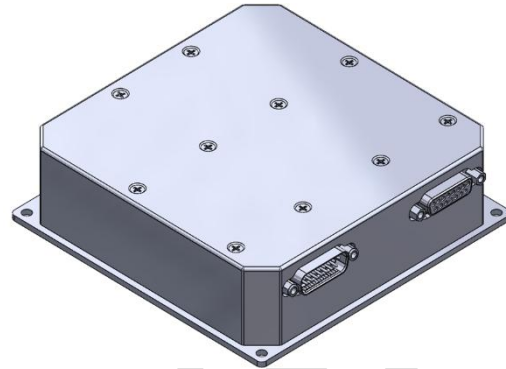


Multi Channel Solid State Relay Power Module

Description: The SEPD series Solid State Relay (SSR) modules are multi-channel microcontroller-based solid state power controller (SSPC), rated up to 5A each channel, designed to be used in high reliability 28V DC applications. Featuring integrated current sensing with no derating over the full operating temperature range, the SEPD series SSR are the electronic equivalents of electromechanical circuit breakers with isolated control.



Compliant Documents & Standards:

MIL-STD-704F

Aircraft Electrical Power Characteristics 12 March 2004

MIL-HDBK-217F, Notice 2

Reliability Prediction of Electronic Equipment 28 Feb 1995

Features:

- Function as Normally Closed relay when energized
- Low standby power dissipation, No Derating Over the Full Temperature Range
- True I²t Protection up to 10X rating with Nuisance Trip Suppression
- Instant Trip Protection (100 μ sec typical) for Loads Above 10X rating
- Unlimited Interrupt Capability; Repetitive Fault Handling Capability
- Thermal Memory
- Internally Generated Isolated Supply to Drive the Switch
- High Control Circuit Isolation: 750V DC Control to Power Circuit
- Soft Turn-On to Reduce EMC Issues
- EMI tolerant
- Input filter for Noise Immunity
- Solid State Reliability
- High Power Density

Benefits:

Sensitron's SSPC technology and products combine functionalities of electro-mechanical breakers, solid state relays and system monitors, and provide the following benefits to our customers:

- Electrical load protection and monitoring - current, voltage and temperature measurements
- Operational improvements by allowing for diagnostics, prognostics, and condition-based configuration
- Life cycle cost savings and reduced cost of ownership
- Increased radius of operation through power budgeting and load shedding
- Crew offloading and intelligent load management

TECHNICAL DATA
DATASHEET 6231, Preliminary

Table 1 - Electrical Characteristics (at 25 °C)

Power	
Input Voltage – Continuous	0 to 40V DC, 55V DC Absolute Maximum
Output Current	See Figure 1, Trip Curve
Max current without tripping	110% min
Standby current	130mA typical @ 28V input
Power dissipation per channel	30mW typical @ 1A 470mW typical @ 5A
Output Trip time	See Figure 1, Trip Curve
Output Rise Time (turn ON)	200 µsec typ
Output Fall Time under normal turn-off	200 µsec typ
Min Load Requirement	Nil
Protection	
Short Circuit Protection	Unlimited
Instant Trip	800%, min; 1200%, max

Table 2 - Physical Characteristics

Temperature	
Operating Temperature	T _A = -55 °C to +100 °C
Storage Temperature	T _A = -55 °C to +125 °C
Environmental	
Altitude	Up to 30,000 ft Can be installed in an unpressurized area
Operating Orientation	Any
Weight	3.80 lb max
MTBF (Estimate: MIL-HDBK-217F)	TBD

Description

The SEPD SSR module functions as a normally closed relay and all outputs will be turned on or closed when the module is energized with 28V supply voltage. The module will trip on overloads or open in the ALWAYS TRIP region shown in Figure 1 and will never trip or stay closed when in the NEVER TRIP region.

Each output of SEPD module can also be forced open by setting its corresponding “turn off” pin at low (short to GND). When the “turn off” pin is brought back to logic high (left open), the output of SEPD module will be turned back on.

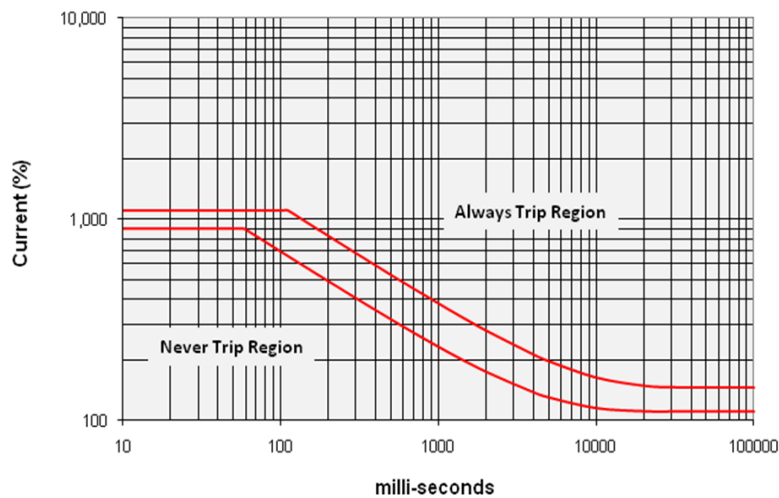


Figure 1 - Trip Curve

Rise Time & Fall Time

The rise and fall times of the SEPD module are pre-set at the factory for a nominal 200 μ S with a LINE supply of 28VDC. The rise and fall times will vary linearly with supply voltage.

MIL-STD-704F

These standards cover the characteristics of the electrical systems in Military Aircraft. The SEPD modules meet all of the requirements of MIL-STD-704F including Normal, Emergency, Abnormal and Electric Starting conditions with the Ripple, Distortion Factor and Distortion Spectrum defined in the standard.

TECHNICAL DATA
DATASHEET 6231, Preliminary

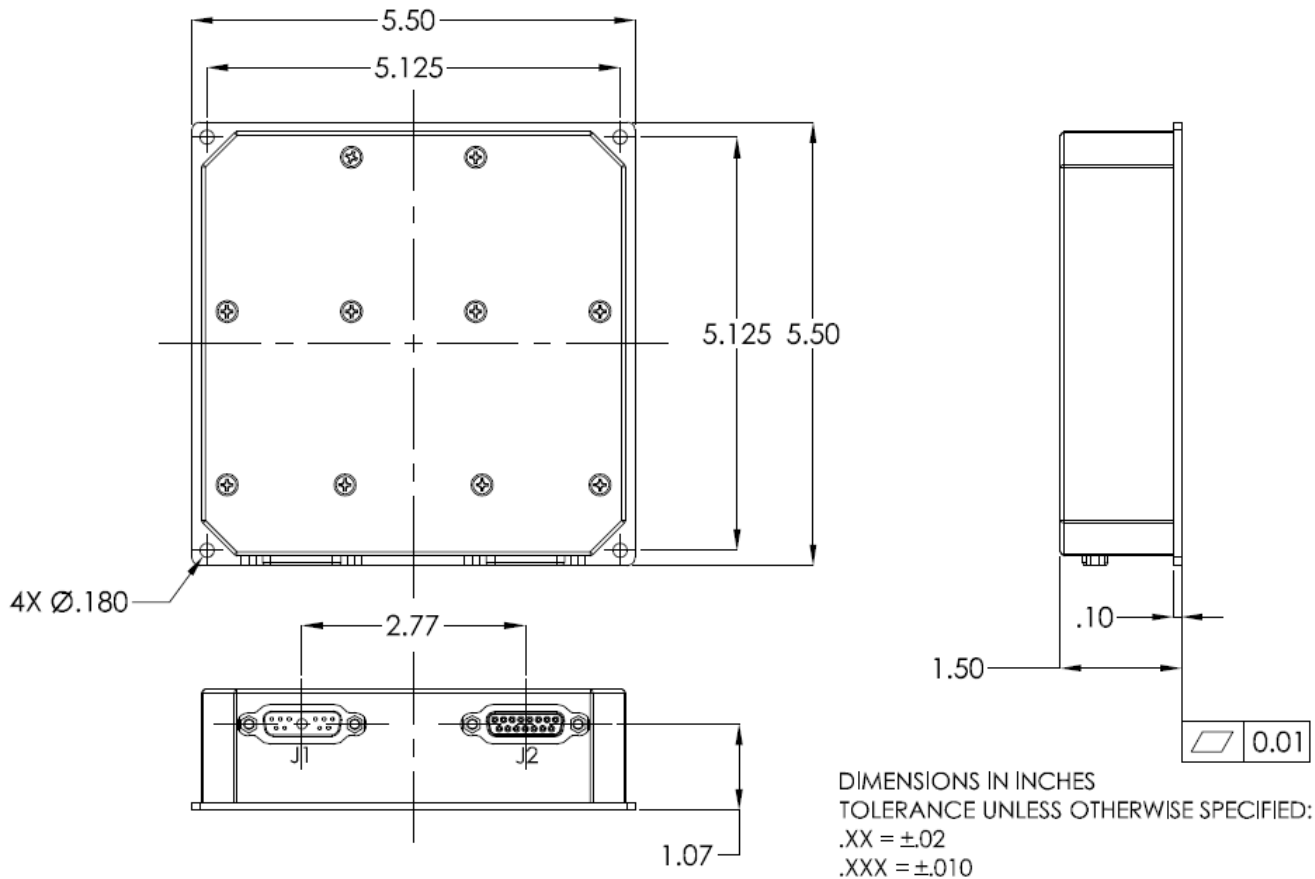


Figure 2 - Mechanical Dimensions
All dimensions are in inches

Table 1 - Pin Definition of Connectors

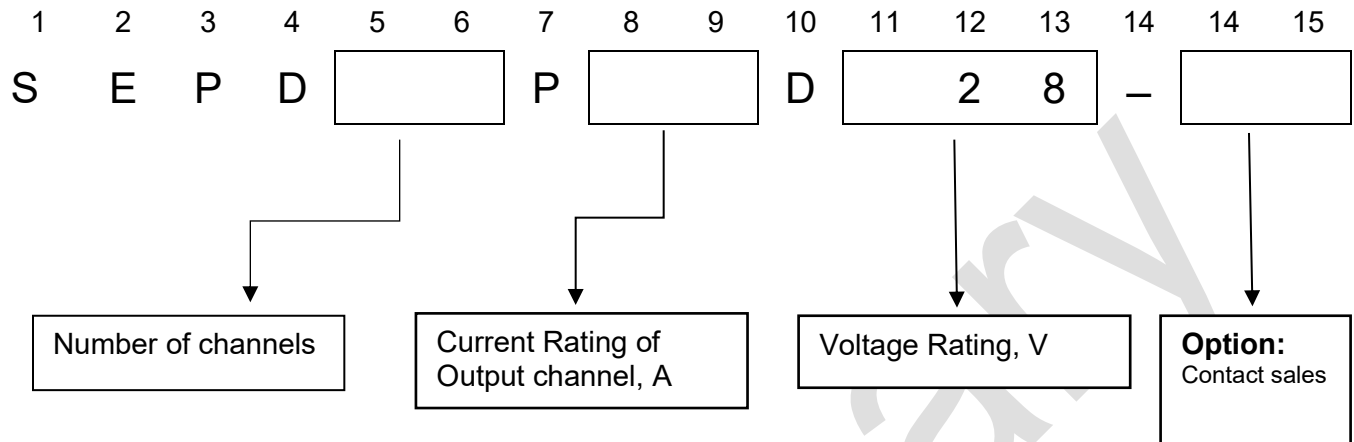
Connector J1 CBM11W1M57R600S/AA		Connector J2 MDX15S5R70T2S/AA-14	
Pin Number	Pin Connection	Pin Number	Pin Connection
1	CH1 output	1	CH1 turn off signal
2	CH2 output	2	CH2 turn off signal
3	CH3 output	3	CH3 turn off signal
4	CH4 output	4	CH4 turn off signal
5	CH5 output	5	CH5 turn off signal
6	CH6 output	6	CH6 turn off signal
7	CH7 output	7	CH7 turn off signal
8	CH8 output	8	CH8 turn off signal
9	CH9 output	9	CH9 turn off signal
10	CH10 output	10	CH10 turn off signal
		11	GND for all turn off signals
A1	28V input	15	28V return
		12/13/14	NC

SENSITRON SEMICONDUCTOR

SEPD Series
Solid State Relay Module

TECHNICAL DATA
DATASHEET 6231, Preliminary

Part Number Ordering Information



Part Number	Description
SEPD10P01D28	28V solid state relay with 10 normally closed output, 1A rating for each channel

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