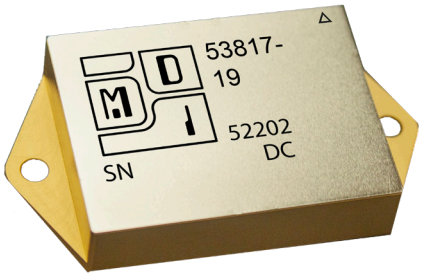
HYBRID SOLID STATE RELAY

Proton Rad Hard 100K+ Technology

MODELS 53817



Model 53817 used Wide Band gap power semiconductors for high performance, is magnetically coupled and can be externally wired for different user requirements.

If the two loads to be switched have a common ground, connect the two positive switch inputs to plus, and the two negative outputs to the switchloads. If the two loads to be switched have a common positive connection, connect the two negative switch outputs inputs to ground, and the two positive inputs to the switched loads.

In addition, since the Form A and Form B SSR sections are galvanically isolated, the SSR sections can be used independently, without a common connection.

Wide band gap (WBG) semiconductors such as GaN (Gallium Nitride) and SiC (Silicon Carbide) provide an order of magnitude reduction 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.

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

A major disadvantage of opto coupled drive is slow turn on and turn off response, as well as wide variations with temperature.

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.

Features:

- High Voltage/Low Resistance
- Single Pole, Double Throw
- One NO switch contact, one NC switch contact in the same package
- Two isolated unconnected switches for connection flexibility
- Contacts break before make for safety
- No SEE LET>82 MeV*cm^2/mg
- 100K+ Rad Hard TID 100 kRads (R,S,RE and SE Grades)
- TID 45 Krads (L and LE grades)
- Wide Band Gap Semiconductors for low resistance
- Magnetically Coupled Command for fast response
- No Optocoupler, no optocoupler issues
- 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, output to output and all pins to case isolation 1kV

Power Dissipation 10 watts at maximum rated case temperature

Case temperature range:

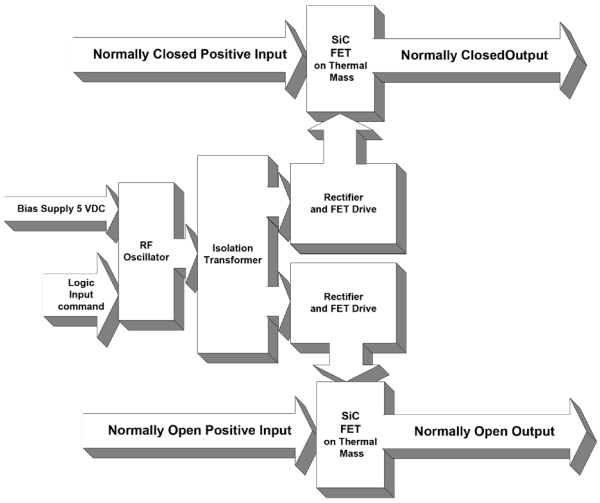
Operating -55°C to +85°C (EU, L, S grades)

Operating -55°C to +125°C (LE, SE grades)

Storage -65°C to +150°C

Weight 32 grams typical

To energize, after applying +5 VDC bias, apply ground to coil pin.



300V/5A Solid State Relay
Model 53817 Form C

PARAMETER	CONDITION	MIN	TYP	MAX
Contact Ratng V	Max	—	—	300V
Contact Rating I	Max	—	—	5A
Contact Resistance, 25°C	Energized	—	0.75Ω	0.1Ω
Contact Resistance, 125°C	Energized	—	0.15 Ω	0.2Ω
Leakage Current, 300V, 25°C	Off	—	—	60µA
Leakage Current, 300V, 125°C	Off	—	—	100µA
Bias Voltage	—	4.7	5.0	5.3V
Bias Current	—	—	30	50mA
Command/Pulse Input on	—	3.0	5.0	6.0V
Command/Pulse Input off	—	0	0.5	1.0V
Coil Current	__	3.0	5.0	7mA
Delay Time, energized	—	—	12	30µS
Delay Time, de-energized	—	—	20	40µS
Energize Time, dynamic	—	—	12	30µS
De-energize time, dynamic	—	—	5	20µS
Break before make dead time	__	1.0	5	20µS

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

Modular Devices, Inc.
Power Conversion for Space and Military/Aerospace

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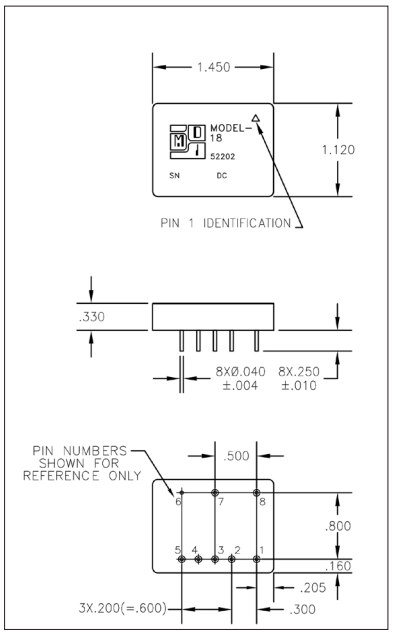
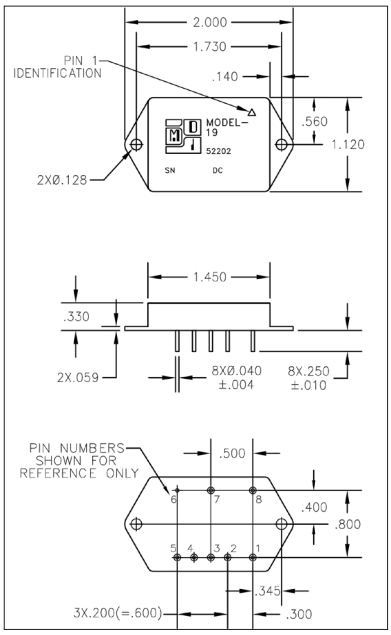
53817

HYBRID SOLID STATE RELAY

Case Style 18



Case Style 19



Pin Out Chart	
Pin 1	NC switch negative
Pin 2	NC switch positive
Pin 3	+5 VDC Bias
Pin 4	Bias Ground
Pin 5	Coil, ground to energize
Pin 6	Case Ground
Pin 7	NO switch positive
Pin 8	NO switch negative

Model No.	Case Style	Pin Count	Mounting
53817-18	18	8	Seam Weld Flangless PCB Mount
53817-19	19	8	Seam Weld PCB Mount with Flange
53817-20	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.

EU Engineering Units
L 45 K, +85°C military/aerospace
LE 45 K, +125°C military/aerospace
S 100 K+™, +85°C space
SE 100 K+™, +125°C space

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