

**PRELIMINARY**



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

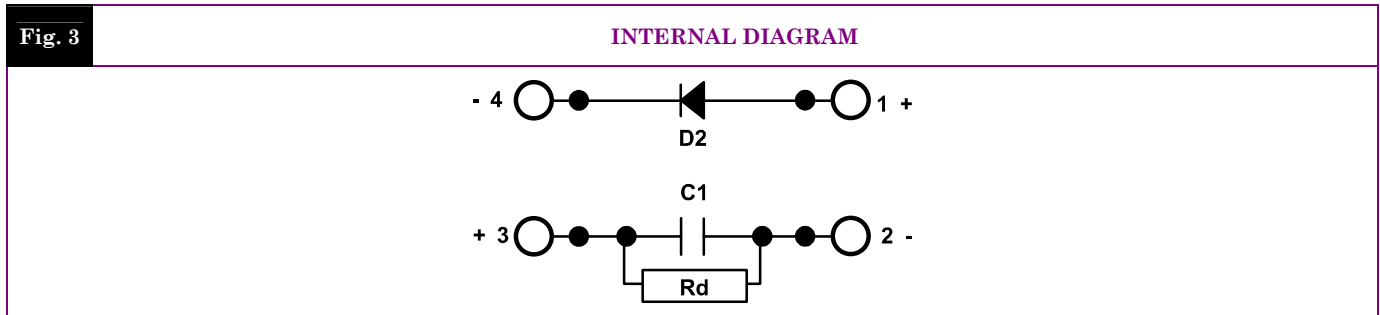
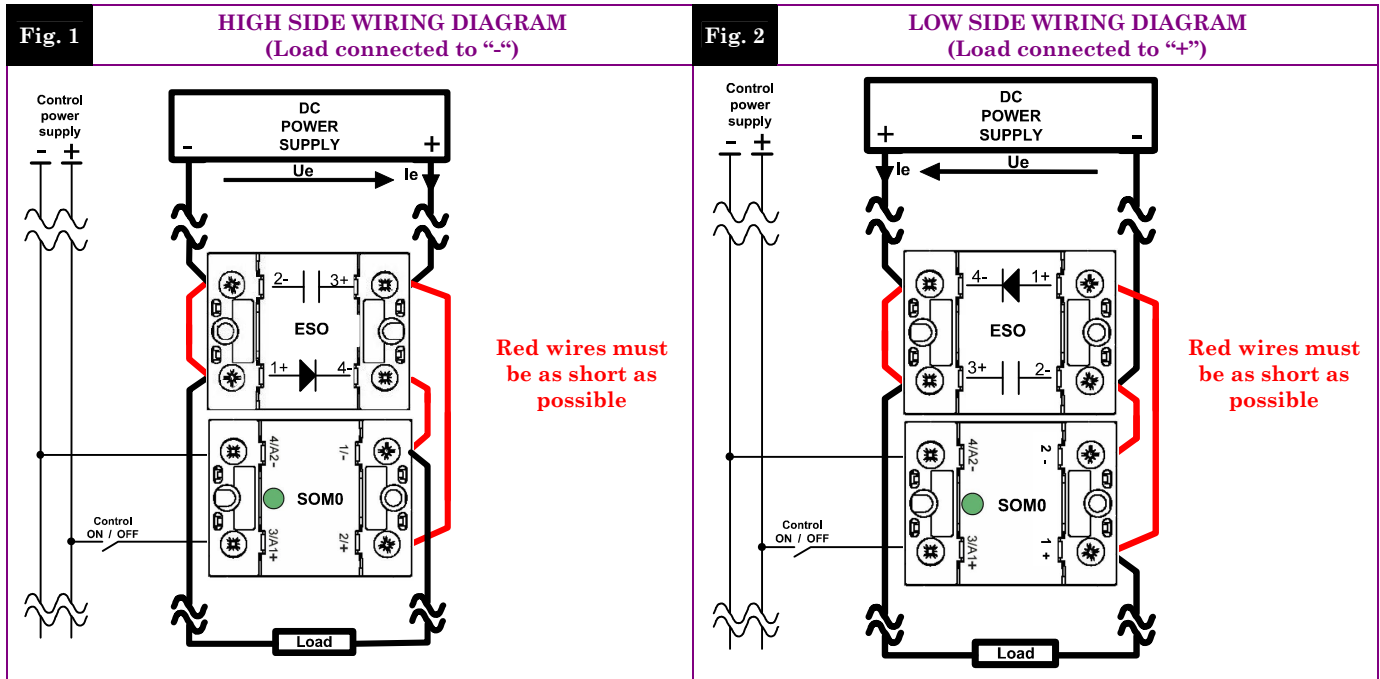
- ▶ Helps protecting solid-state relays against voltage transient due to the inductive effect of lines and loads.
- ▶ Fly wheel diode (D2), with fast response, low on-state voltage drop and connection polarity free, mounted on the metal base plate to be cooled by a heatsink for high switching frequency 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	<b>200VDC</b>
Max operating permanent current	<b>80A</b>
Clamping voltage function for DC relays (D1)	<b>No</b>

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



*Proud to serve you*



**PRELIMINARY**

Page 2/4 UK

**GENERAL CHARACTERISTICS**

POWER CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	DC mains max voltage	<b>U<sub>emax</sub></b>	<b>130VDC</b>	
	Non repetitive peak voltage	<b>U<sub>ep</sub></b>	200V	
	Max voltage rise	<b>dU<sub>e</sub>/dt</b>	125V/μs	U <sub>e</sub> =U <sub>ep</sub>
	Max nominal current	<b>I<sub>e max</sub></b>	80A	
	Power output/case insulation	<b>U<sub>imp</sub></b>	4kV	
	Isolation resistance	<b>R<sub>io</sub></b>	1GΩ	
	Isolation capacitance	<b>C<sub>io</sub></b>	<8pF	
	Storage ambient temperature	<b>T<sub>stg</sub></b>	-40°C -> +100°C	
	Operating ambient temperature	<b>T<sub>amb</sub></b>	-40°C -> +90°C	
Max. case temperature	<b>T<sub>c</sub></b>	100°C		

**LINE CIRCUIT CHARACTERISTICS (C1 & Rd)**

LINE CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Decoupling capacitor	<b>C1</b>	4.4μF ±20%	
	Technology		Polyester	
	Discharging resistor	<b>Rd</b>	1MΩ / 0.5 W	
Discharging time constant	<b>t</b>	2s		

**LOAD CIRCUIT CHARACTERISTICS (D2)**

LOAD CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Voltage drop during fly wheel	<b>U<sub>D2</sub></b> (VF)	1.2V	@I <sub>e</sub> =80A see fig. 4
	Instantaneous power dissipation	<b>P<sub>D2</sub></b>	0.96 + 0.003 x I <sub>e</sub>	
	Max nominal average current	<b>I<sub>D2av</sub></b> (I <sub>Fav</sub> )	80A	
	Max repetitive peak overload current	<b>I<sub>D2peak</sub></b> (IFRM)	500A	T <sub>pulse</sub> =25μs
	Max non repetitive peak overload current	<b>I<sub>D2peak</sub></b> (IFSM)	1000A	T <sub>pulse</sub> =25μs
	Max leakage current	<b>-I<sub>D2</sub></b> (IR)	0.1mA @ T <sub>j</sub> =25°C	17mA @ T <sub>j</sub> =T <sub>jmax</sub> @U <sub>ep</sub> @T <sub>jmax</sub>
	Recovering time	<b>trr</b>	190ns	I <sub>D2</sub> =1A, di/dt=50A/μs, T <sub>c</sub> =25°C
	Junction/case thermal resistance	<b>R<sub>thjc</sub></b>	0.35K/W	
	Housing thermal resistance vertically mounted	<b>R<sub>thra</sub></b>	10K/W	@ΔT <sub>ra</sub> =75°C
	Housing thermal time constant	<b>T<sub>thra</sub></b>	10 minutes	@ΔT <sub>ra</sub> =60°C
Maximum junction temperature	<b>T<sub>jmax</sub></b>	125°C		



**PRELIMINARY**

**OUTPUT CHARACTERISTIC CURVES**

**Fig. 4**

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



**Fig. 5**

**THERMAL IMPEDANCE  
(DIODE D2)**

Not available

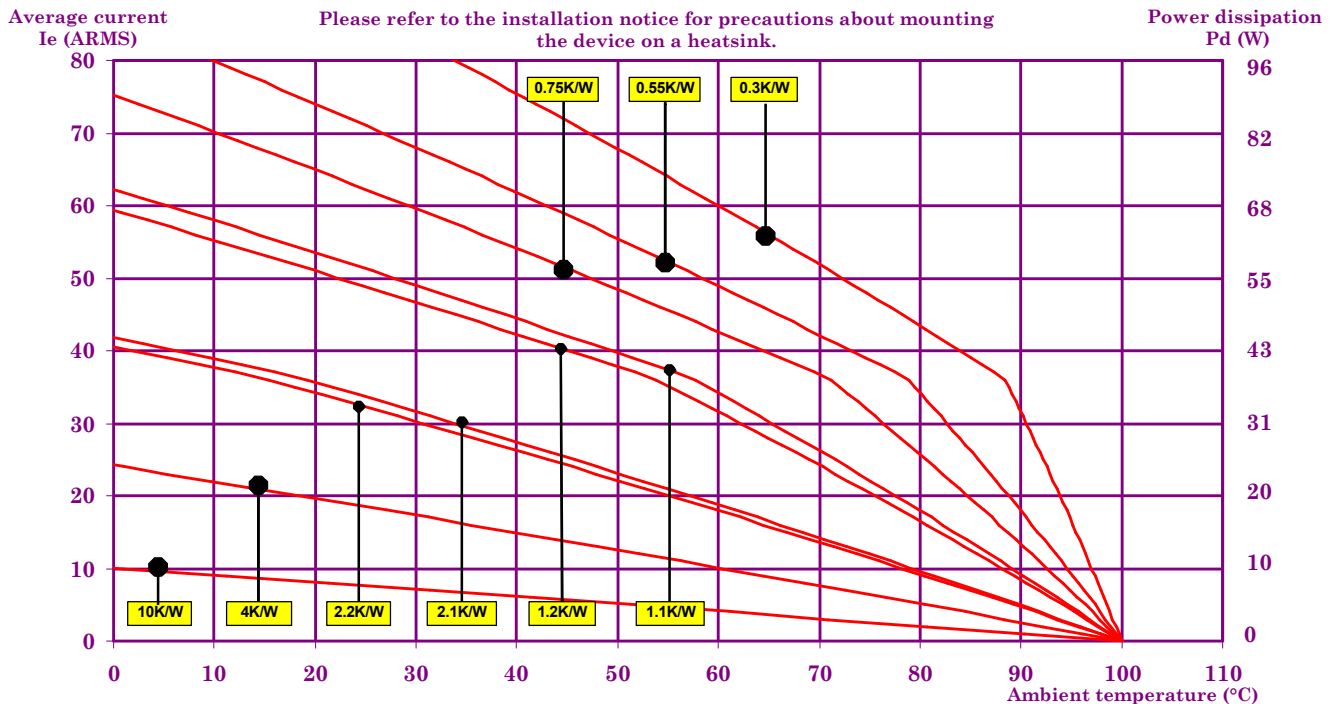
**Fig. 6**

**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



**PRELIMINARY**

**GENERAL INFORMATION**

<b>GENERAL INFORMATION</b>	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	

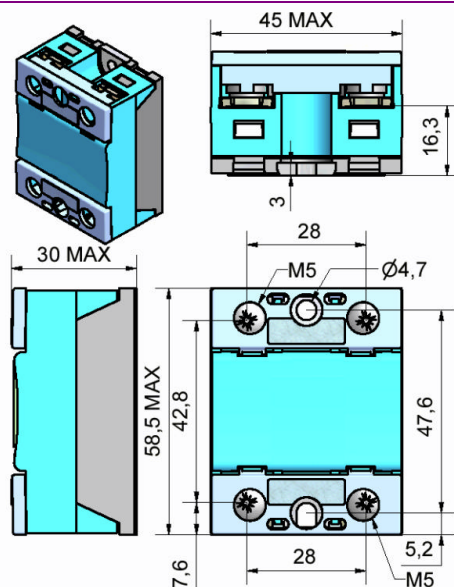
**STANDARDS**

<b>STANDARDS</b>	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  
N° 1993/1106a

ASSOCIATION  
FRANÇAISE POUR  
L'ASSURANCE DE  
LA QUALITÉ