

# Company Profile

Ningbo Forward Relay Corporation Ltd. is a well-known joint venture enterprise specialized in R & D and mass production of electromagnetic relays for over 30 years. We have become one of the largest bases for relay R&D and production in China. In year 2008, Forward was rated as “Zhejiang Export Famous Brand”. The later in 2020, Forward was awarded as “Little Giant” in China.

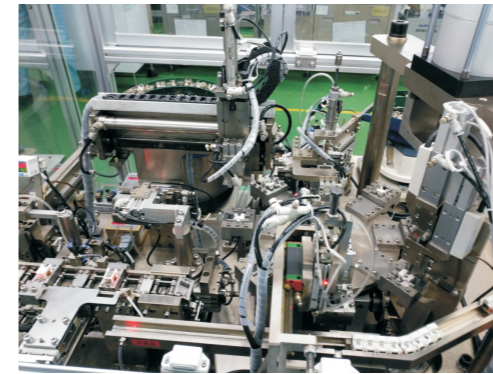
Ningbo Forward is the National Approved Hi-tech Manufacture and the First State-level Enterprise with Advantages in Intellectual Property Right. Strong R&D team and the Provincial Relay Lab as well as the Ningbo Forward New Energy Relay Institute was equipped with the top engineering and technical staffs at home and abroad to develop more than 100 kinds of products with thousands of specifications including the Signal Relays, Power Relays, Automotive Relays, Latching Relays and New Energy Relays. We were certified as Zhejiang Patent Demonstration Enterprise. We have obtained over 140 national patents including total 21 patents that the invention patents and US patent related. Forward became the first-batch with Intellectual property Management System (GB/T29490-2013) approved enterprise in 2014. And in 2020, Forward was listed into the pilot enterprise for the application of intellectual property right.

We have imported and developed over 50 automatic production lines and the annual output is over 300 million pieces. Our products are widely used in telecommunications, automobiles, automatic control, household appliances, industry automation and etc. We have the long-term cooperation with the customers from Germany and Japan, also the reliable technical development and supply & demand relationship was established. More than 60% of our products are exported to over 80 countries and regions for 30 consecutive years.

Forward has a complete set of international quality management system, the company has been certified successfully with ISO9001, IATF16949, ISO14001 and ISO45001 system certificates. Our products have been approved by VDE, TÜV, UL/CUL and CQC safety certificates.

The Forward is with the advanced process technology, reliable quality management, perfect technical service and competitive price and the company adheres to the principle of “continuous improvement, customer satisfaction achieved” and committed to providing the customers worldwide the good quality product and boosting the customer business.

# Process of Manufacturing



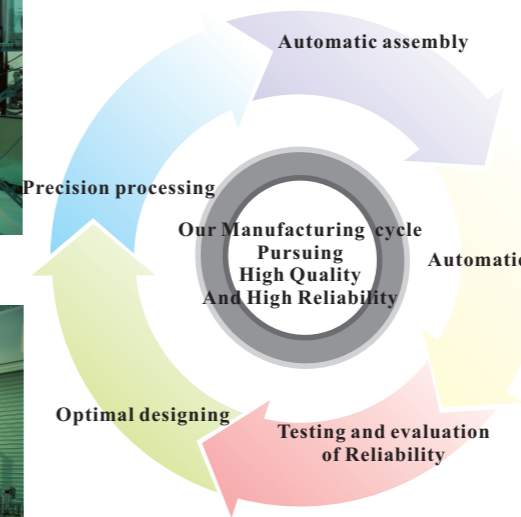
Automatic assembly



Performance check



Laser welding



Automatic inspection



Precision injection



Final inspection



Coating measurement



UL Certified lab

**Quality Management System Certificate**  
This is to certify that NINGBO FORWARD RELAY CORP. LTD. has been certified in accordance with the Rules for registration scheme for IATF16949:2016 and found to be in conformance to the following standard: IATF16949:2016

**Environmental Management System Certificate**  
This is to certify that NINGBO FORWARD RELAY CORP. LTD. has been certified in accordance with the Rules for registration scheme for ISO14001:2015 and found to be in conformance to the following standard: ISO14001:2015

**Certificate of Registration**  
This is to certify that Ningbo Forward Relay Corp. LTD. has been certified in accordance with the Rules for registration scheme for ISO45001:2018 and found to be in conformance to the following standard: ISO45001:2018

ISO9001 CERTIFICATE IATF 16949 CERTIFICATE ISO14001 CERTIFICATE ISO45001 CERTIFICATE

## SELECTION GUIDE

Terminal				Coil		Relay type	Contact Form	Page	Switching Current (A)										
PCB	Plug-in	QC	Other	DC	AC				0	5	10	15	20	25	30	40	80	100	
						P		1	2A										
						PS		1	2A										
			SMT			NX		2	2A										
						M4	2C	2	2A										
						M4S		2	3A										
						M1B		2	1A										
						M1BS		2	2A										
						JRC-23F	1C	3	1A										
						N4100F	1A 1C	3	5A										
						N4100F-2		3	5A										
						N4078	2C	3	2A										
						NG6D	1A	4	5A										
						JZC-32F	1A 1C	4	10A										
						JZC-33F	1A 1C	4	10A										
						NT10	1A	5	7A										
						N68F	1A 1C	11	8A										
						JZX-18FF	2C 3C 4C	6	5A 10A										
						JQX-13F	1C 2A 2B 2C	5	12A 20A										
						JQX-102F	1A	7	25A										
						JQX-14FC <sub>1</sub>	1A 1C	10	20A										
						NT72&NT72-2	1A 1B 1C	7	12A										
						NT73	1A 1B 1C	7	12A										
						NT73-2	1A 1B 1C	8	20A										
						NT73-2D	1A 1C	8	12A										
						NT73-3	1A 1B 1C	8	20A										
						NT73-4		9	12A										
						NT73-4T	1A 1C	9	15A										
						NT74	1A 1C	9	10A										
						NT75	1A 1C 2A 2C	10	10A 16A										
						NT75H	1A 1C	11	25A										
						NT76	1A 1C	12	16A										
						NT77	1A	12	12A										
						JZC-22F	1A 1C	12	15A										
						JZC-22F <sub>3</sub>	1A 1B 1C	13	20A										
						JZC-22F <sub>4</sub>	1A	13	32A										
						NT90	1A 1B 1C	14	30A 40A										
						NT99	1A 1B 1C	15	30A 50A										
						NT90(50A)	1A 1B 1C	15	50A										
						NT90W(60A)	1A 1C	15	50A 60A										
						NT90T	1A 1B 1C	16	30A 40A										
						NT99-1	1A 1B 1C	18	30A 50A										
						NT90T(50A)	1A 1B 1C	16	50A										
						NT90TP	1A 1B 1C	17	30A 40A										
						NT90TP(50A)	1A 1B 1C	17	50A										
						NT98	1A	14	30A 50A										
						NT90L		18	30A 50A										
						NT91L	1A 1B 1C	18	30A 50A										
						NT74L	1A 1C	19	10A										
						NT75L	1A 1C	20	16A										
						NT95L	1A	19	50A										
						NT78	1A 1B 1C 1U	22	30A										
						NV23K&NV23KW	1A 1C	20	30A										
						NV231	2A 2C	20	30A										

## SELECTION GUIDE

Terminal				Coil		Relay type	Contact Form	Page	Switching Current (A)										
PCB	Plug-in	QC	Other	DC	AC				0	5	10	15	20	25	30	40	80	100	
						4117	1A 1B 1C 1U 1V 1W	21	20A										
						4120	1A 1B 1C	21	30A 45A										
						NVF4-1		22	20A 40A										
						NVF4-2	1A 1B 1C	22	20A 40A										
						NVF4-2a		22	20A 40A										
						NVF4-2b		22	20A 40A										
						NVF4-3	1A 1B 1C 1U	23	25A 100A										
						NVF4-4		23	25A 100A										
						NVF4-6	1A 1C	24	150A										
						NVF4-7	1A	24	70A										
						NVF4-8	1A	24	70A										
						NVF6	1A 1C	25	50A										
						NVF7	1A	26	80A										
						NVF8	1A	25	20A										
						NCV	1A	27	25A										
						NVFM	1A 1C	24	35A										
						NVFS	1A	27	30A										
						NVF11		26	30A										
						NVF12	1A	26	30A										
						NVF16	1A 1C	28	40A										
						NVF28	1A 1C	27	35A										
						NG8N & NG8NW	1C 2C	29	25A(motor)										
						NG8QN&NG8QW	1C 2C	29	20A										
						NJ70&NJ71	1A 1C	28	80A										
						NJ120	1A	28	100A										



Forward Factory Buildings

Classification		Signal relay	
Type	P	PS	
International Security Certificates	c	c	
Outline Dimensions(mm) L×W×H	 14×9×5	 14×9×5.3	
Features	<ul style="list-style-type: none"> <li>SMT and DIP terminals. High sensitivity, coil power:0.1W or 0.14W.</li> <li>Conforms to FCC Part 68 1.5kV surge and dielectric 1000VAC.</li> <li>Monostable and bistable relays, single and double coils magnet latching type available.</li> </ul>		
Coil Voltage(VDC)	3,4,5,5,6,9,12,24	3,4,5,5,6,9,12,24	
Coil Power	0.1W 0.14W 0.15W 0.2W 0.30W	0.14W 0.2W	
Contact Material	AgPd(Gold clad) AgNi(Gold clad)		
Contact Arrangement	2C		2C
Contact transfer Current(A)	Max.	3A 2A 1A 0.1A	1A,2A/30VDC,0.5A/125VAC
	Min.	0.01mA	0.01mA/10mV
Contact Rating	0.01mA/10mV to 1A,2A/30VDC,0.5A/125VAC		0.01mA/10mV to 1A,2A/30VDC,0.5A/125VAC
Max.Switching power	60W 62.5VA		60W 62.5VA
Max.Switching voltage	220VDC 250VAC		220VDC 250VAC
Ambient Temperature	-40°C~70°C		-40°C~85°C
Dielectric Strength	Between Contacts	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V
	Between Contact and Coil	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V
Insulation Resistance	1000M Ω		1000M Ω
Initial Contact Resistance	≤50m Ω		≤50m Ω
Electrical Life(operations)	2×10 <sup>5</sup> (DC,AgPd); 1×10 <sup>5</sup> (DC,AgNi);1×10 <sup>5</sup> (AC)		2×10 <sup>5</sup> (DC,AgPd); 1×10 <sup>5</sup> (DC,AgNi);1×10 <sup>5</sup> (AC)
Mechanical Life(operations)	1×10 <sup>8</sup>		1×10 <sup>8</sup>
Weight(Approx.)	1.5g		1.5g
Mounting Layout (Bottom View) (mm)			
Wiring Diagram (Bottom View)			
Cross Reference	TE AXICOM: FP2/V23106 OMRON: G6H PANASONIC: TQ		

Signal relay				
NX	M4	M4S	M1B	M1BS
 c  us E158859	 c  us E158859 	 c  us E158859 	 c  us E158859 	 c  us E158859 
 15×7.5×9.4	 20×10×12	 20×10×12	 20×10×11	 20×10×11
<ul style="list-style-type: none"> <li>DIP terminals.</li> <li>Conforms to FCC Part 68 2.5kV surge and dielectric 1500VAC.</li> <li>High contact capacity 2A/30VDC.</li> </ul>	<ul style="list-style-type: none"> <li>DIP terminals, high sensitivity.</li> <li>Conforms to FCC Part 68 1.5kV surge and dielectric 1000VAC.</li> <li>Fully sealed for immersion cleaning.</li> <li>High reliability bifurcated contact.</li> </ul>	<ul style="list-style-type: none"> <li>DIP terminals, high sensitivity.</li> <li>Conforms to FCC Part 68 1.5kV surge and dielectric 1000VAC.</li> <li>Fully sealed for immersion cleaning.</li> <li>High reliability bifurcated contact.</li> </ul>	<ul style="list-style-type: none"> <li>DIP terminals, high sensitivity.</li> <li>Conforms to FCC Part 68 1.5kV surge and dielectric 1000VAC.</li> <li>Fully sealed for immersion cleaning.</li> <li>High reliability bifurcated contact.</li> </ul>	<ul style="list-style-type: none"> <li>DIP terminals, high sensitivity.</li> <li>Conforms to FCC Part 68 1.5kV surge and dielectric 1000VAC.</li> <li>Fully sealed for immersion cleaning.</li> <li>High reliability bifurcated contact.</li> </ul>
3,4,5,5,6,9,12, 24	3,5,6,9,12,24,48	3,5,6,9,12,24,48	3,5,6,9,12,24,48	3,5,6,9,12,24,48
0.14W 0.2W	0.15W 0.2W 0.30W	0.15W 0.2W 0.30W	0.4W 0.55W	0.4W 0.55W
AgPd (Gold clad) AgNi(Gold clad)	AgPd(Gold clad) AgNi(Gold clad)	AgNi(Gold clad)	AgPd(Gold clad) AgNi(Gold clad)	AgNi(Gold clad)
2C	2C	2C	2C	2C
 2A 0.01mA/10mV	 2A 0.01mA/10mV	 3A 1mA/10mV	 1A 0.01mA/10mV	 2A 1mA/10mV
0.01mA/10mV to 2A/30VDC 0.5A/125VAC	0.01mA/10mV to 1A/24VDC, 0.5A/120VAC 2A/30VDC	1mA/10mV to 2A,3A/30VDC, 0.6A/125VAC	0.01mA/10mV to 1A/24VDC 0.5A/120VAC	1mA/10mV to 2A/30VDC 0.6A/125VAC
60W 62.5VA	60W 125VA	90W 125VA	60W 125VA	60W 125VA
220VDC 250VAC	220VDC 250VAC	220VDC 250VAC	220VDC 250VAC	220VDC 250VAC
-40°C~85°C	-40°C~90°C -40°C~80°C(0.3W)	-40°C~90°C -40°C~80°C(0.3W)	-40°C~65°C -40°C~70°C(0.4W)	-40°C~65°C -40°C~70°C(0.4W)
50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V
50Hz 1500V Surge voltage:2500V	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V	50Hz 1000V Surge voltage:1500V
1000M Ω	1000M Ω	1000M Ω	1000M Ω	1000M Ω
≤70m Ω	≤50m Ω	≤100m Ω	≤50m Ω	≤100m Ω
1×10 <sup>5</sup>	1A/24VDC:5×10 <sup>5</sup> (AgNi:1×10 <sup>5</sup> ) 2A/30VDC: 1×10 <sup>5</sup> 0.5A/120VAC: 2×10 <sup>5</sup>	1×10 <sup>5</sup>	1A/24VDC:5×10 <sup>5</sup> (AgNi: 1×10 <sup>5</sup> ) 2A/30VDC: 1×10 <sup>5</sup> 0.5A/120VAC: 2×10 <sup>5</sup>	1×10 <sup>5</sup>
1×10 <sup>8</sup>	1×10 <sup>8</sup>	1×10 <sup>8</sup>	1×10 <sup>8</sup>	1×10 <sup>8</sup>
2g	4.8g	4.8g	4.8g	4.8g
TE: AXICOM P2/V23079 OMRON: G6S PANASONIC: TX			TE: V23042 OMRON: G6A PANASONIC: DS2Y	

Classification	Signal relay			
Type	JRC-23F	N4100(N4100F)	N4100F-2	N4078(JRC-19F)
International Security Certificates	us E158859	us E158859		us E158859
Outline Dimensions(mm) L×W×H	 12.5×7.5×10	 15.5×11×11.5	 15.5×11×11.5	 21×10×12
Features	<ul style="list-style-type: none"> <li>Low coil power consumption.</li> <li>High sensitivity.</li> <li>Small size, light weight.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Low coil power consumption.</li> <li>High sensitivity.</li> <li>Small size, light weight.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Low coil power consumption.</li> <li>High sensitivity.</li> <li>Small size, light weight.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Low coil power consumption.</li> <li>PC board mounting.</li> </ul>
Coil Voltage(VDC)	1.5,3,5,6,9,12,24	3,5,6,9,12,18,24	3,5,6,9,12,18,24	5,9,12,24
Coil Power	0.15W 0.2W	0.2W 0.36W 0.45W	0.2W 0.36W 0.45W	0.2W 0.36W
Contact Material	AgNi(Gold clad)	Ag Alloy(Gold clad)	Ag Alloy(Gold clad)	Ag AgNi(Gold clad)
Contact Arrangement	1C	1A,1C	1A,1C	2C
Contact transfer Current(A)	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 8px; margin-right: 5px;">                     35A 30A 25A 20A 15A 10A 5A 1A 0.5A 0.1A                 </div> <div style="border: 1px solid black; padding: 2px; text-align: center;">1A</div> </div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">5A</div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">5A</div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">2A</div>
Contact Rating	1A/30VDC 0.3A/60VDC 0.5A/125VAC	1A, 2A, 3A, 5A /125VAC, 30VDC 5A/14VDC	1A, 2A, 3A, 5A /125VAC, 30VDC 5A/14VDC 2A/250VAC	2A/30VDC, 1A/125VAC
Max.Switching power	30W 62.5VA	150W 625VA	150W 625VA	60W 125VA
Max.Switching voltage	60VDC 125VAC	30VDC 250VAC	30VDC 250VAC	30VDC 220VAC
Ambient Temperature	-30°C~70°C	-25°C~85°C	-25°C~85°C	-30°C~70°C
Dielectric Strength	Between Contacts: 50Hz 400V Between Contact and Coil: 50Hz 1000V	50Hz 500V 50Hz 1000V	50Hz 500V 50Hz 1000V	50Hz 500V 50Hz 1000V
Insulation Resistance	1000MΩ	100MΩ	100MΩ	500MΩ
Initial Contact Resistance	≤100mΩ	≤50mΩ	≤50mΩ	≤50mΩ
Electrical Life(operations)	1×10 <sup>5</sup>	85°C 1×10 <sup>5</sup>	85°C 1×10 <sup>5</sup>	1×10 <sup>5</sup>
Mechanical Life(operations)	5×10 <sup>6</sup>	1×10 <sup>7</sup>	1×10 <sup>7</sup>	1×10 <sup>7</sup>
Weight(Approx.)	2.2g	3.8g	3.8g	5.5g
Mounting Layout (Bottom View) (mm)				
Wiring Diagram (Bottom View)				
Cross Reference	TE: V23111 OMRON: G5V-1 PANASONIC: HY	TE: V23101 OMRON: G2E	TE: V23101 OMRON: G2E	TE: AXICOM D2N/V23105 OMRON: G5V-2 PANASONIC: DS2Y

Signal relay	Power relay	
NG6D	JZC-32F	JZC-33F
us E158859	us E160644	us E160644
 17.5×6.5×12.5	 18.4×10.2×15.4	 20.5×10.6×15.6
<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>PC board mounting.</li> <li>Low coil power consumption 0.2W.</li> </ul>	<ul style="list-style-type: none"> <li>5A, 10A switching capability.</li> <li>450mW and 200mW coil available.</li> <li>Subminiature, standard PCB layout.</li> </ul>	<ul style="list-style-type: none"> <li>10A switching capability.</li> <li>Dielectric strength of 4000 V between coil and contacts.</li> <li>Subminiature, standard PCB layout.</li> </ul>
5,12,24	3,5,6,9,12,18,24	3,5,6,9,12,18,24
0.2W	0.2W 0.45W	0.2W 0.45W
Ag Alloy	Ag Alloy	Ag Alloy
1A	1A,1C	1A,1C
5A	10A	10A
10mA/5V to 5A/30VDC, 250VAC	5A/250VAC, 28VDC 10A/125VAC 4.2A/277VAC ¼HP 277VAC, 250VAC, 240VAC, 120VAC TV-5 120VAC	5A/250VAC, 28VDC 10A/125VAC 4.2A/277VAC ¼HP 277VAC, 250VAC, 240VAC, 120VAC TV-5 120VAC
150W 1250VA 30VDC 250VAC	150W 1250VA 30VDC 277VAC	150W 1250VA 30VDC 277VAC
-25°C~70°C	-40°C~85°C	-40°C~70°C
50Hz 750V	50Hz 1000V	50Hz 1000V
50Hz 3000V Surge voltage:6kV	50Hz 2500V	50Hz 4000V
1000MΩ	100MΩ	100MΩ
≤100mΩ	≤100mΩ	≤100mΩ
1×10 <sup>5</sup>	1×10 <sup>5</sup>	1×10 <sup>5</sup>
2×10 <sup>7</sup>	1×10 <sup>7</sup>	1×10 <sup>7</sup>
3g	6g	7g
OMRON: G6D	TE: OJ/OJE	TE: PCH OMRON: G5SB/G5Q PANASONIC: JQ/PQ

Classification		Power relay																																																																																																					
Type	NT10	JQX-13F																																																																																																					
International Security Certificates																																																																																																							
Outline Dimensions(mm) L×W×H	 20.5×7×15.3	 28×21.5×35.5																																																																																																					
Features	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>PC board mounting.</li> <li>Product in accordance to IEC60335-1 available.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight, heavy switching power.</li> <li>Optional mounting ways.</li> <li>With LED and with test button available.</li> <li>Firm structure, strong anti-shock &amp; anti vibration.</li> </ul>																																																																																																					
Coil Voltage(VDC)	5,12,18,24	DC: 6,12,24,36,48,110 AC: 6,12,24,36,48,110,120,220,240																																																																																																					
Coil Power	0.2W	0.9W 1.2VA																																																																																																					
Contact Material	Ag Alloy	AgCdO AgSnO <sub>2</sub>																																																																																																					
Contact Arrangement	1A	1C	2A,2B,2C																																																																																																				
Contact transfer Current(A)	<table border="1"> <tr><td>80A</td><td></td><td></td><td></td></tr> <tr><td>70A</td><td></td><td></td><td></td></tr> <tr><td>50A</td><td></td><td></td><td></td></tr> <tr><td>40A</td><td></td><td></td><td></td></tr> <tr><td>30A</td><td></td><td></td><td></td></tr> <tr><td>20A</td><td></td><td></td><td></td></tr> <tr><td>15A</td><td></td><td></td><td></td></tr> <tr><td>10A</td><td></td><td></td><td></td></tr> <tr><td>5A</td><td></td><td></td><td></td></tr> <tr><td>1A</td><td></td><td></td><td></td></tr> </table>	80A				70A				50A				40A				30A				20A				15A				10A				5A				1A				<table border="1"> <tr><td>20A</td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table>	20A																														<table border="1"> <tr><td></td><td></td><td>12A</td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table>			12A																											
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		12A																																																																																																					
Contact Rating	5A,7A/250VAC 5A/30VDC	15A,20A/277VAC,28VDC 1/3 HP 120VAC 240VAC	10A/277VAC 12A/250VAC,28VDC 1/3 HP 120VAC 240VAC 1/3 HP 125VAC																																																																																																				
Max.Switching power	150W 1250VA	560W 5540VA																																																																																																					
Max.Switching voltage	30VDC 277VAC	30VDC 300VAC																																																																																																					
Ambient Temperature	-40℃~105℃	-40℃~70℃																																																																																																					
Dielectric Strength	Between Contacts	50Hz 750V																																																																																																					
	Between Contact and Coil	50Hz 4000V Surge voltage:10kV																																																																																																					
Insulation Resistance	1000MΩ	1000MΩ																																																																																																					
Initial Contact Resistance	≤100mΩ	≤50mΩ																																																																																																					
Electrical Life(operations)	1×10 <sup>5</sup>	1×10 <sup>5</sup>																																																																																																					
Mechanical Life(Operations)	5×10 <sup>6</sup>	2×10 <sup>7</sup>																																																																																																					
Weight(Approx.)	4g	37g																																																																																																					
Mounting Layout (Bottom View) (mm)																																																																																																							
Wiring Diagram (Bottom View)																																																																																																							
Cross Reference	OMRON: G5NB PANASONIC: LD	OMRON: LY																																																																																																					

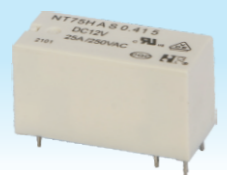
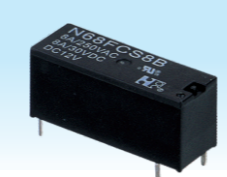
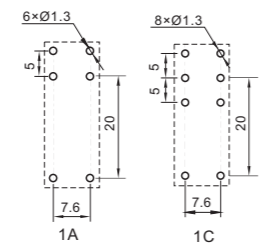
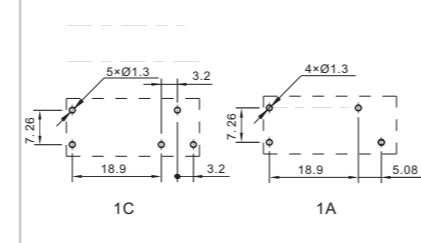
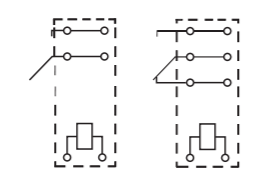
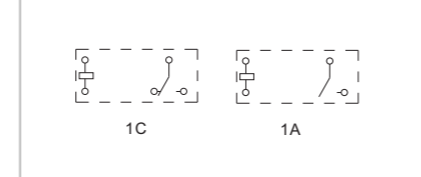
Power relay	
JZX-18FF	
 28×21.5×35.5	
<ul style="list-style-type: none"> <li>Small size, light weight, heavy switching power.</li> <li>Optional mounting ways.</li> <li>With LED and with test button available.</li> <li>Firm structure, strong anti-shock &amp; anti vibration.</li> </ul>	
DC:6,12,24,36,48,110	AC:6,12,24,36,48,110,120,220
0.9W 1.2VA	
AgCdO Ag alloy	
2C,3C,4C	
10A	5A
2C & 3C:5A,7A/220VAC,28VDC;7A/250VAC Heavy load:10A/220VAC,28VDC 4C:3A/220VAC,28VDC Heavy load:5A/220VAC,28VDC	
280W 2500VA	
150VDC 300VAC	
-55℃~70℃	
50Hz 1000V	
50Hz 1500V	
1000MΩ	
≤50mΩ	
3A:5×10 <sup>5</sup> ; 5A:2×10 <sup>5</sup> ; 7A:1×10 <sup>5</sup>	
2×10 <sup>7</sup> Heavy load:1×10 <sup>7</sup>	
37g	
OMRON: MY	

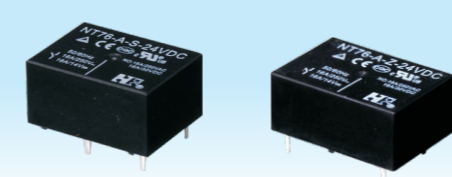

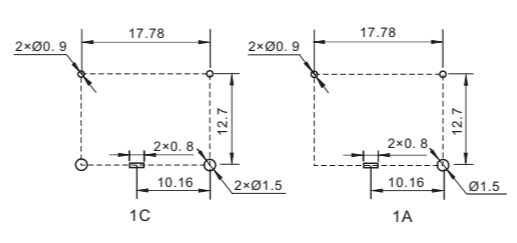
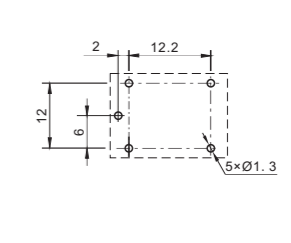
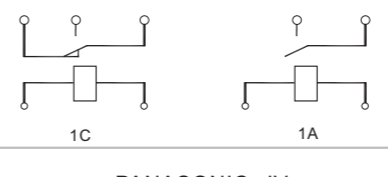
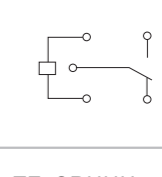
Classification		Power relay		
Type	JQX-102F	NT72&NT72-2		NT73
International Security Certificates				
Outline Dimensions(mm) L×W×H	 30.5×16.1×23.7	 22.3×17.3×15 21.4×16.5×15(NT72-2)		 19.5×15.6×15.3
Features	<ul style="list-style-type: none"> <li>25A switching capability.</li> <li>With quick terminal and PCB terminal.</li> <li>Dielectric strength of 4500 V between coil and contacts.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Reliable quality.</li> <li>Dielectric strength of 4KV between coil and contacts(NT72-2).</li> <li>PC board mounting.</li> </ul>		<ul style="list-style-type: none"> <li>Subminiature, high power.</li> <li>Low coil power consumption.</li> <li>PC board mounting.</li> </ul>
Coil Voltage(VDC)	5,12,24,48	3,5,6,9,12,18,24	48	3,5,9,12,24
Coil Power	0.9W	0.36W 0.45W	0.51W	0.36W
Contact Material	AgSnO <sub>2</sub> , AgCdO	AgSnO <sub>2</sub>		AgSnO <sub>2</sub>
Contact Arrangement	1A	1A, 1B, 1C		1A, 1B, 1C
Contact transfer Current(A)	 25A	 12A		 12A
Contact Rating	20A,25A/250VAC 25A/277VAC 2HP 240VAC	5A,10A,12A/125VAC,28VDC 3A,5A,10A/240VAC,250VAC 6A/300VAC,28VDC 1/2 HP 120VAC,240VAC		5A,10A,12A/125VAC 6A/277VAC 5A/250VAC
Max.Switching power	6925VA	336W 2500VA		1662VA
Max.Switching voltage	277VAC	30VDC 277VAC		277VAC
Ambient Temperature	-40℃~85℃	-40℃~85℃		-55℃~85℃
Dielectric Strength	Between Contacts	50Hz 1000V		50Hz 750V
	Between Contact and Coil	50Hz 4500V Surge voltage:10kV		50Hz 1500V
Insulation Resistance	1000MΩ	500MΩ		250MΩ
Initial Contact Resistance	≤100mΩ (1A/24VDC)	≤50mΩ		≤100mΩ
Electrical Life(operations)	1×10 <sup>5</sup>	1×10 <sup>5</sup>		1×10 <sup>5</sup>
Mechanical Life(Operations)	2×10 <sup>6</sup>	1×10 <sup>7</sup>		1×10 <sup>7</sup>
Weight(Approx.)	23g	11g		10.5g
Mounting Layout (Bottom View) (mm)				
Wiring Diagram (Bottom View)				
Cross Reference	OMRON: G4A	TE: V23148		TE: T7N OMRON: G5L/G5LE PANASONIC: JS

Power relay		
NT73-2	NT73-2D	NT73-3
 19.5×15.6×15.3		
<ul style="list-style-type: none"> <li>Small size, light weight, heavy switching power.</li> <li>Low coil power consumption.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>PC board mounting.</li> </ul>		
3,5,6,9,12,24,48		
0.36W 0.45W 0.8W	0.36W	0.36W 0.45W 0.6W 0.8W
AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>
1A,1B,1C	1A,1C	1A,1B,1C
 20A	 12A	 20A
5A,6A,10A,12A/125VAC,28VDC 20A/125VAC,16VDC 6A/250VAC,277VAC 5A,10A,12A/250VAC,15A/125VAC (15A:0.45W;20A:0.8W) 1/2 HP 125VAC/ 277VAC	12A/125VAC,250VAC	7A,16A/277VAC;5A,10A/250VAC; 12A,20A/125VAC,15A/250VAC(1A) TV-8 NO:1HP(16AFLA) 250VAC,125VAC 20A/125VAC NC: 1/2 HP (9.8AFLA)250VAC,125VAC 20A/125VAC
336W 3000VA	3000VA	4450VA
30VDC 277VAC	277VAC	277VAC
-55℃~85℃		
50Hz 750V		
50Hz 1500V		
250MΩ		
≤100mΩ		
1×10 <sup>5</sup>		
1×10 <sup>7</sup>		
9.5g		
TE: T7N OMRON: G5L/G5LE PANASONIC: JS		

Classification		Power relay		
Type	NT73-4	NT73-4T	NT74	
International Security Certificates	cULus E158859 CEC 13002099051	cULus E158859 CEC 13002099051	cULus E158859 CEC 40019280	
Outline Dimensions(mm) L×W×H	 19.5×15.6×15.3	 19.5×15.6×15.3	 28.5×10.1×12.5	
Features	<ul style="list-style-type: none"> <li>Small size, light weight and heavy switching power.</li> <li>Ambient temperature can achieve 105°C (NT73-4T).</li> <li>Low coil power consumption.</li> <li>PC board mounting.</li> <li>Product in accordance to IEC60335-1 available.</li> </ul>		<ul style="list-style-type: none"> <li>10A switching capability.</li> <li>Small size, light weight.</li> <li>Low coil power consumption.</li> <li>PC board mounting.</li> <li>Product in accordance to IEC60335-1 available.</li> </ul>	
Coil Voltage(VDC)	5,6,9,12,24	5,6,9,12,24	5,6,9,12,18,24,48	
Coil Power	0.36W	0.36W	0.22W 0.23W 0.25W 0.29W	
Contact Material	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub> AgNi	
Contact Arrangement	1A,1C	1A,1C	1A,1C	
Contact transfer Current(A)	 12A	 15A	 10A	
Contact Rating	10A/250VAC, 277VAC 12A/250VAC, 277VAC	10A/250VAC, 277VAC 12A/250VAC, 277VAC 15A/125VAC	8A, 10A/250VAC, 30VDC	
Max.Switching power	3000VA	3000VA	300W 2500VA	
Max.Switching voltage	277VAC	277VAC	125VDC 440VAC	
Ambient Temperature	-55°C~85°C	-55°C~105°C	-40°C~85°C	
Dielectric Strength	Between Contacts	50Hz 750V	50Hz 1000V	
	Between Contact and Coil	50Hz 1500V	50Hz 1500V	
Insulation Resistance	250MΩ	250MΩ	1000MΩ	
Initial Contact Resistance	≤100mΩ	≤100mΩ	≤100mΩ	
Electrical Life(operations)	1×10 <sup>5</sup> 10A/250VAC, 277VAC 85°C 6×10 <sup>4</sup> 12A/250VAC, 277VAC 85°C	1×10 <sup>5</sup> 10A/250VAC, 277VAC 105°C 6×10 <sup>4</sup> 12A/250VAC, 277VAC 105°C 2×10 <sup>4</sup> 15A/125VAC 105°C	1×10 <sup>5</sup>	
Mechanical Life(operations)	1×10 <sup>7</sup>	1×10 <sup>7</sup>	1×10 <sup>7</sup>	
Weight(Approx.)	9.5g	9.5g	8g	
Mounting Layout (Bottom View) (mm)				
Wiring Diagram (Bottom View)				
Cross Reference	TE: T7N OMRON: G5L/G5LE PANASONIC: JS		TE: RYII OMRON: G6RN	




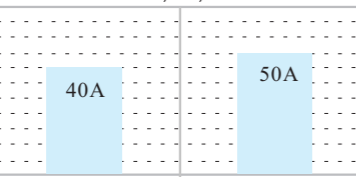
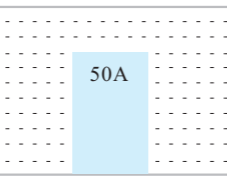
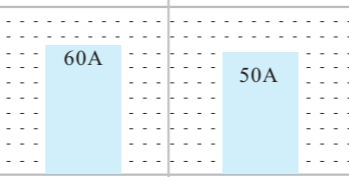
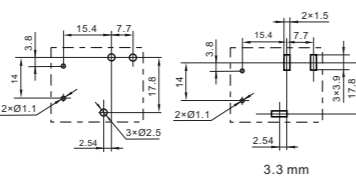
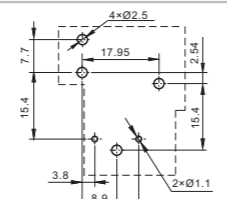
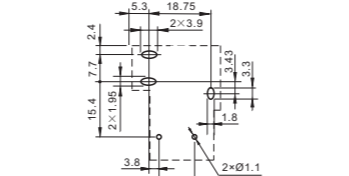
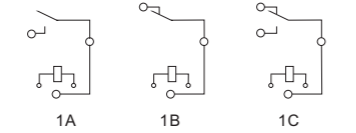
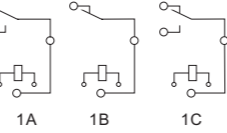
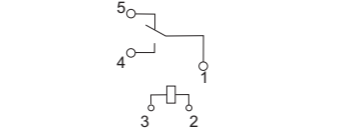
Power relay		
JQX-14FC <sub>1</sub>	NT75	
 cULus E160644 CEC 13002098869 29×12.8×26	 cULus E158859 CEC 40020063 CEC 10002042304 29×12.7×15.8	
<ul style="list-style-type: none"> <li>Heavy load, suitable for heavy switching power.</li> <li>Small size, suitable for high-density mounting.</li> <li>Dielectric strength of 5000V between coil and contacts.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight. Low coil power consumption.</li> <li>20A switching capability.</li> <li>PC board mounting.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>Optional for explosion proof version.</li> </ul>	
3,5,6,9,12,24,48	5,6,9,12,24,48	
0.53W	0.25W 0.41W 0.53W	
AgSnO <sub>2</sub>	AgSnO <sub>2</sub> AgNi	
1A,1A2,1C,1C2	1A,1C	2A,2C
20A	16A	10A
1A:16A,20A/250VAC,30VDC 1C:10A,16A,20A/250VAC,30VDC;10A/14VDC (20A application for 5mm pole-distance only) ½ HP 125VAC,1HP 250VAC; TV-5	12A,16A/250VAC,30VDC (Rushing current 80A)	NO:8A/277VAC,30VDC NC:8A/277VAC,30VDC 2A(0.53W):10A/250VAC,30VDC
600W 5000VA	480W 4000VA	300W 2500VA
30VDC 277VAC	125VDC 440VAC	
-40°C~70°C	-40°C~85°C	-40°C~85°C
50Hz 1000V	50Hz 1000V	50Hz 1000V
50Hz 5000V	50Hz 5000V	50Hz 5000V
1000MΩ	1000MΩ	1000MΩ
≤50mΩ	≤100mΩ	≤100mΩ
1×10 <sup>5</sup>	1×10 <sup>5</sup>	1×10 <sup>5</sup> 5×10 <sup>4</sup> (10A/250VAC 85°C) 1×10 <sup>4</sup> (10A/30VDC 85°C)
1×10 <sup>7</sup>	1×10 <sup>7</sup>	1×10 <sup>7</sup>
17~20g	12.5g	13.2g
OMRON: G2R	TE: RT/RZ OMRON: G2RL PANASONIC: JW1/JW2/ALZ	

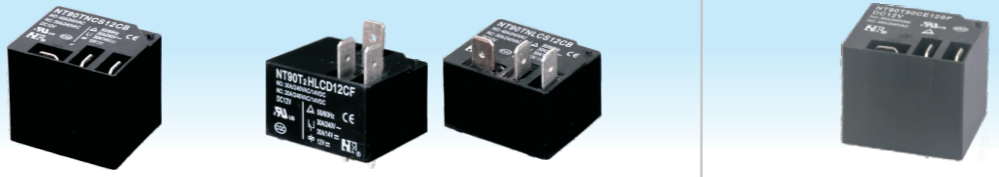
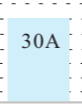
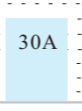
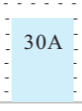
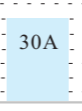
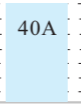
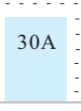
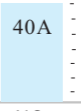
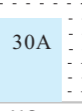
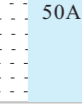
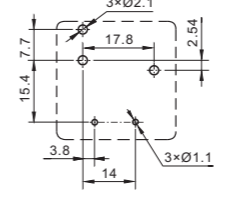
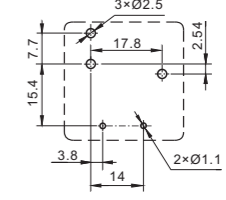
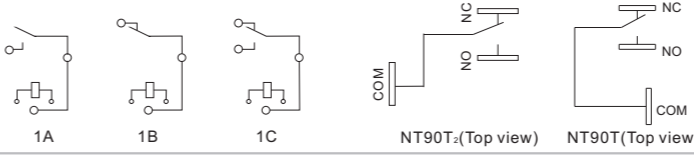
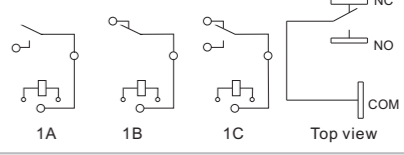
Classification		Power relay																															
Type	NT75H	N68F																															
International Security Certificates	c  us E158859  40020063  10002042304		c  us E158859																														
Outline Dimensions(mm) L×W×H	 29×12.7×15.8		 28.5×10.1×12.5																														
Features	<ul style="list-style-type: none"> <li>25A switching capability.</li> <li>Dielectric strength of 5000V between coil and contacts.</li> <li>PC board mounting.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>Optional for explosion proof version.</li> </ul>	<ul style="list-style-type: none"> <li>Slim type and small occupying area can offer high density P.C.B. technique.</li> <li>Employment of suitable plastic materials to be applied to high temperature and various chemical solution.</li> <li>Dielectric strength 5000V.</li> <li>Creepage distance &gt;8mm.</li> </ul>																															
Coil Voltage(VDC)	5,6,9,12,18,24,48		5,6,12,18,24,48																														
Coil Power	0.41W 0.25W		0.22W 0.25W																														
Contact Material	AgSnO <sub>2</sub>		AgSnO <sub>2</sub> AgNi																														
Contact Arrangement	1A	1C	1A,1C																														
Contact transfer Current(A)	<table border="1"> <tr><td>80A</td><td></td><td></td></tr> <tr><td>70A</td><td></td><td></td></tr> <tr><td>50A</td><td></td><td></td></tr> <tr><td>40A</td><td></td><td></td></tr> <tr><td>30A</td><td></td><td></td></tr> <tr><td>20A</td><td></td><td></td></tr> <tr><td>15A</td><td></td><td></td></tr> <tr><td>10A</td><td></td><td></td></tr> <tr><td>5A</td><td></td><td></td></tr> <tr><td>1A</td><td></td><td></td></tr> </table>	80A			70A			50A			40A			30A			20A			15A			10A			5A			1A			25A	16A
80A																																	
70A																																	
50A																																	
40A																																	
30A																																	
20A																																	
15A																																	
10A																																	
5A																																	
1A																																	
Contact Rating	0.41W:NO:16A,20A,25A/250VAC;NC:16A/250VAC 0.25W:NO:16A/250VAC;NC:12A/250VAC		8A/250VAC,30VDC																														
Max.Switching power	NO:TV-8 6250VA		300W 2500VA																														
Max.Switching voltage	440VAC		125VDC 380VAC																														
Ambient Temperature	-40℃~105℃		-40℃~85℃																														
Dielectric Strength	Between Contacts	50Hz 1000V																															
	Between Contact and Coil	50Hz 5000V																															
Insulation Resistance	1000MΩ		1000MΩ																														
Initial Contact Resistance	≤100mΩ		≤100mΩ																														
Electrical Life(operations)	0.41W:8×10 <sup>4</sup> (25A/250VAC 105℃); 1×10 <sup>5</sup> (20A/250VAC 105℃) 0.25W:1×10 <sup>5</sup> (16A/250VAC 105℃); 2.5×10 <sup>4</sup> (TV-8)		1×10 <sup>5</sup>																														
Mechanical Life(operations)	1×10 <sup>7</sup>		1×10 <sup>7</sup>																														
Weight(Approx.)	14g		8.2g																														
Mounting Layout (Bottom View) (mm)																																	
Wiring Diagram (Bottom View)																																	
Cross Reference	OMRON: G2RL		TE: RYII OMRON: G6RN																														

Classification		Power relay	
Type	NT76	NT77	JZC-22F
International Security Certificates	c  us E160644  R50126372 08001023387	c  us E158859  R50126372 08001023386	c  us E158859  R50181861 13002098866
Outline Dimensions(mm) L×W×H	 23×16.1×10.2		 20.3×16.8×20.2
Features	<ul style="list-style-type: none"> <li>Super light in weight.</li> <li>High sensitivity.</li> <li>16A switching capability.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Super light in weight.</li> <li>High sensitivity.</li> <li>12A switching capability.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Low coil power consumption.</li> <li>20A switching capability.</li> <li>PC board mounting.</li> </ul>
Coil Voltage(VDC)	5,6,9,12,18,24	5,6,9,12,18,24,48	3,5,6,9,12,18,24
Coil Power	0.2W	0.45W	0.45W
Contact Material	AgSnO <sub>2</sub>		AgSnO <sub>2</sub>
Contact Arrangement	1A	1C	1A,1C
Contact transfer Current(A)	16A	16A	12A
Contact Rating	16A/250VAC, 30VDC	NO:16A/250VAC,30VDC NC:10A/250VAC,30VDC	12A/125VAC,250VAC,30VDC 10A/277VAC,30VDC
TuV Rating:	16A/250VAC,14VDC		
Max.Switching power	480W 4000VA		300W 3000VA
Max.Switching voltage	30VDC 277VAC		30VDC 277VAC
Ambient Temperature	-40℃~85℃		-40℃~85℃
Dielectric Strength	50Hz 750V	50Hz 1000V	
	1A:50Hz 2500V;1C:50Hz 1500V	50Hz 2500V	
Insulation Resistance	100MΩ		100MΩ
Initial Contact Resistance	≤50mΩ		≤100mΩ
Electrical Life(operations)	1×10 <sup>5</sup>		1×10 <sup>5</sup>
Mechanical Life(operations)	1×10 <sup>7</sup>		1×10 <sup>7</sup>
Weight(Approx.)	10g		7g
Mounting Layout (Bottom View) (mm)			
Wiring Diagram (Bottom View)			
Cross Reference	PANASONIC: JV OMRON: G5CA		TE: SRUHH OMRON: G5LE

Classification		Power relay	
Type		JZC-22F <sub>3</sub>	JZC-22F <sub>4</sub>
International Security Certificates			
Outline Dimensions(mm) L×W×H		 21.3×16.2×20.8	 22×16.2×20.8
Features		<ul style="list-style-type: none"> <li>20A switching capability.</li> <li>Small size, light weight. Low coil power consumption.</li> <li>High dielectric strength.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>PC board mounting.</li> <li>Contact Gap≥2.1mm.</li> <li>Power relay with high reliability, suitable for photovoltaic system.</li> </ul>
Coil Voltage(VDC)		3,5,6,9,12,24,48	5,9,12,24,48
Coil Power		0.36W 0.45W	1.67W 2.8W
Contact Material		AgSnO <sub>2</sub>	AgSnO <sub>2</sub>
Contact Arrangement		1A,1B,1C	1A
Contact transfer Current(A)	80A 70A 50A 40A 30A 20A 15A 10A 5A 1A	20A	32A
Contact Rating		5A,7A,12A,15A,20A/125VAC,28VDC; 7A/400VAC 5A,10A,16A/250VAC ; 16A/277VAC TV-8 125VAC NO:1HP(16FLA) 125VAC,(8FLA)250VAC NC:½HP(9.8FLA) 125VAC,(4.9FLA)250VAC	32A/277VAC
Max.Switching power		560W 4450VA	8864VA
Max.Switching voltage		30VDC 400VAC	400VAC
Ambient Temperature		-40℃~105℃	-40℃~105℃
Dielectric Strength	Between Contacts	50Hz 1000V	55Hz 2000V
	Between Contact and Coil	50Hz 2500V Surge voltage: 4000V	55Hz 4000V
Insulation Resistance		100MΩ	1000MΩ
Initial Contact Resistance		≤100mΩ	≤100mΩ
Electrical Life(operations)		1×10 <sup>5</sup>	1×10 <sup>4</sup>
Mechanical Life(operations)		1×10 <sup>7</sup>	5×10 <sup>5</sup>
Weight(Approx.)		14g	16g
Mounting Layout (Bottom View) (mm)		 D type      D1 type	
Wiring Diagram (Bottom View)		 D type      D1 type	
Cross Reference		OMRON: G5LE PANASONIC: JSM	—

Classification		Power relay	
Type		NT90	NT98
International Security Certificates			
Outline Dimensions(mm) L×W×H		 30.5×24.2×17      32.5×27.6×20.5	 29×21.5×15.7      32×25×27
Features		<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Low coil power consumption. Heavy contact load.</li> <li>Strong anti-shock, anti-vibration and high reliability, long life.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>50A switching capability.</li> <li>Meets UL 508 standard, conforms to IEC61810-1 reinforced insulation.</li> <li>5kV dielectric strength between the coil and contact, 8kV surge voltage.</li> </ul>
Coil Voltage(VDC)		DC:3,5,6,9,12,15,18,24,48,110 AC:12,24,110,120,220,240,277	5,6,9,12,24,48
Coil Power		0.6W 0.9W 2VA	0.9W      1.5W
Contact Material		AgSnO <sub>2</sub> AgCdO	AgSnO <sub>2</sub>
Contact Arrangement		1A, 1B, 1C	1A
Contact transfer Current(A)			
Contact Rating		NO:30A/277VAC; NC:20A/277VAC NO:2HP 250VAC; NC:1.5HP 250VAC TV-5, 5A/280VAC(Ballast)	NO:16FLA/120VAC; NC:30LRA/120VAC NO:12FLA/240VAC; NC:30LRA/240VAC
Max.Switching power		1200W 7200VA(10000VA)	13850VA
Max.Switching voltage		30VDC 277VAC	480VAC
Ambient Temperature		-55℃~85℃	-40℃~105℃
Dielectric Strength		50Hz 1500V	50Hz 1500V
Insulation Resistance		50Hz 4000V 2500V	50Hz 5000V
Initial Contact Resistance		1000MΩ	1000MΩ
Electrical Life(operations)		≤30mΩ	≤100mΩ (100mA/6VDC)
Mechanical Life(operations)		1×10 <sup>5</sup>	50A/277VAC(1.5W) 1×10 <sup>4</sup> 40A/277VAC 2×10 <sup>4</sup> 30A/277VAC 85℃ 5×10 <sup>4</sup> 1HP 125VAC 1×10 <sup>5</sup> TV-8 250VAC 2.5×10 <sup>4</sup>
Weight(Approx.)		1×10 <sup>7</sup>	1×10 <sup>7</sup>
Mounting Layout (Bottom View) (mm)		25.7g(Unenclosed) 27g 	18g 21g 
Wiring Diagram (Bottom View)		 1A      1B      1C	 3.3 mm
Cross Reference		TE: T9A OMRON: G8P PANASONIC: JT	TE: T9G

Classification	Power relay		
Type	NT99	NT90(50A)	NT90W
International Security Certificates	UL E160644 R50126373 CCC 23002393942	UL E160644 CCC 13002098872 R50126373	UL E160644 R50126373 CCC 20002278697
Outline Dimensions(mm) L×W×H	 29×21.5×15.3	 32.5×27.6×20.5	 32.5×27.6×20.5
Features	<ul style="list-style-type: none"> <li>50A switching capability.</li> <li>Pin width: 1.5mm, 3.3mm.</li> <li>Sizedecreased of 1/3 compared with the same pin relay.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>50A switching capability.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>50A/60A switching capability.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>PC board mounting.</li> </ul>
Coil Voltage(VDC)	5, 6, 9, 12, 24, 48	DC: 5, 6, 9, 12, 15, 18, 24, 48 AC: 24, 110, 220, 240, 277	5, 6, 9, 12, 15, 18, 24, 48
Coil Power	0.9W 1.2W	0.9W 1.5W 2.7VA	1.2W 2.25W
Contact Material	AgSnO <sub>2</sub>		
Contact Arrangement	1A, 1B, 1C		
Contact transfer Current(A)			
Contact Rating	NO: 30A, 40A/277VAC NC: 20A, 30A/277VAC NO: 30A/30VDC NC: 20A/30VDC NO: 2HP 250VAC; NC: 1.5HP 250VAC; TV-8	NO: 50A/240VAC NC: 35A/240VAC NO: 35A/30VDC NC: 25A/30VDC 2HP 250VAC; TV-8	NO: 50A, 60A/277VAC NC: 35A/277VAC NO: 35A/30VDC NC: 25A/30VDC 50A/277VAC 35A/277VAC(S Gap) 35A/30VDC
Max.Switching power	1050W 13850VA	1050W 12000VA	1050W 16620VA
Max.Switching voltage	30VDC 277VAC	30VDC 277VAC	30VDC 277VAC
Ambient Temperature	-40°C~85°C		
Dielectric Strength	Between Contacts	50Hz 1500V	50Hz 1500V 2500V(S Gap)
	Between Contact and Coil	50Hz 4000V	50Hz 2500V 4000V Surge voltage: 6kV
Insulation Resistance	30MΩ		
Initial Contact Resistance	≤30mΩ		
Electrical Life(operations)	NO: 50A/277VAC 1×10 <sup>4</sup> , NC: 35A/277VAC 1×10 <sup>4</sup> NO: 30, 40A/277VAC 3×10 <sup>4</sup> , NC: 20, 30A/277VAC 3×10 <sup>4</sup> NO: 2HP 250VAC 3×10 <sup>4</sup> , NC: 1.5HP 250VAC 3×10 <sup>4</sup> TV-8 2.5×10 <sup>4</sup>	3×10 <sup>4</sup> (50A/277VAC) 6×10 <sup>3</sup> (50A/277VAC, 85°C) 6×10 <sup>3</sup> (50A/277VAC, 85°C) 2.5×10 <sup>4</sup> (TV-8)	3×10 <sup>4</sup> (50A/277VAC) 3×10 <sup>4</sup> (35A/277VAC)(S Gap) 2×10 <sup>4</sup> (60A/277VAC)
Mechanical Life(operations)	1×10 <sup>7</sup>		
Weight(Approx.)	25g		
Mounting Layout (Bottom View) (mm)			
Wiring Diagram (Bottom View)			
Cross Reference	TE: T9G	—	TE: T9S SOLAR OMRON: G8P


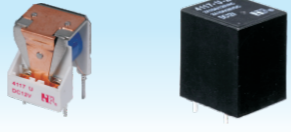





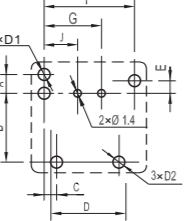
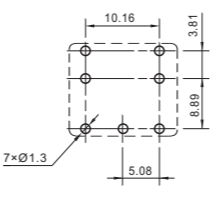
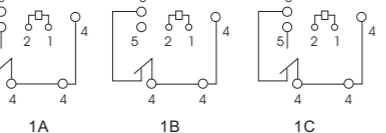
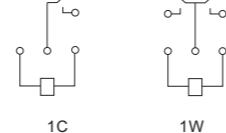
Power relay								
NT90T	NT90T(50A)							
UL E160644 R50126373 CCC 13002098872								
 32.4×27.5×28      32.4×27.5×20      32.4×27.5×28								
<ul style="list-style-type: none"> <li>Small size, light weight. Low coil power consumption.</li> <li>Heavy contact load.</li> <li>Strong anti-shock, anti-vibration and high reliability, long life.</li> <li>PC board mounting and QC terminals.</li> </ul>								
DC: 3, 5, 6, 9, 12, 15, 18, 24, 48, 110 AC: 12, 24, 110, 120, 220, 240, 277								
0.6W 0.9W 2VA								
AgSnO <sub>2</sub> AgCdO								
1A	1B	1C	1A	1B	1C	1A	1B	1C
								
30A/240VAC 30A/14VDC	20A/240VAC 30A/14VDC	NO 30A/240VAC 30A/14VDC	40A/240VAC 40A/30VDC	30A/240VAC 30A/30VDC	NO 40A/240VAC 40A/30VDC	50A/240VAC 35A/30VDC	35A/240VAC 25A/30VDC	NO 50A/240VAC 50A/240VAC 35A/30VDC
NO: 30A/277VAC; NC: 20A/277VAC NO: 2HP 250VAC; NC: 1.5HP 250VAC TV-5, 5A/280VAC (Ballast)			NO: 16FLA/120V; NC: 30LRA/120VAC NO: 12FLA/240V; NC: 30LRA/240VAC			2HP 250VAC; TV-8		
1200W 7200VA(10000VA)						1050W 12000VA		
30VDC 277VAC						-55°C~85°C		
50Hz 1500V						50Hz 2500V		
1000MΩ						≤30mΩ		
1×10 <sup>5</sup>						3×10 <sup>4</sup> (50A/277VAC); 6×10 <sup>3</sup> (50A/277VAC, 85°C) 3×10 <sup>4</sup> (35A/277VAC); 2.5×10 <sup>4</sup> (TV-8)		
1×10 <sup>7</sup>						1×10 <sup>7</sup>		
31g(Low profile type) 35g						35g		
								
								
TE: T9A OMRON: G8P PANASONIC: JT						—		











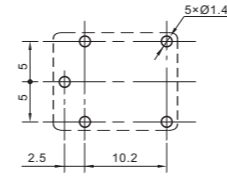
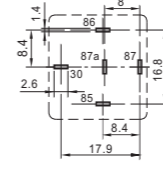
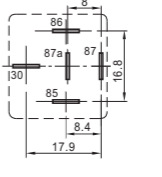
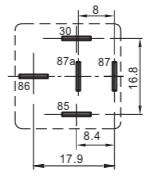
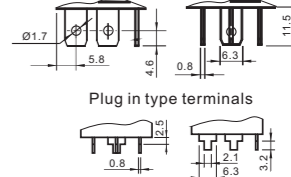
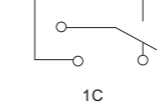
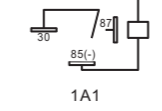
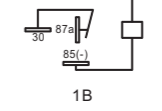
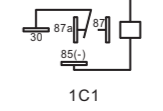
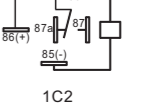
Classification	Power relay	
Type	NT90TP	NT90TP(50A)
International Security Certificates		
Outline Dimensions(mm) L×W×H	 32.5(50.2)×27.5×28.2    32.5(50.2)×27.5×20	 50.2×27.5×28.2
Features	<ul style="list-style-type: none"> <li>Small size, light weight. Low coil power consumption.</li> <li>QC terminals.</li> <li>Heavy contact load.</li> <li>Strong anti-shock, anti-vibration and high reliability, long life.</li> </ul>	
Coil Voltage(VDC)	DC:3,5,6,9,12,15,18,24,36,48,110 AC:12,24,110,120,220,240,277	
Coil Power	0.6W 0.9W 2VA	
Contact Material	AgSnO <sub>2</sub> AgCdO	
Contact Arrangement	1A 1B 1C	1A 1B 1C
Contact transfer Current(A)		
Contact Rating	30A/240VAC 30A/30VDC NO:30A/277VAC; NC:20A/277VAC NO:2HP 250VAC; NC:1.5HP 250VAC TV-5, 5A/280VAC(Ballast)	40A/240VAC 30A/30VDC NO:16FLA/120V; NC:30LRA/120VAC NO:12FLA/240V; NC:30LRA/240VAC
Max.Switching power	1200W 7200VA(10000VA)	
Max.Switching voltage	30VDC 277VAC	
Ambient Temperature	-55℃~85℃	
Dielectric Strength	50Hz 1500V	
Insulation Resistance	1000MΩ	
Initial Contact Resistance	≤30mΩ	
Electrical Life(operations)	1×10 <sup>5</sup>	
Mechanical Life(operations)	1×10 <sup>7</sup>	
Weight(Approx.)	35g(Low profile type) 37g	
Mounting Layout (Bottom View) (mm)		
Wiring Diagram (Bottom View)		
Cross Reference	TE: T9A OMRON: G8P PANASONIC: JT	



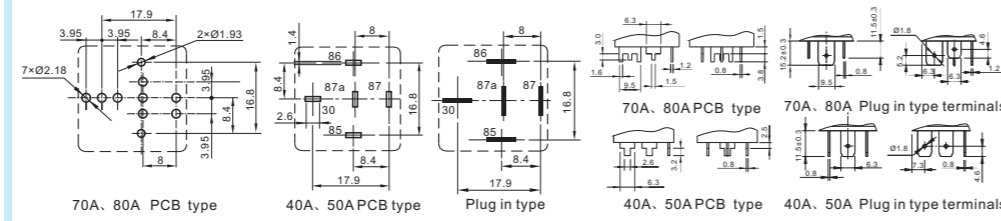
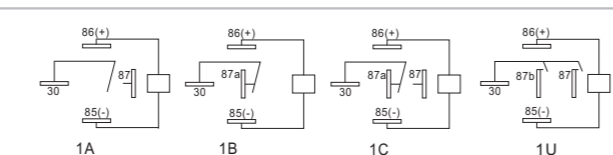
Power relay	Latching relay	
NT99-1	NT90L	NT91L
 29×21.5×15.3    30.8×24.5×26.3	 32.5×27.6×20.5 30×25×17(Unenclosed)	 32.4×27.5×28.5(20)
<ul style="list-style-type: none"> <li>50A switching capability.</li> <li>Pin width: 1.5mm,3.3mm.</li> <li>Sizedecreased of 1/3 compared with the same pin relay.</li> <li>New energy relay.</li> <li>PC board mounting and QC terminals.</li> </ul>	<ul style="list-style-type: none"> <li>40A,50A switching capability.</li> <li>Single coil and dual coil latching relay available.</li> <li>Energy saving and environmental friendly product.</li> </ul>	
5,6,9,12,24,48	5,12,24,48	
0.9W 1.2W	0.9W 2×1.8W 1.5W 2×3W	0.9W 2×1.8W 1.5W 2×3W
AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	
1A,1B,1C	1A, 1B, 1C	
NO:30A,40A/277VAC NC:20A,30A/277VAC NO:30A/30VDC NC:20A/30VDC	NO:50A/277VAC NC:35A/277VAC NO:35A/30VDC NC:25A/30VDC	30A,40A/277VAC 2HP 250VAC 3000W 240VAC (Incandescent lamp) 5A/280VAC(Ballast)
NO:2HP 250VAC;NC:1.5HP 250AC;TV-8	50A/277VAC 5HP 250VAC 3000W 240VAC (Incandescent lamp) 16A/280VAC(Ballast)	30A,40A/277VAC 2HP 250VAC 3000W 240VAC (Incandescent lamp) 5A/280VAC(Ballast)
1050W 13850VA	11000VA	14000VA
30VDC 277VAC	440VAC	
-40℃~85℃	-40℃~85℃	
50Hz 1500V	50Hz 1500V	
50Hz 4000V	50Hz 2500V	
1000MΩ	1000MΩ	
≤30mΩ	≤20mΩ	
NO:50A/277VAC 1×10 <sup>4</sup> , NC:35A/277VAC 1×10 <sup>4</sup> NO:30,40A/277VAC 3×10 <sup>4</sup> , NC:20,30A/277VAC 3×10 <sup>4</sup> NO:2HP 250VAC 3×10 <sup>4</sup> , NC:1.5HP 250VAC 3×10 <sup>4</sup> TV-8 2.5×10 <sup>4</sup>	5×10 <sup>4</sup>	
1×10 <sup>7</sup>	1×10 <sup>6</sup>	
21g	27g(Unenclosed) 31g	31g(Low profile type) 35g
3.3 mm	D type	
TE: T9G		




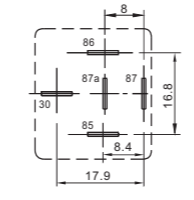
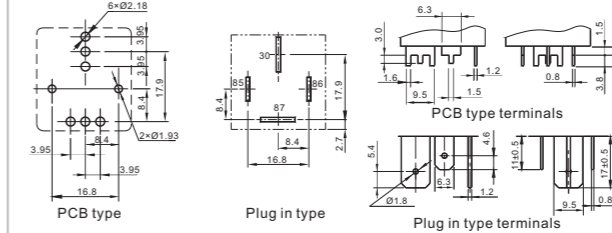
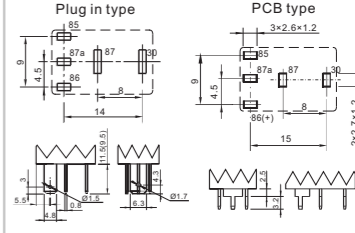
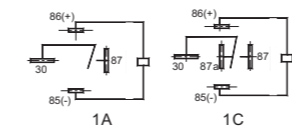
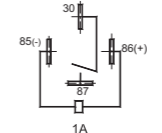
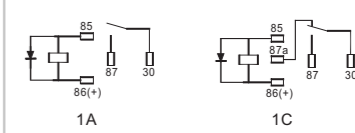
Classification		Latching relay	
Type	NT95L	NT74L	
International Security Certificates	us E158859    14002116012		—
Outline Dimensions(mm) L×W×H	 39×15×25.6	 28.6×10.1×12.6	
Features	<ul style="list-style-type: none"> <li>50A switching capability.</li> <li>Single coil and dual coil latching relay available.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Latching relay.</li> <li>Small size and light weight.</li> <li>10A switching capability.</li> <li>PC board mounting.</li> </ul>	
Coil Voltage(VDC)	6,9,12,24,48	3,5,9,12,24	
Coil Power	1.5W    2×3W	0.25W    0.48W	
Contact Material	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	
Contact Arrangement	1A	1A,1C	
Contact transfer Current(A)	80A 70A 50A 40A 30A 20A 15A 10A 5A 1A	50A	10A
Contact Rating	50A/277VAC 5HP 240VAC 5000W 240VAC(Incandescent lamp) 16A/277VAC(Inductive)	NO:10A/250VAC,24VDC NC:8A/250VAC,24VDC	
Max.Switching power	13850VA	240W 2500VA	
Max.Switching voltage	440VAC	150VDC 400VAC	
Ambient Temperature	-40℃~70℃	-40℃~85℃	
Dielectric Strength	Between Contacts: 50Hz 1500V Between Contact and Coil: 50Hz 4000V	50Hz 1000V 50Hz 5000V	
Insulation Resistance	1000MΩ	1000MΩ	
Initial Contact Resistance	≤20mΩ	≤100mΩ	
Electrical Life(operations)	1×10 <sup>5</sup>	5×10 <sup>4</sup>	
Mechanical Life(operations)	5×10 <sup>6</sup>	5×10 <sup>6</sup>	
Weight(Approx.)	25g	8g	
Mounting Layout (Bottom View) (mm)			
Wiring Diagram (Bottom View)			
Cross Reference	—	FUJITSU: FTR-JSL	



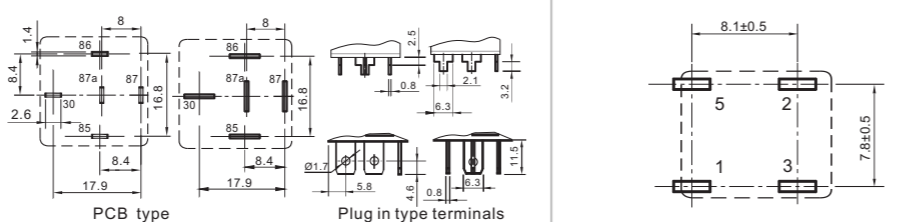
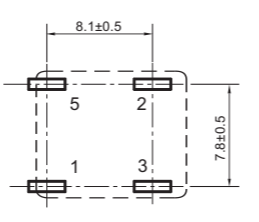
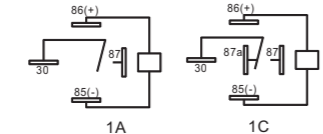
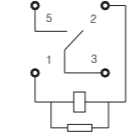
Latching relay		Automotive relay		
NT75L		NV23K	NV23KW	NV231
us E158859    14002108148		—	—	—
 29×12.7×16.1	 12×12.9×9.9	 12×12.9×9.9	 23.6×13.2×9.9	
<ul style="list-style-type: none"> <li>Latching relay.</li> <li>20A switching capability.</li> <li>Product in accordance to IEC60335-1 available.</li> <li>Product in accordance to EN60669-1 available.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Heavy contact load switching current up to 30A.</li> </ul>	<ul style="list-style-type: none"> <li>Twin version.</li> <li>Small size, light weight.</li> <li>Heavy contact load switching current up to 30A.</li> </ul>		
5,6,9,12,24	5,10,12,24	10,12,24		
0.4W 0.6W	0.55W 0.57W	0.55W 0.57W		
AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>		
1A,1C	1A,1C	2A,2C		
16A	30A	30A		
16A/250VAC 1500W 277VAC(Incandescent lamp) TV-5 120VAC(1A) 1HP 240VAC	NO:30A,20A/14VDC NC:25A,15A/14VDC	NO:30A,20A/14VDC NC:25A,15A/14VDC		
4000VA 440VAC -40℃~85℃	420W 24VDC -40℃~105℃	420W 24VDC -40℃~105℃		
50Hz 1000V 50Hz 5000V	50Hz 500V 50Hz 500V	50Hz 500V 50Hz 500V		
1000MΩ ≤50mΩ	1000MΩ 30mV(at 10A)	1000MΩ 30mV(at 10A)		
5×10 <sup>4</sup> (16A/250VAC 85℃)	1×10 <sup>5</sup>	1×10 <sup>5</sup>		
2×10 <sup>6</sup>	1×10 <sup>7</sup>	1×10 <sup>7</sup>		
13g	4g	8g		
PANASONIC: DJ FUJITSU: FTR-K1L	TE: V23086			



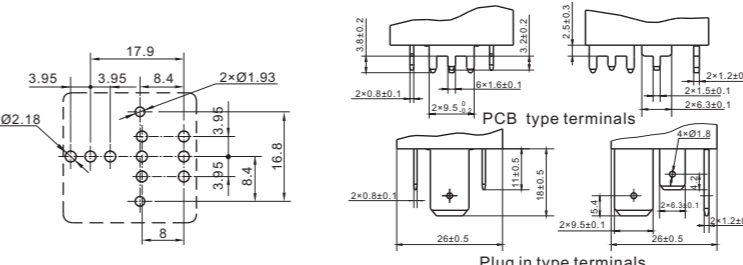
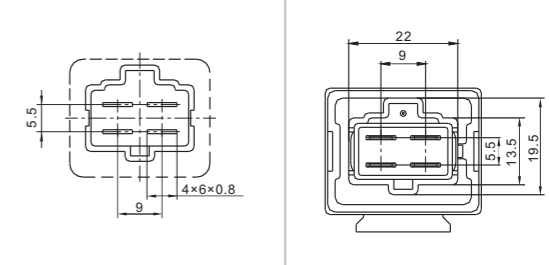
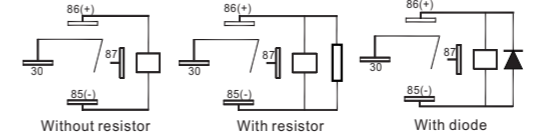
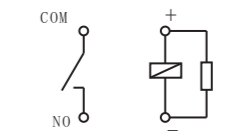
Classification		Automotive relay																																			
Type	4120		4117																																		
International Security Certificates	—		—																																		
Outline Dimensions(mm) L×W×H																																					
	24×19×20	26.8×21.5×22.3	13.2×15.3×18	17.5×15×20																																	
Features	<ul style="list-style-type: none"> <li>Small size, heavy contact load, capable of withstanding strong current of 45A at 14VDC.</li> <li>PC board mounting.</li> <li>Both European 11mm pole distance and American 8mm pole distance available.</li> </ul>		<ul style="list-style-type: none"> <li>Subminiature, heavy power.</li> <li>Low coil power consumption.</li> <li>Switching current up to 20A.</li> <li>PC board mounting.</li> </ul>																																		
Coil Voltage(VDC)	6,9		12,18,24		3,5,6,9,12,18,24																																
Coil Power	1.9W		1.6W		1W 1.1W 1.2W																																
Contact Material	AgSnO <sub>2</sub> AgNi		AgSnO <sub>2</sub> AgNi																																		
Contact Arrangement	1A	1B	1C	1A,1B,1C	1U,1V,1W																																
Contact transfer Current(A)																																					
Contact Rating	40A,45A/14VDC	30A/14VDC	NO:40A/14VDC NC:30A/14VDC 20A/120VAC 15A/28VDC	10A/120VAC 10A/28VDC 20A/14VDC	2×10A/120VAC 2×10A/28VDC 2×20A/14VDC																																
Max.Switching power	630W 2400VA		280W 1200VA		2×280W 2×1200VA																																
Max.Switching voltage	75VDC 277VAC		30VDC 277VAC																																		
Ambient Temperature	-40℃~125℃		-40℃~105℃																																		
Dielectric Strength	Between Contacts	50Hz 500V		50Hz 750V																																	
	Between Contact and Coil	50Hz 750V		50Hz 1500V																																	
Insulation Resistance	100MΩ		100MΩ																																		
Voltage Drop(initial)	50mV(at 10A)		50mV(at 10A)																																		
Electrical Life(operations)	1×10 <sup>5</sup>		1×10 <sup>5</sup>																																		
Mechanical Life(operations)	1×10 <sup>7</sup>		1×10 <sup>7</sup>																																		
Weight(Approx.)	19g(Unenclosed) 21g		9g(Unenclosed) 12g																																		
Mounting Layout (Bottom View) (mm)																																					
	<table border="1"> <thead> <tr> <th></th> <th>European</th> <th>U.S.A</th> </tr> </thead> <tbody> <tr><td>A</td><td>3.3</td><td>3.78</td></tr> <tr><td>B</td><td>12.1</td><td>11.89</td></tr> <tr><td>C</td><td>2.2</td><td>4</td></tr> <tr><td>D</td><td>13.2</td><td>12.2</td></tr> <tr><td>E</td><td>2.2</td><td>2.28</td></tr> <tr><td>F</td><td>15.9</td><td>14.8</td></tr> <tr><td>G</td><td>10.1</td><td>9.09</td></tr> <tr><td>J</td><td>5.9</td><td>5.35</td></tr> <tr><td>D1</td><td>∅2.1</td><td></td></tr> <tr><td>D2</td><td>∅2</td><td>∅2.5</td></tr> </tbody> </table>			European	U.S.A	A	3.3	3.78	B	12.1	11.89	C	2.2	4	D	13.2	12.2	E	2.2	2.28	F	15.9	14.8	G	10.1	9.09	J	5.9	5.35	D1	∅2.1		D2	∅2	∅2.5		
	European	U.S.A																																			
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D1	∅2.1																																				
D2	∅2	∅2.5																																			
Wiring Diagram (Bottom View)																																					
Cross Reference	TE: V23076/23133 OMRON: G8PE		TE: V23072																																		




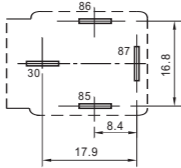
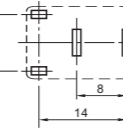
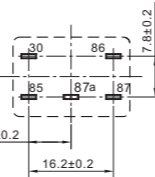
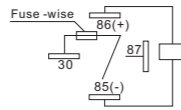
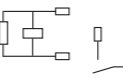
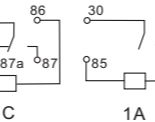
Classification		Automotive relay				
Type	NT78	NVF4-1	NVF4-2	NVF4-2a	NVF4-2b	
International Security Certificates	usE160644 13002099050	—	—	—	—	
Outline Dimensions(mm) L×W×H						
	15.7×12.3×14	26.5×26.5×24.5	26.5×26.5×24.5(+15.5)	26.5×26.5×24.5(+14.3)	35.5×35.5×45(+22.5)	
Features	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Low coil consumption.</li> <li>PC board mounting.</li> </ul>	<ul style="list-style-type: none"> <li>Small size and light weight.</li> <li>Suitable for automobile and lamp accessories application.</li> <li>PC board mounting and plug-in mounting available.</li> </ul>				
Coil Voltage(VDC)	6,9,12,24	6,9,12,24,48				
Coil Power	0.6W 0.8W	1.6W 1.9W 2.3W 2.6W				
Contact Material	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>				
Contact Arrangement	1A,1B,1C,1U	1A1	1B	1C or C2	1A2	
Contact transfer Current(A)						
Contact Rating	1A:30A/14VDC NO:20A/14VDC,10A/120VAC,5A/250VAC NC:10A/14VDC,10A/120VAC,5A/250VAC 1U:2×10A/14VDC ½HP 125VAC TV-5	40A/14VDC 20A/24VDC	30A/14VDC 20A/24VDC	NO:40A/14VDC NC:30A/14VDC 40A/14VDC 15A,20A/24VDC	2×20A/14VDC	
Max.Switching power	420W 1250VA	630W				
Max.Switching voltage	30VDC 277VAC	75VDC				
Ambient Temperature	-40℃~85℃	-40℃~125℃				
Dielectric Strength	50Hz 500V	50Hz 500V				
	50Hz 500V	50Hz 750V				
Insulation Resistance	100MΩ	100MΩ				
Voltage Drop(initial)	50mV(at 10A)	≤50mV(at 10A)				
Electrical Life(operations)	1×10 <sup>5</sup>	1×10 <sup>5</sup>				
Mechanical Life(operations)	1×10 <sup>7</sup>	1×10 <sup>7</sup>				
Weight(Approx.)	6g	31g	33g	33g	45g	
Mounting Layout (Bottom View) (mm)						
		PCB type	Plug in type	Reversed plug in type	Plug in type terminals PCB type terminals	
Wiring Diagram (Bottom View)						
Cross Reference	OMRON: G8QN PANASONIC: JJM	TE: VF4/V23134 OMRON: G8JN PANASONIC: CB				




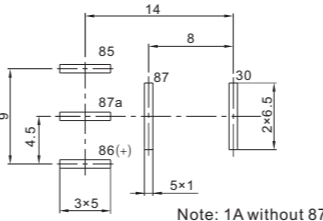
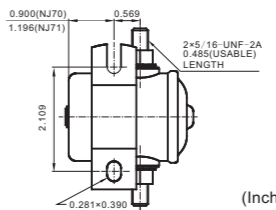
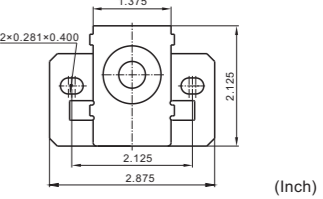
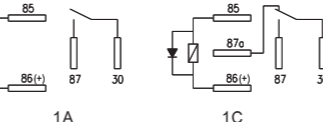
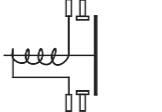
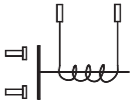
Classification		Automotive relay			
Type		NVF4-3		NVF4-4	
International Security Certificates		—		—	
Outline Dimensions(mm) L×W×H		 29×29×26.5		 29×29×26.5(+16)	
Features		<ul style="list-style-type: none"> <li>Miniature.</li> <li>Contact load capacity up to 80A.</li> <li>PC board mounting and plug-in mounting available.</li> <li>24V versions with contact gap &gt;0.8mm.</li> </ul>			
Coil Voltage(VDC)		6,12,24			
Coil Power		1.8W 2.3W 2.6W			
Contact Material		AgSnO <sub>2</sub>			
Contact Arrangement		1A	1B	1C	1U
Contact transfer Current(A)		100A	60A	80A	25A
Contact Rating		50A,70A,80A, 100A/14VDC 25A,40A/24VDC	40A,60A/14VDC 25A,40A/24VDC	NO: 50A,80A/14VDC 25A,40A/24VDC NC: 40A,60A/14VDC 25A,40A/24VDC	2×25A/14VDC 2×15A/24VDC
Max.Switching power		1400W			
Max.Switching voltage		75VDC			
Ambient Temperature		-40°C~125°C			
Dielectric Strength		Between Contacts 50Hz 500V Between Contact and Coil 50Hz 500V			
Insulation Resistance		100MΩ			
Voltage Drop(initial)		≤50mV(at 10A)			
Electrical Life(operations)		1×10 <sup>5</sup>			
Mechanical Life(operations)		1×10 <sup>7</sup>			
Weight(Approx.)		46g		48g	
Mounting Layout (Bottom View) (mm)					
Wiring Diagram (Bottom View)					
Cross Reference		TE: VF7/V23136-J OMRON: G8JR PANASONIC: CB			

Classification		Automotive relay			
Type		NVF4-6	NVF4-7 & NVF4-8		NVFM
International Security Certificates		—		—	
Outline Dimensions(mm) L×W×H		 34.5×32.5×34	 26.5×26.5×25.2    26.5×26.5×25.2 (+16)		 23.5×15.8×25.7
Features		<ul style="list-style-type: none"> <li>Small size.</li> <li>Contact load capacity up to 150A.</li> <li>PC board mounting and plug-in mounting available.</li> </ul>	<ul style="list-style-type: none"> <li>Small size and light weight.</li> <li>Heavy contact load (70A).</li> <li>Suitable for automobile and lamp accessories application.</li> <li>PC board mounting and plug-in mounting available.</li> </ul>		<ul style="list-style-type: none"> <li>35A switching capability.</li> <li>PC board mounting and plug-in mounting available.</li> </ul>
Coil Voltage(VDC)		12,24	6,12,24		6,12,24,48
Coil Power		2.9W	1.6W 1.9W		1.2W 1.5W
Contact Material		AgSnO <sub>2</sub>	AgSnO <sub>2</sub>		AgSnO <sub>2</sub>
Contact Arrangement		1A,1C	1A		1A,1C
Contact transfer Current(A)		100A    150A	70A		35A
Contact Rating		NO:50A/24VDC 50A/24VDC NC:80A,100A/12VDC 50A/24VDC	50A/14VDC(85°C) 70A/14VDC		NO:25A,35A/14VDC NC:20A,25A/14VDC NO:12A,15A/28VDC NC:10A,12A/28VDC
Max.Switching power		1800W	980W		490W
Max.Switching voltage		75VDC	50VDC		30VDC
Ambient Temperature		-40°C~125°C	-40°C~105°C		-40°C~125°C
Dielectric Strength		50Hz 750V 50Hz 1000V	50Hz 500V 50Hz 500V		50Hz 500V 50Hz 1000V
Insulation Resistance		100MΩ	100MΩ		100MΩ
Voltage Drop(initial)		≤50mV(at 10A)	≤50mV(at 10A)		≤50mV(at 10A)
Electrical Life(operations)		1×10 <sup>5</sup>	1×10 <sup>5</sup>		1×10 <sup>5</sup>
Mechanical Life(operations)		1×10 <sup>7</sup>	1×10 <sup>7</sup>		1×10 <sup>7</sup>
Weight(Approx.)		65g	36g	41g	18.5g
Mounting Layout (Bottom View) (mm)					
Wiring Diagram (Bottom View)					
Cross Reference		—	TE: V23134		TE: V23074 OMRON: G8HE PANASONIC: CM

Classification		Automotive relay	
Type	NVF6	NVF8	
International Security Certificates	—		—
Outline Dimensions(mm) L×W×H	 26×26×22.7 26×26×22.7(+15.2)    35.5×35.5×45.5(+22.5)		 15.6×15.2×16.4
Features	<ul style="list-style-type: none"> <li>50A switching capability.</li> <li>PC board mounting and plug-in mounting available.</li> </ul>		<ul style="list-style-type: none"> <li>Low profile micro 280 terminal.</li> <li>25A switching capability.</li> <li>Contact arrangement: 1A.</li> <li>Can be widely used in car relay box.</li> </ul>
Coil Voltage(VDC)	12,24		12
Coil Power	1.6W		1.09W
Contact Material	AgSnO <sub>2</sub>		AgSO <sub>2</sub>
Contact Arrangement	1A	1C	1A
Contact transfer Current(A)	50A	50A	20A
Contact Rating	50A/14VDC 20A/28VDC	NO:50A/14VDC 20A/28VDC NC:35A/14VDC 15A/28VDC	20A/14VDC
Max.Switching power	700W		280W
Max.Switching voltage	75VDC		16VDC
Ambient Temperature	-40°C~125°C		-40°C~100°C
Dielectric Strength	Between Contacts	50Hz~60Hz 500V	50Hz~60Hz 500V
	Between Contact and Coil	50Hz~60Hz 500V	50Hz~60Hz 500V
Insulation Resistance	100MΩ		10MΩ
Voltage Drop(initial)	50mV(at 10A)		50mV(at 10A)
Electrical Life(operations)	1×10 <sup>5</sup>		1×10 <sup>5</sup>
Mechanical Life(operations)	1×10 <sup>7</sup>		1×10 <sup>6</sup>
Weight(Approx.)	35g		10g
Mounting Layout (Bottom View) (mm)	 PCB type    Plug in type terminals		
Wiring Diagram (Bottom View)	 1A    1C		
Cross Reference	TE: VF4/V23134 OMRON: G8JN PANASONIC: CB		OMRON: G8VA



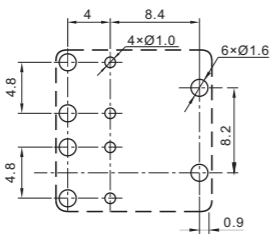
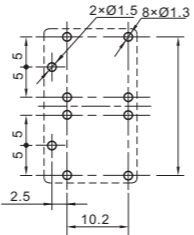
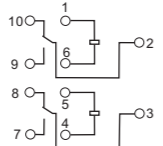
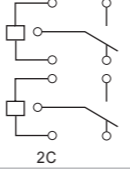
Automotive relay			
	NVF7	NVF11	NVF12
International Security Certificates	—		—
Outline Dimensions(mm) L×W×H	 26×26×22.7    26×26×22.7 (+15.2)    35.5×35.5×45.5 (+22.5)		 29×24×30    32×26×30
Features	<ul style="list-style-type: none"> <li>Small size and light weight.</li> <li>Heavy contact load (80A).</li> <li>Contact arrangement form A.</li> <li>Insert mounting, with metal frame.</li> <li>PC board mounting and plug-in mounting available.</li> </ul>		<ul style="list-style-type: none"> <li>Switching capacity up to 40A.</li> <li>Plug-in mounting available.</li> <li>Suitable for automation system and automobile auxiliary etc.</li> </ul>
Coil Voltage(VDC)	12,24		12, 24
Coil Power	1.6W		1.5W
Contact Material	AgSnO <sub>2</sub>		AgSnO <sub>2</sub>
Contact Arrangement	1A	1A	1A
Contact transfer Current(A)	80A		30A
Contact Rating	70A,80A/14VDC 25A/28VDC		30A/14VDC
Max.Switching power	1120W		420W
Max.Switching voltage	75VDC		30VDC
Ambient Temperature	-40°C~125°C		-40°C~105°C
Dielectric Strength	50Hz~60Hz 500V		50Hz 500V
	50Hz~60Hz 500V		50Hz 750V
Insulation Resistance	100MΩ		100MΩ
Voltage Drop(initial)	50mV(at 10A)		50mV(at 10A)
Electrical Life(operations)	80A/14VDC 85 °C 5×10 <sup>4</sup> ; 70A/14VDC, 25A/28VDC 105 °C 1×10 <sup>5</sup>		1×10 <sup>5</sup>
Mechanical Life(operations)	1×10 <sup>7</sup>		1×10 <sup>7</sup>
Weight(Approx.)	38g	35g	38g
Mounting Layout (Bottom View) (mm)	 PCB type terminals    Plug in type terminals		
Wiring Diagram (Bottom View)	 Without resistor    With resistor    With diode		 COM    NO
Cross Reference	TE: VF7/V23136-J OMRON: G8JR PANASONIC: CB		—

Classification		Automotive relay		
Type		NVFS	NCV	NVF28
International Security Certificates		—	—	—
Outline Dimensions(mm) L×W×H		 36×25.2×21	 22.5×15.2×16.2	 22.5×15×25.4
Features		<ul style="list-style-type: none"> <li>Small size and light weight.</li> <li>Heavy contact load (30A).</li> <li>Contact arrangement form A.</li> <li>Insert mounting, with metal frame.</li> </ul>	<ul style="list-style-type: none"> <li>Low profile.</li> <li>Low temperature rise.</li> <li>Suitable for automation system and automobile auxiliary etc.</li> </ul>	<ul style="list-style-type: none"> <li>40A continuous NO contact rating at 85°C.</li> <li>2.8mm quick connect terminals.</li> <li>Contact arrangement form A and C available.</li> </ul>
Coil Voltage(VDC)		6,12,24	12	6,12,24
Coil Power		1.8W	1.07W	0.9W 1.3W
Contact Material		AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>
Contact Arrangement		1A	1A	1A,1C
Contact transfer Current(A)	80A 70A 50A 40A 30A 20A 15A 10A 5A 1A	30A	25A	35A
Contact Rating		15A,30A/28VDC 15A/28VDC	25A/14VDC	NO:35A/14VDC NC:25A/14VDC
Max. Switching power		420W	350W	490W
Max. Switching voltage		30VDC	30VDC	30VDC
Ambient Temperature		-40°C~105°C	-40°C~105°C	-40°C~125°C
Dielectric Strength	Between Contacts	50Hz 500V	50Hz 500V	50Hz 500V
	Between Contact and Coil	50Hz 750V	50Hz 500V	50Hz 500V
Insulation Resistance		100MΩ	20MΩ	100MΩ
Voltage Drop(initial)		50mV(at 10A)	50mV(at 10A)	30mV(at 10A)
Electrical Life(operations)		1×10 <sup>5</sup>	1×10 <sup>5</sup>	1×10 <sup>5</sup>
Mechanical Life(operations)		1×10 <sup>7</sup>	1×10 <sup>6</sup>	1×10 <sup>7</sup>
Weight(Approx.)		32g	14g	21g
Mounting Layout (Bottom View) (mm)				
Wiring Diagram (Bottom View)				
Cross Reference		—	PANASONIC: CV OMRON: G8HL	TE: VJ28 OMRON: G8V

		Automotive relay		
		NVF16	NJ70 & NJ71	NJ120
International Security Certificates		—	—	—
Outline Dimensions(mm) L×W×H		 20.5×15.4×22.1	 2.429×3.480×2.400(inch)	 2.875×2.125×3.253(inch)
Features		<ul style="list-style-type: none"> <li>General-purpose relay with small size.</li> <li>Small volume and light weight.</li> <li>Operation temperature can achieve 125°C.</li> </ul>	<ul style="list-style-type: none"> <li>High current capacity control(80A).</li> <li>Isolated or grounded coils.</li> <li>Enclosed in dust-resistant case.</li> <li>Lower temperature rise and more sensitive operation.</li> </ul>	<ul style="list-style-type: none"> <li>Water resistant.</li> <li>Capable of handling low and high current requirements.</li> <li>Various mounting and contact arrangement.</li> </ul>
Coil Voltage(VDC)		12, 24	6,12,18,24,36	6,12,14,15,24,36,48
Coil Power		1.5W, 1.8W	NJ70:23W 9W; NJ71:25W 10W	14.4W 8.1W
Contact Material		AgSnO <sub>2</sub>	Cu Ag	Cu Ag alloy
Contact Arrangement		1A,1C	1A,1C	1A
Contact transfer Current(A)		40A	80A	100A
Contact Rating		12V:1A:35A,40A/14VDC 1C:NO:35A/14VDC NC:20A/14VDC 24V:1A:15A,20A/28VDC 1C:NO:15A/28VDC NC:10/28VDC	NO:80A/6VDC,12VDC 50A/24VDC,36VDC NC:60A/6VDC,12VDC 30A/24VDC,36VDC	80A/12VDC 100A/12VDC,36VDC
Max. Switching power		560W	—	—
Max. Switching voltage		30VDC	—	—
Ambient Temperature		-40°C~125°C	-40°C~50°C	-29°C~66°C -29°C~49°C
Dielectric Strength		50Hz 500V	—	—
		50Hz 500V	50Hz 500V	50Hz 500V
Insulation Resistance		100MΩ	—	—
Voltage Drop(initial)		50mV(at10A)	—	—
Electrical Life(operations)		1×10 <sup>5</sup>	1×10 <sup>5</sup>	—
Mechanical Life(operations)		1×10 <sup>7</sup>	2.5×10 <sup>5</sup>	1×10 <sup>5</sup>
Weight(Approx.)		18g	398g(NJ70), 483g(NJ71)	170.5g
Mounting Layout (Bottom View) (mm)				
Wiring Diagram (Bottom View)				
Cross Reference		TE: V23074 OMRON: G8HN PANASONIC: CM	STANCOR: TYPE 70	STANCOR: TYPE 120

# Appendix

## Certificates

Classification		Automotive relay	
Type		NG8N & NG8NW	NG8QN & NG8QW
International Security Certificates		—	
Outline Dimensions(mm) L×W×H		 14.3×7.2×13.5    14.3×15.7×13.5	 16.0×12.5×14.4    16.0×25.5×14.4
Features		<ul style="list-style-type: none"> <li>Small size and light weight.</li> <li>Low coil power consumption.</li> <li>Self-locking motor load can achieve 25A.</li> <li>PC board relay with high reliability.</li> <li>Suitable for reflow soldering.</li> <li>NG8NW relay is with two circuits.</li> </ul>	<ul style="list-style-type: none"> <li>Small size, light weight.</li> <li>Low coil consumption.</li> <li>PC board mounting.</li> </ul>
Coil Voltage(VDC)		12	
Coil Power		0.64W    0.80W	
Contact Material		AgSnO <sub>2</sub>	
Contact Arrangement		1C,2C	
Contact transfer Current(A)	80A	25A	20A
	70A		
	50A		
	40A		
	30A		
	20A		
	15A		
10A			
5A			
1A			
Contact Rating		25A motor lock(14VDC)	NO:20A/14VDC;NC:15A/14VDC Inrush current 25A (L/R=7ms; 15ms max)
Max.Switching power		480W	280W
Max.Switching voltage		16VDC	16VDC
Ambient Temperature		-40℃~105℃	
Dielectric Strength	Between Contacts	50Hz 500V	
	Between Contact and Coil	50Hz 500V	
Insulation Resistance		100MΩ	
Voltage Drop(initial)		50mV(at 10A)	
Electrical Life(operations)		1×10 <sup>5</sup>	
Mechanical Life(operations)		1×10 <sup>6</sup>	
Weight(Approx.)		4.1g    8g	6g    11g
Mounting Layout (Bottom View) (mm)			
Wiring Diagram (Bottom View)			
Cross Reference		OMRON: G8N	PANASONIC: JJM

