

LAUBE TECHNOLOGY SOLID STATE RELAYS

<u>CONTACT FORM</u>	<u>CURRENT</u>	<u>PART SERIES</u>	<u>PAGE #'S</u>
(1A) SPST-NO	1	JGC-8F(Input Module)	123-124 (Link)
(1A) SPST-NO	1	JGC-8F(Output Module)	125-126 (Link)
(1A) SPST-NO	2	JGC-4F	100-103 (Link)
(1A) SPST-NO	2	JGX-40F	115-118 (Link)
(1A) SPST-NO	3	JGC-5F	104-108 (Link)
(1A) SPST-NO	3	JGX-40FA	119-122 (Link)
(1A) SPST-NO	5	JGX-41F	127-129 (Link)
(1A) SPST-NO	10 amps - 65	JGX-1505FB	109-114 (Link)
3PST-NO	25	JG-24F	95-99 (Link)
(1A) SPST-NO	30	JG-33F	130-132 (Link)
(1A) SPST-NO	80	JG-34F	133-135 (Link)

	SOLID STATE RELAY	JG-24F Series 240/380Vac 10-25Amp
--	--------------------------	--



FEATURES

- 4000V dielectric strength
- Photo isolation
- LED status indicator
- Built-in snubber
- Zero cross or random turn-on
- Panel mount

APPLICATION

- Fuel dispensers

DESCRIPTION

The JG-24F are three-phase AC output relays(3PST-NO),provides three-phase control in a single package.The relays offer 3-32VDC input control,with outputs rated at 10,15 or 25Amps.The relays include a LED indicator to provide input status information.All models include an internal snubber. The relays provide 4000Vrms opto-isolation, between input and output. Encapsulation, thermally conductive epoxy.

ORDERING INFORMATION

JG-24F /
 1 2 3 4

1. Input Voltage

D: 3-32VDC

2. Load Supply Voltage

24: 48-264Vrms
 38: 48-440Vrms

3. Zero Cross Function

Z: Zero cross turn-on
 P: Random turn-on

4. Load Current

10: 10Amp
 15: 15Amp
 25: 25Amp

JG-24F Series

SPECIFICATIONS

MODELS → JG-24F/D38□10 JG-24F/D38□15 JG-24F/D38□25

INPUT⁽¹⁾

Control voltage range	3 - 32VDC	3 - 32VDC	3 - 32VDC
Must operate voltage	3VDC max.	3VDC max.	3VDC max.
Must release voltage	1.0VDC min.	1.0VDC min.	1.0VDC min.
Maximum input current	28mA(@5VDC)	28mA(@5VDC)	28mA(@5VDC)
Maximum reverse protection voltage	- 32VDC	- 32VDC	- 32VDC

OUTPUT⁽¹⁾

Load voltage range (@47-63Hz)	48 - 440Vrms	48 - 440Vrms	48 - 440Vrms
Load current range ⁽²⁾	0.1- 10Arms	0.1- 15Arms	0.1- 25Arms
Max surge current ⁽³⁾	100Apk	150Apk	250Apk
Max leakage current	10mA	10mA	10mA
Max on-state voltage drop	1.5Vrms	1.5Vrms	1.5Vrms
Max turn-on time	10ms	10ms	10ms
Max turn-off time	10ms	10ms	10ms
Transient overvoltage	800Vpk	800Vpk	800Vpk
Min off-state dv/dt	200V/μs	200V/μs	200V/μs
Min power factor	0.5	0.5	0.5

GENERAL

Dielectric strength(@50/60Hz for 1min) ⁽⁴⁾	4000Vrms min.	4000Vrms min.	4000Vrms min.
Insulation resistance (@500VDC)	1000MΩ, min.	1000MΩ, min.	1000MΩ, min.
Max capacitance input/output	8pF	8pF	8pF
Ambient temperature	Operating	-30 --- +80 °C	-30 --- +80 °C
	Storage	-30 --- +100 °C	-30 --- +100 °C
Ambient humidity	45% --- 85%	45% --- 85%	45% --- 85%
Weight	350g max.	350g max.	350g max.

Notes: (1) All parameters at 25 °C.

(2) See figure 1.

(3) See figure 2,3,4.

(4) Dielectric strength is measured between input and output.

CHARACTERISTIC CURVES

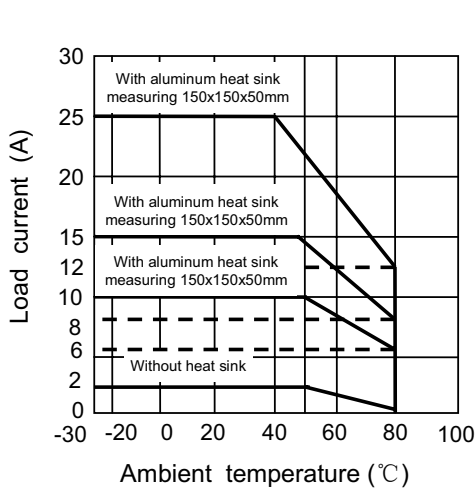


Figure 1 Maximum load current vs. ambient temperature

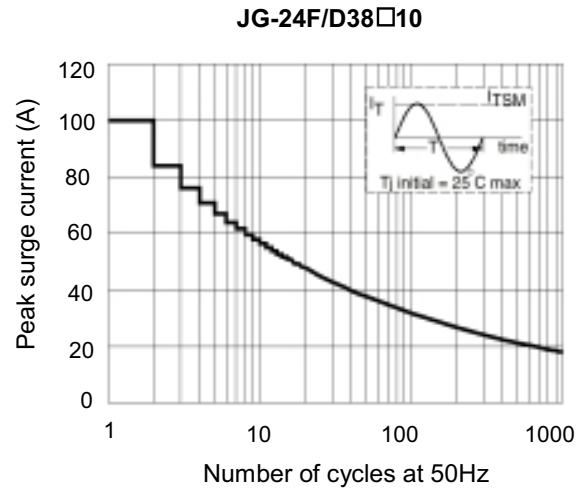


Figure 2 Maximum permissible non-repetitive peak surge current vs. Number of cycles

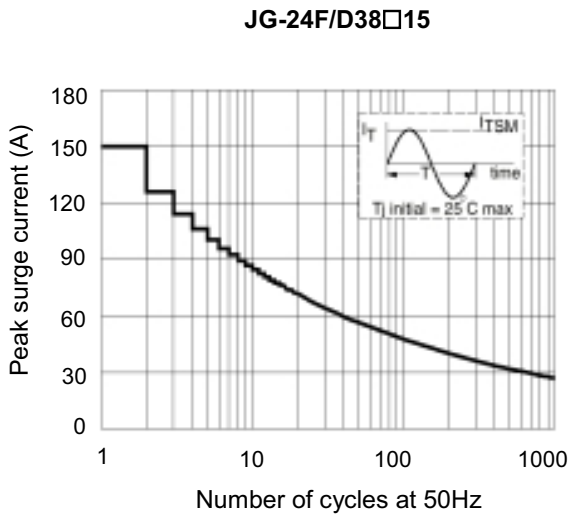


Figure 3 Maximum permissible non-repetitive peak surge current vs. Number of cycles

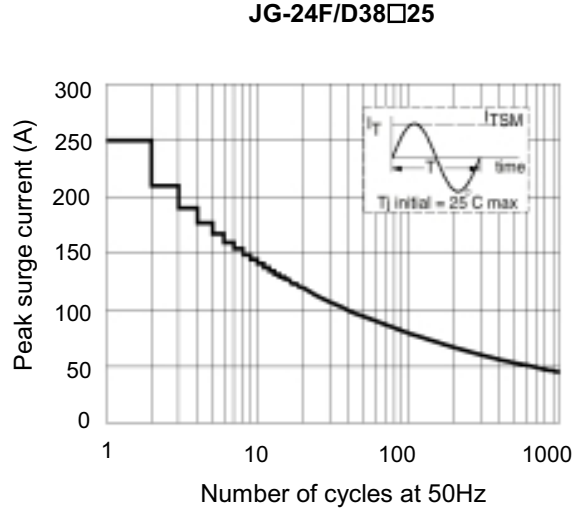
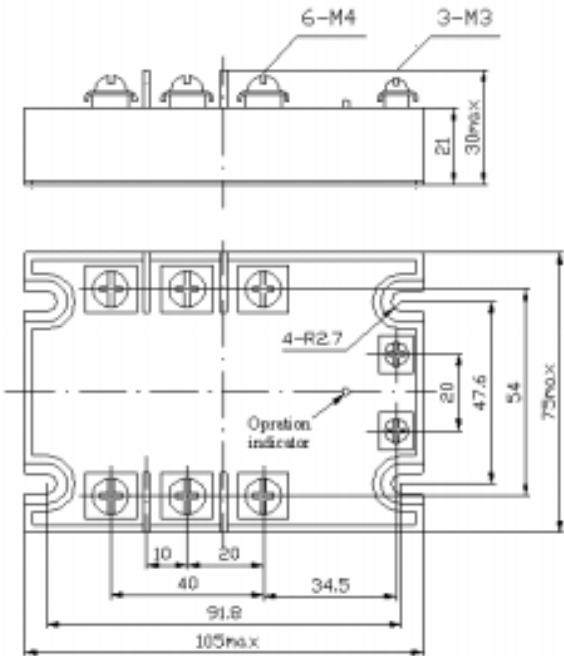


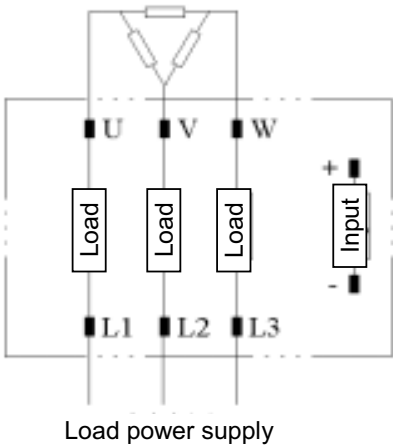
Figure 4 Maximum permissible non-repetitive peak surge current vs. Number of cycles

JG-24F Series

OUTLINE DIMENSIONS , MOUNTING AND WIRING

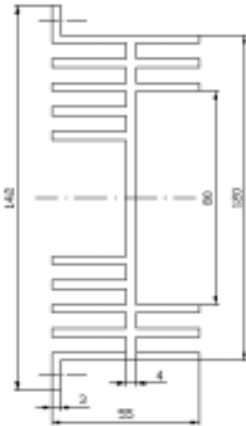
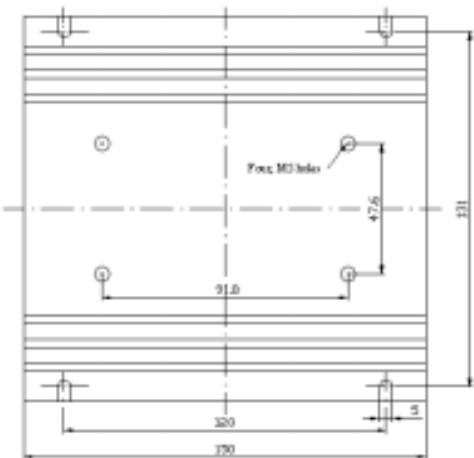


Terminal arrangement /internal connections (Top view)



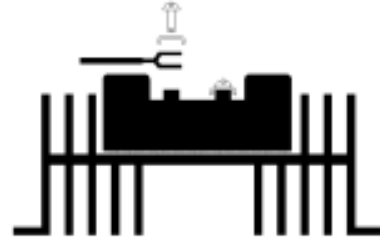
HEAT SINKS

Unit: mm



INSTALLATION

- When mounting the relays side by side, provide a space equivalent to the width of a single SSR between two adjacent SSRs. Otherwise, reduce the load current flow to 1/2 to 1/3 of the rated current.
- When mounting relays on heat sink surface, first apply a heat conductive grease to the metal back surface of the SSR. Press the SSR firmly onto the heat sink to ensure a good seal. Screw the SSR down to the heat sink.
- Next, wire the screw terminals and securely tighten the screws.



PRECAUTIONS

- Before connecting a load that generates a high surge current, such as a lamp load to the SSR, make sure that the SSR can withstand the surge current of the load.
- The product data sheet shows the non-repetitive peak value of the surge current that flows through the SSR. Normally, use 1/2 of the non-repetitive peak surge current as the standard value. If a surge current exceeding that value is expected, connect a quick-blowing fuse to protect the SSR.
- When using the JG-24F for an AC load with a peak voltage of more than 750V, connect the load terminals of the relay to an inrush absorber..

	SOLID STATE RELAY	JGC-4F Series 240Vac 2Amp
--	------------------------------	--------------------------------------



FEATURES

- DC input-AC output for 2A load at 25 °C
- 600 Volt blocking voltage
- Photo isolation
- Built-in snubber
- Zero cross or random turn-on
- Printed circuit board mount
- TUV File No.: R2024431
UL File No.: E133481

APPLICATIONS

- Automatic vending machines
- Air conditioners
- Fuel dispensers
- Programmable controllers

DESCRIPTION

This SPST-NO printed circuit board mount SIP SSR provides AC output switching in a high density package. the JGC-4F's DC input is compatible with 5,12 and 24V logic systems. All models include an internal snubber. The relays provide 2000Vrms opto-isolation, between input and output. Encapsulation, thermally conductive epoxy.

ORDERING INFORMATION

JGC-4F / $\frac{\square \square \square}{1 \ 2} - \frac{\square}{3} \frac{\square}{4}$

1. Input Voltage

- 05: 4 ~ 6VDC
- 12: 9.6 ~ 14.4VDC
- 24: 19.2 ~ 28.8VDC

2. Input Form

- D: DC

3. Zero Cross Function

- 0: Zero cross turn-on
- 1: Random turn-on

4. Terminal

- T: Same as TOSHIBA TSZXX48S
- M: Same as OMRON G3MB

SPECIFICATIONS

INPUT⁽¹⁾

Control voltage range	05D	4 - 6VDC
	12D	9.6 - 14.4VDC
	24D	19.2 - 28.8VDC
Must operate voltage	05D	4VDC max.
	12D	9.6VDC max.
	24D	19.2VDC max.
Must release voltage		1.0VDC min.
Maximum input current		15mA

OUTPUT⁽¹⁾

Load voltage range (@47-63Hz)		75 - 250Vrms
Load current range ⁽²⁾		0.1- 2Arms
Max surge current(10ms) ⁽³⁾		25Apk
Max leakage current		1.5mA
Max on-state voltage drop		1.5Vrms
Max turn-on time	Zero cross turn-on	10ms
	Random turn-on	1ms
Max turn-off time		10ms
Transient overvoltage		600Vpk
Min off-state dv/dt		100V/μs
Min power factor		0.5

GENERAL

Dielectric strength		2000Vrms min., 50/60Hz for 1min
Insulation resistance		1000MΩ, min. (at 500VDC)
Max capacitance input/output		5pF
Ambient temperature	Operating	-30 --- +85 °C
	Storage	-30 --- +100 °C
Ambient humidity		45% --- 85%
Weight		6g max.

Notes: (1) All parameters at 25 °C. (2)See figure 1.
(3) See figure 2.

CHARACTERISTIC CURVES

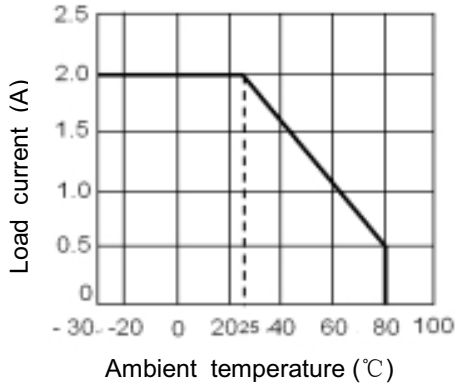


Figure 1 Maximum load current vs. ambient temperature

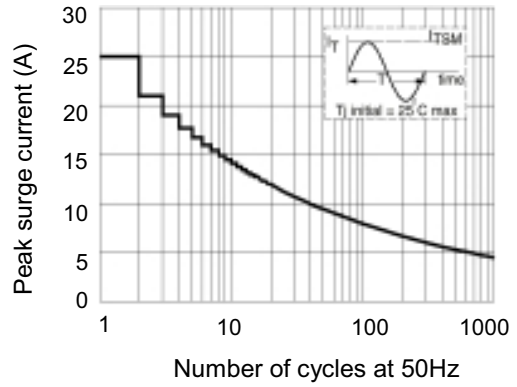


Figure 2 Maximum permissible non-repetitive peak surge current vs. Number of cycles

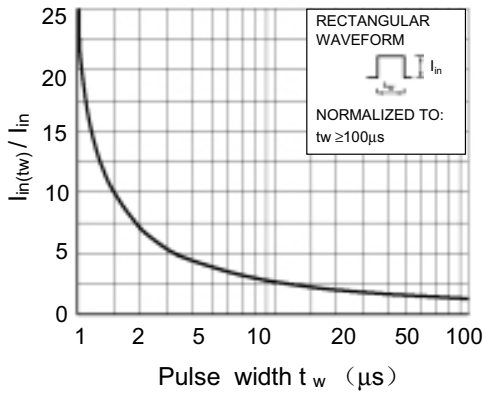


Figure 3 Pulse input current vs. Pulse width

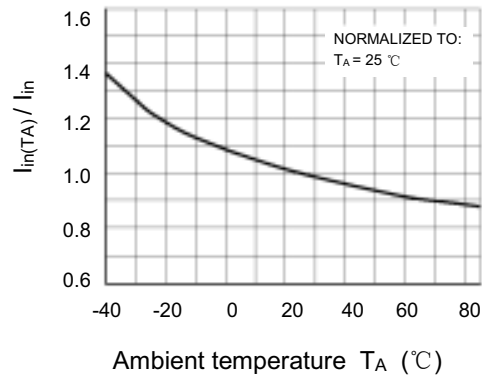
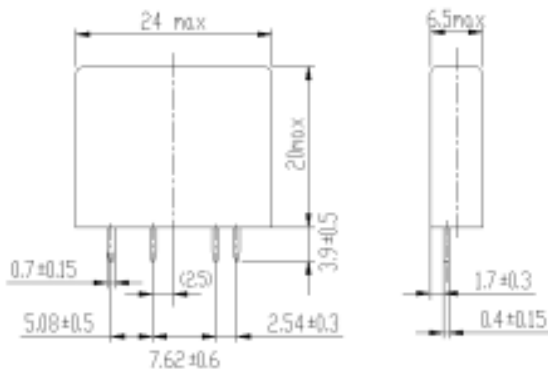


Figure 4 Input current vs. ambient temperature

DIMENSIONS (mm)

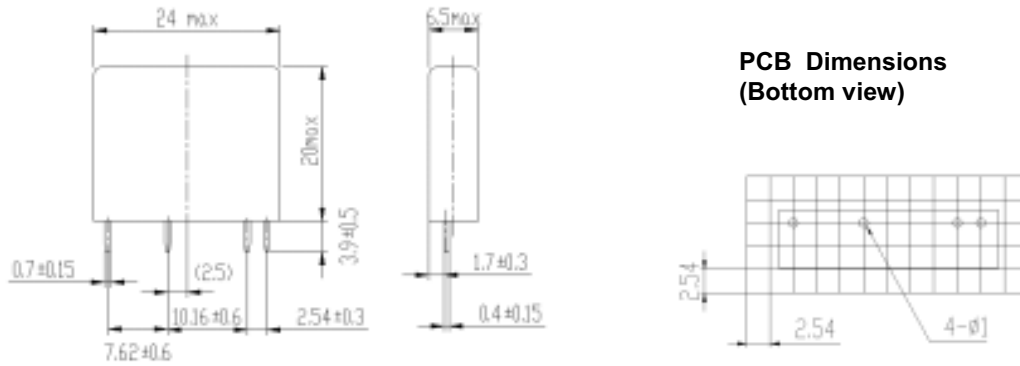
JGC-4F/ D — T



PCB Dimensions (Bottom view)

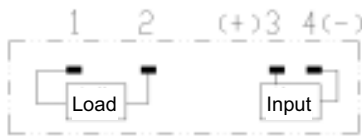


JGC-4F/ D— M

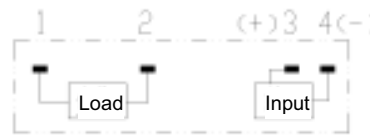


TERMINAL ARRANGEMENT /INTERNAL CONNECTIONS

JGC-4F/ D— T



JGC-4F/ D— M



PRECAUTIONS

- Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.
- The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.
- The input circuitry does not incorporate a circuit protecting the SSR from being damaged due to a reversed connection. Make sure that the polarity is correct when connecting the input lines.
- When using the JGC-4F series for an AC load with a peak voltage of more than 450V, connect the load terminals of the relay to an inrush absorber (varistor) . The recommended varistor voltage, 440 to 470V.
- The load terminals are internally connected to a snubber circuit that absorb noise. However, if wiring from these terminals is laid with or placed in the same duct as high-voltage or power lines, noise may be induced, causing the SSR to operate irregularly or malfunction.
- When using the JGC-4F series in phase control applications, at a phase control angle close to 180 degrees the relay's input signal turn off at the trailing edge of the AC sine wave must be limited to end 200µs before AC zero cross as shown in Figure 5. This assures that the relay has time to switch off. Shorter times may cause loss of control at the following half cycle.

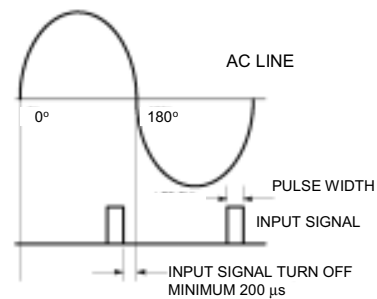
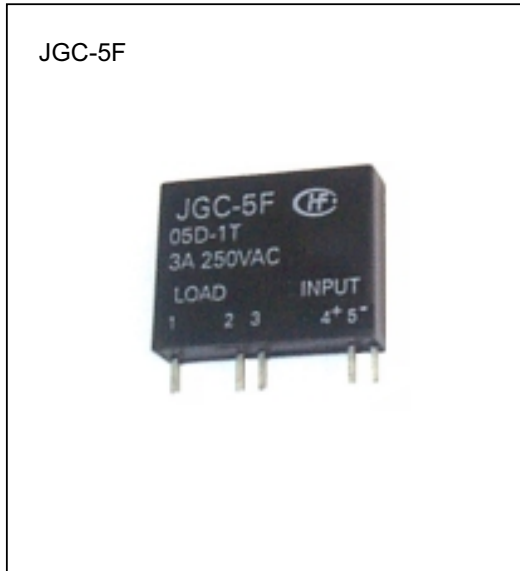


Figure 5 Minimum time for input pulse turn-off to zero cross of AC trailing edge

Laube Technology

	SOLID STATE RELAY	JGC-5F Series 240Vac 3Amp
--	------------------------------	--------------------------------------



FEATURES

- 2500Vrms Dielectric strength
- 600 Volt blocking voltage
- Photo isolation
- Zero cross or random turn-on
- Printed circuit board mount
- TUV File No.: R2024431

APPLICATIONS

- Automatic vending machines
- Air conditioners
- Fuel dispensers
- Programmable controllers

DESCRIPTION

This SPST-NO printed circuit board mount SIP SSR provides AC output switching in a high density package. the JGC-5F's DC input is compatible with 5,12 and 24V logic systems. The relays provide 2500Vrms opto-isolation, between input and output. Encapsulation, thermally conductive epoxy.

ORDERING INFORMATION

JGC-5F / $\frac{\square}{1} \frac{\square}{2} \frac{\square}{3} - \frac{\square}{4} \frac{\square}{5}$

1. Input Voltage

None: Without internal input limited current resistor

05: 4 ~ 6VDC
12: 9.6 ~ 14.4VDC
24: 19.2 ~ 28.8VDC

2. Input Form

D: DC

3. Zero Cross Function

0: Zero cross turn-on
1: Random turn-on

4. Terminal

T: Same as TOSHIBA TSA3100J

SPECIFICATIONS

INPUT⁽¹⁾

Control voltage range	05D	4 - 6VDC
	12D	9.6 - 14.4VDC
	24D	19.2 - 28.8VDC
Must operate voltage	05D	4VDC max.
	12D	9.6VDC max.
	24D	19.2VDC max.
Must release voltage		1.0VDC min.
Forward voltage ⁽²⁾		1.5VDC max.

OUTPUT⁽¹⁾

Load voltage range (@47-63Hz)		75 - 264Vrms
Load current range ⁽³⁾		0.1- 3Arms
Max surge current(10ms) ⁽⁴⁾		25Apk
Max leakage current		1.5mA
Max on-state voltage drop		1.5Vrms
Max turn-on time	Zero cross turn-on	10ms
	Random turn-on	1ms
Max turn-off time		10ms
Transient overvoltage		600Vpk
Min off-state dv/dt		100V/μs
Min power factor		0.5

GENERAL

Dielectric strength		2500Vrms min., 50/60Hz for 1min
Insulation resistance		1000MΩ, min. (at 500VDC)
Max capacitance input/output		5pF
Ambient temperature	Operating	-30 --- +85 °C
	Storage	-30 --- +100 °C
Ambient humidity		45% --- 85%
Weight		6g max.

Notes: (1) All parameters at 25 °C.

(3) See figure 1.

(2) JGC-5F/D-□T only.

(4) See figure 2.

CHARACTERISTIC CURVES

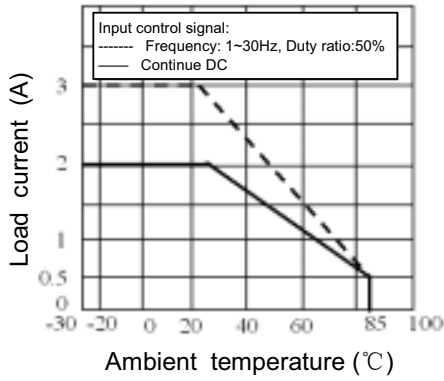


Figure 1 Maximum load current vs. ambient temperature

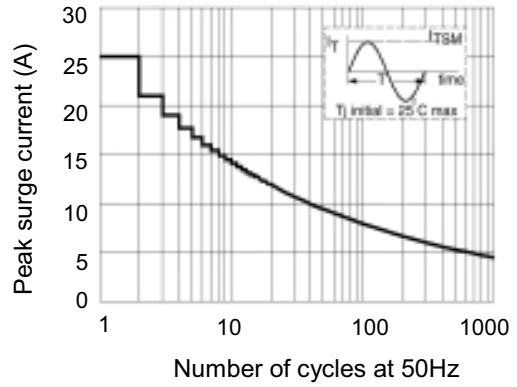


Figure 2 Maximum permissible non-repetitive peak surge current vs. Number of cycles

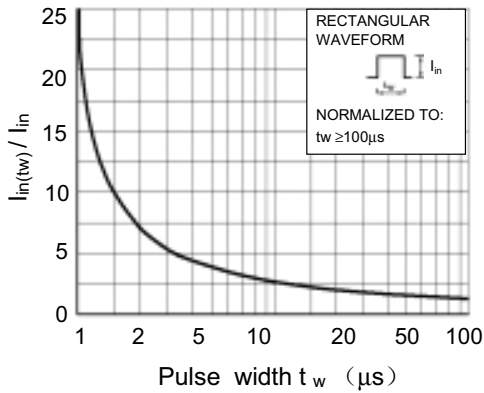


Figure 3 Pulse input current vs. Pulse width

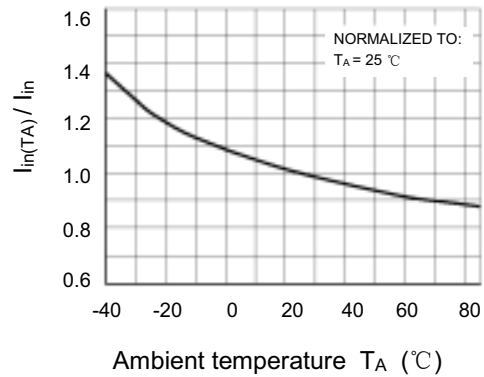


Figure 4 Input current vs. ambient temperature

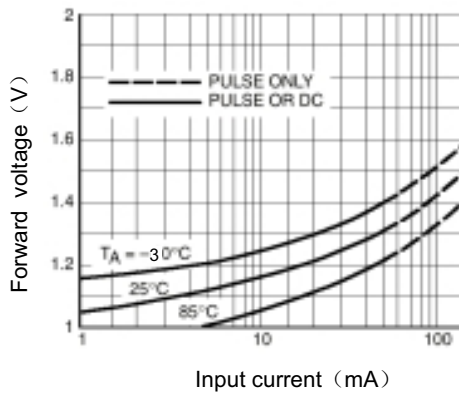
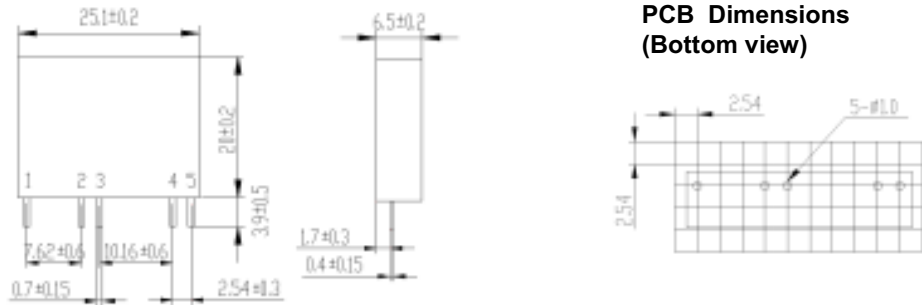


Figure 5 Forward voltage vs. Input current for JGC-5F/D-□T

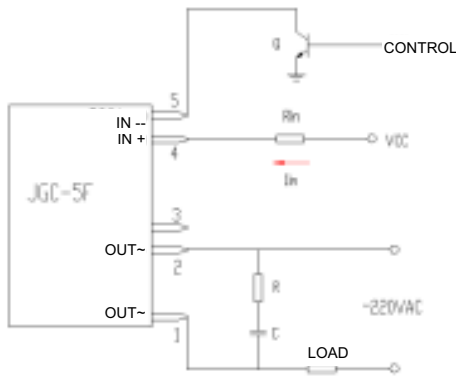
JGC-5F Series

DIMENSIONS (mm)

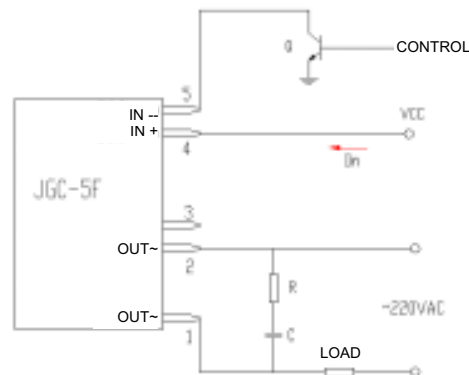


TERMINAL ARRANGEMENT /INTERNAL CONNECTIONS

JGC-5F/D— T



JGC-5F/ D— T



PRECAUTIONS

- Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.
- The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.
- The input circuitry does not incorporate a circuit protecting the SSR from being damaged due to a reversed connection. Make sure that the polarity is correct when connecting the input lines.
- When using the JGC-5F series for an AC load with a peak voltage of more than 450V, connect the load terminals of the relay to an inrush absorber (varistor) . The recommended varistor voltage, 440 to 470V.

JGC-5F Series

- The JGC-5F series do not internally connected to a snubber circuit that absorb noise. Make sure that a snubber circuit is connected to the relay's load terminals.

- When using the JGC-5F series in phase control applications, at a phase control angle close to 180 degrees the relay's input signal turn off at the trailing edge of the AC sine wave must be limited to end 200 μ s before AC zero cross as shown in Figure 6. This assures that the relay has time to switch off. Shorter times may cause loss of control at the following half cycle.

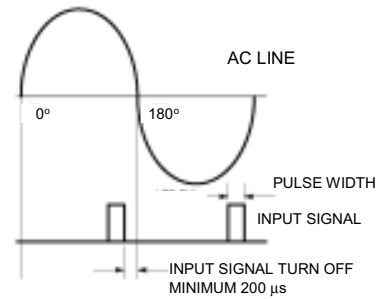


Figure 6 Minimum time for input pulse turn-off to zero cross of AC trailing edge

Laube Technology

	SOLID STATE RELAY	JGX-1505FB series 240/440VAC 10-40Amp
--	------------------------------	--



FEATURES

- 4000V dielectric strength
- Photo isolation
- Built-in snubber
- Zero cross or random turn-on
- Panel mount

APPLICATIONS

- Incubator
- Air conditioners
- Fuel dispensers
- Programmable controllers

DESCRIPTION

The JGX-1505F offer 3-32VDC input control, with outputs rated at 10, 15, 20, 25 or 40Amps. All models include an internal snubber. The relays provide 4000Vrms opto-isolation, between input and output. Encapsulation, thermally conductive epoxy.

ORDERING INFORMATION

JGX-1505FB/□ □ □ □ □ □
 1 2 3 4

1. Input Voltage

D: 3-32VDC

2. Load Supply Voltage

24: 48-240Va.c.

38: 48-440Va.c.

3. Zero Cross Function

Z: Zero cross turn-on

P: Non-zero cross turn-on

4. Load Current

10: 10Amp

15: 15Amp

20: 20Amp

25: 25Amp

40: 40Amp

JGX-1505FB Series

SPECIFICATIONS

MODELS →

D38Z10/D24Z10 D38Z15/D24Z15 D38Z20/D24Z20 D38Z25/D24Z25 D38Z40/D24Z40

INPUT⁽¹⁾

Control voltage range	3 - 32VDC	3 - 32VDC	3 - 32VDC	3 - 32VDC	3 - 32VDC
Must operate voltage	3VDC max.	3VDC max.	3VDC max.	3VDC max.	3VDC max.
Must release voltage	1.0VDC min.	1.0VDC min.	1.0VDC min.	1.0VDC min.	1.0VDC min.
Maximum input current	15mA(@32VDC)	15mA(@32VDC)	15mA(@32VDC)	15mA(@32VDC)	15mA(@32VDC)
Maximum reverse protection voltage	- 32VDC	- 32VDC	- 32VDC	- 32VDC	- 32VDC

OUTPUT⁽¹⁾

Load voltage range(@47-63Hz)	D24:	48 - 240Vrms	48 - 240Vrms	48 - 240Vrms	48 - 240Vrms	48 - 240Vrms
	D38:	48 - 440Vrms	48 - 440Vrms	48 - 440Vrms	48 - 440Vrms	48 - 440Vrms
Transient overvoltage	D24:	600Vpk	600Vpk	600Vpk	600Vpk	600Vpk
	D38:	800Vpk	800Vpk	800Vpk	800Vpk	800Vpk
Load current range ⁽²⁾		0.1- 10Arms	0.1- 15Arms	0.1- 20Arms	0.1- 25Arms	0.1- 40Arms
Max surge current		100Apk	150Apk	200Apk	250Apk	400Apk
Max leakage current		3mA	5mA	5mA	10mA	10mA
Max on-state voltage drop		1.5Vrms	1.5Vrms	1.5Vrms	1.5Vrms	1.5Vrms
Max turn-on time		10ms	10ms	10ms	10ms	10ms
Max turn-off time		10ms	10ms	10ms	10ms	10ms
Min off-state dv/dt		200V/μs	200V/μs	200V/μs	200V/μs	200V/μs
Min power factor		0.5	0.5	0.5	0.5	0.5

GENERAL

Dielectric strength (@50/60Hz for 1min) ⁽³⁾		4000Vrms min.	4000Vrms min.	4000Vrms min.	4000Vrms min.	4000Vrms min.
Insulation resistance (@500VDC)		1000MΩ, min.	1000MΩ, min.	1000MΩ, min.	1000MΩ, min.	1000MΩ, min.
Max capacitance input/output		8pF	8pF	8pF	8pF	8pF
Ambient temperature	Operating	-30 --- +80 °C	-30 --- +80 °C	-30 --- +80 °C	-30 --- +80 °C	-30 --- +80 °C
	Storage	-30 --- +100 °C	-30 --- +100 °C	-30 --- +100 °C	-30 --- +100 °C	-30 --- +100 °C
Ambient humidity		45% --- 85%	45% --- 85%	45% --- 85%	45% --- 85%	45% --- 85%
Weight		Approx. 135g max.	Approx. 135g max.	Approx. 135g max.	Approx. 135g max.	Approx. 135g max.

Notes: (1) All parameters at 25 °C.

(2) See figure 1.

(3) Dielectric strength is measured between input and output.

CHARACTERISTIC CURVES

JGX-1505FB/D24Z10 & D38Z10

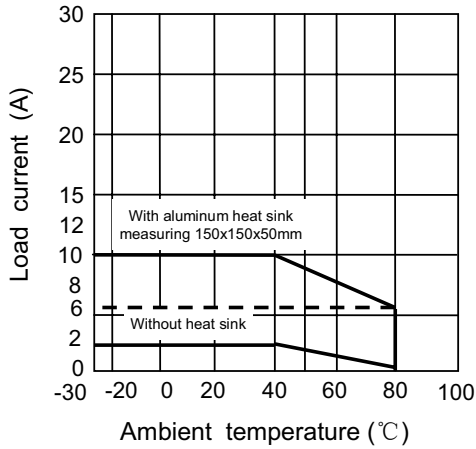


Figure 1 Maximum load current vs. ambient temperature

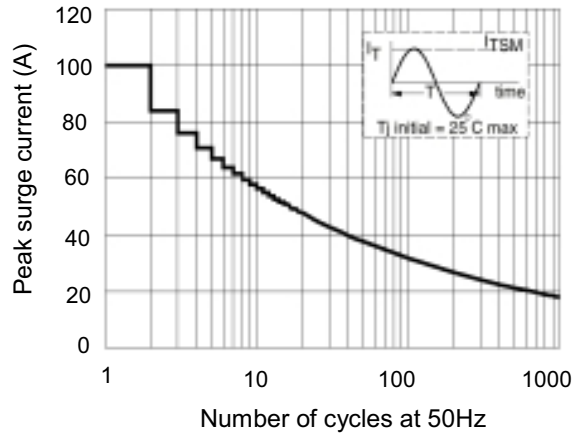


Figure 2 Maximum permissible non-repetitive peak surge current vs. Number of cycles

JGX-1505FB/D24Z15 & D38Z15

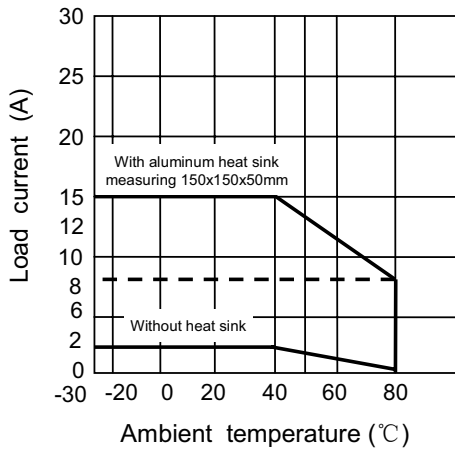


Figure 3 Maximum load current vs. ambient temperature

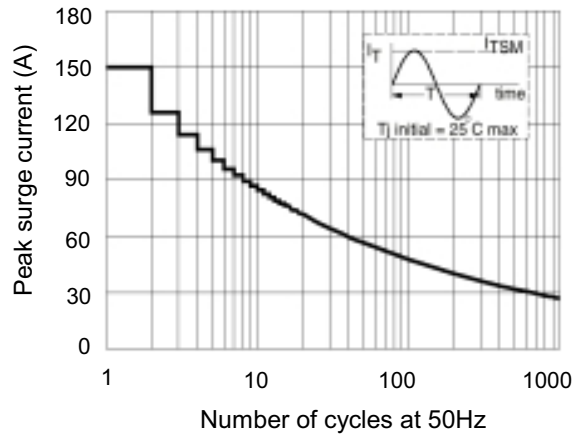


Figure 4 Maximum permissible non-repetitive peak surge current vs. Number of cycles

JGX-1505FB/D24Z20 & D38Z20

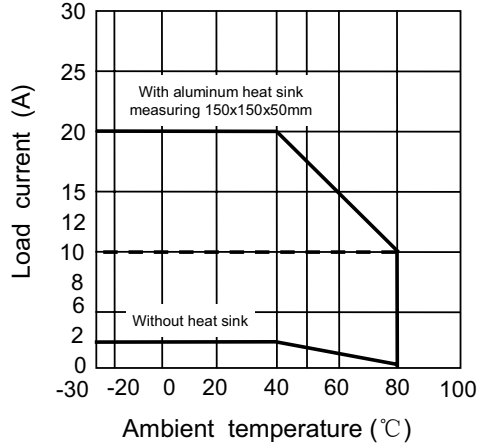


Figure 5 Maximum load current vs. ambient temperature

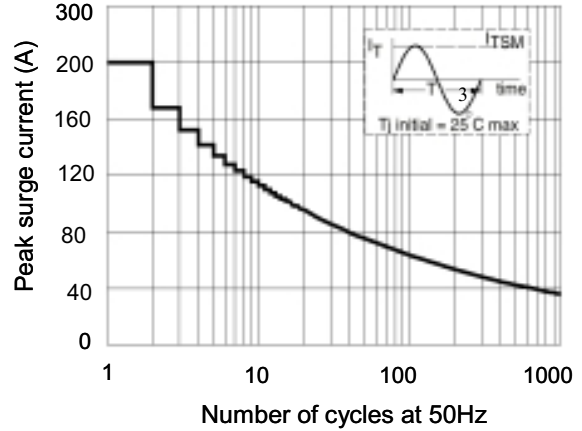


Figure 6 Maximum permissible non-repetitive peak surge current vs. Number of cycles

JGX-1505FB/D24Z25 & D38Z25

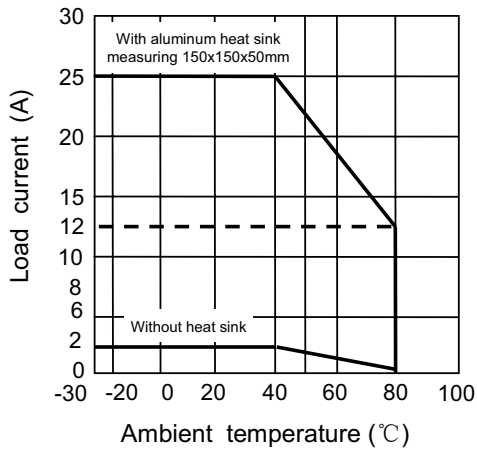


Figure 7 Maximum load current vs. ambient temperature

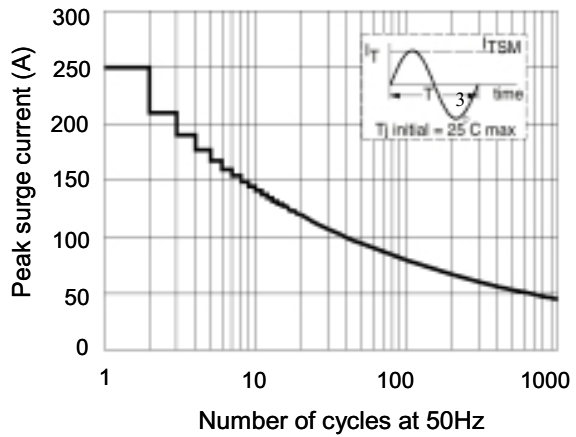


Figure 8 Maximum permissible non-repetitive peak surge current vs. Number of cycles

JGX-1505FB/D24Z40 & D38Z40

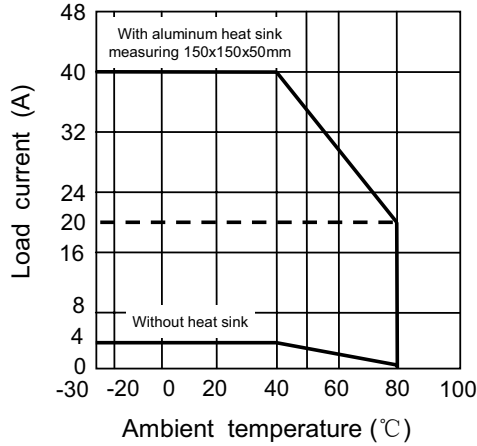


Figure 9 Maximum load current vs. ambient temperature

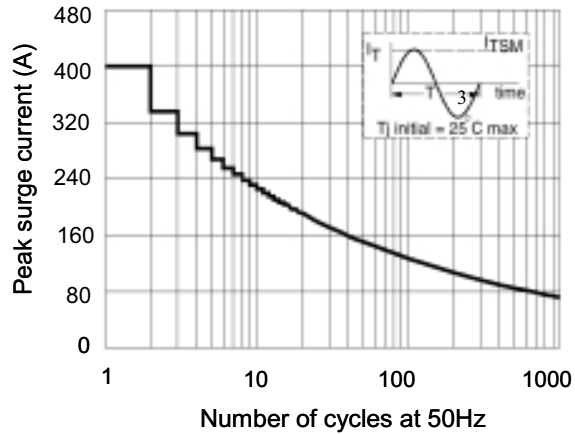
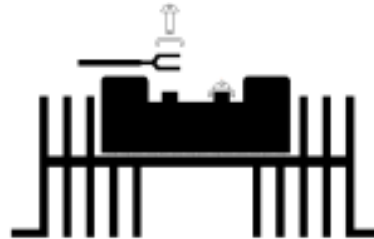


Figure 10 Maximum permissible non-repetitive peak surge current vs. Number of cycles

INSTALLATION

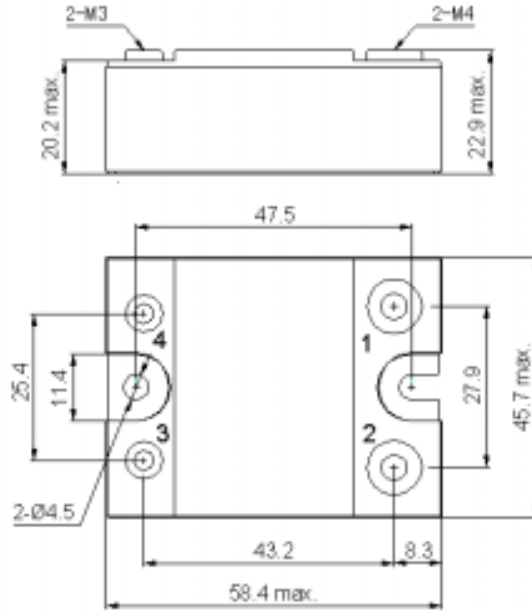
- When mounting the relays side by side, provide a space equivalent to the width of a single SSR between two adjacent SSRs. Otherwise, reduce the load current flow to 1/2 to 1/3 of the rated current.
- When mounting relays on heat sink surface, first apply a heat conductive grease to the metal back surface of the SSR. Press the SSR firmly onto the heat sink to ensure a good seal. Screw the SSR down to the heat sink.
- Next, wire the screw terminals and securely tighten the screws.



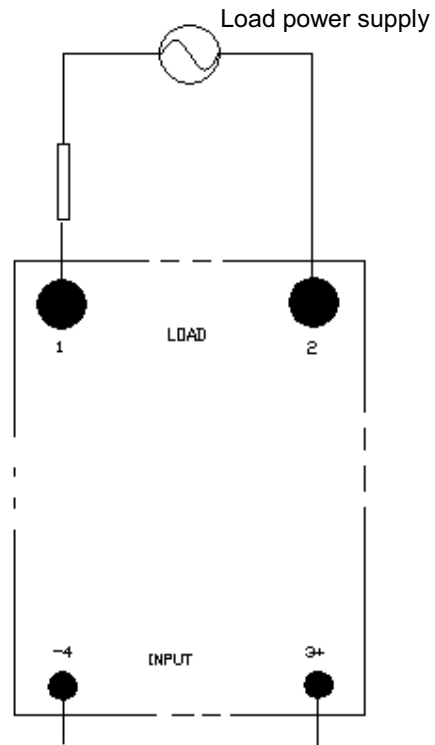
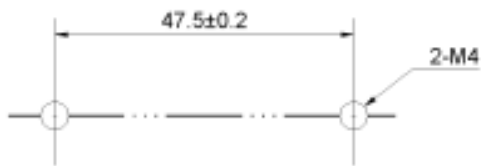
PRECAUTIONS

- Before connecting a load that generates a high surge current, such as a lamp load to the SSR, make sure that the SSR can withstand the surge current of the load.
- The product data sheet shows the non-repetitive peak value of the surge current that flows through the SSR. Normally, use 1/2 of the non-repetitive peak surge current as the standard value. If a surge current exceeding that value is expected, connect a quick-blowing fuse to protect the SSR.

OUTLINE DIMENSIONS , MOUNTING AND WIRING



TERMINAL ARRANGEMENT /INTERNAL CONNECTIONS



Laube Technology

	SOLID STATE RELAY	JGX-40F Series 3-50Vdc 2Amp
--	------------------------------	--



FEATURES

- 2500Vrms dielectric strength
- LED status indicator
- 80 Volt blocking voltage
- Photo isolation
- Bipolar transistor output
- Printed circuit board mount

APPLICATIONS

- I/O interface
- Programmable controllers

DESCRIPTION

This SPST-NO printed circuit board mount SSR provides DC output switching in a high density package. the JGX-40F's DC input is compatible with 5,12 and 24V logic systems. The relays include a LED indicator to provide input status information. The relays provide 2500Vrms opto-isolation, between input and output. Encapsulation, thermally conductive epoxy.

ORDERING INFORMATION

JGX-40F / $\frac{\square \square}{1} \frac{\square \square}{2} \frac{\square \square}{3} \frac{\square \square}{4}$

1. Input Voltage

05: 4 ~ 6VDC

12: 9.6 ~ 14.4VDC

24: 19.2 ~ 28.8VDC

2. Input Form

D: DC

3. Load power supply

05: 3-52.8VDC

4. Load current

01: 1Amp

02: 2Amp

SPECIFICATIONS

INPUT⁽¹⁾

Control voltage range	05D	3.5 - 6VDC
	12D	8.4 - 12.4VDC
	24D	16.8 - 28.8VDC
Must operate voltage	05D	3.5VDC max.
	12D	8.4VDC max.
	24D	16.8VDC max.
Must release voltage		1.0VDC min.
Maximum reverse protection voltage	05D	- 6VDC
	12D	- 12.4VDC
	24D	- 28.8VDC
Typical input current		12mA

OUTPUT⁽¹⁾

Load voltage range (@47-63Hz)	3 - 52.8Vrms
Load current range ⁽²⁾	0.01- 2Arms (See Fig.1)
Max surge current(10ms) ⁽³⁾	8Apk (See Fig.2)
Max leakage current	0.1mA
Max on-state voltage drop	1.5VDC
Max turn-on time	1ms
Max turn-off time	1ms
Transient overvoltage	80Vpk

GENERAL

Dielectric strength	2500Vrms min., 50/60Hz for 1min	
Insulation resistance	1000MΩ, min. (at 500VDC)	
Max capacitance input/output	5pF	
Ambient temperature	Operating	-30 --- +85 °C
	Storage	-30 --- +100 °C
Ambient humidity	45% --- 85%	
Weight	18g max.	

Notes: (1) All parameters at 25 °C.

(2) See figure 1.

(3) See figure 2.

CHARACTERISTIC CURVES

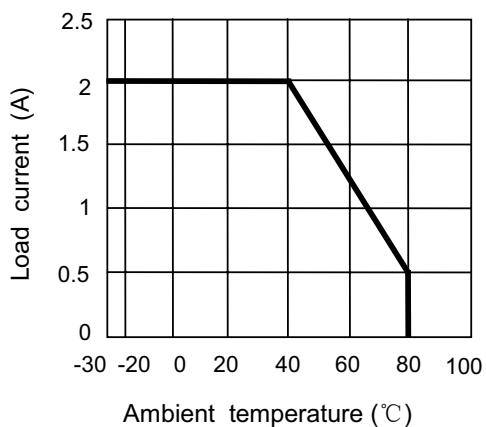


Figure 1 Maximum load current vs. ambient temperature

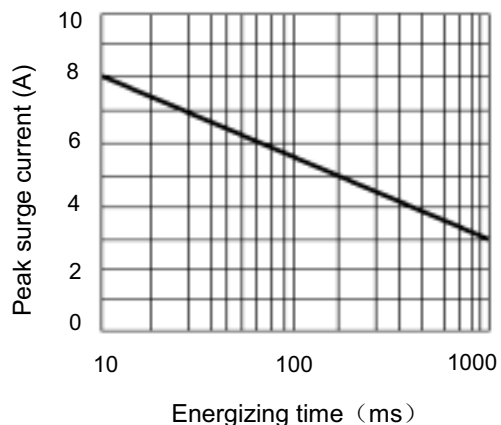
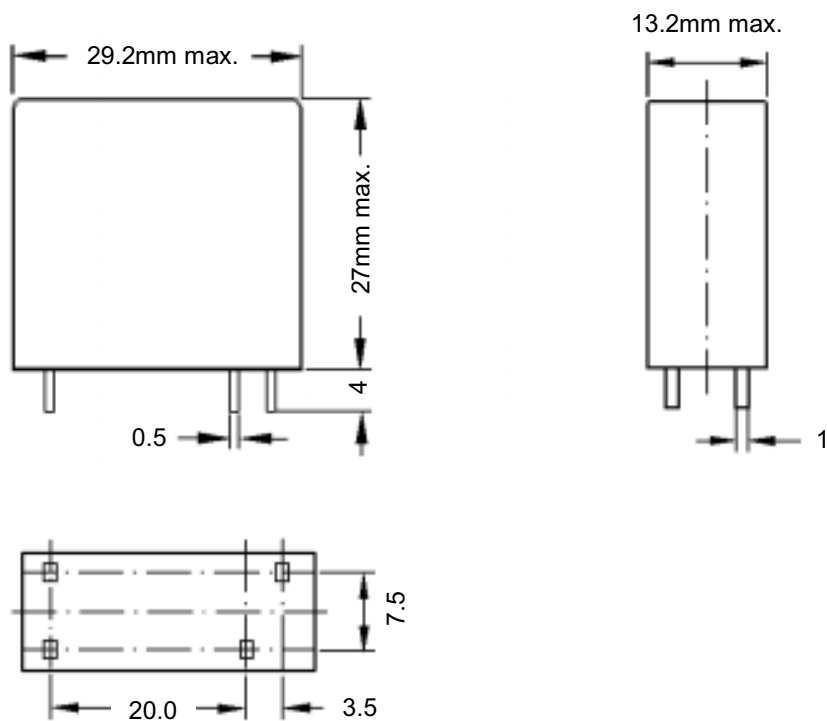


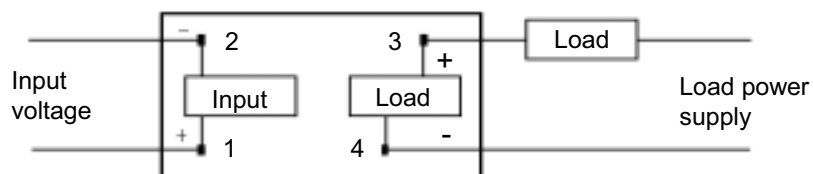
Figure 2 Maximum permissible non-repetitive peak surge current vs. energizing time

DIMENSIONS (mm)



TERMINAL ARRANGEMENT /INTERNAL CONNECTIONS

(Bottom view)



PRECAUTIONS

- Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.
- The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.
- When using the JGX-40F series for a DC load with a peak voltage of more than 80V, connect the load terminals of the relay to an inrush absorber (varistor) .
- Before connecting a load that generates a high surge current, such as a lamp load to the SSR, make sure that the SSR can withstand the surge current of the load.
- The product data sheet shows the non-repetitive peak value of the surge current that flows through the SSR. Normally, use 1/2 the non-repetitive peak surge current as the standard value. If a surge current exceeding that value is expected, connect a quick-blowing fuse to protect the SSR.

Laube Technology

	SOLID STATE RELAY	JGX-40FA Series 240Vac 2Amp
--	------------------------------	---------------------------------------



FEATURES

- 2500Vrms dielectric strength
- LED status indicator
- 600 Volt blocking voltage
- Photo isolation
- Built-in snubber
- Zero cross or random turn-on
- Printed circuit board mount

APPLICATIONS

- I/O interface
- Programmable controllers

DESCRIPTION

This SPST-NO printed circuit board mount SSR provides AC output switching in a high density package. the JGX-40FA's DC input is compatible with 5,12 and 24V logic systems. The relays include a LED indicator to provide input status information. All models include an internal snubber. The relays provide 2500Vrms opto-isolation, between input and output. Encapsulation, thermally conductive epoxy.

ORDERING INFORMATION

JGX-40FA /

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	

1. Input Voltage

05: 3.5 ~ 6VDC
12: 8.4 ~ 14.4VDC
24: 16.8 ~ 28.8VDC

2. Input Form

D: DC

3. Load power supply

22: 75 ~ 264Vrms

4. Load current

01: 1Amp
02: 2Amp

5. Zero Cross Function

None: Zero cross turn-on
P: Random turn-on

JGX-40FA Series

SPECIFICATIONS

INPUT⁽¹⁾

Control voltage range	05D	3.5 - 6VDC
	12D	8.4 - 14.4VDC
	24D	16.8 - 28.8VDC
Must operate voltage	05D	3.5VDC max.
	12D	8.4VDC max.
	24D	16.8VDC max.
Must release voltage		1.0VDC min.
Typical input current		12mA
Maximum reverse protection voltage		-32VDC

OUTPUT⁽¹⁾

Load voltage range (@47-63Hz)		48 - 240Vrms
Load current range ⁽²⁾		0.1- 2Arms (See Fig.1)
Max surge current(10ms) ⁽³⁾		25Apk (See Fig.2)
Max leakage current		5mA
Max on-state voltage drop		1.5Vrms
Max turn-on time	Zero cross turn-on	10ms
	Random turn-on	1ms
Max turn-off time		10ms
Transient overvoltage		600Vpk
Min off-state dv/dt		100V/μs
Min power factor		0.5

GENERAL

Dielectric strength		2500Vrms min., 50/60Hz for 1min
Insulation resistance		1000MΩ, min. (at 500VDC)
Max capacitance input/output		5pF
Ambient temperature	Operating	-30 --- +85 °C
	Storage	-30 --- +100 °C
Ambient humidity		45% --- 85%
Weight		18g max.

Notes: (1) All parameters at 25 °C. (2) See figure 1.
(3) See figure 2.

CHARACTERISTIC CURVES

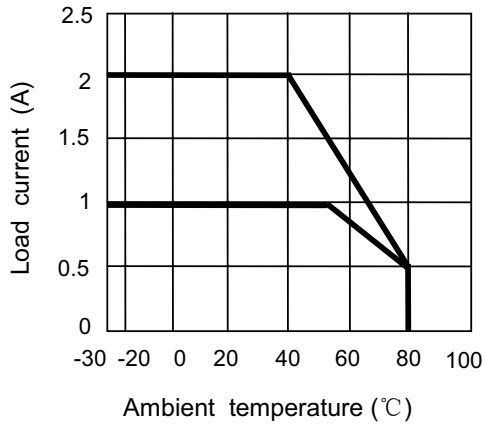


Figure 1 Maximum load current vs. ambient temperature

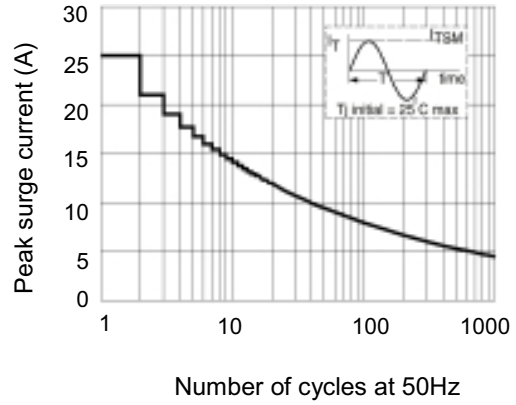
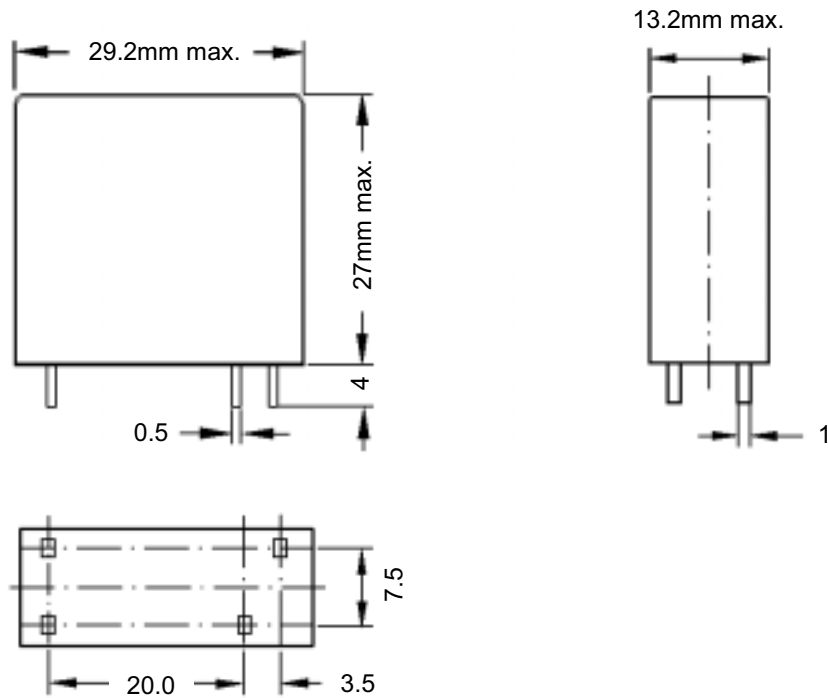


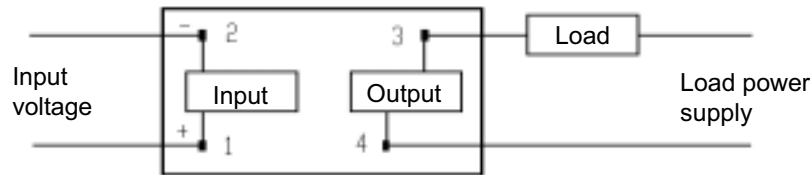
Figure 2 Maximum permissible non-repetitive peak surge current vs. Number of cycles

DIMENSIONS (mm)



TERMINAL ARRANGEMENT /INTERNAL CONNECTIONS

(Bottom view)

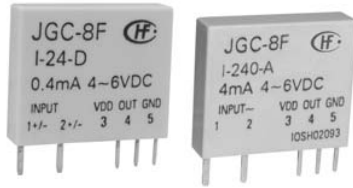


PRECAUTIONS

- Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.
- The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.
- When using the JGX-40FA series for an AC load with a peak voltage of more than 450V, connect the load terminals of the relay to an inrush absorber (varistor) . The recommended varistor voltage, 440 to 470V.
- Before connecting a load that generates a high surge current, such as a lamp load to the SSR, make sure that the SSR can withstand the surge current of the load.
- The product data sheet shows the non-repetitive peak value of the surge current that flows through the SSR. Normally, use 1/2 the non-repetitive peak surge current as the standard value. If a surge current exceeding that value is expected, connect a quick-blowing fuse to protect the SSR.

JGC-8F (Iput module)

SOLID STATE RELAY



Features

- I/O modules for interface between CPU
- External input devices or loads.
- High isolation by employing photo-coupled devices (between input and output:2500V rms).
- Ultra slim and light weight:
--size:20mmx17mmx5mm
- Printed circuit board mount

INPUT

Item	AC Input module		DC Input module	
	110VAC Type	240VAC Type	12/24VDC Type	
INPUT side	Input Voltage Range	80 to 132Vrms	160 to 265Vrms	9.6 to 28.8Vd.c.
	Rating input Current	15mA max.		5mA max. (at 14.4Vd.c.) 10mA max. (at 28.8Vd.c.)
	Power Frequency Range	47 to 63Hz		-- --
	Must Operate Voltage	80Vrms	160Vrms	9.6Vd.c.
	Must Release Voltage	30Vrms	40Vrms	5.0Vd.c.
OUTPUT side	Must Release Current	2mA rms		1.5mA
	DC Supply Voltage(VDD)	4 to 6Vd.c.		
	Maximum Output Current	4mA@(VDD=5V)		
	Output Logic	Operate with negative true logic(active low)		
	Maximum Operate Time	25ms		10ms
Maximum Release Time	30ms		10ms	
Insulation Resistance	Minimum 1000MΩ(at 500Vd.c.)			
Dielectric Strength	2500Vrms 1minute			
Operating Temperature Range	-30°C to +85 °C			
Storage Temperature	-40°C to +100 °C			
Case Color	Yellow		White	
Weight	3.5g max.			

ORDERING INFORMATION

Input module

Type	JGC-8F /	I	110	A	XXX
Module Type	I : Input Module				
Nominal Voltage (Input)	110:110VAC 240:240VAC 12:12VAC 24:24VAC				
Input Voltage	A: AC type D: DC type				
Customer special request code					

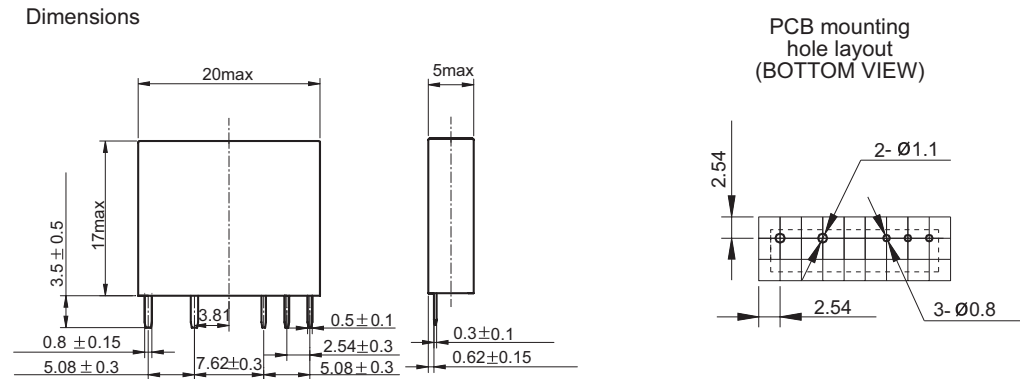
Solid State Relays JGC-8F

PRECAUTIONS

1. Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.
2. The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

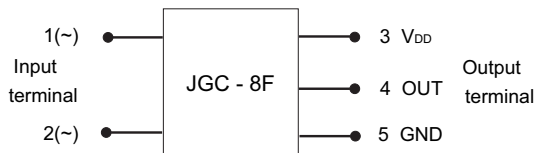
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

input module

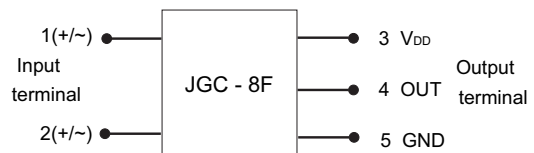


Wiring Diagram

JGC-8F/I ()A type

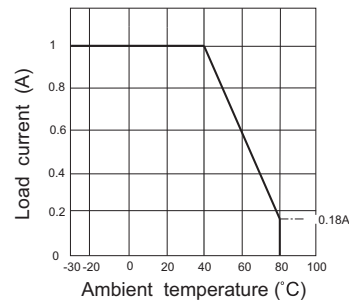


JGC-8F/II ()D type



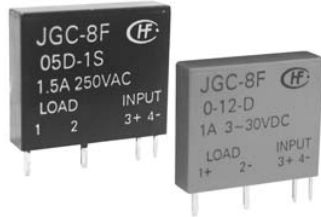
CHARACTERISTICS CURVE

Figure 1 Maximum load current vs. ambient temperature



JGC-8F (Output module)

SOLID STATE RELAY



Features

- I/O modules for interface between CPU
- External input devices or loads.
- High isolation by employing photo-coupled devices (between input and output:2500V rms).
- Ultra slim and light weight:
--size:20mmx17mmx5mm
- Printed circuit board mount

OUTPUT MODULE

Item		AC Output module	DC Output module	Remarks
Nominal Voltage(DC)		3V, 5V, 12V, 24V	5V, 12V, 24V	
INPUT side	Operate Voltage Range	±20% of nominal voltage		
	Must Operate Voltage	80% of nominal voltage		
	Must Release Voltage	Minimum 1V		
	Maximum Input Current	Maximum 15mA(at 120% of Nominal Voltage)		
	Load Voltage Range	24 to 265Vrms	3 to 30Vd.c.	
	Maximum Load Current	1.0Arms	1.0A	see CHARACTERISTIC DATA
OUTPUT side	1 Cycle Surge Current	15A(60Hz)	3A(10ms)	
	Max. Off-State Leakage Current	1.5mArms	0.1mA(at 30Vd.c.)	
	Max. On-state Voltage Drop	1.2Vrms	1.2V	at max. load current
Maximum Operate Time		1ms		
Maximum Release Time		1/2 cycle+1ms	1ms	
Insulation Resistance		Minimum 1000M*(at 500Vd.c.)		for input-output
Dielectric Strength		2500Vrms 1minute		
Operating Temperature Range		-30°C to +85 °C		
Storage Temperature		-40°C to +100 °C		
Case Color		Black	Red	
Weight		3.5g max.		

ORDERING INFORMATION

output module

	JGC-8F /	O	12	D	XXX
Type					
Module Type	O : Output Module				
Nominal Voltage(input side)	03:3VAC (only AC type) 05:5VAC 12:12VAC 24:24VAC				
Output Voltage	A: AC type D: DC type				
Customer special request code					

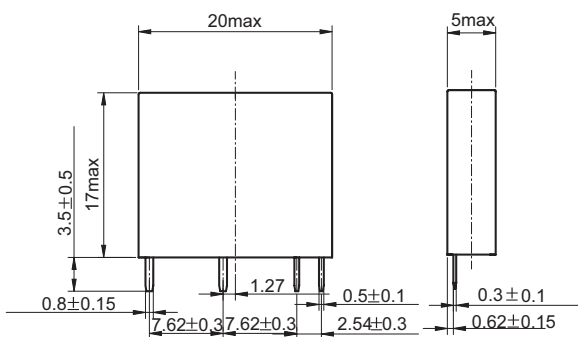
PRECAUTIONS

1. Soldering must be completed within 10 seconds at 260 °C or less or within 5 seconds at 350 °C or less.
2. To output module, the SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.
3. When using the JGC-8F/O () A series for an AC load with a peak voltage of more than 450V, connect the load terminals of the relay to an inrush absorber (varistor). The recommended varistor voltage, 440 to 470V.

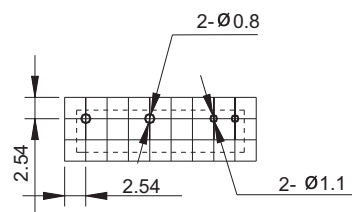
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

output module

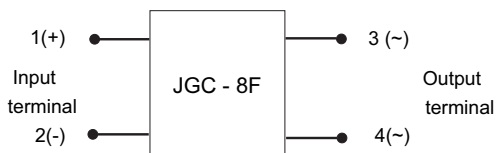
Dimensions



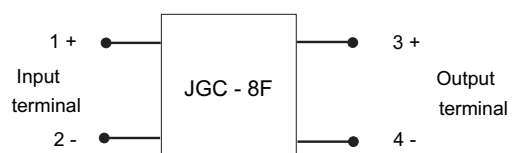
PCB mounting
hole layout
(BOTTOM VIEW)



JGC-8F/O () A type

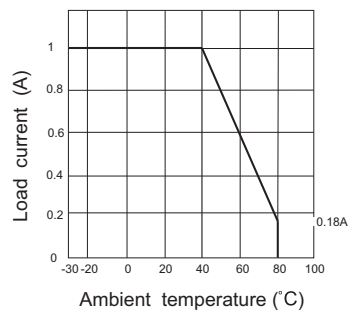


JGC-8F/O () D type



CHARACTERISTICS CURVE

Figure 1 Maximum load current vs. ambient temperature



JGX-41F

SOLID STATE RELAY



Features

- Input: DC control
- Double SCR AC output or TRIAC AC output
- Dielectric Strength: 4000VAC, 1min
- DBC Board
- Printed circuit board mount

INPUT

Input voltage 1D	3-15VDC
Input voltage 2D	15-32VDC
Must operate voltage 1D	3VDC max.
Must operate voltage 2D	15VDC max.
Must release voltage	1.0VDC min.

OUTPUT

Load voltage range (@47-63Hz)	48 - 264VAC (at D24 model)
	48 - 440VAC (at D38 model)
Load current range	0.1- 16A (see Fig.1)
Max.Surge current ¹ (10ms)	250Apk (see Fig.1)
Max.off-state leakage current (@ Rated voltage)	1.5mA
Max.on-state voltage drop	1.5V
Max. Turn-on time	Zero-cross 10ms
	random 1ms
Max turn-off time	10ms
Transient overvoltage	600Apk max. (at D24 model)
	800Apk max. (at D38 model)
Min. off-state dv/dt	200V/s min.
Min. power factor	0.5

GENERAL

Dielectric strength (input-output)	4000VAC 1min. 50/60HZ 1min.
Insulation resistance	1000MΩ, min. 500VDC
Vibration	Double range 1.5mm 10 - 55Hz
Ambient operating temperature range	-30°C to +80°C
Ambient storage temperature range	-30°C to +100°C
Ambient humidity	45% to 85%
weight	Max. 15g

PRECAUTIONS

1. Soldering must be completed within 10 seconds at 260°C or less or within 5 seconds at 350°C or less.
2. The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.
3. The input circuitry does not incorporate a circuit protecting the SSR from being damaged due to a reversed connection. Make sure that the polarity is correct when connecting the input lines.
4. When using the JGX-41F series for an AC load with a peak voltage of more than 450V, connect the load terminals of the relay to an inrush absorber (varistor). The recommended varistor voltage, 440 to 470V.
5. The load terminals are internally connected to a snubber circuit that absorb noise. However, if wiring from these terminals is laid with or placed in the same duct as high-voltage or power lines, noise may be induced, causing the SSR to operate irregularly or malfunction.

DESCRIPTION

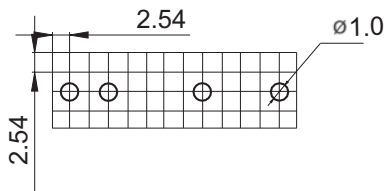
JGX-41F pin-out is compatible with standard OAC type I/O modules, and all models are available with random turn-on as an alternative to zero-cross turn-on. The JGX-41F SSR range offers a choice of 240, 380Vac versions. Input Voltage specifications have 3-15Vd.c. and 15-32Vd.c.. All models include an internal snubber.

ORDERING INFORMATION

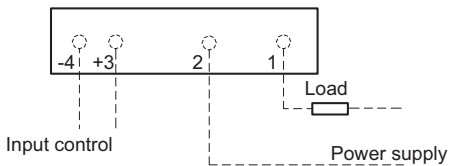
JGX-41F / 2D 24 Z 05 T	
Type	
Input voltage range	1D: 3-15Vd.c. 2D: 15-32Vd.c.
Onput voltage	24: 240Va.c. 38: 380Va.c.
Zero Cross Function	Z: Zero cross turn-on P: Random turn-on
Load current	03: 3Amp 05: 5Amp 08: 8Amp 16: 16Amp
Output Type	S: SCR output T: TRIAC output

OUTLINE DIMENSIONS, WIRING DIAGRAM AND MOUNTING HOLES

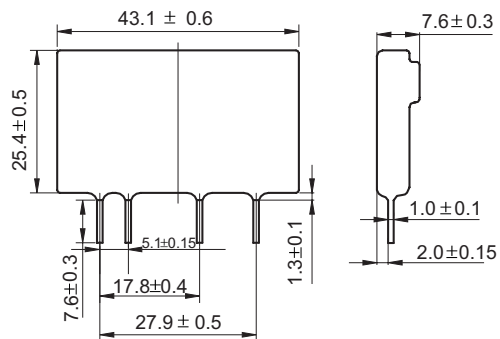
Mount dimension



Wiring diagram



Dimensions(mm)



CHARACTERISTICS CURVE

Figure 1 Maximum load current vs. ambient temperature

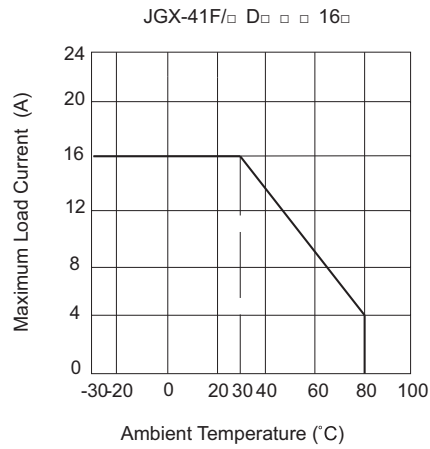
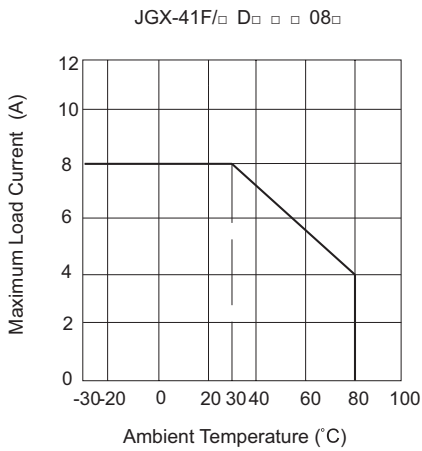
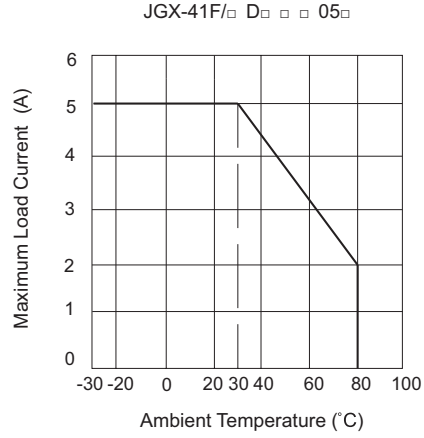
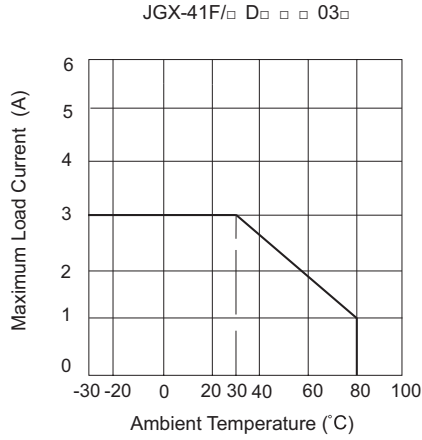
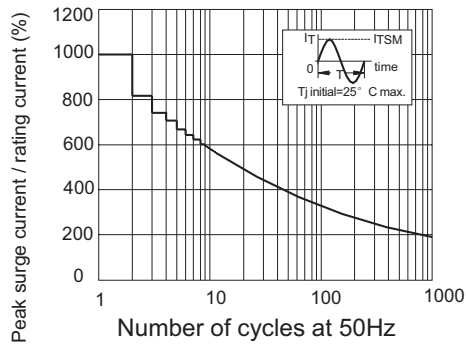
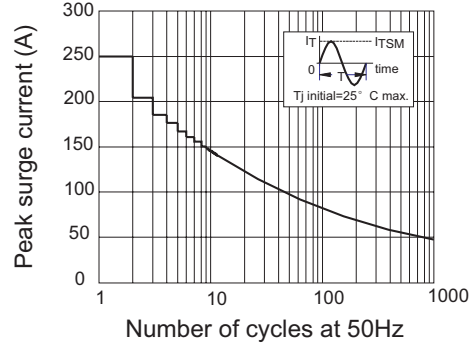


Figure 2 Maximum permissible non-repetitive peak surge current vs. Number of cycles



TRIAC output Maximum permissible non-repetitive peak surge current vs. Number of cycles



SCR Output Maximum permissible non-repetitive peak surge current vs. Number of cycles

JG-33F

THREE-PHASE SOLID STATE RELAY



Features

- MOSFET Output
- DC Control
- Low on-state resistance
- Photo isolation
- Standard panel mount package
- 2500Vrms Dielectric strength

INPUT

Control voltage range	3-32VDC
Must operate voltage	3VDC
Must release voltage	1.0VDC
Maximum input current	28mA(@32VDC)

DESCRIPTION

JG-33F Series offer 3-32VDC input control and use MOSFET technology to provide an economical and reliable method of switching medium and high power DC loads. These relays combine low on-state resistance with fast switching times. They are available with switching currents 10A,30A at 220V and 400V and 500V.

OUTPUT (D220D10)

Load Voltage Range	25/220/400/500VDC
Load Current Range ⁽²⁾	10/30A
Max Off-State Leakage Current @ Rated Voltage	0.1mA
Max On-State Resistance	0.2 Ω
Max Turn-On Time	0.5ms
Max Turn-Off Time	0.5ms
Max Off-State Voltage	250VDC

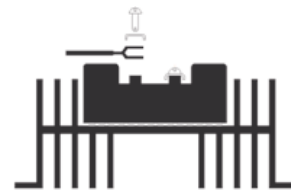
GENERAL

Dielectric strength (Input/Output/Base)	2500Vrms 1min.	
Insulation resistance	1000MΩ 500VDC	
Ambient temperature	Operating	-30°C to +80°C
	Storage	-30°C to +100°C
Unit weight	Max. 80g	

Notes : (1) All parameters at 25 °C
(2)See CHARACTERISTIC DATA

PRECAUTIONS

1. Inductive loads must be diode suppressed.
2. Input and output polarity must be observed.
3. Heat sinking required,for derating curves see CHARACTERISTIC DATA.



Solid State Relays

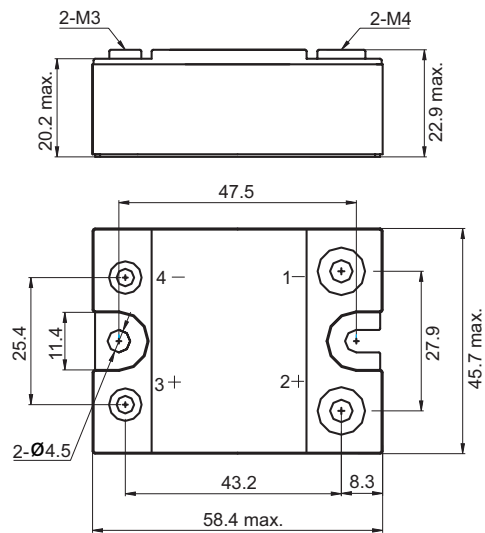
JG-33F

ORDERING INFORMATION

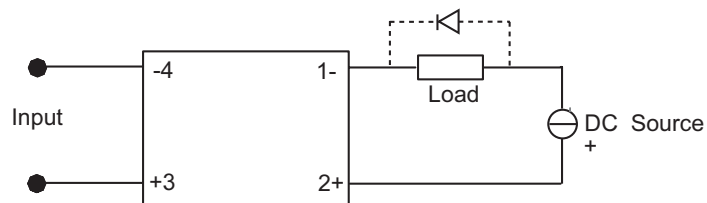
Type	JG-33F /	D	400	D	XXX
Input voltage	D: DC type 3~32 VDC				
Nominal Voltage	24, 30, 50, 100, 150, 200, 400, 500VDC				
Load Current	D10: 10Amp D30: 30Amp				
Customer special request code					

OUTLINE DIMENSIONS, WIRING DIAGRAM AND MOUNTING HOLES

DIMENSIONS



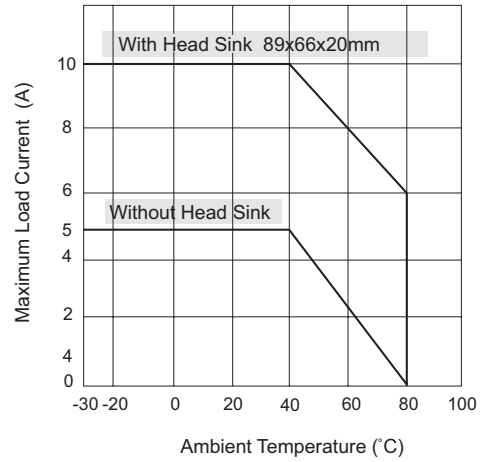
SCHEMATICS



Inductive loads must be diode suppressed.

CHARACTERISTICS DATA

(D220D10)



Maximum Load Current vs. Ambient Temp.

JG-34F

THREE-PHASE SOLID STATE RELAY



Features

- 4000V dielectric strength
- Photo isolation
- Zero cross or random turn-on
- Double SCR AC output
- Panel mount
- DC or AC control

INPUT

Control voltage range (DC input)	3-32VDC
Control voltage range (AC input)	85-280VAC
Must operate voltage (DC input)	3VDC max.
Must operate voltage (AC input)	85VAC.
Must release voltage (DC input)	1.0VDC min.
Must release voltage (AC input)	10Vrms
Maximum input current (DC input)	28mA(@32VDC)
Maximum reverse protection voltage(DC input)	- 32VDC

OUTPUT

Max. Off-State Leakage Current (@ Rated Voltage)	5mA
Max. On-State Voltage Drop (@ Rated Current)	1.7Vrms
Max. Turn-on Time	Random Turn-on (DC Input) : 1ms
	Zero Cross Turn-on : 1/2 cycle (DC Input) +1ms
	AC Input Type : 20ms
Max turn-off time	(DC input) 1ms+ 1/2 cycle
	(AC input) 40ms
Min. off-state (dv/dt)	500V/us.min.

GENERAL

Dielectric strength (@50/60Hz for 1min)	4000Vrms 1min.
Insulation resistance	1000MΩ 500VDC
Ambient temperature	Operating -30°C to +80°C
	Storage -30°C to +100°C
Ambient Humidity	45% to 85%
Unit weight	88g

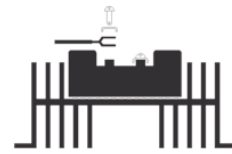
DESCRIPTION

The JG-34F offer 3-32VDC or 85-280VAC input control, with outputs rated at 25、40、60、80、100 or 120Amps. All models include an internal snubber. The relays provide 4000Vrms opto-isolation between input and output.

INSTALLATION

1. When mounting the relays side by side, provide a space equivalent to the width of a single SSR between two adjacent SSRs. Otherwise, The load current flow must reduce to 1/2 or 1/3 of the rated current.

2. When mounting relays on heat sink surface, first apply a heat conductive grease to the metal back surface of the Solid State Relay. Press the SSR firmly onto the heat sink to ensure a good seal. Screw the SSR down to the heat sink. Last, wire the screw terminals and securely tighten the screws.



PRECAUTIONS

1. Before connecting the high surge current load, such as the lamp load, make sure that the SSR can withstand the surge current of the load.

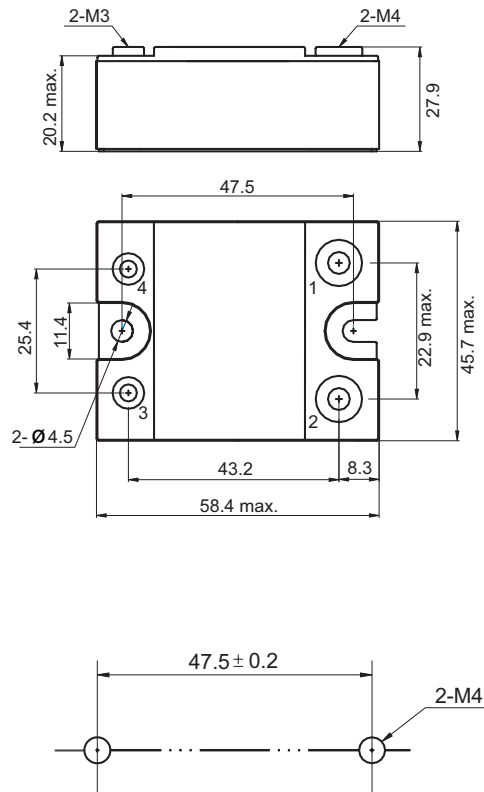
2. The product data sheet shows the non-repetitive peak value of the surge current that flows through the SSR. Normally, use 1/2 of the non-repetitive peak surge current as the standard value. If the surge current exceeding that value is expected, connect a quick-blowing fuse to protect the SSR.

ORDERING INFORMATION

Type	JG-34F /		D	24	Z	025	XXX
Input voltage	D: 3-32VDC		A: 85-280VAC				
Load Supply voltage	24: 48-240Va.c.		38: 48-440Va.c.				
Zero Cross Function	Z: Zero cross turn-on		P: Non-zero cross turn-on				
Load Current	025: 25Amp	040: 40Amp	060: 60Amp				
	080: 80Amp	100: 100Amp	120: 120Amp				
Customer special request code							

OUTLINE DIMENSIONS, WIRING DIAGRAM AND MOUNTING HOLES

Outline Dimensions



Solid State Relays

JG-34F

CHARACTERISTICS CURVE

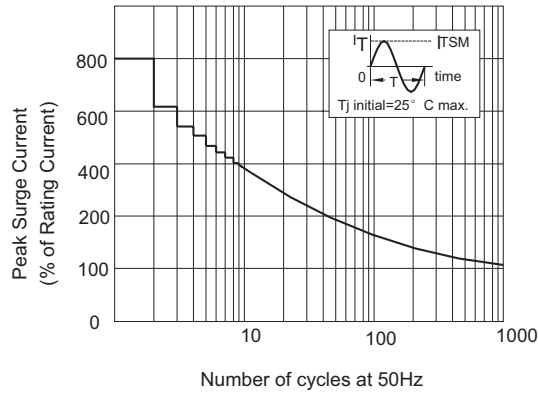


Figure 1 Maximum permissible non-repetitive peak surge current vs. Number of cycles

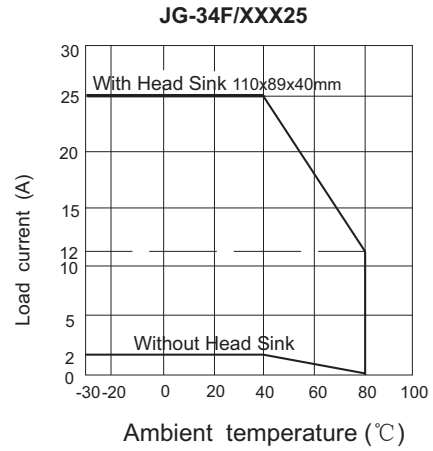


Figure 2 Maximum load current vs. ambient temperature

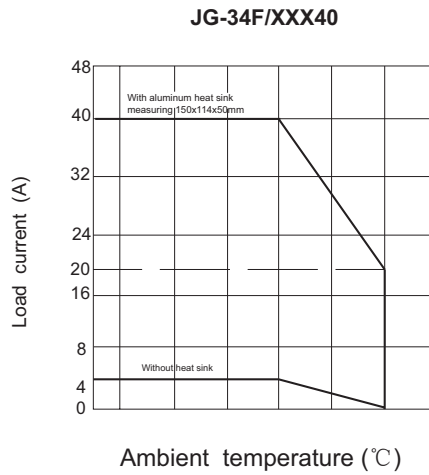


Figure 3 Maximum load current vs. ambient temperature

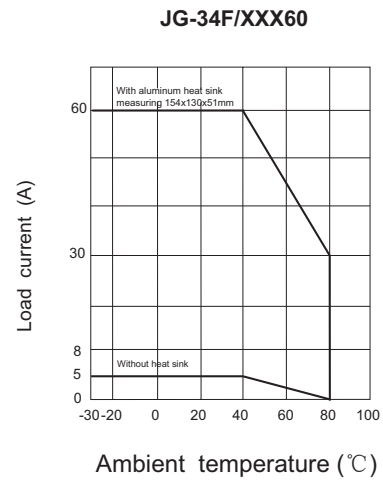


Figure 4 Maximum load current vs. ambient temperature