TECHNICAL DATA

Housing	PA66 GF33
Footprint	SSR18 - ISO 280 Relay form factor SSR30 - Side by side 2x ISO 280 Relay form factor
Dimensions	SSR18 - 22 x 15 x 36.36 mm SSR30 - 30.4 x 23.6 x 36.34 mm
Weight	SSR18 - 12 g SSR30 - 24 g
Operating Temperature	-40 to +85 °C
IP Class	IP67 when used with IP67 ISO 280 Fuse and Relay Box Housing
Input Voltage Range	DC 12 V
Output Type	N-Channel Power FET with Charge Pump for Direct Load switching application
Current Rating[1]	SSR18 - 18 A SSR30 - 30 A
Load Type	Most suitable for loads with high inrush current like lamps and motors; all types of resistive and inductive loads
Voltage Drop V_{ON}	90 mV (Typical)
Protection	Embedded Protective Function such as: • Short Circuit • Reverse Polarity[2] • Overload and Current limitation • Over temperature[3] • Over Voltage including Load Dump • Custom current limits are possible via programmable MicroPlex™ controller by monitoring the SSR current sense output and switching the SSR off when the current limit is reached
PWM-capable	Frequency up to ~200 Hz

DESCRIPTION

The MRS MicroPlex™ SSR18 and SSR30 are some of the smallest high power solid state relays in today's automotive industry. They are designed to interface seamlessly with the MicroPlex™ family of controllers to create a smart and state-of-the-art multiplex system.

The MicroPlex™ SSRs can also be used as stand-alone solid state relays without any MicroPlex™ controllers. They are designed to drive loads with high inrush current, such as lamps and motors; all types of resistive and inductive loads.

When the MicroPlex™ SSRs are integrated with MicroPlex™ controllers, the user is able to measure current (in terms of voltage proportional to the load current) through the current sense output pin (V_{IS}). Users are also able to diagnose faults such as, short circuit to GND, over temperature, and open load, which will show as V_{IS} = 0 V. Over current condition will show as V_{IS} >> V_{IS} @ SSR's rated current.

The load current IL can be calculated as:

$I_L = I_{IS} (K_{ILIS})$

Where $I_{IS} = V_{IS}/1k\Omega$ (see Figure 1)

K_{ILIS} = 14000 typical (see Figure 2)

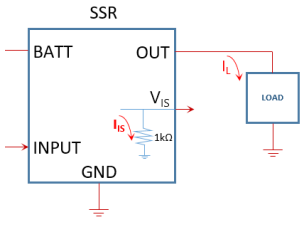


Figure 1 - I_L and I_{IS} illustration

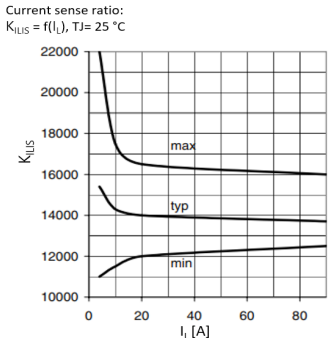


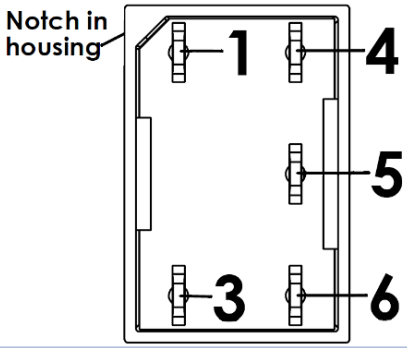
Figure 2 - K_{ILIS} as a function of expected I_L

[1]Current Rating at 25 °C ambient.

[2]During Reverse Polarity, the Power MOSFET will be turned on automatically to minimize power dissipation.

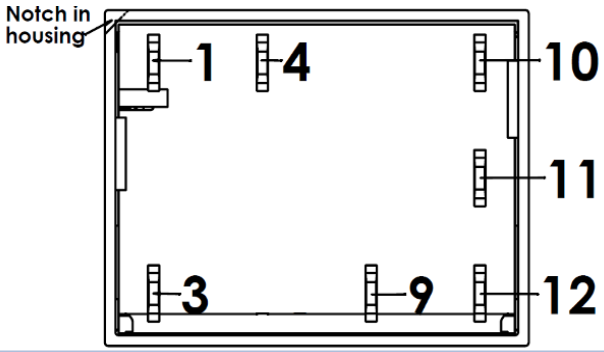
[3]The over temperature protection is not active during the reverse current operation.

OVERVIEW OF INPUTS SSR18



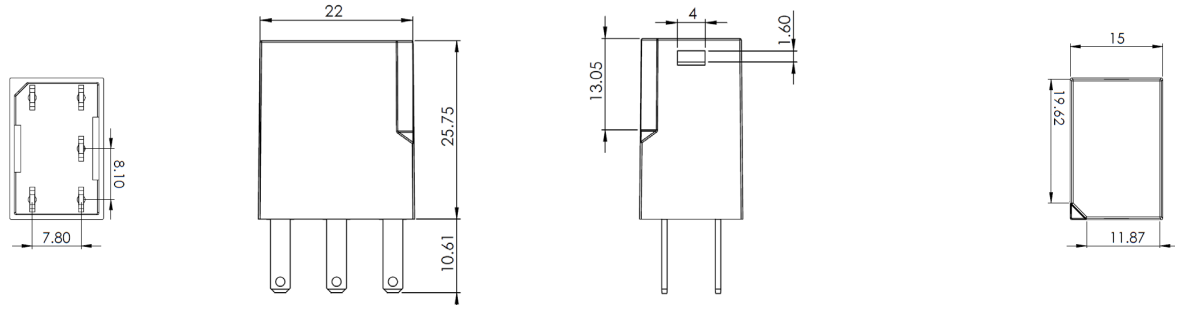
1. GND
3. BATT
4. OUT
5. V_{IS}
6. INPUT

OVERVIEW OF INPUTS SSR30

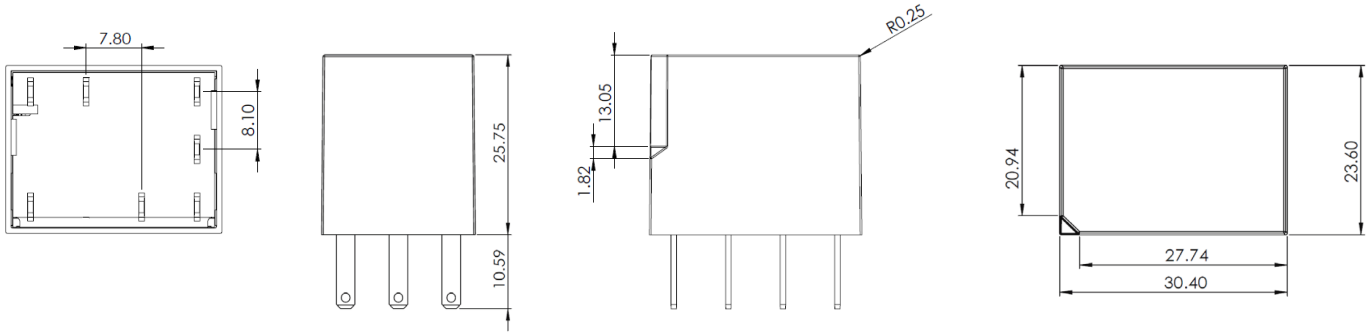


1. GND
3. BATT
4. OUT
9. BATT
10. OUT
11. V_{IS}
12. INPUT

SSR18 DIMENSIONS (mm)



SSR30 DIMENSIONS (mm)



CONNECTION DIAGRAM

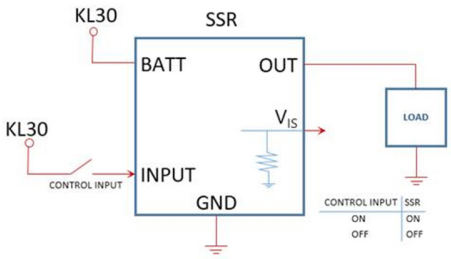


Figure 3: High Side Control Input

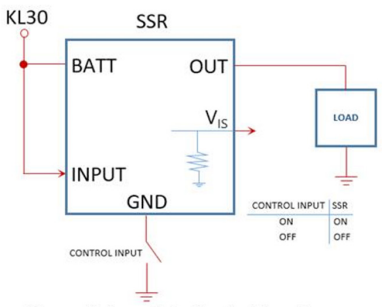


Figure 4: Low Side Control Input

ORDER INFORMATION

Description	Item Number
MicroPlex™ SSR18	1.135.300.00
MicroPlex™ SSR30	1.135.330.00

REVISION LIST

Version	Date	Description	Author
1.0	10.24.2017	Initial Draft	Victor Velicaria