



PRELIMINARY DATA

**MOSFET BASED
DC SOLID-STATE RELAY**

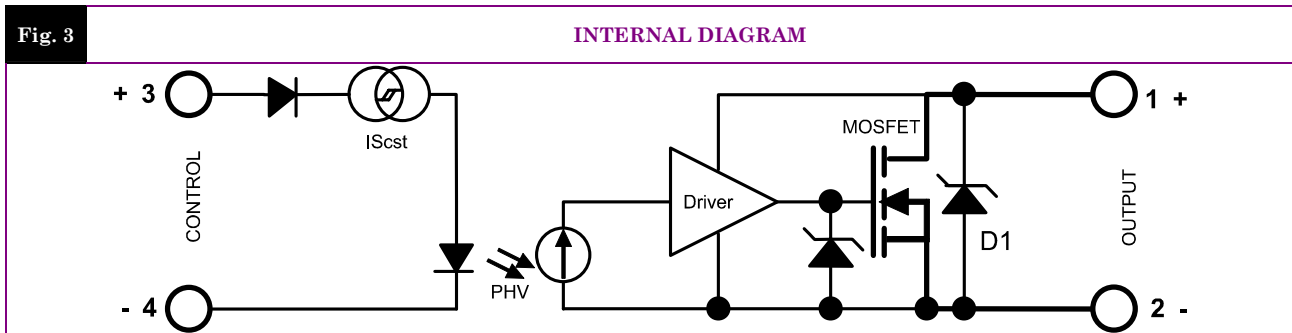
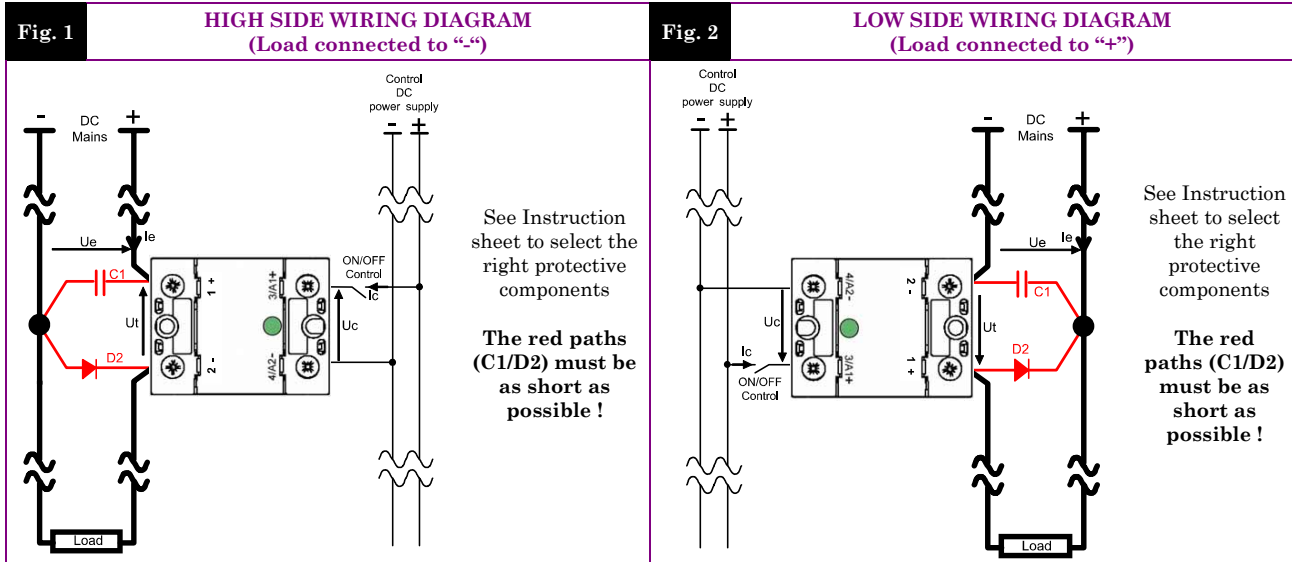
- ▶ Latest MOSFET technology generation.
- ▶ Ultra low on-state resistance.
- ▶ Low output leakage current.
- ▶ Low control current consumption.
- ▶ Built-in overvoltage protection
- ▶ Reverse protected triggered control input to avoid linear control risks
- ▶ No radiated or conducted disturbances
- ▶ Touch protected housing IP20

SOM020100



Control voltage range	3.5-32VDC
Max. permanent output voltage	60VDC
Max. load current with heatsink	20ADC

Load voltage range	Load current range	Control input voltage range	In & case / Out Insulation	Connexions	Dimensions (WxHxD)	Weight
5-60VDC	Up to 20A (with heatsink)	3.5-32VDC	2.5kV	Screw terminals	45 x 58.5 x 30	80g



Proud to serve you

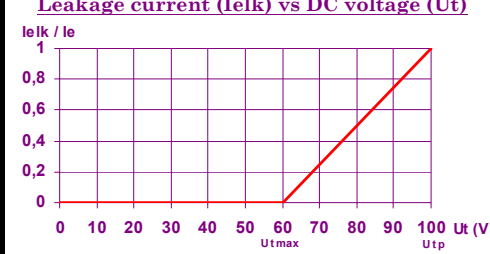
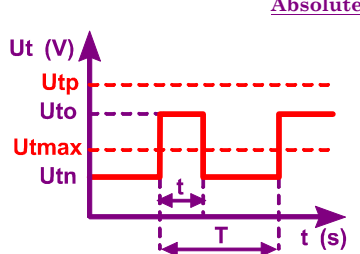
CONTROL INPUT CHARACTERISTICS

INPUT CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Nom. Control voltage	Uenom	12-24VDC	
	Min. Control current	Iemin	35mADC	-100µA/°C
	Control voltage range	Uc	3.5 – 32VDC	typical ON=3.3V
	Control current consumption	Ic	32 – 35mADC (for control voltage range)	See fig. 5
	Releasing control voltage	Ucoffmax	1VDC	typical OFF= 2.6V
	Max. reverse control voltage	-Ucmax	32VDC	-Iemax<100µA
Input impedance	Rin	Current limitation	See fig. 5	

POWER OUTPUT CHARACTERISTICS

POWER CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Nominal voltage	Uenom	48VDC	
	Voltage range	Ut Ue	5-60VDC	
	Non-repetitive peak voltage	Utp	100V	
	Overvoltage protection	D1	Transient voltage suppressor 56V (1500W/1ms)	
	Max reverse voltage drop (internal diode at OFF state)	-Ut	1.3V	@Ie=50A @Uc=0
	Maximum nominal currents	Ie max	Resistive 20A	Motor Please contact us
	Non-repetitive peak overload current	Id max	200A	See fig. 8
	Min. load current	Iemin	5mA	
	Max. leakage current	Ielk max	3mA	@Utrax @Tjmax
	Max. on-state resistance	RDSon	56mΩ	@Iemax @Tjmax
	Typ. output capacitance	Cout	0.3nF	
	Junction/case thermal resistance per power element	Rthjc	1.4K/W	
	Built-in heatsink thermal resistance vertically mounted	Rthra	10K/W	@ΔTra=75°C
	Heatsink thermal time constant	Tthra	10 minutes	@ΔTra=55°C
	Control inputs/power outputs insulation voltage	Uimp	2.5kV	
	Inputs/case insulation voltage	Uimp	2.5kV	
	Outputs/case insulation voltage	Uimp	2.5kV	
	Isolation resistance	Rio	1GΩ	
	Isolation capacitance	Cio	<8pF	
	Maximum junction temperature	Tjmax	175°C	
	Storage ambient temperature	Tstg	-40->+100°C	
	Operating ambient temperature	Tamb	-25->+90°C	See fig. 7
Max. case temperature	Tc	100°C		

PROTECTION CHARACTERISTICS

PROTECTION	Leakage current (Ielk) vs DC voltage (Ut)	Absolute limits
		
<p>Ielk : Leakage current of the relay Ie : User load nominal current Utp : Relay max. non repetitive peak voltage</p>	<p>Utrax : Max. nominal voltage of the relay Uto : Possible overvoltage above Utrax Utn = Ue : User DC power supply voltage</p>	
	<p>t : Overvoltage duration T : Time between 2 overvoltage</p>	

$$U_{to} < U_{tp}$$

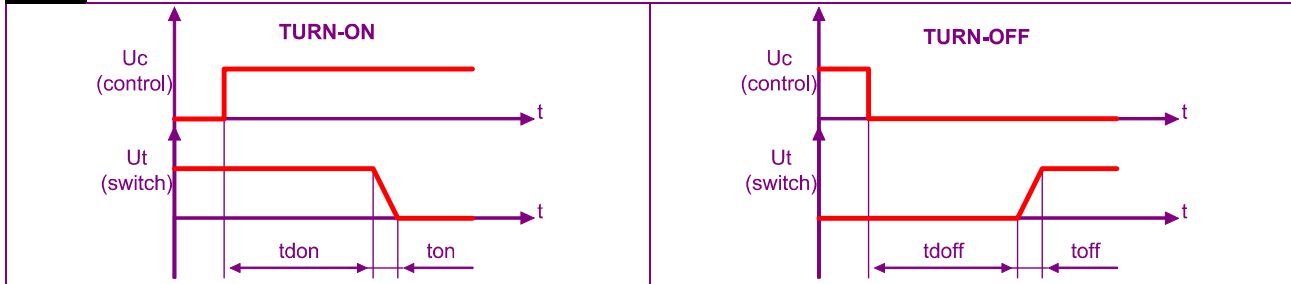
$$t_{max} = \frac{0.75}{(U_{to} - U_{tmax}) \times I_e}$$

$$\frac{P_{(protection)} = 1W_{max}}{\Rightarrow \frac{(U_{to} - U_{tmax}) \times I_e \times t}{T} \leq 1}$$

TIME CHARACTERISTICS

Fig. 4

TIME DIAGRAMS



TIME CHARACT.	CHARACTERISTIC	LABEL	VALUE	INFO.
	Turn on time	ton	20µs	
	Turn on delay	tdon	20µs	
	Turn off time	toff	20µs	
	Turn off delay	tdoff	20µs	
Max. On-Off frequency	F_(on-off)	>1000Hz (for high frequency, take 2 x Ie to calculate the heatsink; the protections must be chosen carefully)		Refer to the instruction sheet

GENERAL INFORMATION

CONNECTIONS	Connections	Power	Control		
	Screwdriver advised	POZIDRIV2			
	Min and max tightening torque	2 N.m	1.2 N.m		
	Insulated crimp terminals (round tabs, eyelet type)	M5	M4		
MISC.	Display	Green LED (indicates relay has switched ON)			
	Housing	UL94V0			
	Mounting	2 screws (M4x12mm ; tightening = 1.2N.m)			See mounting sheet
	Noise level	None			
	Weight	80g			

STANDARDS

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

E.M.C. IMMUNITY	TYPE OF TEST	STANDARD	LEVEL	EFFECT
	E.S.D. (Electrostatic discharges)	EN61000-4-2	Pending	?
	Radiated electromagnetic fields	EN61000-4-3	Pending	?
	Fast transients bursts	EN61000-4-4	Pending	?
	Electric chocks	EN61000-4-5	Pending	?
Voltage drop	EN61000-4-11	-		

E.M.C. EMISSION	Radiated and conducted disturbances	NFEN55011	Pending	
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CHARACTERISTIC CURVES

Fig. 5 INPUT CHARACTERISTIC

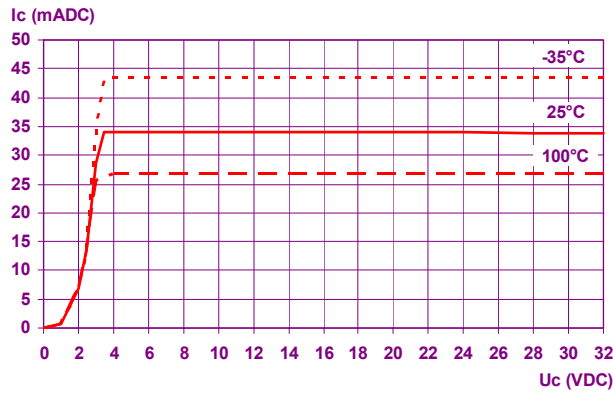


Fig. 6 ON RESISTANCE VS JUNCTION TEMPERATURE

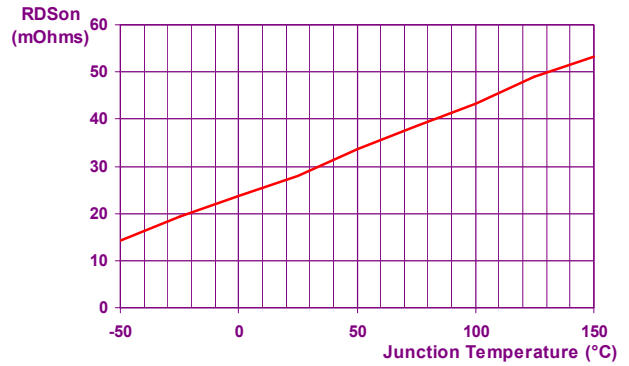
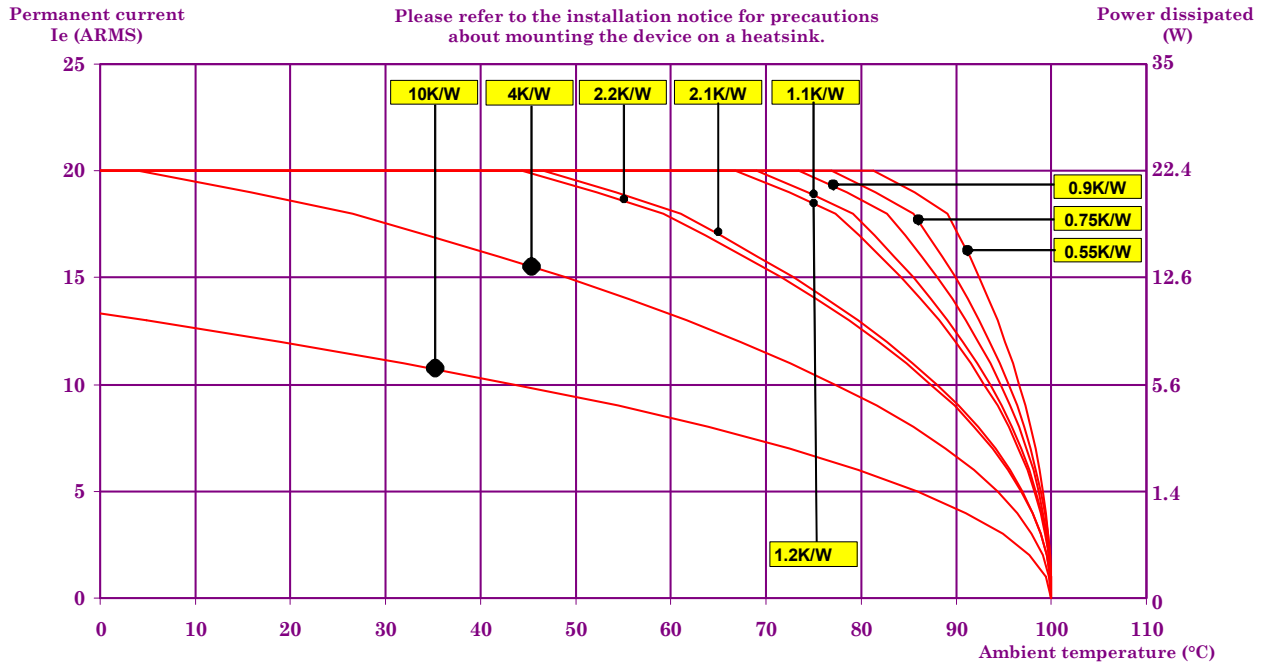
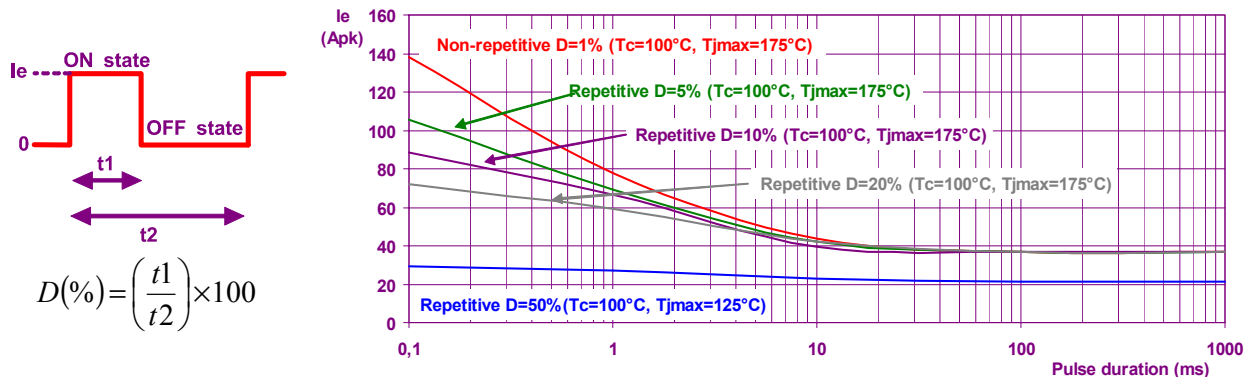


Fig. 7 POWER DISSIPATED AND LOAD CURRENT LIMIT VS TEMPERATURE



10K/W = No Heatsink	4K/W = 150x150x3mm aluminium sheet	2.2K/W = WF262100	2.2K/W = WF151200
2.1K/W = WF210000	1.2K/W = WF121000	1.1K/W = WF131100	0.9K/W = WF115100
0.75K/W = WF070000	0.55K/W = WF050000		

Fig. 8 PEAK OVERLOAD CURRENT vs. PULSE DURATION CHARACTERISTIC





DIMENSIONS AND ACCESSORIES

Fig. 9

DIMENSIONS (mm)

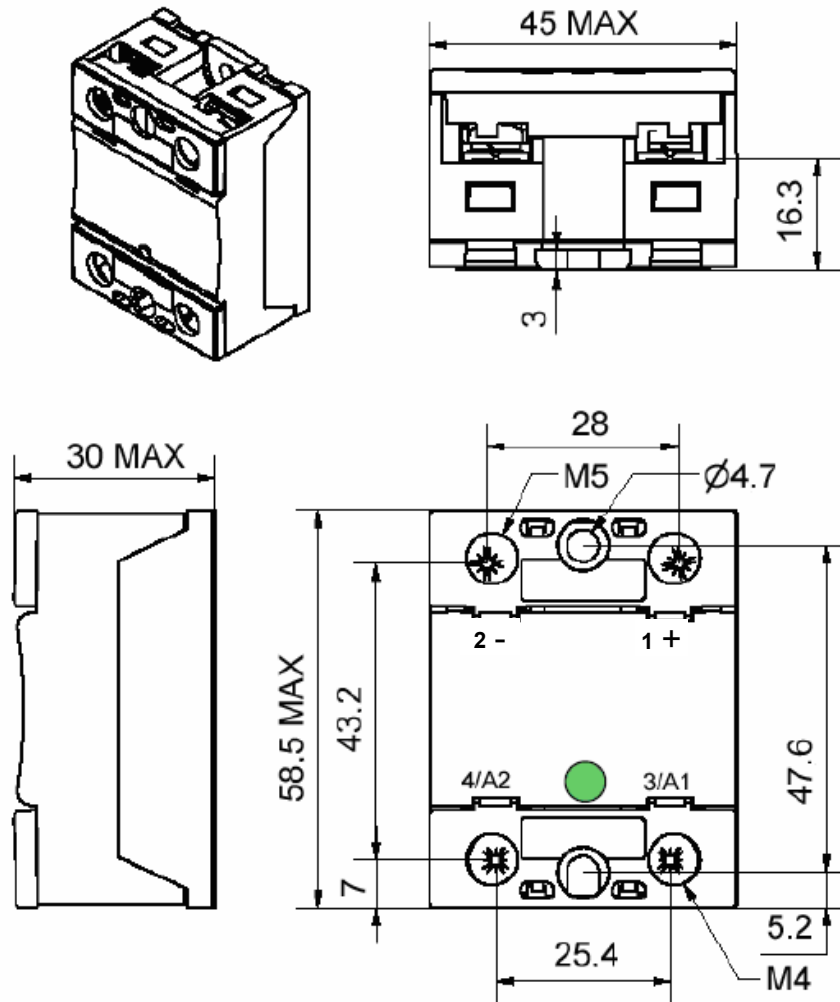


Fig. 10

ACCESSORIES

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