VOLTAGE PROTECTION FOR DC SOLID-STATE RELAYS

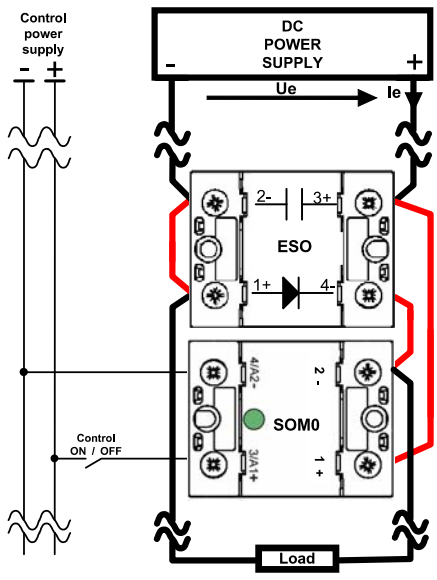
ESO01000

- 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)

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

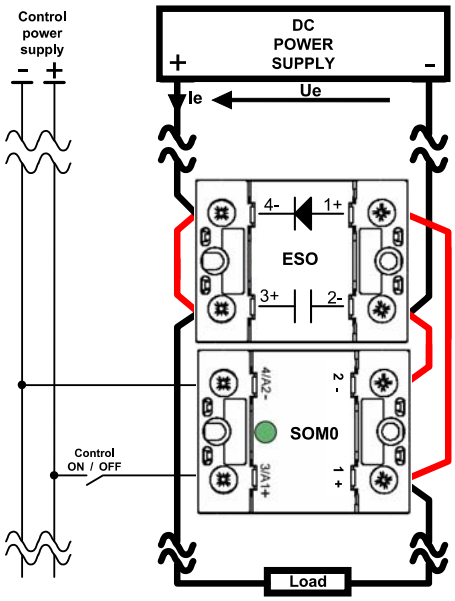
Operating voltage range	Current range	DC SSR clamping voltage function	Isolations	Connections	Dimensions (LxHxD)	Weight
0-130VDC	0-80A	Non	4kV	Screw terminals	45 x 58.5 x 30	80g

Fig. 1 HIGH SIDE WIRING DIAGRAM (Load connected to "-")



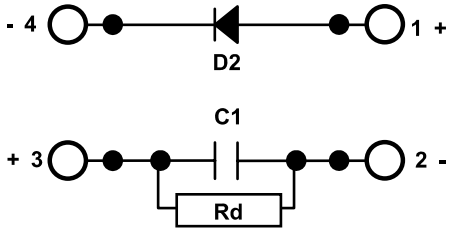
Red wires must be as short as possible

Fig. 2 LOW SIDE WIRING DIAGRAM (Load connected to "+")



Red wires must be as short as possible

Fig. 3 INTERNAL DIAGRAM



GENERAL CHARACTERISTICS

	CHARACTERISTIC	LABEL	VALUE	INFO.
POWER CIRCUIT	DC mains max voltage	Uemax	130VDC	
	Non repetitive peak voltage	Uep	200V	
	Max voltage rise	dUe/dt	125V/µs	Ue=Uep
	Max nominal current	Ie max	80A	
	Power output/case insulation	Uimp	4kV	
	Isolation resistance	Rio	1GΩ	
	Isolation capacitance	Cio	<8pF	
	Storage ambient temperature	Tstg	-40°C -> +100°C	
	Operating ambient temperature	Tamb	-40°C -> +90°C	
	Max. case temperature	Tc	100°C	

LINE CIRCUIT CHARACTERISTICS (C1 & Rd)

	CHARACTERISTIC	LABEL	VALUE	INFO.
LINE CIRCUIT	Decoupling capacitor	C1	4.4µF ±20%	
	Technology		Polyester	
	Discharging resistor	Rd	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		@Ie=80A see fig. 4
	Instantaneous power dissipation	P_{D2}	0.96 + 0.003 x Ie		
	Max nominal average current	I_{D2av} (IFav)	80A		
	Max repetitive peak overload current	I_{D2peak} (IFRM)	500A		Tpulse=25µs
	Max non repetitive peak overload current	I_{D2peak} (IFSM)	1000A		Tpulse=25µs
	Max leakage current	$-I_{D2}$ (IR)	0.1mA @ Tj=25°C	17mA @ Tj=Tjmax	@Uep @Tjmax
	Recovering time	trr	190ns		I_{D2}=1A,di/dt=50A/µs, Tc=25°C
	Junction/case thermal resistance	Rthjc	0.35K/W		
	Housing thermal resistance vertically mounted	Rthra	10K/W		@ΔTra=75°C
	Housing thermal time constant	Tthra	10 minutes		@ΔTra=60°C
	Maximum junction temperature	Tjmax	125°C		

OUTPUT CHARACTERISTIC CURVES

Fig. 4 VOLTAGE DROP VS CURRENT (DIODE D2 DURING FLY WHEEL)

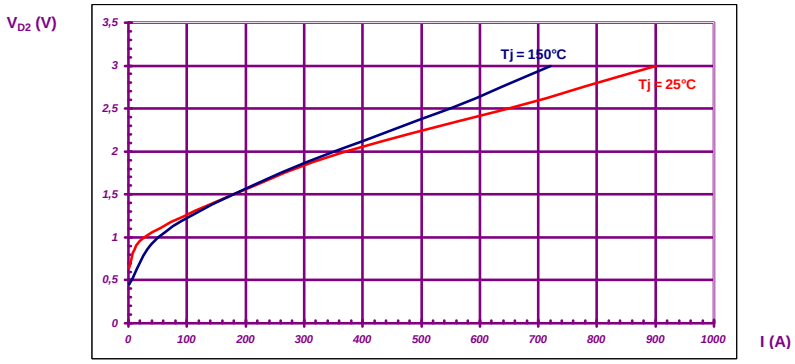


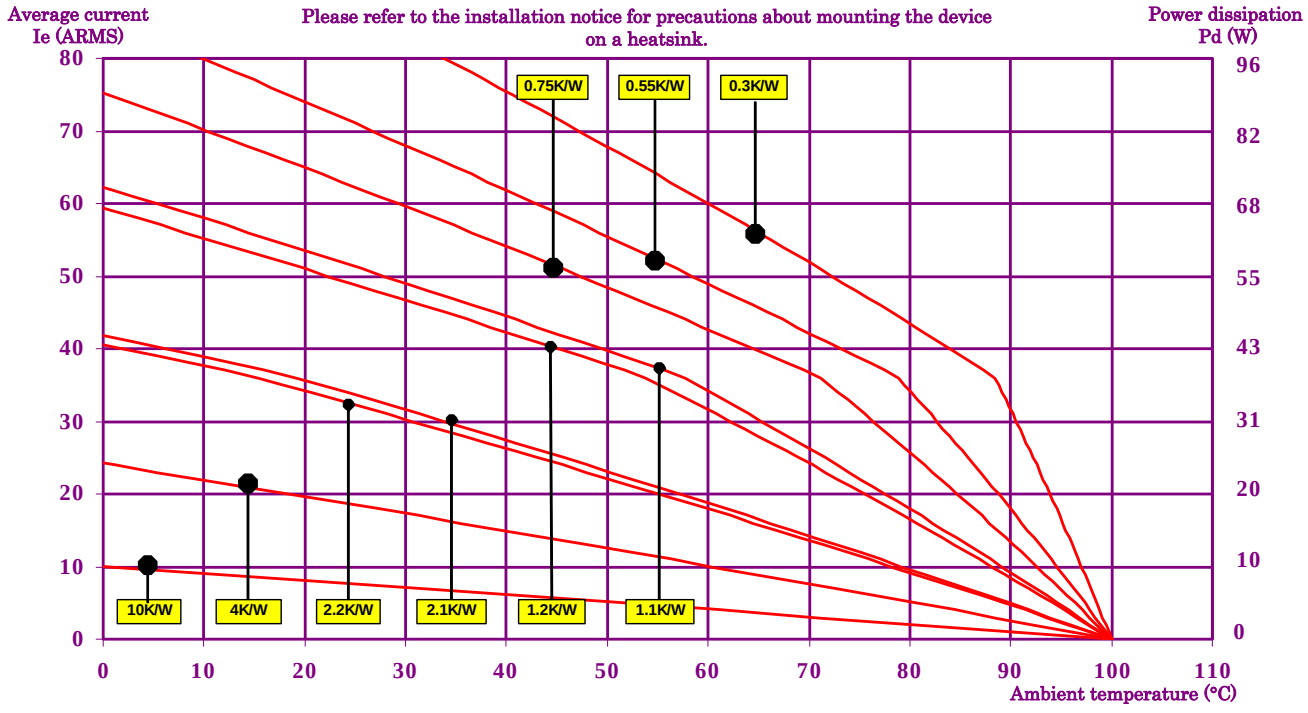
Fig. 5 THERMAL IMPEDANCE (DIODE D2)

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

GENERAL INFORMATION

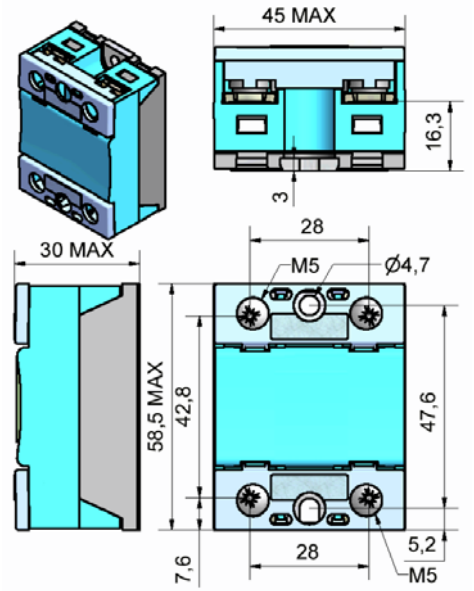
GENERAL INFORMATION	Mounting		2 screws (M4x12mm ; tightening = 1.2N.m)	See mounting sheet
	Screwdriver for connections		POZIDRIV2	
	tightening torque for connections		2 N.m	
	Insulated crimp terminals (round tabs, eyelet type)		M5	
	Display		Green LED (load supplied)	
	Housing		UL94V0	
	Weight		80g	

STANDARDS

STAN-DARDS	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...)

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