Marking of Power Switch Ratings

Safety standard name Classification of rating	Electrical appliance and material safety law	UL, CSA	IEC standard
For electronic appliances	All Alps power switches are not governed by the electrical appliance and material safety law.	<p><b>TV rating</b></p> <p>TV - 5</p> <p>Rated current</p> <p>Symbol on TV rating</p> <p>NOTE : When not indicated rated voltage is 120V AC</p> <p>SDKL, SDDF, etc</p>	<p><b>Rating for electronic appliances</b></p> <p>5A / 80A 250V ~</p> <p>Rated surge current</p> <p>Rated normal current</p> <p>Rated voltage</p> <p>Alternating current</p> <p>SDKL, SDDF, etc</p>
For general appliances		<p><b>Ampere rating</b></p> <p>AC 125V 5A</p> <p>Rated current</p> <p>Rated voltage</p> <p>Alternating current</p> <p>SDDJE, etc</p>	<p><b>Rating for resistive appliance</b></p> <p>5A / 250V ~</p> <p>Rated current</p> <p>Rated voltage</p> <p>Alternating current</p>
For motors		<p><b>Horsepower rating</b></p> <p>AC 125V 1/2 HP</p> <p>Output of applicable motor</p> <p>Rated voltage</p> <p>Alternating current</p>	<p><b>Rating for resistance and motor load</b></p> <p>3 (2) / 250 ~</p> <p>Rated current under resistive load</p> <p>Rated current of applicable motor</p> <p>Rating voltage</p> <p>Alternating current</p>

**Power switches for electronic appliances:** Mainly power switches for electronic appliances such as TV sets, radios and amplifiers. However, if the voltage and current levels are below the ratings, they may be used in other electric appliances.

**Power switches for general appliances:** These switches are for use in appliances other than electronic appliances or motor appliances that have current surges. However, if the rating of the switch is  $1/\sqrt{2}$  or above the surge current of the circuit and meets construction requirements, it may be used in other devices.

**Power switches for motor appliances:** Mainly for appliances that are motor driven, such as copiers, vacuum cleaners, etc.

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