



**Product Facts**

- Optically coupled all solid state relay.
- TTL & CMOS compatible input.
- Low on-resistance power MOSFET output.
- Tested per MIL-R-28750.
- Meets or exceeds all requirements of DSCC drawing P/N 88062-008.
- Replaces Teledyne 685-2W.

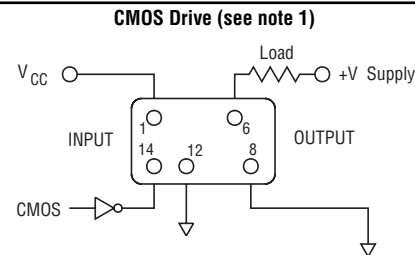
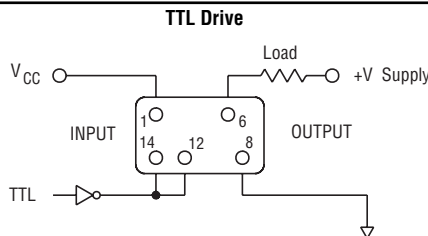


DS11-1009 SSR features state of the art photo-voltaic optical isolation and power

MOSFET output chips for ultra-reliable high speed switching of DC loads up to

2 amps, with extremely low on-resistance.

**Input Configuration**



**Environmental Characteristics**

**Ambient Temperature Range:**  
Operating: -55°C to +105°C.  
Storage: -55°C to +125°C.

**Vibration Resistance:**  
100 G's, 10-3,000 Hz.

**Shock Resistance:**  
1,500 G's, 0.5 ms pulse.

**Constant Acceleration Resistance (Y1 axis):**  
5,000 G's.

**Mechanical Characteristics**

**Weight (approx.):**  
.176 oz. (5 grams)

**Materials:**  
Header: Kovar  
Cover: Nickel  
Pins: Kovar, gold plated

**Electrical Specifications (-55°C to +105°C unless otherwise specified)**

Input	
Control voltage range	0 - 18 Vd
Control current (max.)	250µAdc @ 5V, 1mA @ 18V
Input supply voltage range (Vcc)	3.8 - 32 Vdc (Notes 1 & 2, Figures 1 & 2)
Input current (max.) @ 5Vdc	15mADC (Notes 1 & 2, Figures 1 & 2)
Must turn-on voltage	0.3Vdc
Must turn-off voltage	3.2Vdc
I/O	
Dielectric strength (min.)	1,200V rms
Insulation resistance (min.) @ 500Vdc	10 <sup>9</sup> ohms
Capacitance (max.)	5pF
Output	
Continuous load current (max.) @ 25°C	2.1Adc (Figure 5)
Surge current (max.) @ 25°C	200% of max. rated (1 sec/10% duty cycle)
Continuous load voltage (max.)	60Vdc
Transient blocking voltage (max.)	80Vdc (Note 5)
On resistance (max.) @ T <sub>j</sub> = 25°C, I <sub>L</sub> = 100mA	0.15 ohm (Note 6, Figure 4)
Output voltage drop (max.)	0.5Vdc
Leakage current (max.) @ V = 60Vdc	10µAdc
Turn-on time (max.)	3 ms (Figure 3)
Turn-off time (max.)	1 ms (Figure 3)
dv/dt (min.)	100V / µs
Electrical system spike	600Vdc (Note 5)
Output chip junction temperature (max.)	125°C
Thermal resistance (typ.), junction to ambient	70°C/W
Thermal resistance (max.), junction to case	25°C/W
Capacitance (max.)	600pF

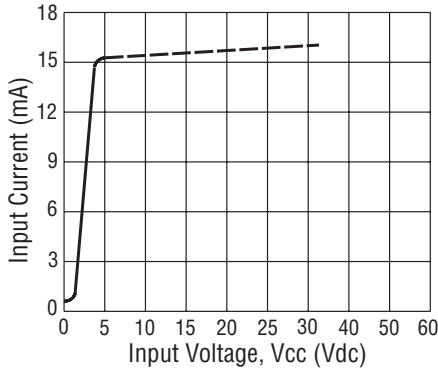
© 2005 by Tyco Electronics Corporation. All Rights Reserved.

CII and TYCO are trademarks. Other products, logos and company names mentioned herein may be trademarks of their respective owners.

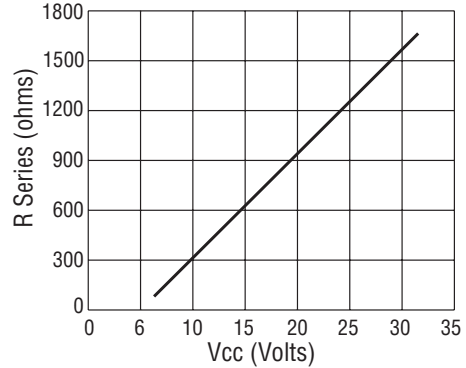


**DS11-1009 SSR for loads up to 2A @ 60Vdc** (Continued)

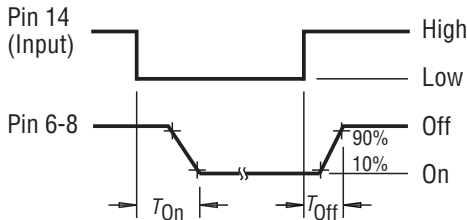
**Figure 1 - Maximum Input Current vs. Input Voltage**



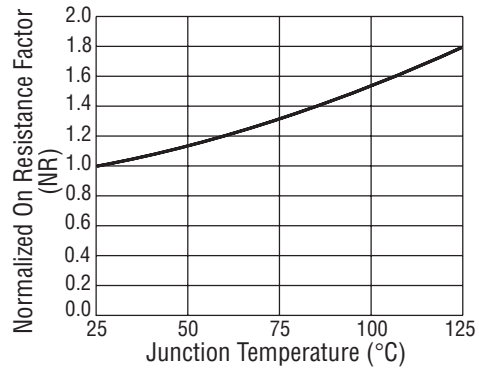
**Figure 2 - Series Resistance vs. Vcc Supply Voltage (Note 1)**



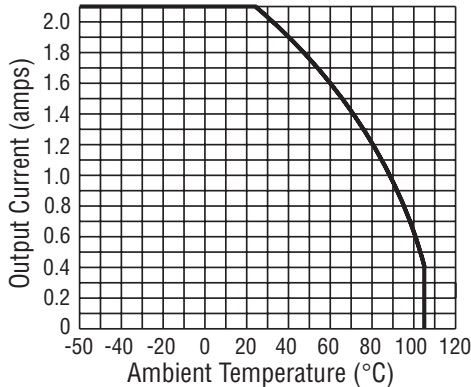
**Figure 3 - Turn-on and Turn-off Timing**



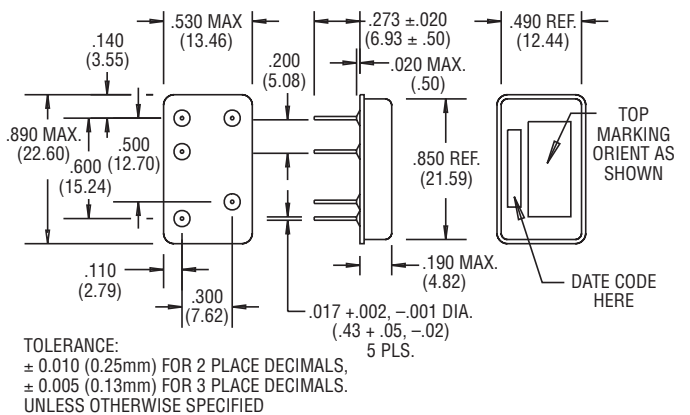
**Figure 4 - On-Resistance vs. Temperature (Note 6)**



**Figure 5 - Temperature Derating Curve**



**Figure 6 - Outline Dimensions**



**Notes**

1. 2 terminal input configuration is compatible with CMOS. For Vcc levels above 6Vdc, a series limiting resistor is required. See Fig. 2 for resistor value. Use standard resistor value equal to or less than value from the curve.
2. Input transitions to be ≤ 1ms duration.
3. Vcc = 5Vdc for all tests unless otherwise specified.
4. Relays may drive loads connected to either positive or negative referenced power supply lines. Reversing polarity of output may cause permanent damage. Inductive loads must be diode suppressed.
5. Transient blocking voltage and electrical system spike tests are performed per MIL-STD-704 (28VDC systems).
6. To determine the maximum on-resistance at any given junction temperature, multiply on-resistance at 25°C (0.15 ohm) by normalized on-resistance factor from curve (Fig. 4).