

# Fujitsu, years of experience

## Relays



shaping tomorrow with you

# Content

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## About Fujitsu Components

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### Fujitsu, years of experience

Over the years Fujitsu Components has made its name in the components and devices market with a complete product line-up of relays, thermal printers, touch panels and wireless modules. All adapted to the requirements of the market.

Supplying high quality and reliable components is only one of Fujitsu's strengths. Another strength is providing a high level of customer support service. Designed to meet our commitment to customers and to develop long lasting working relationships, our support includes: customer design facility, full technical back-up, applications advice, central warehousing and distribution, full literature and documentation and a specialist network of distributors.





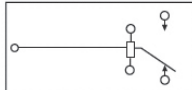
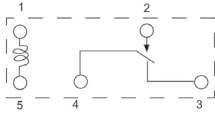
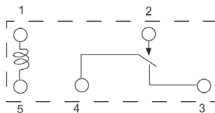
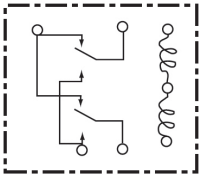
Fujitsu Components product experts have built a wealth of knowledge through their years of experience. They are pleased to share their knowledge with customers and offer technical support.

#### Fujitsu relays





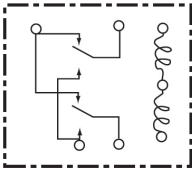
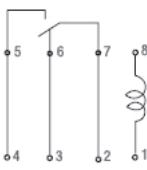
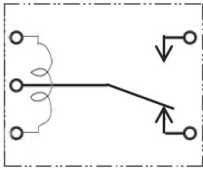
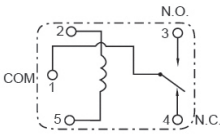
Quality is the key word describing Fujitsu Components' relays. The relay product range covers automotive, power, signal, high frequency and solid state relays. The relays are available in a wide range of variations such as slim line, ultra quiet and low power consumption. Through continued research and development Fujitsu keeps expanding its product range.

Visit [emea.fujitsu.com/components](http://emea.fujitsu.com/components) to find out more about our business activities.





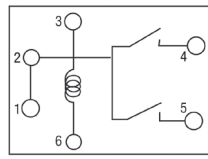
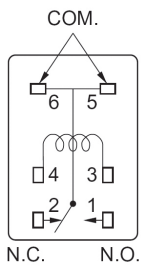
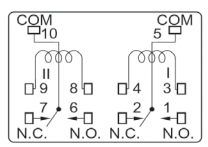
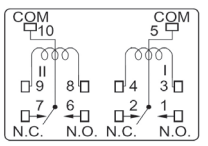
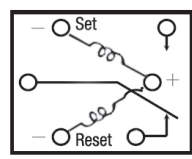
## Automotive relays (25A)

SERIES NAME		FTR-G1	FTR-P3	FTR-P5	FTR-P2
<b>■ Dimensions</b> W x L x H (mm)		 6.6 x 13.7 x 13.5	 7.2 x 17.4 x 13.5	 9.7 x 20.4 x 16.7	 16.5 x 21.0 x 18.0
<b>■ Weight (approx.)</b>		3.5 g	5.0 g	7.0 g	13.0 g
<b>■ Contact form</b>		1 c	1 c	1 c	H-bridge
<b>■ Contact current rating</b>		25A	25A	25A 1Hr	25A 1Hr
<b>■ Expected life on load example</b>		14 VDC Inrush 25A, power window motor (1 operation: 1 forward and 1 reverse) 100x10 <sup>3</sup> ops. 14VDC Inrush 19A, 12A break power window motor 200x10 <sup>3</sup> ops. 14VDC Inrush 20A, door lock locked motor 100x10 <sup>3</sup> ops. Inrush 35A	14 VDC, free motor load Inrush 17A 300x10 <sup>3</sup> ops. 14 VDC, 25A locked motor 100x10 <sup>3</sup> ops. Inrush 35A	14 VDC, 30A free motor load 300x10 <sup>3</sup> ops. 14 VDC, 25A locked motor 100x10 <sup>3</sup> ops. Inrush 35A	14 VDC, free motor load Inrush 17A 300x10 <sup>3</sup> ops. 14 VDC, 25A locked motor 100x10 <sup>3</sup> ops. Inrush 35A
<b>■ Coil voltage (DC)</b>		9 to 12 V	9 to 12 V	9 to 12 V	9 to 12 V
<b>■ Nominal coil power</b>		0.64 W	0.6 to 0.86 W	0.45 W	0.45 W
<b>■ Dielectric strength</b>	Open contacts	500 VAC	500 VAC	500 VAC	500 VAC
	Coil and contacts	500 VAC	500 VAC	500 VAC	500 VAC
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout (Bottom view)</b>					
<b>■ Remarks</b>		- 0.3mm contact gap	- SMC type available - Higher stand-off types available - High temp. versions available - 0.3 or 0.6mm contact gap	- Average acoustic noise level: 50 dB - 0.3mm contact gap	- Average acoustic noise level: 50 dB - Pin compatible with P4 - 0.3mm contact gap





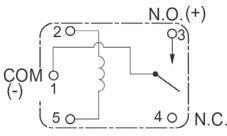
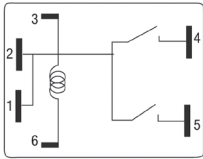
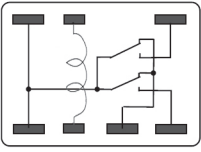
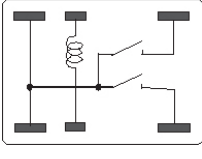
## Automotive relays (25A)

SERIES NAME		FTR-P4	FTR-P6	FTR-P7 <span style="border: 1px solid red; padding: 2px;">New design</span>	FBR51/52
<b>■ Dimensions</b> W x L x H (mm)		 14.2 x 17.4 x 13.5	 9.0 x 12.0 x 10.3	 17.0 x 20.8 x 14.0	 12.1 x 15.5 x 13.7
<b>■ Weight (approx.)</b>		10.0 g	3.3 g	7.0 g	6.0 g
<b>■ Contact form</b>		H-bridge	1 c	1 c	1 c
<b>■ Contact current rating</b>		25A	25A	25A	25A
<b>■ Expected life on load example</b>		14 VDC, 25A locked motor 100x10 <sup>3</sup> ops.  Inrush 35A	14 VDC, 25A locked motor 100x10 <sup>3</sup> ops.  Inrush 35A	14 VDC, 25A locked motor 100x10 <sup>3</sup> ops.  Inrush 35A	14 VDC, free motor load Inrush 20A 400x10 <sup>3</sup> ops.  14 VDC, 25A locked motor 200x10 <sup>3</sup> ops. (-W1 type)  Inrush 60A (80A -WL type)  120W lamp load 100K (-WL)
<b>■ Coil voltage (DC)</b>		9 to 12 V	10 to 12 V	12 V	6 to 12 V
<b>■ Nominal coil power</b>		0.6 W	0.8 W	0.6 W	0.6 W / 0.8 W
<b>■ Dielectric strength</b>	Open contacts	500 VAC	500 VAC	500 VAC	500 VAC
	Coil and contacts	500 VAC	500 VAC	500 VAC	500 VAC
<b>■ Mounting</b>		Through hole	Surface mount	Through hole	Through hole
<b>■ Terminal layout (Bottom view)</b>					
<b>■ Remarks</b>		- SMC type available - High temp. versions available - 0.3 or 0.6mm contact gap	- Average accoustic noise level: 60 dB - 0.25mm contact gap - SMD	- Average accoustic noise level: 45dB	- SMC type available - 0.3/0.6mm contact gap - High temperature types available

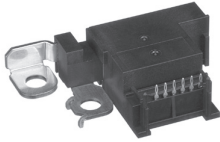

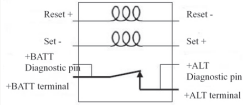
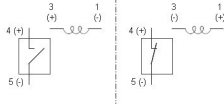
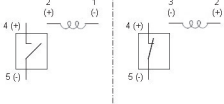
## Automotive relays (25A~35A)

SERIES NAME		FBR53	FBR57	FBR572/582	FBR51NL
<b>■ Dimensions</b> W x L x H (mm)		 12.1 x 15.5 x 13.7	 14.4 x 20.0 x 16.2	 20.0 x 26.0 x 16.2 (FBR572) 20.0 x 26.0 x 17.0 (FBR582)	 12.1 x 15.5 x 13.7
<b>■ Weight (approx.)</b>		6.0 g	9.4 g	18.0 g	6.0 g
<b>■ Contact form</b>		1u	1 c	1 c x 2	1 c
<b>■ Contact current rating</b>		25A	30A	30A	35A
<b>■ Expected life on load example</b>		14 VDC, 25W resistive load 150x10 <sup>3</sup> ops.  14 VDC, 6 x 21W lamp load 100x10 <sup>3</sup> ops.  Inrush 60A  Inrush 80A, 40A continuous (-HW type)	28 VDC, 2A locked motor 100x10 <sup>3</sup> ops.  28 VDC, 12A free motor load 500x10 <sup>3</sup> ops.  Inrush 70A (-W type)	28 VDC, 12A locked motor 100x10 <sup>3</sup> ops.  Wide gap type Maximum break rating locked motor load 32V, 14A  60A inrush	14 VDC, free motor load Inrush 20A 400x10 <sup>3</sup> ops.  14 VDC, 25A locked motor 200x10 <sup>3</sup> ops. (-W1 type)  Inrush 60A (80A -WL type)
<b>■ Coil voltage (DC)</b>		9 to 12 V	24 V	24 V	6 to 12 V
<b>■ Nominal coil power</b>		0.6 W	1.5 W	1.5 W / 3.4 W	1.1 W
<b>■ Dielectric strength</b>	Open contacts	500 VAC	500 VAC	500 VAC	500 VAC
	Coil and contacts	500 VAC	500 VAC	500 VAC	500 VAC
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout (Bottom view)</b>		Standard 		FBR572   FBR582 	
<b>■ Remarks</b>		- SMC type available - 0.25mm contact gap	- For 24V battery applications - 0.8mm contact gap	- For 24V battery applications - 0.8/1.4mm contact gap	- Dual coil latching - SMC type

## Automotive relays (35A~45A)





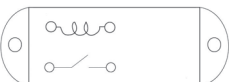
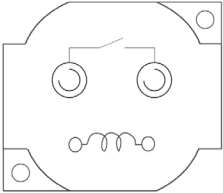
SERIES NAME		FBR51 (-WF)	FBR53-HW	FBR56-HW	FBR59-HW
<p>■ <b>Dimensions</b> W x L x H (mm)</p>		 12.1 x 15.5 x 13.7	 12.1 x 15.5 x 13.7	 15.0 x 20.0 x 16.5	 15.0 x 20.0 x 16.5
<p>■ <b>Weight (approx.)</b></p>		6.0 g	6.0 g	13.0 g	13.0 g
<p>■ <b>Contact form</b></p>		1 a	1 u	1 c	1u
<p>■ <b>Contact current rating</b></p>		35A	40A	45A	45A
<p>■ <b>Expected life on load example</b></p>		14 VDC, 80W lamp load 250x10 <sup>3</sup> ops.  Inrush 80A  Special type for flasher lamp applications.  80W Lamp load	Inrush 80A 100x10 <sup>3</sup> ops.	Inrush 220A Max. carrying current 60A	Inrush 220A Max. carrying current 60A
<p>■ <b>Coil voltage (DC)</b></p>		6 to 12 V	9 to 12 V	9 to 12 V	8 to 12 V
<p>■ <b>Nominal coil power</b></p>		0.6 W	0.9 W	0.5 W	0.5 W
<p>■ <b>Dielectric strength</b></p>	Open contacts	500 VAC	500 VAC	500 VAC	500 VAC
	Coil and contacts	500 VAC	500 VAC	500 VAC	500 VAC
<p>■ <b>Mounting</b></p>		Through hole	Through hole	Through hole	Through hole
<p>■ <b>Terminal layout (Bottom view)</b></p>			High capacity (-HW type) 	High capacity (-HW type) 	High capacity (-HW type) 
<p>■ <b>Remarks</b></p>		- SMC type available - 0.3/ 0.6mm contact gap	- SMC type available - High power type	- High power type	- High power type

## Automotive relays (100A/150A)





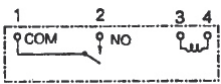
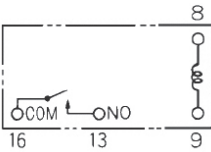
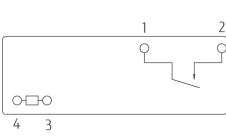
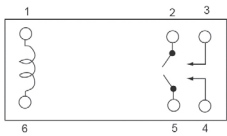
SERIES NAME		FTR-V1	FTR-V4
<p>■ <b>Dimensions</b> W x L x H (mm)</p>		 88.0 x 50.6 x 23.7	<p><b>New design</b></p>  72.0x71.5x22.5
<p>■ <b>Weight (approx.)</b></p>		115.0 g	120.0 g
<p>■ <b>Contact form</b></p>		1 a	1 a
<p>■ <b>Contact current rating</b></p>		150A	100A / 60VDC
<p>■ <b>Expected life on load example</b></p>		14 VDC, 150A 100x10 <sup>6</sup> ops.  230A peak break 1A 14VDC, 1x10 <sup>6</sup> ops.  Inrush 1200A Capacitor load	Inrush 1200A
<p>■ <b>Coil voltage (DC)</b></p>		12 V	12 to 48 V
<p>■ <b>Nominal coil power</b></p>		20.5 W	2.3 W / 4.5 W
<p>■ <b>Dielectric strength</b></p>	Open contacts	500 VDC	1,000 VAC
	Coil and contacts	500 VDC	4,000 VAC
<p>■ <b>Mounting</b></p>		Through hole/screw/press-fit	Through hole / screw
<p>■ <b>Terminal layout (Bottom view)</b></p>			<p>Single winding latching type</p>  <p>Double winding latching type</p> 
<p>■ <b>Remarks</b></p>		- Contact state diagnostic terminals - High current 12VDC relay	- 60VDC high current relay







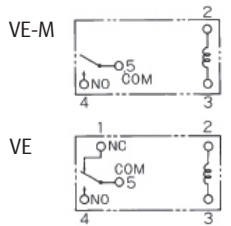
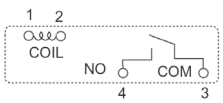
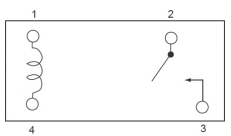

## Automotive relays (450 VDC, 10A~150A)

SERIES NAME		FTR-E1	FTR-E2	FTR-E3
<b>■ Dimensions</b> W x L x H (mm)		<b>New design</b>  28.0 x 64.5 x 49.5	<b>New design</b>  22.0 x 57.0 x 46.3	<b>New design</b>  63.5 x 73.5 x 73.0
<b>■ Weight (approx.)</b>		80.0 g	40.0 g	640.0 g
<b>■ Contact form</b>		1 a	1 a	1 a
<b>■ Contact current rating</b>	Make	10 A	15A	150 A
	Break	3 A	3 A	150 A
<b>■ Expected life on load example</b>		-	1A 30x10 <sup>3</sup> ops.  3A make & break 10x10 <sup>3</sup> ops.	-
<b>■ Coil voltage (DC)</b>		9 to 12 V	9 to 12 V	9 to 12 V
<b>■ Nominal coil power</b>		-	0.78 W	-
<b>■ Dielectric strength</b>	Open contacts	2,500 V	2,500 V	-
	Coil and contacts	5,000 V	5,000 V	-
<b>■ Mounting</b>		Tab terminals	Tab terminals	Screw / tab terminals
<b>■ Terminal layout (Bottom view)</b>				
<b>■ Remarks</b>		- Contact Fujitsu for details	- Contact Fujitsu for details	- Contact Fujitsu for details



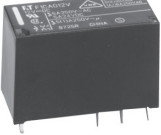

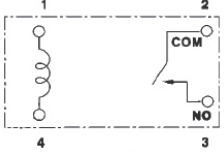
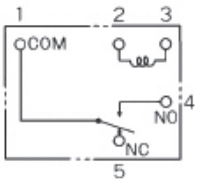
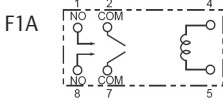
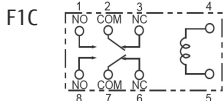
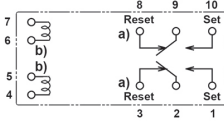
## Power relays (3A~5A)

SERIES NAME		NY	JY	FTR-F3	FTR-F4
<b>■ Dimensions</b> W x L x H (mm)		 5.0 x 20.1 x 17.5	 10.0 x 20.0 x 12.8	 7.0 x 20.3 x 15.0	 12.0 x 24.0 x 25.0
<b>■ Weight (approx.)</b>		3.5 g	3.7 g	4.0 g	12.0 g
<b>■ Contact form</b>		1 a	1 a	1 a, 1 c	2 a
<b>■ Contact current rating</b>		3A (5A carry)	(5A carry) 3A 3A 5A 3A 5A	3A, 5A (5A carry)	3A, 5A (5A carry)
<b>■ Minimum switching load (ref.)</b>		5VDC 1mA	100mVDC 0.1mA    5VDC 10mA    5VDC 100mA	5VDC 10mA	5VDC 100mA
<b>■ Contact rating</b> (Resistive load)		3A, 250VAC/30VDC	3A, 250VAC/30VDC 5A, 250VAC/30VDC	3A, 250VAC/30VDC 5A, 250VAC/30VDC	5A, 277VAC/30VDC
<b>■ Coil voltage (DC)</b>		4.5 to 24 V	4.5 to 48 V	5 to 24 V	5 to 48 V
<b>■ Nominal coil power</b>		0.12 W	0.2 to 0.36 W	0.2 W	0.53 W
<b>■ Dielectric strength</b>	Open contacts	750 VAC	750 VAC	750 VAC	1,000 VAC
	Coil and contacts	3,000 VAC	2,000 VAC	4,000 VAC	4,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		5,080 V	4,000 V	10,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	20 x 10 <sup>6</sup> ops.	10 x 10 <sup>6</sup> ops.	5 x 10 <sup>6</sup> ops.	2 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops. (at 3A, 250VAC, 30VDC) 50 x 10 <sup>3</sup> ops. (at 5A, 250VAC)	100 x 10 <sup>3</sup> ops.	200 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, CSA, VDE	UL, CSA, VDE, SEV	UL, CSA VDE, SEMKO, CQC, NEMKO, DEMKO, FIMKO	UL, CSA VDE, SEMKO, CQC
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)					
<b>■ Remarks</b>		- Socket available (-NYP)	- Socket available	- Right angle versions (1 a) - TV-3, TV-5 rating types available - 1 form c type available	- Flux-free type available - TV-3 rated - 8A version version available (FTR-F4R)





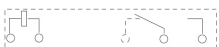
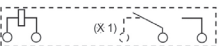

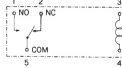


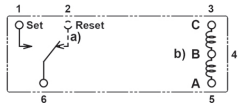
## Power relays (5A)

SERIES NAME		VE	FTR-MY	FTR-F2	FTR-F4G
<b>■ Dimensions</b> W x L x H (mm)		 10.5 x 20.5 x 20.5	 5.0 x 20.0 x 12.0	 11.0 x 24.0 x 25.0	 12.7 x 28.7 x 25.2
<b>■ Weight (approx.)</b>		8.0 g	2.5 g	13.0 g	18.0 g
<b>■ Contact form</b>		1 a, 1 c	1 a	1 a	2 a
<b>■ Contact current rating</b>		(7A carry) 5A (3A*)   5A (3A*)	5A	5A (5A carry)	5A
<b>■ Minimum switching load (ref.)</b>		5VDC 10mA   5VDC 100mA	5VDC 1mA	5VDC 100mA	5VDC 100mA
<b>■ Contact rating (Resistive load)</b>		VE(-) H5 5A, 250VAC VE(-) H 3A/5A, 250VAC	5A, 250VAC/30VDC	5A, 250VAC/30VDC	5A, 250VAC
<b>■ Coil voltage (DC)</b>		5 to 48 V	4.5 to 24 V	5 to 48 V	5 to 48 V
<b>■ Nominal coil power</b>		0.25 to 0.36 W	0.11 W	0.25 to 0.53 W	0.8 W
<b>■ Dielectric strength</b>	Open contacts	750 VAC (1 c) 1,000 VAC (1 a)	750 VAC	1,000 VAC	1,000 VAC
	Coil and contacts	2,000 VAC	3,000 VAC	4,000 VAC	5,000 VAC
<b>■ Surge strength (Coil and contacts)</b>		4,000 V / 6,000 V	5,080 V	10,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	10 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	500 x 10 <sup>3</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops. (VE) 50 x 10 <sup>3</sup> ops. (VE-S)	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, CSA, VDE	UL, CSA, VDE, IEC61010, 61131, CQC	UL, CSA, VDE, SEMKO, CQC, NEMKO, DEMKO, FIMKO	UL, TUV
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout (Bottom view)</b>					
<b>■ Remarks</b>		* N.C. contact	- Right angle type available	- Flux-free type available - TV-5 rated	- 1.5mm contact gap - TV-3 rated





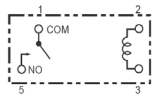
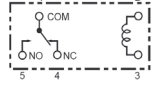
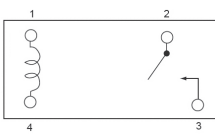
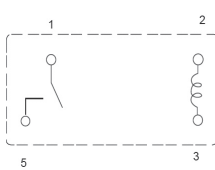
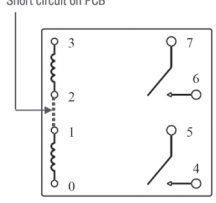
## Power relays (5A~10A)

SERIES NAME		JV	LZ	FTR-F1	FTR-F1L
<b>■ Dimensions</b> W x L x H (mm)		 10.0 x 17.5 x 12.5	 16.4 x 21.4 x 14.8	 12.8 x 29.0 x 16.5	 12.8 x 29.0 x 16.5
<b>■ Weight (approx.)</b>		4.3 g	7.7 g	13.0 g	13.0 g
<b>■ Contact form</b>		1 a	1 a, 1 c	2 a, 2 c	2 a, 2 c
<b>■ Contact current rating</b>		5A, 10A	1A, 3A, 5A, 3A, 5A, 10A	5A, 8A	8A
<b>■ Minimum switching load (ref.)</b>		5VDC 100mA	5VDC 100mA, 5VDC 10mA, 100mVDC 0.1mA	5VDC 10mA	15VDC 10mA
<b>■ Contact rating</b> (Resistive load)		5A, 250VAC/30VDC 10A, 250VAC/24VDC	1A, 120VAC/30VDC 3A, 120VAC/30VDC 5A, 120VAC/24VDC 10A, 120VAC/24VDC	5A, 250VAC/24VDC 8A, 250VAC/24VDC	8A, 250VAC/24VDC
<b>■ Coil voltage (DC)</b>		3 to 48 V	1.5 to 24 V (48*, 100*)V	1.5 to 48 V	5 to 24 V
<b>■ Nominal coil power</b>		0.2 W / 0.3 W	0.33 W / 0.45 to 0.6 W	0.4 to 0.53 W	0.6 W
<b>■ Dielectric strength</b>	Open contacts	750 VAC	750 VAC	1,000 VAC	1,000 VAC
	Coil and contacts	5,000 VAC	2,000 VAC	5,000 VAC	5,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		10,000 V	4,000 V / 6,000 V	10,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	5 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	3 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	50 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, CSA, VDE, SEMKO, CQC	UL, CSA	UL, CSA VDE, SEMKO, NEMKO, DEMKO, BSI, FIMKO, IMQ	UL, CSA, VDE
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)				F1A  F1C 	
<b>■ Remarks</b>		- High sensitive type available - 10 A type JV-KS	* Only standard type - Not for new designs	- Pin compatible with VB series - TV-3 rating available - Clear cover available	- 1 and 2 coil versions - Latching type





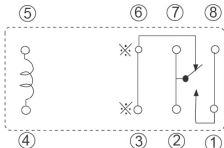
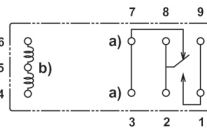
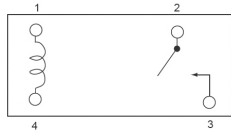
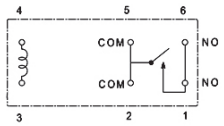
## Power relays (6A~8A)

SERIES NAME		FTR-LY	JS	JS-RW <span style="border: 1px solid red; padding: 2px;">New design</span>	JSL
<b>■ Dimensions</b> W x L x H (mm)		 5.0 x 28.0 x 15.0	 10.0 x 29.0 x 12.5	 10.0 x 29.0 x 12.5	 10.0 x 29.0 x 12.5
<b>■ Weight (approx.)</b>		5.0 g	8.0 g	8.0 g	8.0 g
<b>■ Contact form</b>		1 a, 1 c	1 a, 1 c	1 a, 1 c	1 a
<b>■ Contact current rating</b>		6A	8A (10A carry)	8A (10A carry)	8A (10A carry)
<b>■ Minimum switching load (ref.)</b>		5VDC 10mA	5VDC 10mA	5VDC 100mA	5VDC 8mA
<b>■ Contact rating</b> (Resistive load)		6A, 250VAC/30VDC	8A, 250VAC/24VDC	8A, 250VAC/24VDC	8A, 250VAC/24VDC
<b>■ Coil voltage (DC)</b>		3 to 48 V	5 to 60 V	5 to 60 V	3 to 60 V
<b>■ Nominal coil power</b>		0.17 W / 0.21 W	0.22 to 0.29 W	0.22 to 0.29 W	0.22 to 0.25 W
<b>■ Dielectric strength</b>	Open contacts	1,000 VAC	1,000 VAC	1,000 VAC	1,000 VAC
	Coil and contacts	4,000 VAC	5,000 VAC	5,000 VAC	5,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		6,000 V	10,000 V	10,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	10 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	30 x 10 <sup>3</sup> ops. to 60 x 10 <sup>3</sup> ops.	50 x 10 <sup>3</sup> ops. to 60 x 10 <sup>3</sup> ops.	50 x 10 <sup>3</sup> ops. to 60 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, CSA, VDE, SEMKO, NEMKO, DEMKO, FIMKO	UL, CSA, VDE, SEV, OVE, BSI, SEMKO, FIMKO, CQC, NEMKO, DEMKO	Pending	UL, CSA, VDE
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)		Through hole type   Right angle type 	JS-MK, JS-M( )- KT   JS-K 	JS-MK, JS-M( )- KT   JS-K 	
<b>■ Remarks</b>		<ul style="list-style-type: none"> <li>- Ultra slim</li> <li>- Socket version available</li> <li>- Right angle type available</li> </ul>	<ul style="list-style-type: none"> <li>- 1000W lamp load type available (Inrush 64A) (JS-MN(-)-KS)</li> </ul>	<ul style="list-style-type: none"> <li>- Reflow solderable relay (RTH)</li> </ul>	<ul style="list-style-type: none"> <li>- 1 and 2 coil versions available</li> <li>- Latching type</li> </ul>



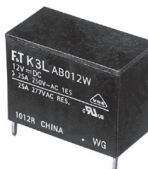

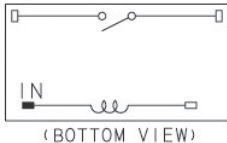
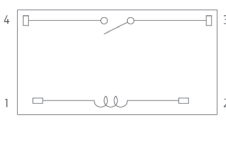
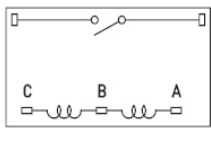
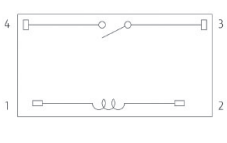
## Power relays (10A)

SERIES NAME		FTR-H1	FTR-H2	FTR-H3	FTR-J2
<b>■ Dimensions</b> W x L x H (mm)		 12.8 x 28.0 x 16.5	 11.0 x 24.0 x 25.0	 13.7 x 28.8 x 18.8	 23.5 x 24.0 x 27.0
<b>■ Weight (approx.)</b>		12.0 g	12.0 g	13.0 g	26.0 g
<b>■ Contact form</b>		1 a, 1 c	1 a	1 a	2 x 1 a, 1 x 1 a
<b>■ Contact current rating</b>		10A (14A carry)	10A	10A (14A carry)	10A
<b>■ Minimum switching load (ref.)</b>		5VDC 10mA	5VDC 100mA	5VDC 10mA	10VDC 100mA
<b>■ Contact rating</b> (Resistive load)		10A, 250VAC/30VDC	10A, 250VAC/30VDC	10A, 250VAC/30VDC TV-5/TV-8	10A, 200VDC x 2 10A, 450VDC
<b>■ Coil voltage (DC)</b>		5 to 48 V	5 to 48 V	5 to 48 V	10 to 110 V
<b>■ Nominal coil power</b>		0.4 to 0.53 W	0.25 to 0.53 W	0.53 W	0.53 to 1.06 W
<b>■ Dielectric strength</b>	Open contacts	1,000 VAC	1,000VAC	1,000 VAC	1,000 VAC
	Coil and contacts	5,000 VAC	4,000 VAC	5,000 VAC	4,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		10,000 V	10,000 V	10,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	2 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	10 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, CSA, VDE, SEMKO, BSI, CQC, NEMKO, FIMKO, DEMKO	UL, CSA, VDE, SEMKO, NEMKO, DEMKO, FIMKO, CQC	UL, CSA VDE, CQC	VDE
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)		FTR-H1A  FTR-H1C 			Short circuit on PCB 
<b>■ Remarks</b>		- TV-5 rating available - Clear cover available	- Flux-free type available - TV-5 rated	- Pin compatible with FTR-H1 series (1 form A) - Low noise level 50dB - TV-8 rating available	- Special arc extinguishing provision

## Power relays (10A~20A)





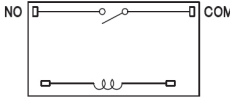
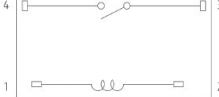
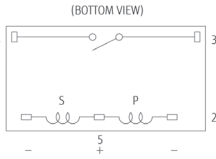
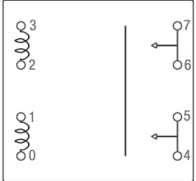
SERIES NAME		FTR-K1	FTR-K1L	FTR-K2	FTR-K2G
<b>■ Dimensions</b> W x L x H (mm)		 12.7 x 29.0 x 15.7	 12.7 x 29.0 x 15.7	 11.0 x 24.0 x 25.0	 16.0 x 35.0 x 28.0
<b>■ Weight (approx.)</b>		13.0 g	14.0 g	13.0 g	33.0 g
<b>■ Contact form</b>		1 a, 1 c	1 a, 1 c	1 a	1 a
<b>■ Contact current rating</b>		(14A carry)   (20A carry) 10A   16A   17A	16A	16A	20A (25A carry)
<b>■ Minimum switching load (ref.)</b>		5VDC 10mA	5VDC 10mA	5VDC 100mA	5VDC 100mA
<b>■ Contact rating</b> (Resistive load)		10A, 250VAC 16A, 250VAC/24VDC 17A, 250VAC/24VDC (TAB-terminals)	16A, 250VAC (inrush 80A)	16A, 250VAC/(125VAC)/ 30VDC	20A, 250VAC
<b>■ Coil voltage (DC)</b>		5 to 48 V	5 to 24 V	5 to 48 V	5 to 110 V
<b>■ Nominal coil power</b>		0.4 W	0.4 W	0.53 W	1.1 W
<b>■ Dielectric strength</b>	Open contacts	1,000 VAC	1,000 VAC	1,000 VAC	2,000 VAC
	Coil and contacts	5,000 VAC	5,000 VAC	4,000 VAC	5,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		10,000 V	10,000 V	10,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	20 x 10 <sup>6</sup> ops.	3 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	10 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	20 x 10 <sup>3</sup> ops. to 150 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops. 50 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, CSA, VDE, SEMKO, NEMKO, DEMKO, FIMKO	UL, CSA, VDE, SEMKO	UL, CSA, VDE, SEMKO, CQC	UL, CSA, VDE
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)					
<b>■ Remarks</b>		- High sensitive, 105°C type, clear cover, 120A and TAB-terminals available (17A) - Sealed versions available - 120A inrush type available - AC coil version under development	- 1 and 2 coil versions available - Latching type	- TV-5 and TV-8 rated	- TV-8 rated - 3mm contact gap

## Power relays (20A~25A)



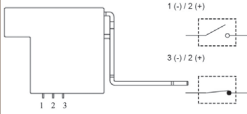
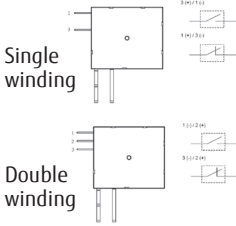
SERIES NAME		FTR-K3	FTR-K3-WG	FTR-K3L	FTR-K3-WS
<p>■ <b>Dimensions</b> W x L x H (mm)</p>		 <p>15.7 x 30.1 x 23.3</p>	 <p>15.7 x 30.1 x 23.3</p>	 <p>15.7 x 30.1 x 23.3</p>	 <p>15.7 x 30.1 x 23.3</p>
<p>■ <b>Weight (approx.)</b></p>		25.0 g	25.0 g	25.0 g	26.0 g
<p>■ <b>Contact form</b></p>		1 a	1 a	1 a	1 a
<p>■ <b>Contact current rating</b></p>		20A, 25A	25A	25A (30A carry)	25A
<p>■ <b>Minimum switching load (ref.)</b></p>		5VDC 100mA	5VDC 100mA	5VDC 100mA	5VDC 100mA
<p>■ <b>Contact rating</b> (Resistive load)</p>		20A, 250VAC	25A, 250VAC	25A, 250VAC	25A, 250VAC
<p>■ <b>Coil voltage (DC)</b></p>		5 to 48 V	5 to 48 V	5 to 24 V	5 to 48 V
<p>■ <b>Nominal coil power</b></p>		0.78 W	0.78 W	0.9 W	1.2 W
<p>■ <b>Dielectric strength</b></p>	Open contacts	1,000 VAC	2,500 VAC	1,000 VAC	2,500 VAC
	Coil and contacts	5,000 VAC	5,000 VAC	5,000 VAC	5,000 VAC
<p>■ <b>Surge strength</b> (Coil and contacts)</p>		8,500 V	8,500 V	8,500 V	8,500 V
<p>■ <b>Expected life</b></p>	Mechanical	20 x 10 <sup>6</sup> ops.	2 x 10 <sup>6</sup> ops.	1 x 10 <sup>6</sup> ops.	100 x 10 <sup>3</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops.	30 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.	30 x 10 <sup>3</sup> ops.
<p>■ <b>Safety standards</b></p>		UL, CSA, VDE, CQC	UL, VDE, CQC	UL, VDE	UL, VDE
<p>■ <b>Mounting</b></p>		Through hole	Through hole	Through hole	Through hole
<p>■ <b>Terminal layout</b> (Bottom view)</p>		 <p>(BOTTOM VIEW)</p>			
<p>■ <b>Remarks</b></p>		<ul style="list-style-type: none"> <li>- TAB-terminals</li> <li>- Flat type available (FTR-K3F series, 25A)</li> </ul>	<ul style="list-style-type: none"> <li>- 1.5mm contact gap</li> <li>- 2 coils latching type available (FTR-K3L-WG)</li> </ul>	<ul style="list-style-type: none"> <li>- 2 coils latching type</li> </ul>	<ul style="list-style-type: none"> <li>- 1.8 mm contact gap</li> </ul>







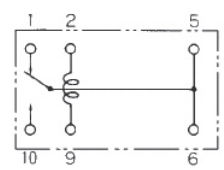
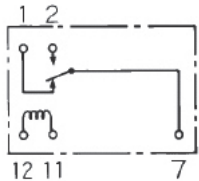
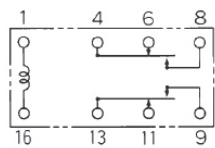
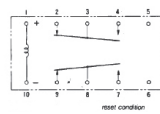
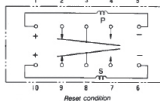
## Power relays (30A~32A)

SERIES NAME		FTR-K3-PV	FTR-K3-PS	FTR-K3LV	FTR-K2W
<b>■ Dimensions</b> W x L x H (mm)		 15.7 x 30.1 x 23.3	 15.7 x 30.1 x 23.3	 15.7 x 30.1 x 23.3	 16.0 x 35.0 x 28.0
<b>■ Weight (approx.)</b>		25.0 g	26.0 g	27.0 g	70.0 g
<b>■ Contact form</b>		1 a	1 a	1 a	1 a
<b>■ Contact current rating</b>		32A (32A carry)	32A	32A	30A
<b>■ Minimum switching load (ref.)</b>		5VDC 100mA	5VDC 100mA	5VDC 100mA	5VDC 100mA
<b>■ Contact rating</b> (Resistive load)		32A, 250VAC	32A, 250VAC	32A, 250VAC	30A, 60VDC
<b>■ Coil voltage (DC)</b>		5 to 48 V	5 to 48 V	5 to 48 V	6 to 48 V
<b>■ Nominal coil power</b>		1.2 W	1.4 W	0.6 / 1.2 W	2 W
<b>■ Dielectric strength</b>	Open contacts	2,500 VAC	2,500 VAC	2,500 VAC	2,000 VAC
	Coil and contacts	5,000 VAC	4,000 VAC	4,000 VAC	5,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		6,000 V	6,000 V	6,000 V	10,000 V
<b>■ Expected life</b>	Mechanical	1 x 10 <sup>6</sup> ops.	100 x 10 <sup>3</sup> ops.	1 x 10 <sup>6</sup> ops.	2 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	30 x 10 <sup>3</sup> ops.	30 x 10 <sup>3</sup> ops.	30 x 10 <sup>3</sup> ops.	100 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		UL, VDE	UL, VDE	Pending	Pending
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)				(BOTTOM VIEW) 	
<b>■ Remarks</b>		- High capacity 32A - 1.5mm contact gap - 2 coils latching type available (FTR-K3L-PV)	- 1.8 mm contact gap	- Screw hole terminals for contacts	- 2 x 3mm contact gap total 6mm





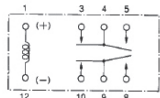
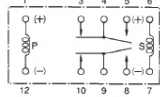
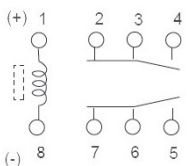
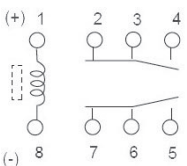
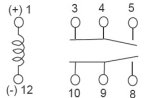
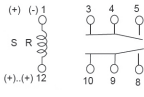
## Power relays (120A)

SERIES NAME		FTR-V2	FTR-K4
<b>■ Dimensions</b> W x L x H (mm)		 70.0 x 62.0 x 23.0	<div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">New design</div>  37.0 x 43.0 x 22.0
<b>■ Weight (approx.)</b>		120.0 g	80.0 g
<b>■ Contact form</b>		1 a	1 a
<b>■ Contact current rating</b>		120A (200A carry)	120A
<b>■ Minimum switching load (ref.)</b>		6VDC 1A	-
<b>■ Contact rating (Resistive load)</b>		120A, 277VAC 1,200A inrush	120A, 277VAC
<b>■ Coil voltage (DC)</b>		12 V	6 to 48 V
<b>■ Nominal coil power</b>		4.5 W	2.4 W (single winding) 4.8 W (double winding)
<b>■ Dielectric strength</b>	Open contacts	2,000 VAC	2,000 VAC
	Coil and contacts	4,000 VAC	4,000 VAC
<b>■ Surge strength (Coil and contacts)</b>		12,000 V	12,000 V
<b>■ Expected life</b>	Mechanical	200 x 10 <sup>3</sup> ops.	1 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	1,000 ops. 240VAC/80A 1,000 ops. 100VAC/120A 120 x 10 <sup>3</sup> ops. inrush 230A make -1A break	5 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		Pending	Pending
<b>■ Mounting</b>		Through hole	Through hole
<b>■ Terminal layout (Bottom view)</b>			
<b>■ Remarks</b>		- 120A latching relay - High current wide terminal - Dual coil latching type - Contact Fujitsu for details	- 120A latching relay


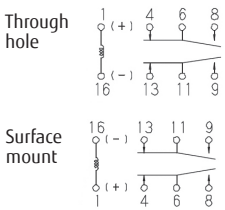
## Signal relays (1A~2A)

SERIES NAME		SY	MZ	RY	A
<b>■ Dimensions</b> W x L x H (mm)		 7.4 x 12.5 x 9.5	 11.4 x 15.4 x 11.0	 9.8 x 20.2 x 12.5	 9.4 x 14.0 x 5.0
<b>■ Weight (approx.)</b>		1.7 g	3.5 g	5.0 g	1.2 g
<b>■ Contact form</b>		1 c	1 c	2 c	2 c
<b>■ Contact current rating</b>		(2A carry) 1A    1A	(2A carry) 1A    1A    2A	1A (1.25A carry) 2A (2A carry)	2A (2A carry)
<b>■ Minimum switching load (ref.)</b>		100mVDC 0.1mA    1VDC 1mA	100mVDC 0.01mA    1VDC 1mA	10mVDC 0.01mA	10mVDC 0.01mA
<b>■ Contact rating</b> (Resistive load)		0.5, 120VAC (SY) 1A, 24VDC 0.5A, 60VAC (SY-W) 1A, 24VDC	0.5A, 120VAC (MZ-W) 1A, 24VDC (MZ) 1A, 120VAC (MZ-D) 2A, 24VDC (MZ-D)	0.5A, 120VAC (RY-W, WZ) 1A, 24VDC 0.25A, 120VAC (RY-WF) 1A, 24VDC 0.5A, 125VAC (RY-WFZ) 2A, 30VDC	0.5A, 125VAC 1A, 30VDC
<b>■ Coil voltage (DC)</b>		1.5 to 24 V	1.5 to 48 V	4.5 to 48 V	1.5 to 24 (48*) V
<b>■ Nominal coil power</b>		0.15 to 0.175 W	0.19 to 0.27 W / 0.45 to 0.50W	0.15 to 0.58 W	0.2 to 0.3 W
<b>■ Dielectric strength</b>	Open contacts	300 VAC 400 VAC	500 VAC	500 VAC (W, WZ, WFZ) 1,000 VAC (WF)	1,000 VAC
	Coil and contacts	1,000 VAC	500 VAC / 1,000 VAC (MZ-F)	1,000 VAC	1,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		1,500 V	1,500 V	1,500 V	1,500 V
<b>■ Expected life</b>	Mechanical	5 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops.	20 x 10 <sup>6</sup> ops. (W) 10 x 10 <sup>6</sup> ops. (WF, WZ, WFZ)	100 x 10 <sup>6</sup> ops. (A) 10 x 10 <sup>6</sup> ops. (AL, AL-D)
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops.	200 x 10 <sup>3</sup> ops. (DC) 500 x 10 <sup>3</sup> ops. (AC)	100x10 <sup>3</sup> ops. (DC 30V,2A)*1 200x10 <sup>3</sup> ops. (AC 120V,0.5A)*2 500x10 <sup>3</sup> ops. (DC 24V,1A / AC 120V, 0.25A)	500 x 10 <sup>3</sup> ops. (DC) 50 x 10 <sup>3</sup> ops. (AC)
<b>■ Safety standards</b>		UL, CSA, FCC68	UL, CSA, FCC68	UL, CSA, FCC68	UL, CSA, FCC68
<b>■ Mounting</b>		Through hole	Through hole	Through hole	Through hole
<b>■ Terminal layout</b> (Bottom view)					A, AL  AL-D 
<b>■ Remarks</b>			- Not for new designs	*1: 2 Amp type *2: 1 Amp type	- 1 and 2 coil versions available - Latching type available * Only standard type


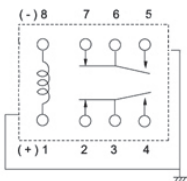
# Signal relays (2A)

SERIES NAME		NA	FTR-B3	FTR-B4	FTR-C1
<b>■ Dimensions</b> W x L x H (mm)		 7.4 x 14.9 x 9.7	 7.2 x 10.6 x 5.45*	 5.7 x 10.6 x 9.0	 7.5 x 15.0 x 9.3
<b>■ Weight (approx.)</b>		1.6 g	0.85 g	1.0 g	2.0 g
<b>■ Contact form</b>		2 c	2 a	2 c	2 c
<b>■ Contact current rating</b>		2A (2A carry)	2A (2A carry)	2A (2A carry)	2A (2A carry)
<b>■ Minimum switching load (ref.)</b>		10mVDC 0.01mA	10mVDC 0.01mA	10mVDC 0.01mA	10mVDC 0.01mA
<b>■ Contact rating (Resistive load)</b>		0.5A, 125VAC 1A, 30VDC	0.3A, 125VAC 1A, 30VDC	0.3A, 125VAC 1A, 30VDC	0.3A, 125VAC 1A, 30VDC
<b>■ Coil voltage (DC)</b>		1.5 to 24V (*48 V)	1.5 to 24 V	1.5 to 24 V	3 to 24 V
<b>■ Nominal coil power</b>		0.1 to 0.3 W	0.1 to 0.23 W	0.1 to 0.23 W	0.14 to 0.3 W
<b>■ Dielectric strength</b>	Open contacts	1,000 VAC	1,000 VAC	1,000 VAC	1,500 VAC
	Coil and contacts	1,500 VAC (NA, NAL) 1,000 VAC (NAL-D)	1,500 VAC	1,500 VAC	3,000 VAC
<b>■ Surge strength (Coil and contacts)</b>		2,500 V (NA, NAL) 1,500 V (NAL-D)	2,500 V	2,500 V	5,000 V
<b>■ Expected life</b>	Mechanical	100 x 10 <sup>6</sup> ops. (NA) 10 x 10 <sup>6</sup> ops. (NAL, NAL-D)	50 x 10 <sup>6</sup> ops. (FTR-B3...A) 20 x 10 <sup>6</sup> ops. (FTR-B3...B)	50 x 10 <sup>6</sup> ops. 20 x 10 <sup>6</sup> ops. (latching)	10 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	500 x 10 <sup>3</sup> ops. (DC) 200 x 10 <sup>3</sup> ops. (AC)	100 x 10 <sup>3</sup> ops.	200 x 10 <sup>3</sup> ops. (DC) 100 x 10 <sup>3</sup> ops. (AC)	100 x 10 <sup>3</sup> ops. (DC) 100 x 10 <sup>3</sup> ops. (AC)
<b>■ Safety standards</b>		UL, CSA, BSI, FCC68, Telcordia, IEC60950-1	UL, CSA, BSI, FCC68, Telcordia, IEC60950-1	UL, CSA, FCC68, Telcordia, IEC60950-1	UL, CSA, BSI, Telcordia
<b>■ Mounting</b>		Through hole	Through hole / surface mount	Through hole / surface mount	Through hole / surface mount
<b>■ Terminal layout (Bottom view)</b>		NA, NAL  NAL-D 			Standard  Latching 
<b>■ Remarks</b>		- Latching type available * Only standard type	- Latching type available * Through hole 7.2 x 10.6 x 5.2 mm	- Latching type available	- Latching type available - Contact gap 0.6 mm



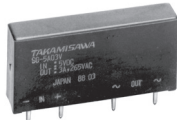


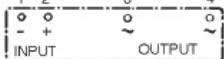

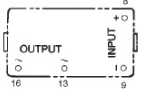
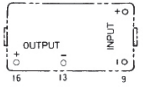
## Signal relays (2A)

SERIES NAME		FTR-C2
<b>■ Dimensions</b> W x L x H (mm)		 9.85 x 20.05 x 11.4
<b>■ Weight (approx.)</b>		3.7 g
<b>■ Contact form</b>		2 c
<b>■ Contact current rating</b>		2A (2A carry)
<b>■ Minimum switching load (ref.)</b>		10mVDC 0.01mA
<b>■ Contact rating</b> (Resistive load)		0.3A, 125VAC 1A, 30VDC
<b>■ Coil voltage (DC)</b>		3 to 12 V
<b>■ Nominal coil power</b>		0.3 W
<b>■ Dielectric strength</b>	Open contacts	1,500 VAC
	Coil and contacts	2,000 VAC
<b>■ Surge strength</b> (Coil and contacts)		2,500 V
<b>■ Expected life</b>	Mechanical	10 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops. (DC) 100 x 10 <sup>3</sup> ops. (AC)
<b>■ Safety standards</b>		UL, CSA, BSI, Telcordia, IEC60950-1
<b>■ Mounting</b>		Through hole / surface mount
<b>■ Terminal layout</b> (Bottom view)		
<b>■ Remarks</b>		- 2mm contact gap



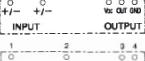

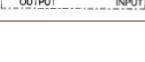
## High frequency relays (0.3A/1A)

SERIES NAME		FTR-B3-RF
<b>■ Dimensions</b> W x L x H (mm)		 7.7 x 13.6 x 5.45
<b>■ Weight (approx.)</b>		1.3 g
<b>■ Contact form</b>		2 c
<b>■ Contact current rating</b>		1A      0.3A
<b>■ Minimum switching load (ref.)</b>		30VDC      125VAC
<b>■ RF characteristics</b> @ 50 Ω		3W @ 1GHz-switching 1W @ 1GHz-carry Isolation > 30dB @ 1GHz Insertion loss < 0.2dB @ 1 GHz V.S.W.R < 1.2 @ 1 GHz
<b>■ Coil voltage (DC)</b>		1.5 to 24V
<b>■ Nominal coil power</b>		0.1 W
<b>■ Dielectric strength</b>	Open contacts	750 VAC
	Coil and contacts	750 VAC
<b>■ Surge strength</b> (Coil and contacts)		1,500 V
<b>■ Expected life</b>	Mechanical	50 x 10 <sup>6</sup> ops.
	Electrical (Rated load)	100 x 10 <sup>3</sup> ops.
<b>■ Safety standards</b>		-
<b>■ Mounting</b>		Surface mount
<b>■ Terminal layout</b> (Bottom view)		
<b>■ Remarks</b>		- Latching type available

## Solid state relays (1A~3A)

SERIES NAME		FTR-SL	SE	SG	SJ
<ul style="list-style-type: none"> <li>Dimensions W x L x H (mm)</li> </ul>		 5.0 x 28.0 x 15.0	 5.0 x 20.0 x 17.0	 9.0 x 40.0 x 20.0	 10.0 x 20.0 x 12.8
<ul style="list-style-type: none"> <li>Weight (approx.)</li> </ul>		4.0 g	4.0 g	13.0 g	5.5 g
<ul style="list-style-type: none"> <li>Type</li> </ul>		-	-	-	-
<ul style="list-style-type: none"> <li>Voltage type</li> </ul>		AC	AC	AC	AC   DC
<ul style="list-style-type: none"> <li>Current</li> </ul>		1.0 A	1.5 A	3.0 A	1 A
<ul style="list-style-type: none"> <li>Nominal voltage</li> </ul>		5, 12, 24, 60 VDC	3, 5, 12, 24 VDC	3, 5, 12, 24 VDC	3,5,12,24 VDC   5,12,24 VDC
Input side	<ul style="list-style-type: none"> <li>Impedance</li> </ul>	3V: 560 Ω	180 Ω	130 Ω	120 Ω
		5V: 1.3k Ω	470 Ω	330 Ω	360 Ω
		12V: 2.4k Ω	1.5k Ω	1.0k Ω	1.0k Ω
		24V: 10k Ω	3.0k Ω	2.2k Ω	2.0k Ω
Output side	<ul style="list-style-type: none"> <li>Load voltage range</li> </ul>	AC 24 to 250 VAC rms	15 to 265 V rms	AC 75 to 265 V rms	24 to 265 V rms   3 to 30 VDC
	<ul style="list-style-type: none"> <li>Max. load current</li> </ul>	1.0 A rms	1.5 A rms	3.0 A rms	1.0 A rms   1.0 A
	<ul style="list-style-type: none"> <li>Min. load current</li> </ul>	1mA rms	10mA rms	10 mA rms	10 mA rms   1 mA
	<ul style="list-style-type: none"> <li>1 cycle surge current</li> </ul>	50 A	50 A	132 A	50 A rms   3.0 A (10ms)
	<ul style="list-style-type: none"> <li>Max. off-state leakage current</li> </ul>	1 mA rms	0.5 / 1.0 mA rms	2.5 mA at 100 rms 5 mA at 200 rms	0.75/1.5 mA rms   0.1 mA
	<ul style="list-style-type: none"> <li>Max. on-state voltage drop</li> </ul>	1.3 V rms	1.2 V rms	1.5 V rms	1.2 V rms   1.2 V
<ul style="list-style-type: none"> <li>Max. operate time</li> </ul>		1/2 cycle + 1 ms	1 ms	1 ms	1 ms
<ul style="list-style-type: none"> <li>Max. release time</li> </ul>		1/2 cycle + 1 ms	1/2 cycle + 1 ms	1/2 cycle + 1 ms	1/2 cycle + 1 ms   1 ms
<ul style="list-style-type: none"> <li>Dielectric strength (Input-output)</li> </ul>		2,500 V rms	2,500 V rms	2,500 V rms	2,500 V rms
<ul style="list-style-type: none"> <li>Operating temperature</li> </ul>		-30°C to + 85°C	-30°C to + 85°C	-30°C to + 85°C	-30°C to + 85°C
<ul style="list-style-type: none"> <li>Storage temperature</li> </ul>		-40°C to + 100°C	-40°C to + 100°C	-40°C to + 100°C	-40°C to + 100°C
<ul style="list-style-type: none"> <li>Safety standard</li> </ul>		-	UL, CSA	UL, CSA	UL, CSA
<ul style="list-style-type: none"> <li>Mounting</li> </ul>		Through hole	Through hole	Through hole	Through hole
<ul style="list-style-type: none"> <li>Terminal layout (Bottom view)</li> </ul>					SJ-( )A, SJ-( )AN  SJ-( )D, SJ-( )DN 
<ul style="list-style-type: none"> <li>Remarks</li> </ul>		<ul style="list-style-type: none"> <li>- Pin compatible with FTR-LY</li> <li>- Internal zero cross circuit available</li> <li>- Internal varistor and snubber circuit</li> </ul>	<ul style="list-style-type: none"> <li>- Internal zero cross circuit available</li> </ul>	<ul style="list-style-type: none"> <li>- Internal zero cross circuit available</li> <li>- Internal output surge absorber (varistor) type available</li> </ul>	<ul style="list-style-type: none"> <li>- Pin compatible with JY</li> <li>- Internal surge absorber</li> <li>- Socket available</li> </ul>

# Solid state relays (1A)

SERIES NAME		SN			
<ul style="list-style-type: none"> <li>■ Dimensions W x L x H (mm)</li> </ul>		 5.0 x 20.0 x 17.0			
<ul style="list-style-type: none"> <li>■ Weight (approx.)</li> </ul>		2.0 g	3.3 g	3.5 g	2.9 g
<ul style="list-style-type: none"> <li>■ Type</li> </ul>		Input module		Output module	
<ul style="list-style-type: none"> <li>■ Voltage type</li> </ul>		AC	DC	AC	DC
<ul style="list-style-type: none"> <li>■ Current</li> </ul>		-	-	1A	
<ul style="list-style-type: none"> <li>■ Nominal voltage</li> </ul>		100 VAC	12, 24 VDC	3,5,12,24 VDC	5, 12, 24 VDC
Input side	<ul style="list-style-type: none"> <li>■ Impedance</li> </ul>	3V	-	130/180 Ω	-
		5V	-	330/470Ω	390 Ω
		12V	-	1.0k/1.5k Ω	1.2k Ω
		24V	-	2.2k/3.8k Ω	2.4k Ω
Output side	<ul style="list-style-type: none"> <li>■ Load voltage range</li> </ul>	4 to 6 VDC		24 to 265 V rms	3 to 30 VDC
	<ul style="list-style-type: none"> <li>■ Max. load current</li> </ul>	±4 mA (VDD=5V)	±0.4 mA (VDD=5V)	1.0 A rms	1.0 A
	<ul style="list-style-type: none"> <li>■ Min. load current</li> </ul>	-	-	10 mA rms	1mA
	<ul style="list-style-type: none"> <li>■ 1 cycle surge current</li> </ul>	-	-	50 A	3 A (10ms)
	<ul style="list-style-type: none"> <li>■ Max. off-state leakage current</li> </ul>	-	-	1.5/3.0 mA rms	0.1 mA
	<ul style="list-style-type: none"> <li>■ Max. on-state voltage drop</li> </ul>	-	-	1.2 V rms	1.2 V
<ul style="list-style-type: none"> <li>■ Max. operate time</li> </ul>		25 ms	10 ms	1 ms	
<ul style="list-style-type: none"> <li>■ Max. release time</li> </ul>		30 ms	10 ms	1/2 cycle + 1ms	1 ms
<ul style="list-style-type: none"> <li>■ Dielectric strength (Input-output)</li> </ul>		2,500 V rms			
<ul style="list-style-type: none"> <li>■ Operating temperature</li> </ul>		-30°C to + 85°C			
<ul style="list-style-type: none"> <li>■ Storage temperature</li> </ul>		-40°C to + 100°C			
<ul style="list-style-type: none"> <li>■ Safety standard</li> </ul>		-			
<ul style="list-style-type: none"> <li>■ Mounting</li> </ul>		Through hole			
<ul style="list-style-type: none"> <li>■ Terminal layout (Bottom view)</li> </ul>		SN-A (input module)			
		SN-D (input module)			
		SN-A (output module)			
		SN-D (output module)			
<ul style="list-style-type: none"> <li>■ Remarks</li> </ul>		- Compatible with NY - Internal surge absorber - Socket available			







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