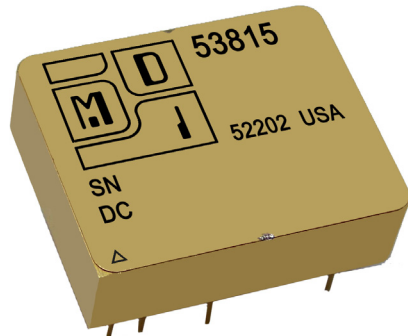


HYBRID SOLID STATE RELAY



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 4.7 to 5.3 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 10 watts 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 -40°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 to bias ground pin 2.

Ground pin 3 and apply +5 VDC to pin 4 to energize the SSR.

For latch operation, leave pin 3 open, connect 5 VDC bias from pin 1 to bias ground pin 2.

To energize apply +5 VDC pulse, 25 microseconds minimum to pin 5.

To de-energize apply +5 VDC pulse, 25 microseconds minimum to pin 4.

Power Dissipation:

Total steady state power dissipation of the model 3814 and 3815 is limited to 10 watts provided the baseplate temperature is limited to the rated temperature.

MODELS 3814/3815

Model 3815 is a SPST form B (normally closed when de-energized) SSR.
 Model 3814 is a SPST form A (normally open when de-energized) SSR.

Both types use Wide Bandgap power semiconductors for high performance, are magnetically coupled and can be user configured for continuous or pulse latching.

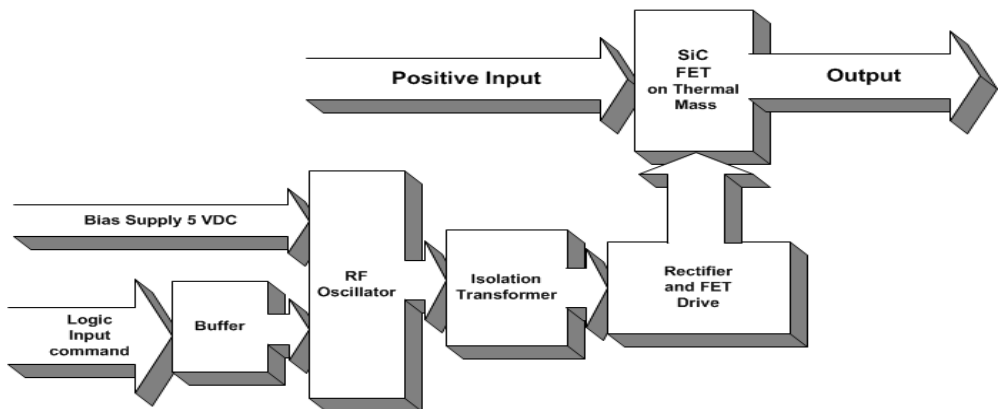
Wide band gap (WBG) semiconductors, such as GaN (Gallium Nitride) and SiC (Silicon Carbide) provide an order of magnitude improvement in SSR voltage drop compared to SSRs using Silicon based power devices.

Also, WBG semiconductors of a given dimension can withstand higher electric fields than Silicon semiconductors, the physical dimensions of these WBG parts are considerably smaller than their Silicon competitors. The result of WBG is much lower channel resistances and reduced drive requirements.

Many SSR manufacturers drive their SSR power device with opto couplers consisting of an LED emitter driving a multi-diode photo-voltaic stack.

Both the LED's and photovoltaic stacks are challenged by a radiation environment. A second disadvantage of opto coupled drive is slow turn on and off response.

MDI replaces the optocoupler function with a tiny, transformer isolated RF drive signal. This solves the opto coupler problems and gives faster, more temperature stable operation, as well as excellent radiation resistance.



300V/3A Solid State Relay
 Model 3815 Form B
 Model 3814 Form A

PARAMETER	CONDITION	MIN	TYP	MAX
Contact Rating V	Max	—	—	500V
Contact Rating I	Max	—	—	3A
Contact Resistance, 25°C	Energized	—	0.2 Ω	0.25 Ω
Contact Resistance, 125°C	Energized	—	0.35 Ω	0.45 Ω
Leakage Current, 600V, 25°C	Off	—	—	60µA
Leakage Current, 600V, 125°C	Off	—	—	100µA
Bias Voltage	—	4.7V	5.0V	5.3V
Bias Current	—	—	30mA	50mA
Command/Pulse Inputs on	—	3.0V	5.0V	6.0V
Command/Pulse Inputs off	—	0V	0.5V	1.0V
Command Current	—	0.1mA	0.8mA	2.0mA
Delay Time, energized	—	—	12µS	30µS
Delay Time, de-energized	—	—	20µS	40µS
Energize Time, dynamic	—	—	12µS	30µS
De-energize time, dynamic	—	—	5µS	20µS

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



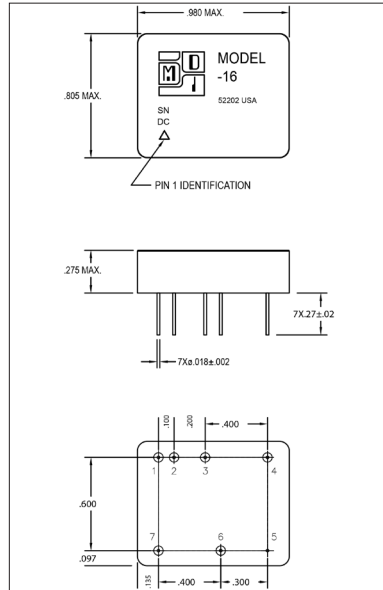
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3814/3815

HYBRID SOLID STATE RELAY

Case Style 16



Pin Out Chart

Pin 1	Bias +5 VDC
Pin 2	Bias Gnd
Pin 3	Coil
Pin 4	N/C
Pin 5	Case
Pin 6	Switch Positive
Pin 7	Switch Negative

Model No.	Case Style	Pin Count	Mounting
3814/3815 -	16	7	Seam Weld Flangeless PCB Mount

GRADE LEVELS:

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

EU Engineering Unit
M Military -55°C to +85°C

I Industrial -55°C to +85°C
E Military -55°C to +125°C



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