



FX2 series

DPDT Slim Package
Telecom/Signal PC Board Relays

File E111441

File 176679-1079886

16504-002

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Through hole PC board terminals.
- Meets Bellcore GR 1089 and FCC Part 68.
- For applications in telecommunications, office automation, consumer electronics, medical equipment, measurement and control equipment.
- Immersion cleanable, plastic sealed case.
- 80mW coil for high sensitivity models, 140mW coil for sensitive types.
- Ultrasonic cleaning not recommended.

Contact Data @ 23°C (except as noted)

Arrangement: 2 Form C (DPDT) bifurcated contacts.**Material:** Stationary: Palladium-ruthenium.**Ratings:** Max. Switched Current: 2A.

Max. Carry Current: 2A (at max ambient temperature.)

Max. Switched Voltage: 220VDC, 250VAC.

Max. Switched Power: 60W DC or 62.5VA AC.

UL/CSA Ratings: 300mA @ 110VDC; 1A @ 30VDC;
500mA @ 120VAC; 250mA @ 240VAC.**Initial Contact Resistance:** <70 milliohms @ 10mA / 20mV.**Expected Mechanical Life:** 100 million operations.**Expected Electrical Life:** 2.5 million operations @ 10mA / 30mVDC.
2 million operations @ cable load open end.
500,000 operations @ 250mA / 125VDC.
500,000 operations @ 1.25A / 24VDC.
500,000 operations @ 2A / 30VDC.**Thermoelectric potential:** <10µV.

High Frequency Data

Capacitance: Between Open Contacts: 2pF, max.

Between Coil and Contacts: 4pF, max.

Between Poles: 2pF, max.

RF Characteristics: Isolation at 100 / 900 MHz: -34.0 db / -15.1 db.
Insertion loss at 100 / 900 MHz: -0.03 db / -0.60 db.
V. S. W. R. at 100 / 900 MHz: 1.07 / 1.45 .

Initial Dielectric Strength

Between Open Contacts: 1,800Vrms for 1 minute.**Between Coil and Contacts:** 1,800Vrms for 1 minute.**Between Poles:** 1,800Vrms for 1 minute.**Surge Voltage Resistance per Bellcore GR1089 (2 / 10 µs) and FCC 68 (10 / 160 µs):**

Between Open Contacts: 2,500V.

Between Coil and Contacts: 3,500V.

Between Poles: 2,500V.

Initial Insulation Resistance

Between Contact and Coil: 10⁹ ohms or more @ 500VDC.

Coil Data @ 23°C

Voltage: 3 to 48VDC.**Nominal Power:** 80-300mW, depending on model. See coil data tables.**Duty Cycle:** Continuous.

Coil Data @ 23°C

Nom. Voltage (VDC)	Operate/Set Range		Minimum Release/Reset Voltage (VDC)	Nom. Power (mW)	Resistance ±10% (Ohms)	Part Number
	Min. Voltage (VDC)	Max. Voltage (VDC)				
Non-latching 1 coil versions						
3	2.1	6.8	0.3	140	64	D3206
4	2.8	7.6	0.4	140	114	D3207
4.5	3.15	10.3	0.45	140	145	D3204
5	3.5	11.4	0.5	140	178	D3209
6	4.2	13.7	0.6	140	257	D3205
9	6.3	20.4	0.9	140	574	D3210
12	8.4	27.3	1.2	140	1,028	D3202
24	16.8	45.7	2.4	200	2,880	D3212
48	33.6	67.5	4.8	300	7,680	D3213
Non-latching, sensitive 1 coil versions						
3	2.25	9.0	0.3	80	113	D3221
4.5	3.38	13.5	0.45	80	253	D3222
5	3.75	15.0	0.5	80	313	D3223
6	4.5	18.0	0.6	80	450	D3224
9	6.75	27.1	0.9	80	1,013	D3225
12	9.0	36.1	1.2	80	1,800	D3226
24	18.0	54.7	2.4	140	4,114	D3227
48	36.0	72.5	4.8	260	8,882	D3228
Latching 1 coil versions						
3	2.25	8.1	-2.25	100	90	D3241
4.5	3.375	12.1	-3.375	100	203	D3242
5	3.75	13.5	-3.75	100	250	D3243
6	4.5	16.2	-4.5	100	360	D3244
9	6.75	24.2	-6.75	100	810	D3245
12	9.0	29.0	-9.0	100	1,440	D3246
24	18.0	47.5	-18.0	150	3,840	D3247

Operate Data @ 23°C

Operate and Release Voltage: See values in chart above.**Operate Time** (at nominal voltage): 3 ms, typ.; 4 ms, max.**Reset Time** [latching](at nominal voltage): 3 ms, typ.; 4 ms, max.**Release Time** [non-latching](w/o diode in parallel): 1 ms, typ.; 3 ms, max.**Release Time** [non-latching](with diode in parallel): 3 ms, typ.; 4 ms, max.**Bounce Time** (at contact close): 1 ms, typ.; 5 ms, max.**Maximum Switching Rate** (no load): 50 operations/s.

Environmental Data

Temperature Range: -55°C to +85°C.**Maximum Allowable Coil Temperature:** 110°C.**Thermal Resistance:** < 185K/W.**Shock, half sinus, 11 ms: Functional:** 50g.**Shock, half sinus, 11 ms: Destructive:** 1,500g.**Vibration, 10-500 Hz.: Functional:** 20g.**Needle Flame Test:** Application Time 20s.**Resistance to Soldering:** 260°C for 10s.

Mechanical Data

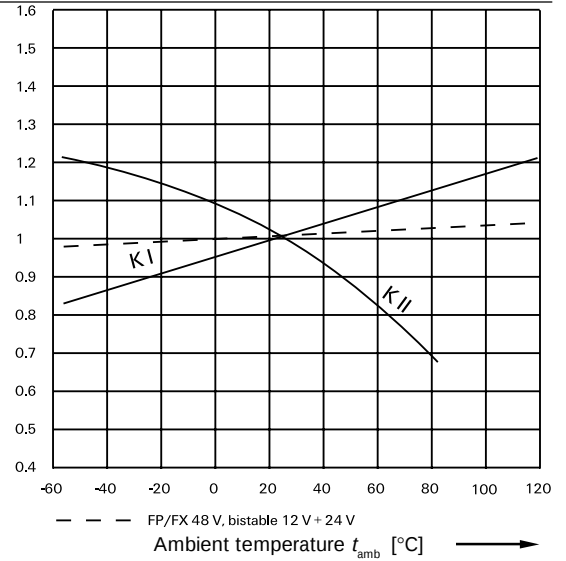
Termination: Through-hole printed circuit terminals.**Mounting Position:** Any.**Enclosure Type:** Immersion cleanable (IP67) plastic case.**Weight:** 0.10 oz. (2.5g) approximately.

U_I = Minimum voltage at 23° C after pre-energizing
with nominal voltage without contact current

U_{II} = Maximum continuous voltage at 23°

The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:

$U_{I \text{ tamb}} = K_I \cdot U_{I \text{ 23° C}}$
and
 $U_{II \text{ tamb}} = K_{II} \cdot U_{II \text{ 23° C}}$
 t_{amb} = Ambient temperature
 $U_{I \text{ tamb}}$ = Minimum voltage at ambient temperature, t_{amb}
 $U_{II \text{ tamb}}$ = Maximum voltage at ambient temperature, t_{amb}
 K_I, K_{II} = Factors (dependent on temperature), see diagram



Ordering Information

See "Part Number" column in Coil Data chart on previous page for available part numbers in the FX2 series.

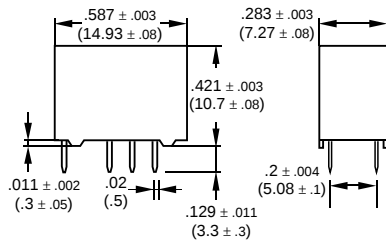
Packaging Information

FX2 series relays are shipped in tubes of 50. There are 1,000 relays in a full carton.

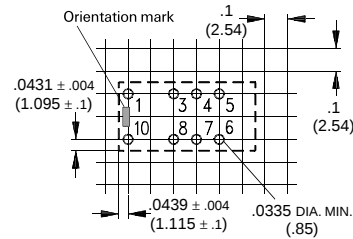
Our authorized distributors are more likely to stock the following items for immediate delivery.

None at present.

Outline Dimensions



PC Board Layout (Bottom View)



Wiring Diagram (Bottom View)

**Non-Latching and Latching,
Release or Reset Condition**

