



PRELIMINARY

**VOLTAGE PROTECTION
FOR DC SOLID-STATE RELAYS**

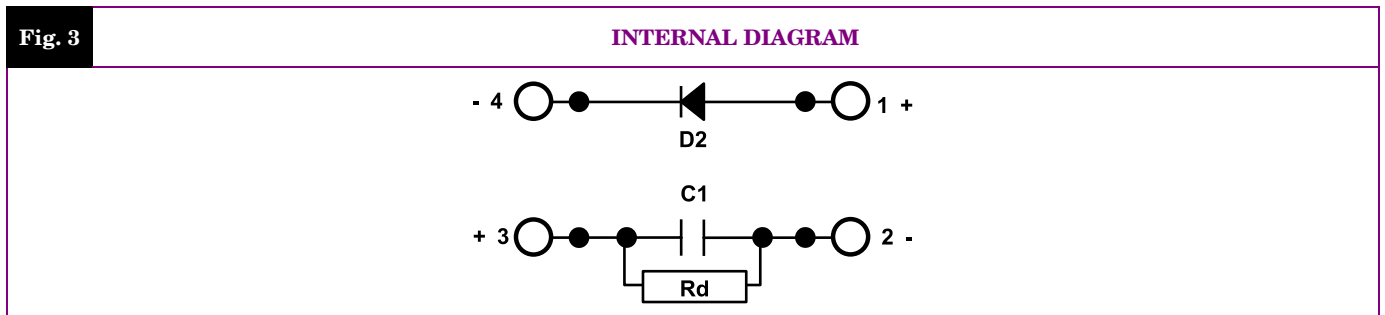
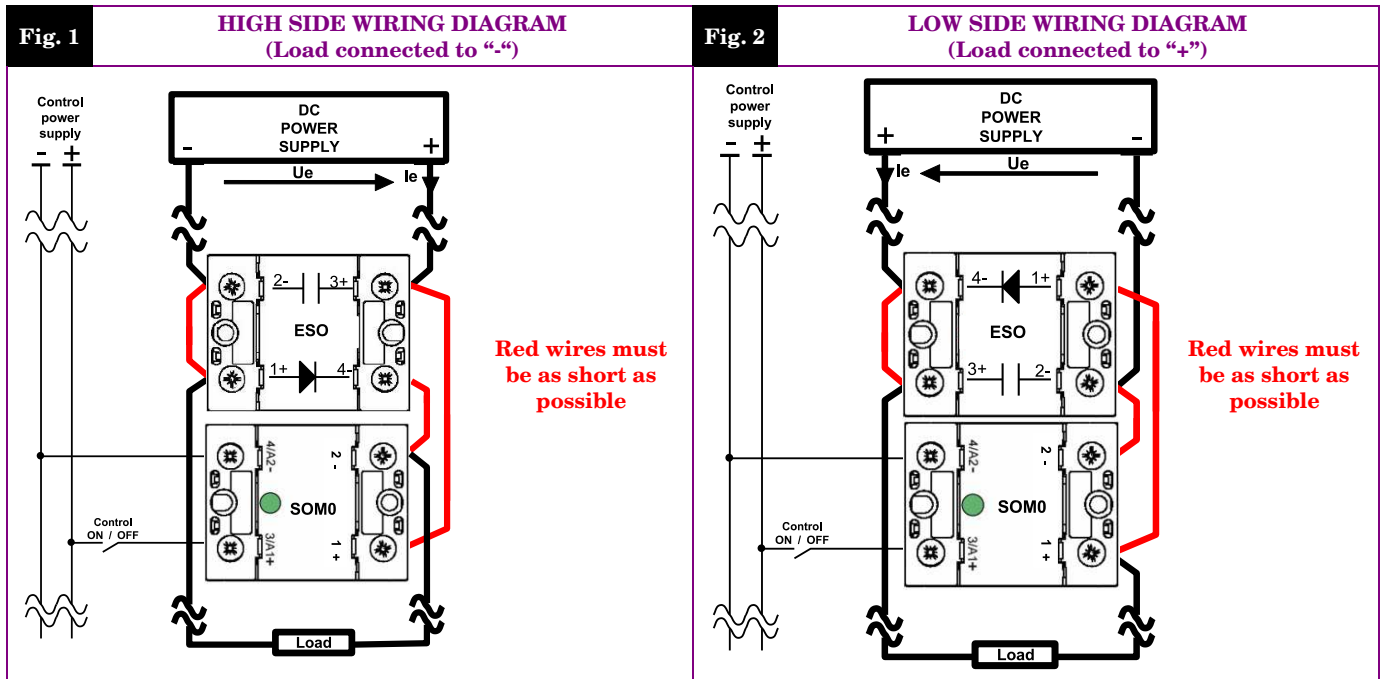
- ▶ Helps protecting solid-state relays against voltage transient due to the inductive effect of lines and loads.
- ▶ Fly wheel diode (D2), with fast response, low on-state voltage drop and connection polarity free, mounted on the metal base plate to be cooled by a heatsink for high switching frequency applications (PWM)
- ▶ Decoupling capacitor (C1), connection polarity free and non polarized (polyester) equipped with a discharging resistor
- ▶ SSR voltage clamping function (D1) not included therefore more adapted to SOM0 DC SSR range (SSR with built-in voltage protection D1)

ESO01000



| | |
|----------------------------------------------|---------------|
| Non-repetitive peak voltage | 200VDC |
| Max operating permanent current | 80A |
| Clamping voltage function for DC relays (D1) | No |

| Operating voltage range | Current range | DC SSR clamping voltage function | Isolations | Connections | Dimensions (LxHxD) | Weight |
|-------------------------|---------------|----------------------------------|------------|-----------------|--------------------|--------|
| 0-130VDC | 0-80A | Non | 4kV | Screw terminals | 45 x 58.5 x 30 | 80g |



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GENERAL CHARACTERISTICS

| | CHARACTERISTIC | LABEL | VALUE | INFO. |
|----------------------|-------------------------------|--------------------------|-----------------|---------------------------------|
| POWER CIRCUIT | DC mains max voltage | U_{emax} | 130VDC | |
| | Non repetitive peak voltage | U_{ep} | 200V | |
| | Max voltage rise | dU_e/dt | 125V/μs | U _e =U _{ep} |
| | Max nominal current | I_{e max} | 80A | |
| | Power output/case insulation | U_{imp} | 4kV | |
| | Isolation resistance | R_{io} | 1GΩ | |
| | Isolation capacitance | C_{io} | <8pF | |
| | Storage ambient temperature | T_{stg} | -40°C -> +100°C | |
| | Operating ambient temperature | T_{amb} | -40°C -> +90°C | |
| | Max. case temperature | T_c | 100°C | |

LINE CIRCUIT CHARACTERISTICS (C1 & R_d)

| | CHARACTERISTIC | LABEL | VALUE | INFO. |
|---------------------|---------------------------|----------------------|-------------|-------|
| LINE CIRCUIT | Decoupling capacitor | C1 | 4.4μF ±20% | |
| | Technology | | Polyester | |
| | Discharging resistor | R_d | 1MΩ / 0.5 W | |
| | Discharging time constant | τ | 2s | |

LOAD CIRCUIT CHARACTERISTICS (D2)

| | CHARACTERISTIC | LABEL | VALUE | INFO. | |
|---------------------|-----------------------------------------------|--------------------------------------------------|-------------------------------|------------------------------------------|------------------------------------------------------------|
| LOAD CIRCUIT | Voltage drop during fly wheel | U_{D2} (VF) | 1.2V | @I _e =80A see fig. 4 | |
| | Instantaneous power dissipation | P_{D2} | 0.96 + 0.003 x I _e | | |
| | Max nominal average current | I_{D2av} (I _{Fav}) | 80A | | |
| | Max repetitive peak overload current | I_{D2peak} (I _{FRM}) | 500A | T _{pulse} =25μs | |
| | Max non repetitive peak overload current | I_{D2peak} (I _{FSM}) | 1000A | T _{pulse} =25μs | |
| | Max leakage current | -I_{D2} (I _R) | 0.1mA @ T _j =25°C | 17mA @ T _j =T _{jmax} | @U _{ep} @T _{jmax} |
| | Recovering time | trr | 190ns | | I _{D2} =1A, di/dt=50A/μs, T _c =25°C |
| | Junction/case thermal resistance | R_{thjc} | 0.35K/W | | |
| | Housing thermal resistance vertically mounted | R_{thra} | 10K/W | | @ΔT _{ra} =75°C |
| | Housing thermal time constant | T_{thra} | 10 minutes | | @ΔT _{ra} =60°C |
| | Maximum junction temperature | T_{jmax} | 125°C | | |



OUTPUT CHARACTERISTIC CURVES

Fig. 4

**VOLTAGE DROP VS CURRENT
(DIODE D2 DURING FLY WHEEL)**

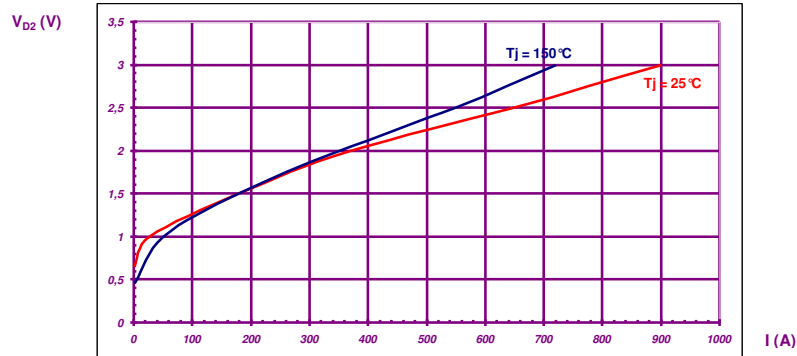


Fig. 5

**THERMAL IMPEDANCE
(DIODE D2)**

Not available

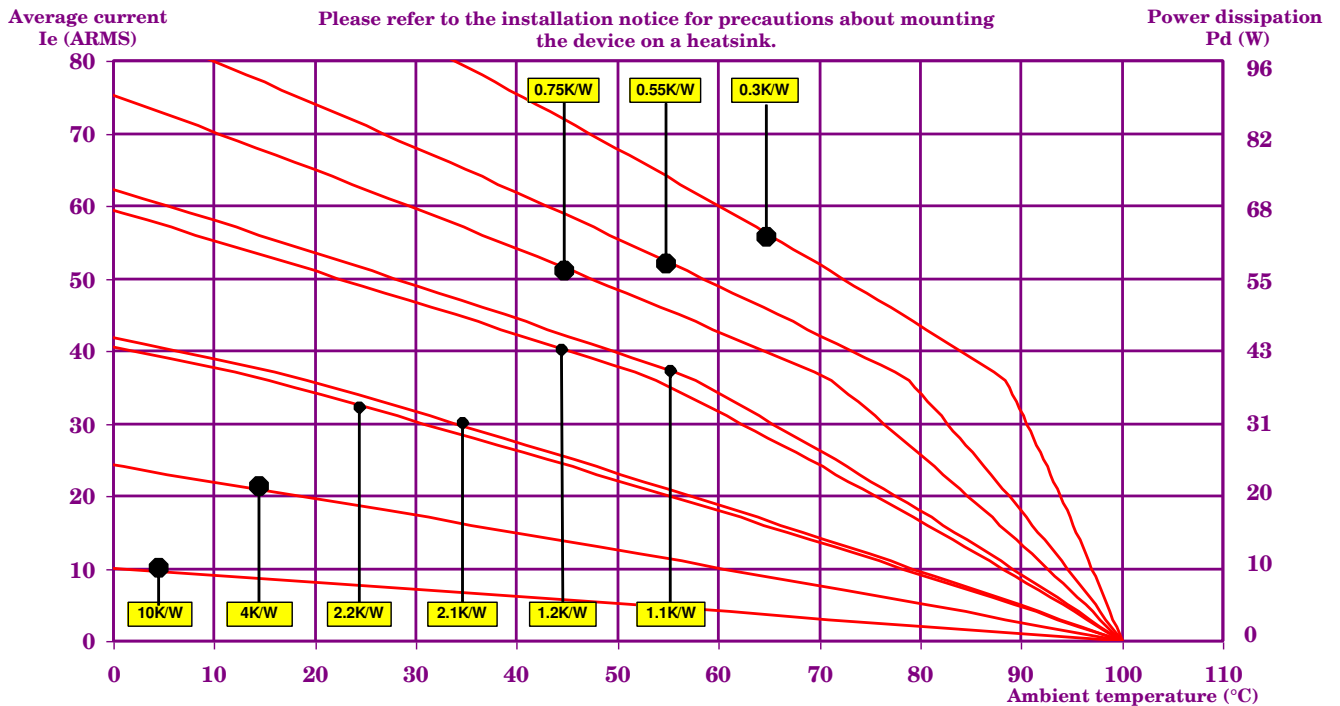
Fig. 6

**OVERLOAD PERMITTED DURING ON-STATE
(DIODE D2 DURING FLY WHEEL)**

Not available

Fig. 7

POWER DISSIPATION AND AVERAGE CURRENT VS AMBIENT TEMPERATURE



10K/W = No Heatsink / 1LD12020
2.1K/W = WF210000
0.75K/W = WF070000

4K/W = 150x150x3mm aluminium sheet
1.2K/W = WF121000
0.55K/W = WF050000

2.2K/W = WF262100 / WF151200
1.1K/W = WF131100
0.3K/W = WF031100



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GENERAL INFORMATION

| | | | | |
|----------------------------|------------------------------------------------------------|--|------------------------------------------|--------------------|
| GENERAL INFORMATION | Mounting | | 2 screws (M4x12mm ; tightening = 1.2N.m) | See mounting sheet |
| | Screwdriver for connections | | POZIDRIV2 | |
| | tightening torque for connections | | 2 N.m | |
| | Insulated crimp terminals (round tabs, eyelet type) | | M5 | |
| | Display | | Green LED (load supplied) | |
| | Housing | | UL94V0 | |
| | Weight | | 80g | |

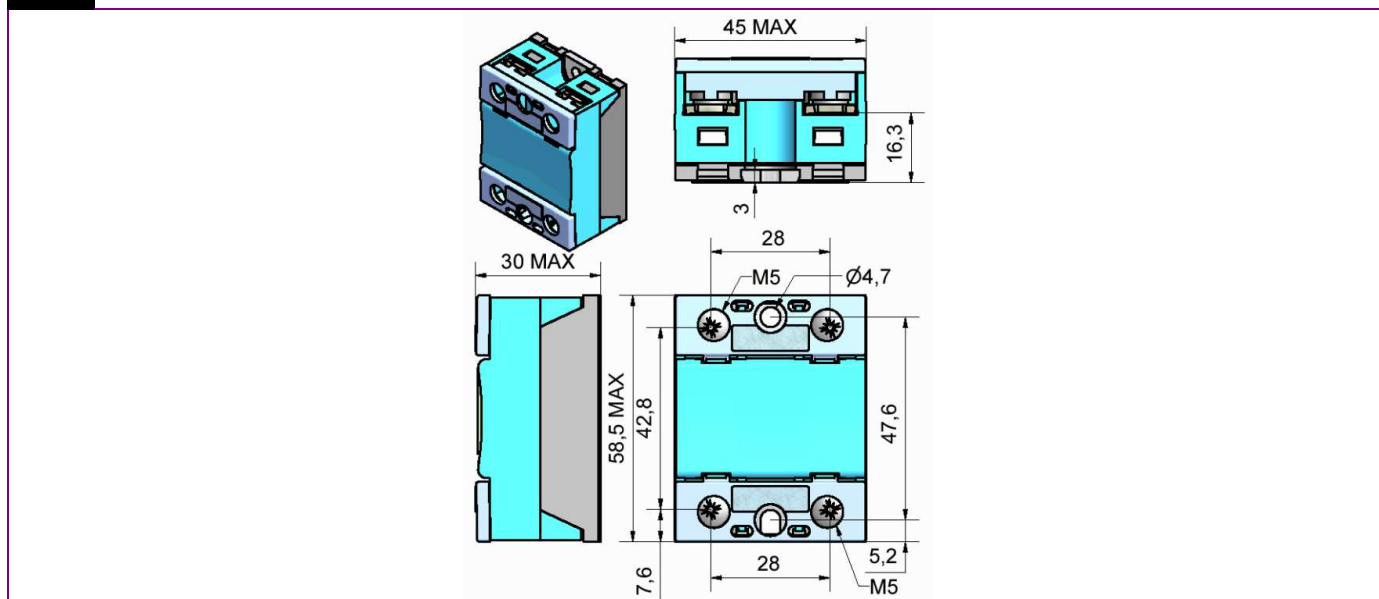
STANDARDS

| | | | | |
|------------------|----------------------------------------|--|------------|--|
| STANDARDS | Standards | | IEC60947-1 | |
| | Protection level | | IP20 | |
| | Protection against direct touch | | Yes | |
| | CE marking | | Yes | |
| | UL, cULUS and VDE approvals | | Pending | |

DIMENSIONS AND ACCESSORIES

Fig. 8

DIMENSIONS (mm)



ACCESSORIES

| | |
|-------------------------------------------------|--|
| FLAT TAB CONNECTION ADAPTORS 1L587000 | |
|-------------------------------------------------|--|

Please consult our website for other accessory references
(Heatsinks, mounting adaptors, thermal grease...)



ISO 9001
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