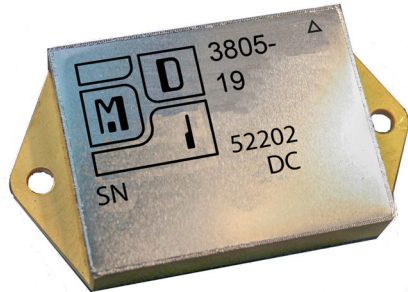


# HYBRID SOLID STATE RELAY

## 1KV/10A Solid State Relay

### MODELS 3804/3805



**Model 3804** is a form B (normally closed when de-energized) solid state relay rated at 10A and up to 1000 VDC. The availability of normally closed function with these ratings unique to MDI.

**Model 3805** is a form A (normally open when de-energized) solid state relay rated at 10A and up to 1000 VDC.

Although the output section is rated at 1000V, the low on resistances of the 3804 and the 3805 allow them to be practically used at much lower application voltages.

Control input to output isolation is magnetically coupled and the 5 VDC control section requires less than 250mW of bias power.

The relay has two user selectable modes, continuous or mag latch like. When pin 2 (latch/no latch) is connected to pin 1 (control ground), the relay energizes whenever a positive logic level is applied to pin 4 (command ON/Pulse to de-energize).

When pin 3 on case style 18, 19 or pin 9 on case style 20 (latch/no latch) is left open, a minimum 25 microsecond pulse on pin 5 on case style 18, 19 or pin 12 on case style 20 (command ON/Pulse to energize) sets the relay to the energized state as long as bias power is present. To de-energize, a minimum 25 microsecond plus on pin 4 on case style 18, 19 or pin 11 on case style 20 (pulse to de-energize) returns the relay to the de-energized state.

These SSR's are packaged in a hermetically sealed case able to withstand severe environments. The units are available with and without a mounting flange.

The SSR's are available in Industrial (I), Military (M) and Aerospace (E) operating and screening grades.

#### Features:

- High Voltage/Low Resistance
- Single Pole, Single Throw available in Form A or Form B
- Wide Band Gap Semiconductors for low Resistance
- Magnetically Coupled Command for fast response
- No Optocoupler, no optocoupler issues
- Selectable Continuous or Mag Latch Function
- Logic Level Drive
- Rugged Hermetic Package

#### Specifications:

Bias Input Voltage 4.75 to 5.25 VDC

Bias input current 30 mA typical, 50 mA maximum

Command input 1 mA compatible with TTL logic levels

Input/output and all pins to case isolation 1kV

Power Dissipation 20 watts (38xx) or 30 watts (38xx) at maximum rated case temperature

Case temperature range:

Operating -55°C to +85°C (M grade)

Operating -55°C to +125°C (E grade)

Operating -55°C to +85°C (Industrial Grade)

Storage -65°C to +150°C

Weight 32 grams typical

For continuous operation, connect +5 VDC bias from pin 1 (Case Styles 18, 19) pins 4/5 (Case Style 20) to bias ground pin 2 (Case Style 18, 19) pins 6/7 (Case Style 20).

Ground pin 3 (Case Style 18,19) pin 9 (Case style 20) to energize the SSR.

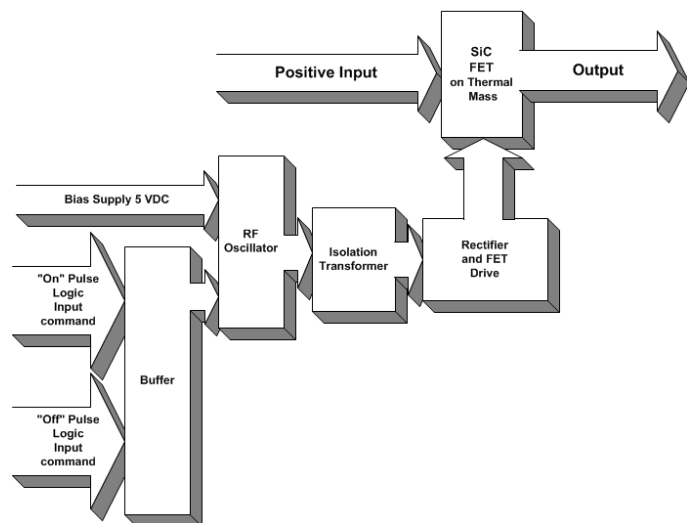
For latch operation leave pin 3 open, connect +5VDC bias from pin 1 (Case Styles 18, 19) pins 4/5 (Case Style 20) to bias ground pin 2 (Case Style 18, 19) pins 6/7 (Case Style 20).

To energize apply +5 VDC pulse, 25 microseconds minimum to pin 5 (Case Styles 18, 19) pin 12 (Case Style 20).

To de-energize apply +5 VDC pluse, 25 microseconds minimum to pin 4 (Case Style 18, 19) pin 11 (Case Style 20).

Power Dissipation:

Total steady state power dissipation of the model 3804 and 3805 is limited to 6 watts. The flanged package is rated at 8 watts.



1KV/10A Solid State Relay				
Model 3804 Form B				
Model 3805 Form A				
PARAMETER	CONDITION	MIN	TYP	MAX
Contact Rating V	Max	—	—	1200
Contact Rating I	Max	—	—	15A
Contact Rating V	Continuous	—	—	1000V
Contact Rating I	Continuous	—	—	10A
Contact Resistance, 25°C	Energized	—	0.15Ω	0.2Ω
Contact Resistance, 125°C	Energized	—	0.3 Ω	0.4 Ω
Leakage Current, 1000V, 25°C	Off	—	—	30μA
Leakage Current, 1000V, 125°C	Off	—	—	60μA
Bias Voltage	—	4.75V	5.0V	5.25V
Bias Current	—	—	30mA	50mA
Command/Pulse Inputs On	—	3.0V	5.0V	6.0V
Command/Pulse Inputs Off	—	0V	0.5V	1V
Command Current	—	0.1mA	0.8mA	2mA
Delay Time, Energized	—	—	10μS	30μS
Delay Time, De-Energized	—	—	20μS	20μS
Energize Time, Dynamic	—	—	10μS	30μS
De-Energize Time, Dynamic	—	—	5μS	20μS
Latch/Unlatch Pulse Width	Min	25μS	—	—
Temperature, Operating	Case	-55°C	—	125°C
Temperature, Operating	Case	-55°C	—	105°C
Temperature, Operating	Case	-40°C	—	85°C
Temperature, Storage	Case	-65°C	—	150°C
Weight	Case	—	—	50 grams



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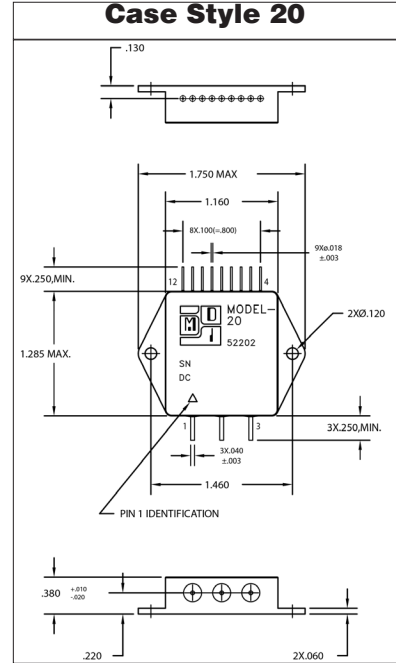
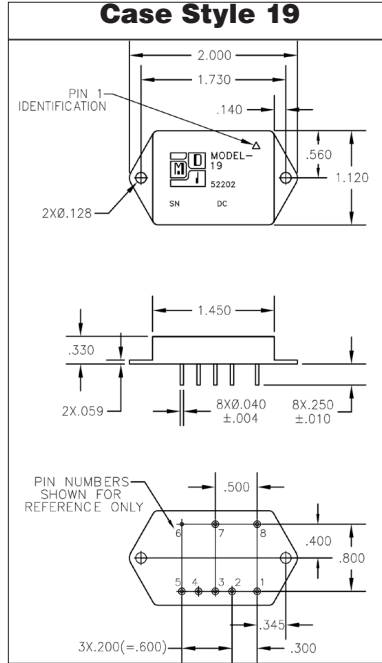
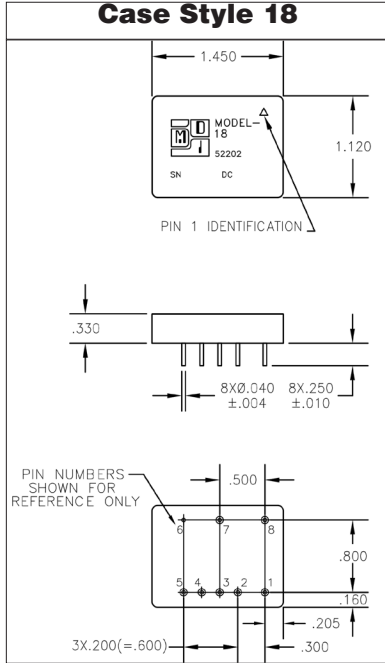
Power Conversion for Space and Military/Aerospace

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For Heat Removal and Mounting Recommendations See MDI application notes on mounting considerations for DC-DC Converters.

# 3805/3805

## Bi-Directional Solid State Relay



Pin Out Chart	
Pin 1	Bias +5 VDC
Pin 2	Bias Gnd
Pin 3	Latch/No Latch
Pin 4	Pulse Off
Pin 5	Pulse On
Pin 6	Case
Pin 7	Switch Positive
Pin 8	Switch Negative

Pin Out Chart	
Pin 1	Bias +5 VDC
Pin 2	Bias Gnd
Pin 3	Latch/No Latch
Pin 4	Pulse Off
Pin 5	Pulse On
Pin 6	Case
Pin 7	Switch Positive
Pin 8	Switch Negative

Pin Out Chart	
Pin 1	N/C
Pin 2	Switch Positive
Pin 3	Switch Negative
Pin 4	Bias +5 VDC
Pin 5	Bias +5 VDC
Pin 6	Bias Gnd
Pin 7	Bias Gnd
Pin 8	N/C
Pin 9	Latch/No Latch
Pin 10	N/C
Pin 11	Pulse Off
Pin 12	Pulse On

Model No.	Case Style	Pin Count	Mounting
3804/3805 -	18	8	Seam Weld Flangeless PCB Mount
3804/3805 -	19	8	Seam Weld PCB Mount with Flange
3804/3805 -	20	12	Seam Weld Chassis Mount with Flange

**GRADE LEVELS:**

Please specify grade level for your application. EU grade units will be shipped if no option is specified.

I Industrial -55°C to +85°C  
 M Military -55°C to +85°C

E Military -55°C to +125°C



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