



**DIONICS-USA
INCORPORATED**

96-B Urban Avenue
Westbury, NY 11590

Phone: (516) 997-7474

Fax: (516) 997-7479

Website: www.dionics-usa.com

PHOTOVOLTAIC SOLID STATE RELAYS

Features:

- Optical Isolation
- Low Logic-Level Input Compatibility
- Low On-Resistance
- No False Turn-on & High Transient Immunity
- Current Limiting
- Thermal Protection With Hysteresis
- Fast Switching Speed
- Switch AC or DC up to 400v
- Designed to Meet MIL-R-28750
- Various Packaging Options
- Y-Level MIL-screening available

Applications:

- Replacement of Mechanical Relays
- Motor Control
- Aircraft Flight Control Systems
- Medical Electronics
- Automated Test Equipment, (ATE)
- Telecommunications
- High-Side DC Power Switching
- Load Control From Microprocessor I/O Ports
- Programmable Controllers

Description:

DIONICS Power MOSFET Photovoltaic Relays are State-of-the-Art solid state relays designed for numerous applications where speed, efficiency, low leakage current, current overload protection and immunity to transient voltages are critical. We supply both normally open and normally closed relays capable of various continuous currents, depending upon the model number, from 1.0, up to 19.0 amps.

All relays feature MOSFET outputs that are optically isolated from the input using DIONICS' manufactured photovoltaic integrated circuits. They have Light Emitting Diode (LED) inputs that control the state of the output power MOSFETS. Several models feature current limiting networks and thermally sensitive integrated circuits that disable the output MOSFETS if they approach an unsafe operating temperature. Because the thermally sensitive integrated circuits have built-in hysteresis, the output MOSFETS are automatically restarted when a safe temperature is reached. This auto restart feature eliminates the need for system restart signals. If the overload condition continues to exist, the cycle is repeated. If the overload condition is removed, the relay returns to normal operation.

These photovoltaic relays incorporate an infrared LED input, a photovoltaic (PV) diode array connected to the gates of a pair of high voltage MOSFETs as output, and a unique turn-off circuit. The photovoltaic diode array is a series-connected group of photo sensitive diodes which are electrically isolated from, but optically coupled to, the input LED. Input/Output isolation is rated at 500 VAC.

When activated, the LED emits infrared light toward the photovoltaic diode array, which then responds with a self-generated open circuit voltage, V_{oc} , proportional to the LED input current. This V_{oc} , which is floating and completely isolated from any power supply, is applied to the gates of the MOSFETs. At the proper value of the input LED current, the generated V_{oc} is sufficient to turn on the MOSFETs and cause the relay to conduct. The MOSFET outputs provide thermal stability, immunity from false turn-on, and low off-set voltage.



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DIONICS PV RELAY SELECTION GUIDE

Both commercial and Y-Level MIL screening available

Part Number	Description	Maximum			Typical			Current & Temp. Limiting	Packaging
		Load Current		Blocking Voltage (V)	On Res. (Ohms)	T _{on} (µs)	T _{off} (µs)		
		Cont. (A)	Surge (A)						
DIH-126	AC-DC Wiring Config. (1)*	1.000	10.00	± 200	0.8	550	70	No	6-Pin DIP
	DC Wiring Config. (2)*	1.200	11.00	+ 200	0.4	550	70	No	6-Pin DIP
	DC Wiring Config. (3)*	1.550	16.00	+ 200	0.2	650	70	No	6-Pin DIP
DIH-127	AC-DC Wiring Config. (1)*	0.300	1.500	± 400	8.0	250	70	No	6-Pin DIP
	DC Wiring Config. (2)*	0.350	1.700	+ 400	4.0	250	70	No	6-Pin DIP
	DC Wiring Config. (3)*	0.550	2.500	+ 400	2.0	300	70	No	6-Pin DIP
DIH-128	AC-DC Wiring Config. (1)*	0.500	1.600	± 200	8.0	500	70	No	6-Pin DIP
	DC Wiring Config. (2)*	0.600	1.800	+ 200	4.0	500	70	No	6-Pin DIP
	DC Wiring Config. (3)*	0.750	2.000	+ 200	2.0	500	70	No	6-Pin DIP
DIH-129	AC-DC Wiring Config. (1)*	16.00	40.00	± 200	0.16	5000	150	No	6-Pin Package
	DC Wiring Config. (2)*	19.00	48.00	+ 200	0.08	5000	150	No	6-Pin Package
	DC Wiring Config. (3)*	25.00	60.00	+ 200	0.04	5000	200	No	6-Pin Package
DIH-134	DC Dual N/O SPST	0.350	0.500	+ 100	3.0	500	50	Yes	8-Pin SIP
DIH-135	DC Dual N/C SPST	0.300	0.500	+ 100	5.0	50	500	No	8-Pin SIP
DIH-136	AC-DC Wiring Config. (1)*	1.250	12.00	± 100	0.60	800	70	No	6-Pin DIP
	DC Wiring Config. (2)*	1.650	13.00	+ 100	0.30	800	70	No	6-Pin DIP
	DC Wiring Config. (3)*	2.100	18.00	+ 100	0.15	900	70	No	6-Pin DIP
DIH-137	AC-DC Dual N/C SPST	0.150	0.250	± 100	18.0	150	150	No	8-Pin SIP
DIH-139	DC N/O SPST	19.00	48.00	+ 200	0.10	5000	150	Yes	6-Pin Package
DIH-143	DC N/O SPST	1.500	2.500	+ 100	0.50	350	50	Yes	6-Pin DIP
DIH-149	AC-DC Wiring Config. (1)*	10.00	25.00	± 400	0.40	9000	350	No	6-Pin Package
	DC Wiring Config. (2)*	12.00	30.00	+ 400	0.20	9000	350	No	6-Pin Package
	DC Wiring Config. (3)*	17.00	42.00	+ 400	0.10	9500	450	No	6-Pin Package
DIH-169	AC-DC Wiring Config. (1)*	6.00	15.00	± 600	1.20	16000	1000	No	6-Pin Package
	DC Wiring Config. (2)*	7.00	18.00	+ 600	0.60	16000	1000	No	6-Pin Package
	DC Wiring Config. (3)*	10.00	25.00	+ 600	0.30	16000	1150	No	6-Pin Package
DIH-1378	AC-DC SPDT	0.150	0.250	± 100	20.0	40	40	No	8-Pin SIP
DIH-1380	AC-DC SPDT	0.200	0.350	± 100	20.0	40	40	No	6-Pin DIP

* See more detail in our Relay Specification Sheets available on our website.