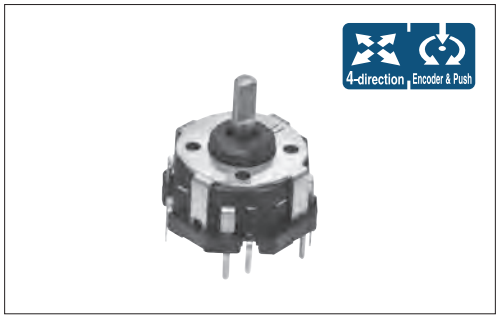
RKJXT1F 4-directional Stick Switch (with Encoder / Center-push Function)

A space-saving device with single shaft 4-directions/ push/encoder



Typical Specifications (Stick Switches)

Items		Specifications
Ratings (max.) (Resistive load)		10mA 5V DC
Contact resistance	4-direction	1Ω max.
	Center-push	
Operating angle (4-direction)		Each direction 9° max.
Travel (Center push)		0.3±0.2mm
Operating life	Total with 4-direction	50,000 cycles
	Center-push	50,000 cycles

Typical Specifications (Encoders)

Items	Specifications
Ratings (max.) (Resistive load)	10mA 5V DC
Operating life	15,000 cycles

Product Line

Product No.	Stick Switches			Encoder			Minimum order unit (pcs.)	
	Maximum resolution	Operating force						
		Direction	Center-push	Detent torque	Number of detent	Number of pulse	Japan	Export
RKJXT1F42001	4	40±25mN·m	5±2N	15±8mN·m	30	15	1,320	2,640

Packing Specifications

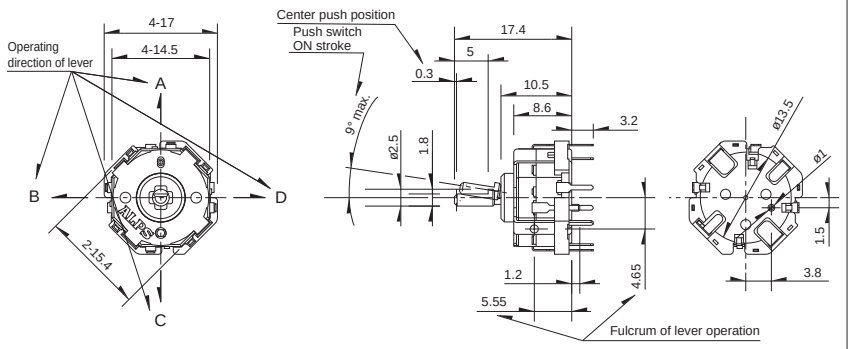
Tray

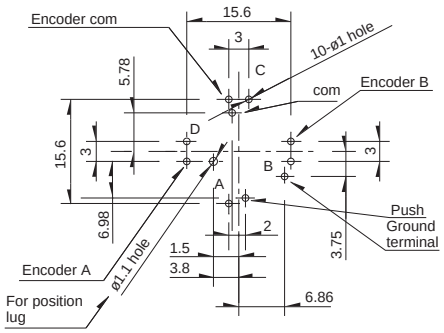
Number of packages (pcs.)		Export package measurements (mm)
1 case / Japan	1 case / export packing	
1,320	2,640	555×375×333

Dimensions

Unit:mm

Style	PC board mounting hole dimensions (Viewed from mounting side)

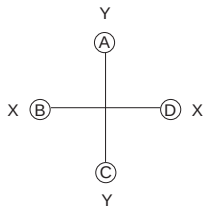




Refer to P.412 for soldering conditions.

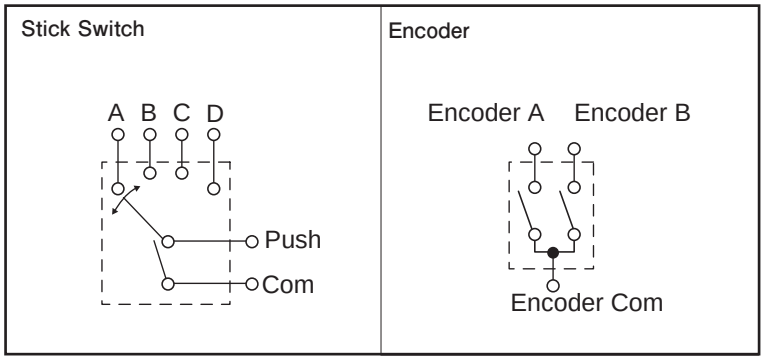
Output Relation Chart Between Lever Position and ON Position.

Terminal \ Operating Direction	A	B	C	D	Center push
Push-A	ON				
Push-B		ON			
Push-C			ON		
Push-D				ON	
Push-Com	ON	ON	ON	ON	ON

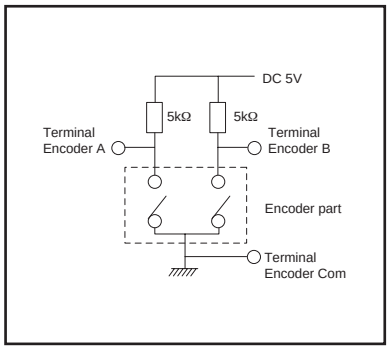


Operating direction of lever

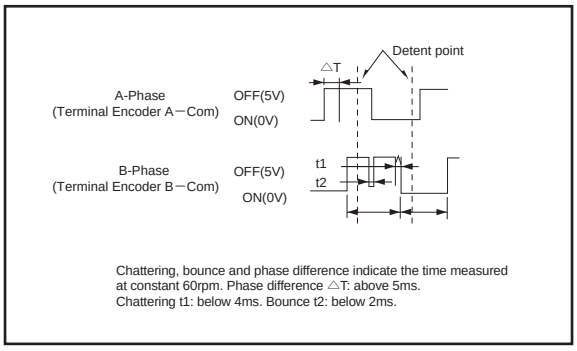
Circuit Diagram



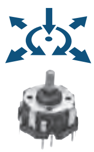
Test Circuit (Encoder)



Output Signal (Encoder)



Chattering, bounce and phase difference indicate the time measured at constant 60rpm. Phase difference △T: above 5ms.
Chattering t1: below 4ms. Bounce t2: below 2ms.

Type			Switch type			
Series			**RKJXT1F**	**RKJXM**	**RKJXW**	**RKJXL**
Photo						
Dimensions (mm)	W		17	11	36	13
	D				48.5	
	H		10.5	6.6	26.5	6.4
Shaft material			Metal			
Directional resolution			4-direction	8-direction		
Directional operating feeling (tactile feeling)			With			Without
Lever return mechanism			With			
Center-push switch			With			
Encoder			With	Without	With	Without
Operating temperature range			−40℃ to +85℃			−30℃ to +70℃
Operating life	Directional operation		Total with 4-direction 50,000 cycles	Total with 8-direction 100,000 cycles	30,000 cycles for each direction	8 directions total: 100,000 cycles
	Center-push				30,000 cycles	100,000 cycles
	Encoder		15,000 cycles	—	30,000 cycles	—
Automotive use			●	●	●	●
Life cycle (availability)						
Rating (max.) (Resistive load)			10mA 5V DC			
Electrical performance	Output voltage		—	—	—	—
	Encoder resolution		15pulses/360°	—	15pulses/360°	—
	Insulation resistance		100MΩ min. 250V DC			
	Voltage proof		250V AC for 1min.		360V AC for 2s	300V AC for 1min. or 360V AC for 2s
Mechanical performance	Directional operating force		40±25mN·m	Direction A, B, C, D 30±20mN·m Direction AB, BC, CD, DA 25±20mN·m	2.5±1.5N	10±7mN·m
	Push operating force		5±2N	3±1.5N		4.5±1N
	Encoder detent torque		15±8mN·m	—	30±20mN·m	—
	Terminal strength		5N for 1min.		—	—
	Actuator strength	Push / pull directions	100N (Push/Pull)	100N (Push), 50N (Pull)	100N (Push)	100N (Push), 50N (Pull)
		Operating direction	0.4N·m	0.3N·m	50N	100N
Environmental performance	Cold		−40℃ 500h			
	Dry heat		85℃ 500h			
	Damp heat		60℃, 90 to 95%RH 500h			
Page			398	400	402	404

Note

● Indicates applicability to all products in the series.

Reference for Manual Soldering

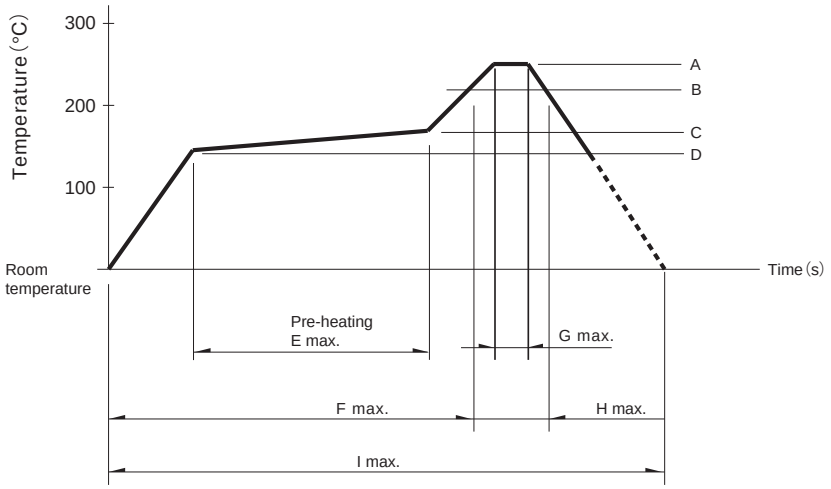
Series	Tip temperature	Soldering time	No. of solders
RKJXT1F, RKJXM, RKJXL, SLLB, SLLB5, SRBE, SKRH	350±5℃	3s max.	1 time

Reference for Dip Soldering

Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
RKJXT1F, RKJXM	100℃ max.	2 min. max.	260±5℃	5±1s	2 time max.
RKJXL	120℃ max.	70s max.	260℃ max.	6s max.	2 time max.

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple φ0.1 to 0.2 CA (K) or CC (T) at soldering portion (copper foil surface). A heat resisting tape should be used for fixed measurement.
3. Temperature profile



Series	A	B	C	D	E	F	G	H	I	No. of reflows
SLLB5	250℃	230℃	150℃	150℃	—	2 min.	—	30s	—	1 time
SLLB, SRBE	260℃	230℃	180℃	150℃	2 min.	—	—	40s	—	1 time
SKRH	260℃	230℃	180℃	150℃	2 min.	—	3s	40s	3-4 min.	2 times

Notes

1. The above temperature shall be measured on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the material, size thickness of PC boards and others. The above-stated conditions shall also apply to switch surface temperatures.
2. Soldering conditions differ depending on reflow soldering machines. Prior verification of soldering condition is highly recommended.