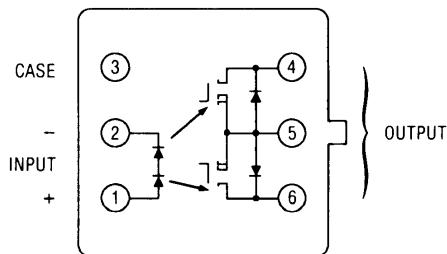


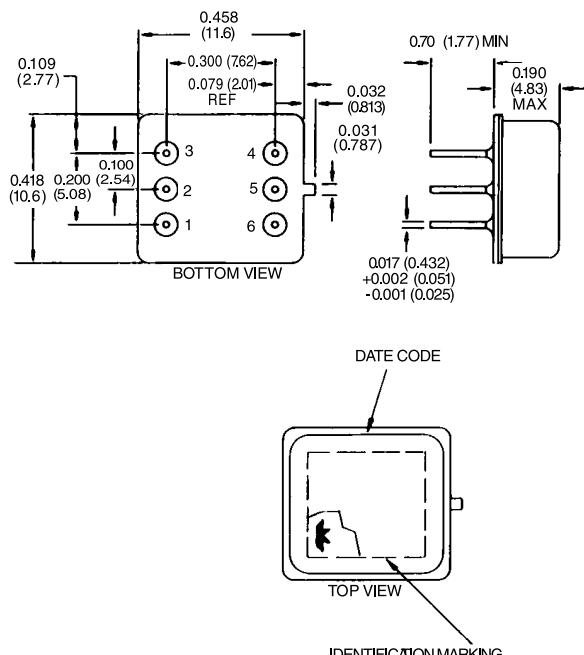
| Part Number* | DESC Drawing Number | Relay Description |
|--------------|---------------------|---|
| FB00CDW | | Solid State Relay |
| FB00CDY | 89116-006 | $\pm 1.0 \text{ A} @ \pm 80 \text{ Vdc Output}$ |
| FB00FCW | | Solid State Relay |
| FB00FCY | 89116-002 | $\pm 0.5 \text{ A} @ \pm 180 \text{ Vdc Output}$ |
| FB00KBW | | Solid State Relay |
| FB00KBY | 89116-004 | $\pm 250 \text{ mA} @ \pm 350 \text{ Vdc Output}$ |

* The Y suffix denotes parameters tested to MIL-PRF-28750 specifications. The W suffix denotes parameters tested to Teledyne specifications.

BLOCK DIAGRAM



MECHANICAL SPECIFICATIONS



DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)



FEATURES

- High voltage output
- Extremely low leakage current (200 nanoamperes)
- Bi-directional Power FET output
- Optical isolation
- Fast switching speed
- Adjustable turn-on times
- Low profile 6-pin mini-DIP
- Built and tested to the requirements of MIL-PRF-28750

APPLICATIONS

- Ideal for Automatic Test Equipment (ATE)
- Telecommunications applications
- High-voltage instrumentation systems
- High-speed switching with low EMI

DESCRIPTION

The Series FB relay is an advanced solid-state bi-directional relay designed specifically for high-speed switching in A.T.E. systems. These devices utilize Teledyne state-of-the-art solid-state circuit technology and manufacturing techniques to provide high reliability, low life cycle cost and exceptional switch performance. Each device is uniquely characterized by its switching function. The FB00FC is a power instrumentation relay with low ON resistance and leakage current. The FB00KB is a high-voltage instrumentation relay with a quarter ampere current rating. The FB00CD is a power relay with a current rating of 1 ampere and an ON resistance of 0.4 ohm. The FB solid-state relay has very fast turn on times of under 1 msec and can also be controlled and adjusted with the input current for specific requirements. Other features include optical coupling and full military temperature operating range for extreme applications. Optical coupling minimizes EMI generation and isolates and protects delicate input logic circuits from output voltage transients. These devices are packaged and hermetically sealed in a low-profile metal 6- pin mini-DIP with lead spacing on 0.300 centers for standard mounting configurations.

ELECTRICAL SPECIFICATIONS

(-55°C TO 120°C Ambient Temperature Unless Otherwise Noted)

| INPUT (CONTROL) SPECIFICATION | | | | | ENVIRONMENTAL SPECIFICATIONS | | | |
|--------------------------------|-----|-----|------|-------|------------------------------|-----|------|-------|
| (See Note 1) | Min | Typ | Max | Units | | Min | Max | Units |
| Rated Input Current | 10 | | 25 | mAdc | Temperature | | | |
| Input Voltage Drop @ 25 mA | | | 3.25 | Vdc | Operating | -55 | +120 | °C |
| Continuous Input Current | | | | | Storage | -55 | +125 | °C |
| -55°C < T _A < 105°C | 10 | | 50 | mAdc | Vibration, 100 g | 10 | 2000 | Hz |
| 105°C < T _A < 120°C | 10 | | 25 | mAdc | Constant Acceleration | | 5000 | g |
| Reverse Voltage Protection | | | -5 | Vdc | Shock, 0.5 ms pulse | | 1500 | g |
| Input Current (Guaranteed Off) | | | 10 | μAdc | | | | |
| Input Current (Guaranteed On) | 10 | | | mA | | | | |
| Turn-Off Voltage | | | 1.5 | Vdc | | | | |

OUTPUT (LOAD) SPECIFICATIONS
BI-DIRECTIONAL AND AC CONFIGURATIONS (PIN 4 TO PIN 6), SEE NOTE 2

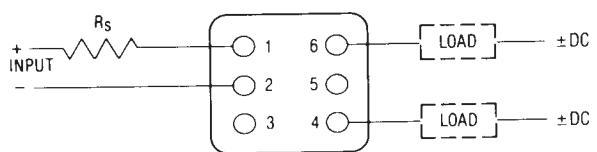
| | FB00CD | | FB00FC | | FB00KB | | Units |
|--|--------|-------|--------|-------|--------|--------|-------|
| | Min | Max | Min | Max | Min | Max | |
| Continuous Load Current (See Fig. 3 & Note 5) | | ±1.0 | | ±0.5 | | ±0.25 | Adc |
| Leakage Current @ V _{load} = max. operating voltage | | | | | | | |
| -55°C < T _A < +25°C | | ±200 | | ±200 | | ±200 | nAdc |
| +25°C < T _A < 120°C | | ±20 | | ±20 | | ±20 | μAdc |
| Output Voltage Drop | | ±0.75 | | ±1.0 | | ±2.4 | Vdc |
| Continuous Operating Load Voltage | | ±80 | | ±180 | | ±350 | Vdc |
| Transient Blocking Voltage (5 s max.) | | ±90 | | ±180 | | ±360 | Vdc |
| ON Resistance R _{ds} (on) at T _J = 25°C | | 0.6 | | 1.0 | | 8.0 | Ohm |
| I _{LOAD} = 100 mAdc (See Fig. 4 & Note 6) | | | | | | | |
| Turn-On Time @ I _{IN} = 25 mA (See Fig. 2 and 5) | 800 | | 800 | | 500 | | μs |
| Turn-Off Time (See Fig. 5) | 500 | | 500 | | 500 | | μs |
| dV/dt | 100 | | 100 | | 100 | | V/μs |
| Load Surge Current (See Note 3) | | ±3.5 | | ±1.75 | | ±0.875 | Adc |
| DC Offset Voltage | | 100 | | 100 | | 100 | μV |
| Output Capacitance at 25 Vdc, 1 MHz | | 325 | | 250 | | 100 | pF |

OUTPUT (LOAD) SPECIFICATIONS
DC Configuration (Pins 4 and 6 connected together referenced to Pin 5) (See Notes 2 & 7)

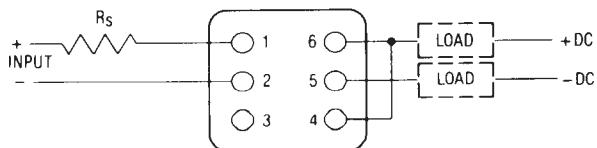
| | FB00CD | | FB00FC | | FB00KB | | |
|--|--------|------|--------|------|--------|------|-----------|
| | Min | Max | Min | Max | Min | Max | Units |
| Continuous Load Current (See Fig. 3 & Note 5) | | 2.0 | | 1.0 | | 0.5 | Adc |
| Leakage Current @ V_{load} = max. operating voltage | | | | | | | |
| $-55^{\circ}C < T_A < +25^{\circ}C$ | | 400 | | 400 | | 400 | nAdc |
| $+25^{\circ}C < T_A < 120^{\circ}C$ | | 40 | | 40 | | 40 | μ Adc |
| Output Voltage Drop | | 0.4 | | 0.5 | | 1.8 | Vdc |
| Continuous Operating Load Voltage | | 80 | | 180 | | 350 | Vdc |
| Transient Blocking Voltage (5 s max.) | | 90 | | 180 | | 360 | Vdc |
| ON Resistance R_{ds} (on) at $T_J = 25^{\circ}C$ | | 0.15 | | 0.25 | | 2.0 | Ohm |
| $I_{LOAD} = 100 \text{ mA}$ (See Fig. 4 & Note 6) | | | | | | | |
| Turn-On Time @ $I_{IN} = 25 \text{ mA}$ (See Fig. 2 and 5) | | 800 | | 800 | | 500 | μ s |
| Turn-Off Time (See Fig. 5) | | 500 | | 500 | | 500 | μ s |
| Load Surge Current (See Note 3) | | 7.0 | | 3.5 | | 1.75 | Adc |
| Output Capacitance at 25 Vdc, 1 MHz | | 650 | | 500 | | 200 | pF |

OUTPUT (LOAD) SPECIFICATIONS

| | FB00CD | | FB00FC | | FB00KB | | |
|--|--------|--------|--------|--------|--------|--------|-------|
| | Min | Max | Min | Max | Min | Max | Units |
| All Configurations | | | | | | | |
| Input to Output Capacitance | | 5 | | 5 | | 5 | pF |
| Dielectric Strength | | 500 | | 500 | | 500 | Vac |
| Insulation Resistance @ 500 Vdc | | 10^9 | | 10^9 | | 10^9 | Ohm |
| Output Junction Temperature @ $I_{LOAD} = I_{max \text{ rated}}$ | | 125 | | 125 | | 125 | °C |
| Maximum Junction Temperature (T_J Max.) | | 150 | | 150 | | 150 | °C |
| Thermal Resistance Junction to Ambient (θ_{JA}) | | 110 | | 110 | | 110 | °C/W |
| Thermal Resistance Junction to Case (θ_{JC}) | | 20 | | 20 | | 20 | °C/W |

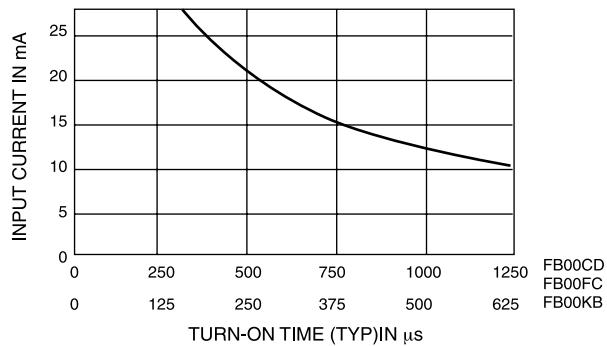


A) BI-DIRECTIONAL AND DC CONFIGURATION (SEE NOTE 4)

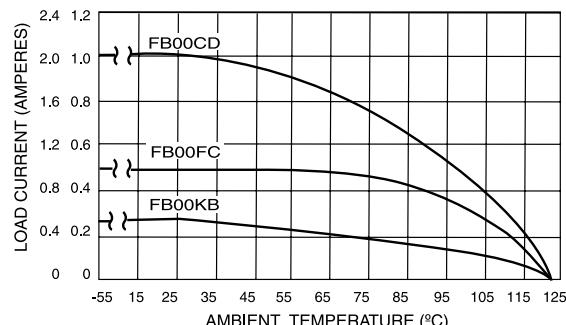


B) DC CONFIGURATION (SEE NOTE 4)

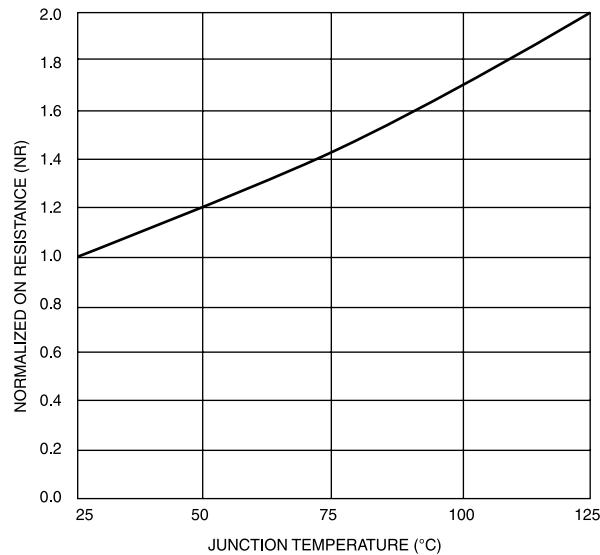
**WIRING CONFIGURATIONS
FIGURE 1**



**INPUT CURRENT VS TURN-ON TIME
FIGURE 2**



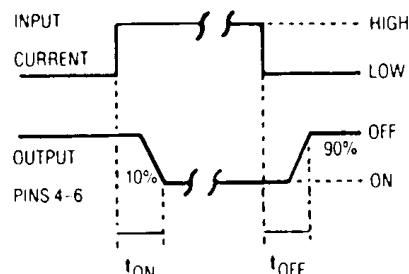
**LOAD CURRENT DERATING CURVE
FIGURE 3**



**NORMALIZED ON RESISTANCE VS JUNCTION
TEMPERATURE.
FIGURE 4 (SEE NOTE 6)**

NOTES:

1. Series resistor required to limit input current to 50 mA max.
2. The rated input current is 25 mA for all tests unless otherwise specified.
3. Surge current is specified for 25°C, 10 cycles maximum at a 1 Hz repetition rate with 10% duty cycle and 0.1 s. duration.
4. Relays may drive loads connected to either positive or negative referenced power supply lines. Inductive loads must be diode suppressed.
5. Continuous load current is rated under the condition of still air.
6. To calculate the maximum ON resistance for a given junction temperature, find the normalized ON resistance factor (NR) from Figure 4. Calculate the new ON resistance as follows:
 $R_{(ON)} = NR \times R_{(ON)} @ 25^\circ\text{C}$
7. Relays are tested in the bi-directional configuration only.



**OUTPUT TURN-ON AND OFF TIMING
FIGURE 5**



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помошь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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