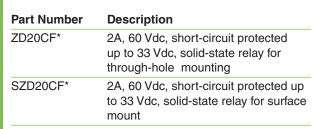




A Unit of Teledyne Electronics and Communications

2A, 60 Vdc Optically Isolated Short-Circuit Protected



*W for +25°C ambient; T for over-temperature screen

ELECTRICAL SPECIFICATIONS

(-55°C to +105°C ambient temperature unless otherwise specified)

INPUT (CONTROL) SPECIFICATIONS

| | Min | Max | Units |
|-----------------------|-----|-----|-------|
| Input Current | 8 | 20 | mA |
| Input Voltage @10mA | 2 | 3 | Vdc |
| Must Turn-On | 8 | | mA |
| Must Turn-Off Current | | 100 | μΑ |
| Must Turn-Off Voltage | | 0.8 | Vdc |
| Reverse Polarity | -6 | | Vdc |

OUTPUT (LOAD) SPECIFICATIONS

| | Min | Max | Units |
|--------------------------------------|----------------|------|-------|
| Load Voltage Range | 0 | 60 | Vdc |
| Output Current Rating (See Figure 5) | | 2.0 | Α |
| Leakage Current at Rated Voltage | | 10 | μΑ |
| Transient Blocking Voltage | e @25°C | 100 | Vdc |
| Output Capacitance @25 | Vdc (25°C) | 600 | pF |
| Output Voltage Drop @2/ | A | 0.30 | Vdc |
| On Resistance | | 0.15 | Ohm |
| Turn-On Time | | 3.0 | ms |
| Turn-Off Time | | 1.0 | ms |
| Trip Overload | (See Figure 6) | | Α |
| Short Circuit Protection | | 33 | Vdc |
| Operating Frequency | | 10 | Hz |
| | | | |





FEATURES/BENEFITS

- Short-circuit protected
- · Overload protected
- 2 Amp load
- · Low off-state leakage
- Optical isolation
- · Compact 6-pin package

DESCRIPTION

ZD20CF Series Relays have optical isolation between relay input and output. Loads may be connected to either the positive or negative output terminals. ZD20CF Relays act as electronic circuit breakers that sense shorted loads or other overload events and then trip-off. Relay contacts open and no current flows through the relay and associated loads. These relays prevent overcurrent damage to the system. Cycling the relay on-off removes the tripped or latched-off condition and returns the relay to the normal operating state.

GENERAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

ENVIRONMENTAL SPECIFICATIONS

| | | Min | Max | Units |
|------------------------------------|--|-----------------|------------|----------|
| Operating | Temperature | -55 | +105 | °C |
| Storage Te | emperature | - 55 | +125 | °C |
| Junction To | emperature @2A | | +125 | °C |
| Thermal Resistance θ _{JA} | | | +120 | °C/W |
| Dielectric : | Strength | 1000 | | Vac |
| Insulation | Resistance | | | |
| (@500 Vd | c) | 10 ⁹ | | Ohm |
| Input to O | utput Capacitance | | 5 | pF |
| Shock | MIL-STD-202, m | ethod 213, | , cond. F, | 1500g |
| Vibration | MIL-STD-202, method 204, cond. F, 100g | | | |
| Resistance | e to Soldering Heat | MIL STD | 202, me | thod 210 |
| Solderabili | erability MIL STD 202, method 20 | | | thod 208 |
| Thermal Shock MIL STD 202, method | | | thod 107 | |

LOAD

2.5

3.0

3.5

A Unit of Teledyne Electronics and Communications **MECHANICAL SPECIFICATIONS TYPICAL WIRING DIAGRAM** 1 0.25 (6.35) SZD20CF (+) 0.195 (4.95) - 0.39 (9.91) SURFACE MOUNT LAND PATTERN *Shorted internally **Series resistor required to limit input current to 20mA maximum 0.37 (9.40) 0.175 (4.45) Figure 2 0.010 0.025 (0.64) REF 0.025 Weight: 0.035 oz. (1g) maximum Case: 6-pin dual în-lîne filled epoxy **CONTROL CURRENT VS. INPUT VOLTAGE** TOLERANCES: .XX= ±.010 (±.25), .XXX= ±.005 (±.13) DIMENSION STYLES: XXX= INCHES (XXX)= MILLIMETERS CONTROLLING DIMENSIONS ARE IN INCHES. METRIC DIMENSIONS ARE SUPPLIED FOR REFERNCE PURPOSES ONLY. 20 -OUTS FUNCTION PIN NO. 18 0.200 (5.08) 16 -QU Control Current (mA) 14 12 ZD20CF PIN 1 INDEX 10 (+) 8 0.30 (7.62) 7 6 0.085 (2.16) 4 2 0.020 (0.51) 0 .5 2.0 0 1.0 1.5 (2.54) Volts Figure 3 Figure 1 LOAD CURRENT VS. AMBIENT TEMPERATURE TYPICAL TURN-ON TIME VS. INPUT CURRENT 2.4 2.0 2.0 (ms) Load Current (A) 1.6 TIME 1.2 1.2 TURN-ON 8.0 0.8 0.4 0.4 0 8 16 20 12 0

-55 -35 5

-15

25

Ambient Temperature (°C)

Figure 5

45

65

85

INPUT CURRENT (mA)

Figure 4

105 125

Short-Circuit Protected

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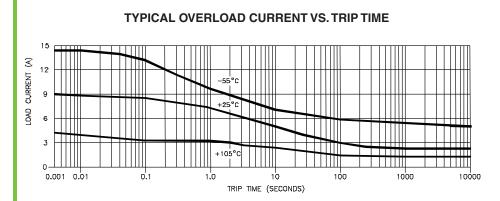


Figure 6

FUNCTIONAL BLOCK DIAGRAM +IN (1) +OUT (6) Output Switch INPUT ∇ Optical Isolation Detection Circuit Switching Circuit (MOSFET) with Current with LEDs ∇ Sense -OUT (4) -IN (3)

Figure 7

NOTES:

- 1. The ZD20CF relay's input current should be limited to between 8 and 20mA. An external resistor whose value =(V_{IN} – 2.5 volts) \div 0.012 Amps is a good choice for limiting input current.
- 2. Relay input transitions should be less than 1.0 millisecond.
- 3. Loads may be attached to either the positive or negative output terminal.
- 4. Maximum load current ratings are with the relay in free air and soldered to a printed circuit board.
- 5. Timing is measured from the input current transition to the 10% or 90% points on the output voltage transition.
- 6. Overload conditions (including shorted loads) are specified for load supply voltages to 33 Vdc
- 7. For through-hole-PCB-solder-attaching ZD20CF series relays, the wave-solder or solder pot operations are limited to +260°C maximum for 10 seconds, maximum.
- 8. For surface-mount-solder-attaching SZD20CF series relays, in IR heating or convection heating systems, the component temperature is limited to +235°C maximum for 10 seconds maximum.