



**PRELIMINARY DATA**

**MOSFET BASED  
DC SOLID-STATE RELAY**

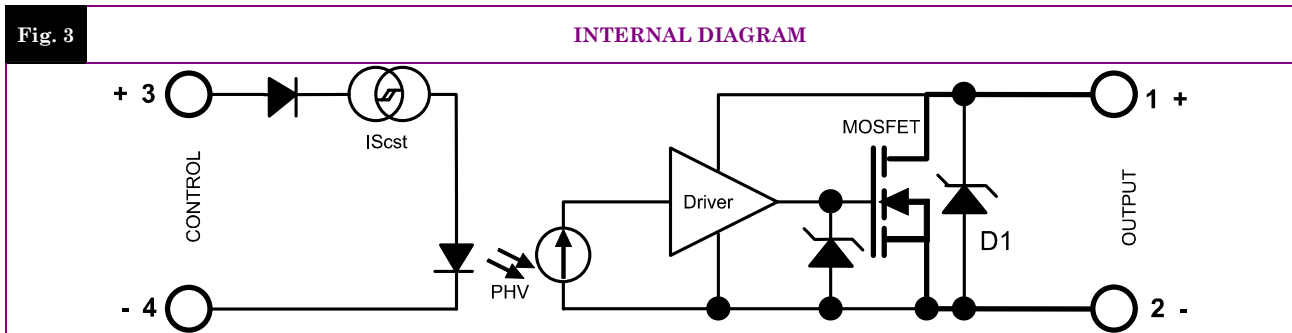
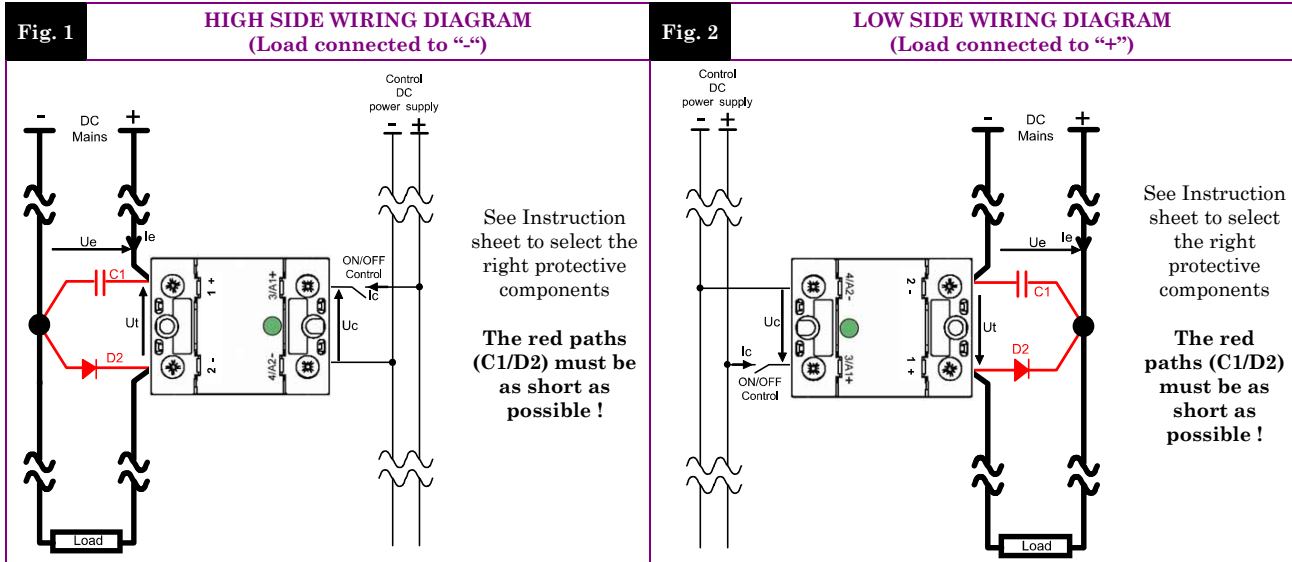
- ▶ Latest MOSFET technology generation.
- ▶ Ultra low on-state resistance.
- ▶ Low output leakage current.
- ▶ Low control current consumption.
- ▶ Built-in overvoltage protection
- ▶ Reverse protected triggered control input to avoid linear control risks
- ▶ No radiated or conducted disturbances
-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

**SOM040100**



Control voltage range	<b>3.5-32VDC</b>
Max. permanent output voltage	<b>60VDC</b>
Max. load current with heatsink	<b>40ADC</b>

Load voltage range	Load current range	Control input voltage range	In & case / Out Insulation	Connections	Dimensions (WxHxD)	Weight
5-60VDC	Up to 40A (with heatsink)	3.5-32VDC	2.5kV	Screw terminals	45 x 58.5 x 30	80g



*Proud to serve you*

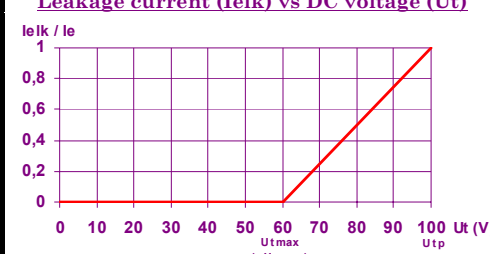
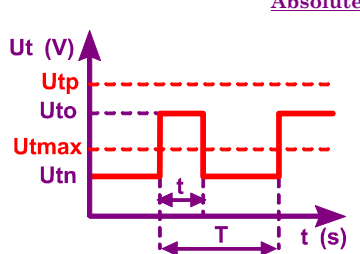
**CONTROL INPUT CHARACTERISTICS**

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

**POWER OUTPUT CHARACTERISTICS**

POWER CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Nominal voltage	<b>Uenom</b>	48VDC	
	Voltage range	<b>Ut</b>   <b>Ue</b>	5-60VDC	
	Non-repetitive peak voltage	<b>Utp</b>	100V	
	Overvoltage protection	<b>D1</b>	Transient voltage suppressor 56V (1500W/1ms)	
	Max reverse voltage drop (internal diode at OFF state)	<b>-Ut</b>	1.3V	@Ie=80A @Uc=0
	Maximum nominal currents	<b>Ie max</b>	<b>Resistive</b> 40A	<b>Motor</b> Please contact us
	Non-repetitive peak overload current	<b>Id max</b>	320A	<b>See fig. 8</b>
	Min. load current	<b>Iemin</b>	5mA	
	Max. leakage current	<b>Ielk max</b>	3mA	@Utrmax @Tjmax
	Max. on-state resistance	<b>RDSon</b>	30mOhms	@Iemax @Tjmax
	Typ. output capacitance	<b>Cout</b>	0.7nF	
	Junction/case thermal resistance per power element	<b>Rthjc</b>	0.9K/W	
	Built-in heatsink thermal resistance vertically mounted	<b>Rthra</b>	10K/W	@ΔTra=75°C
	Heatsink thermal time constant	<b>Tthra</b>	10 minutes	@ΔTra=75°C
	Control inputs/power outputs insulation voltage	<b>Uimp</b>	2.5kV	
	Inputs/case insulation voltage	<b>Uimp</b>	2.5kV	
	Outputs/case insulation voltage	<b>Uimp</b>	2.5kV	
	Isolation resistance	<b>Rio</b>	1GΩ	
	Isolation capacitance	<b>Cio</b>	<8pF	
	Maximum junction temperature	<b>Tjmax</b>	175°C	
	Storage ambient temperature	<b>Tstg</b>	-40->+100°C	
	Operating ambient temperature	<b>Tamb</b>	-25->+90°C	<b>See fig. 7</b>
	Max. case temperature	<b>Tc</b>	100°C	

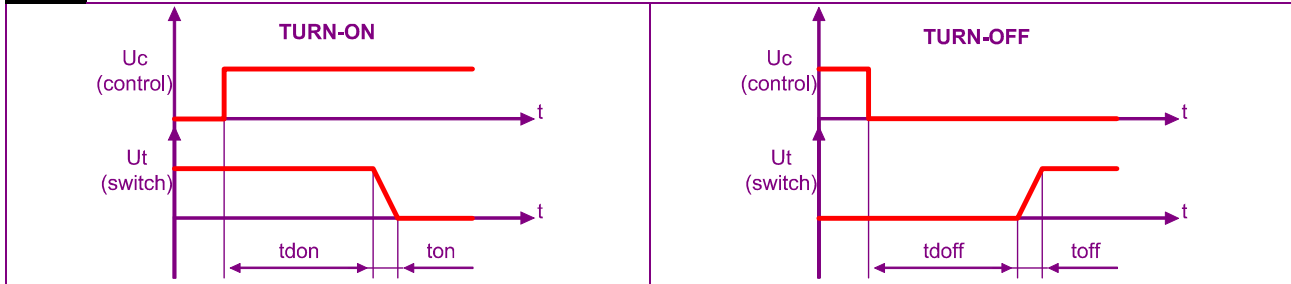
**PROTECTION CHARACTERISTICS**

PROTECTION	Leakage current (Ielk) vs DC voltage (Ut)	Absolute limits
	 <p><b>Ielk</b> : Leakage current of the relay  <b>Ie</b> : User load nominal current  <b>Utp</b> : Relay max. non repetitive peak voltage</p>	 <p><b>Uto &lt; Utp</b></p> $t_{max} = \frac{0.75}{(Uto - Ut_{max}) \times Ie}$ $\frac{P_{(protection)} = I W_{max}}{\Rightarrow \frac{(Uto - Ut_{max}) \times Ie \times t}{T} \leq 1}$ <p><b>t</b> : Overvoltage duration  <b>T</b> : Time between 2 overvoltage</p>

**TIME CHARACTERISTICS**

Fig. 4

TIME DIAGRAMS



TIME CHARACT.	CHARACTERISTIC	LABEL	VALUE	INFO.
	Turn on time	ton	20µs	Refer to the instruction sheet
	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)	

**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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PRELIMINARY DATA

CHARACTERISTIC CURVES

Fig. 5 INPUT CHARACTERISTIC

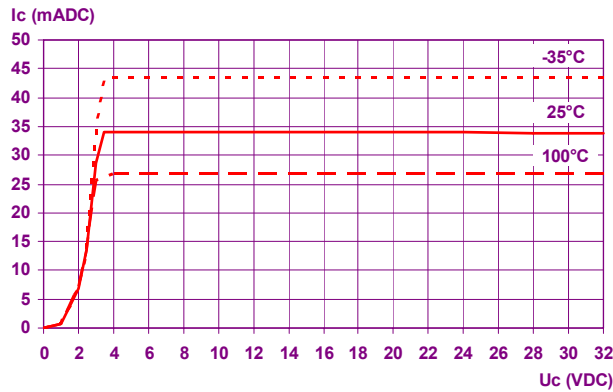


Fig. 6 ON RESISTANCE VS JUNCTION TEMPERATURE

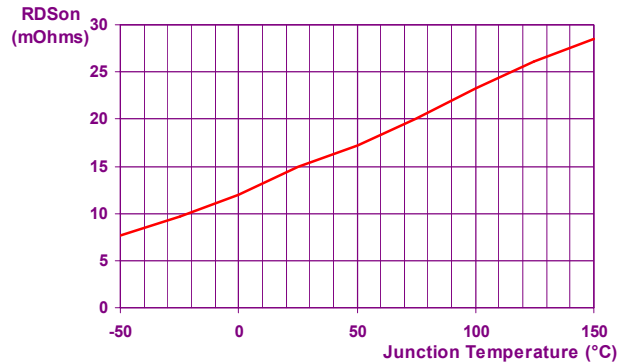


Fig. 7 POWER DISSIPATED AND LOAD CURRENT LIMIT VS TEMPERATURE

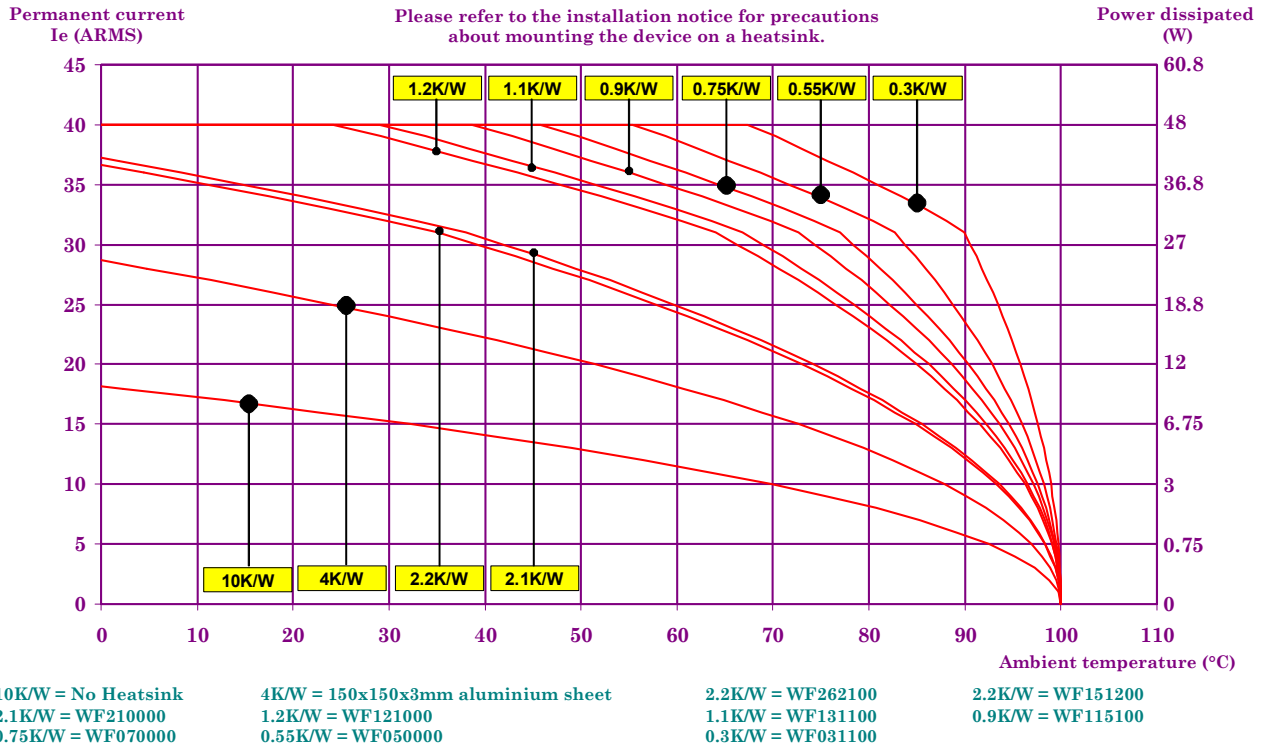
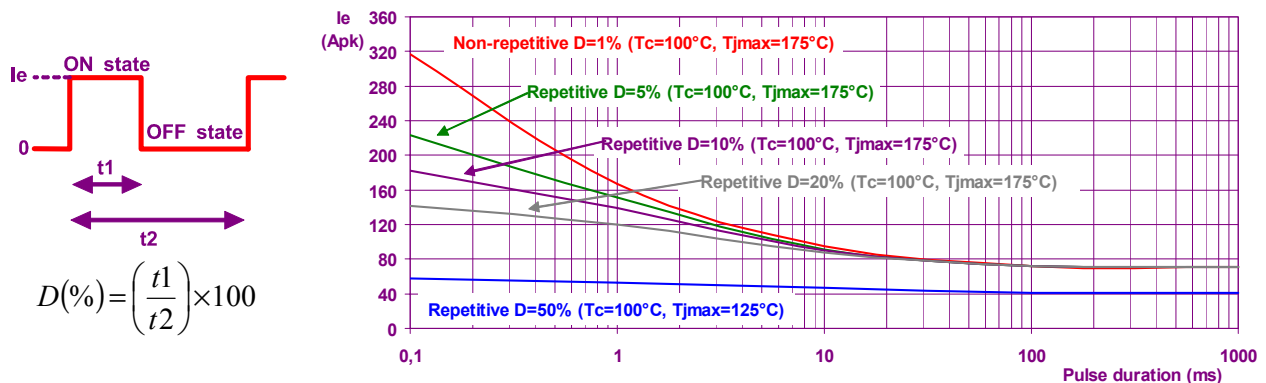


Fig. 8 PEAK OVERLOAD CURRENT vs. PULSE DURATION CHARACTERISTIC





**DIMENSIONS AND ACCESSORIES**

Fig. 9

DIMENSIONS (mm)

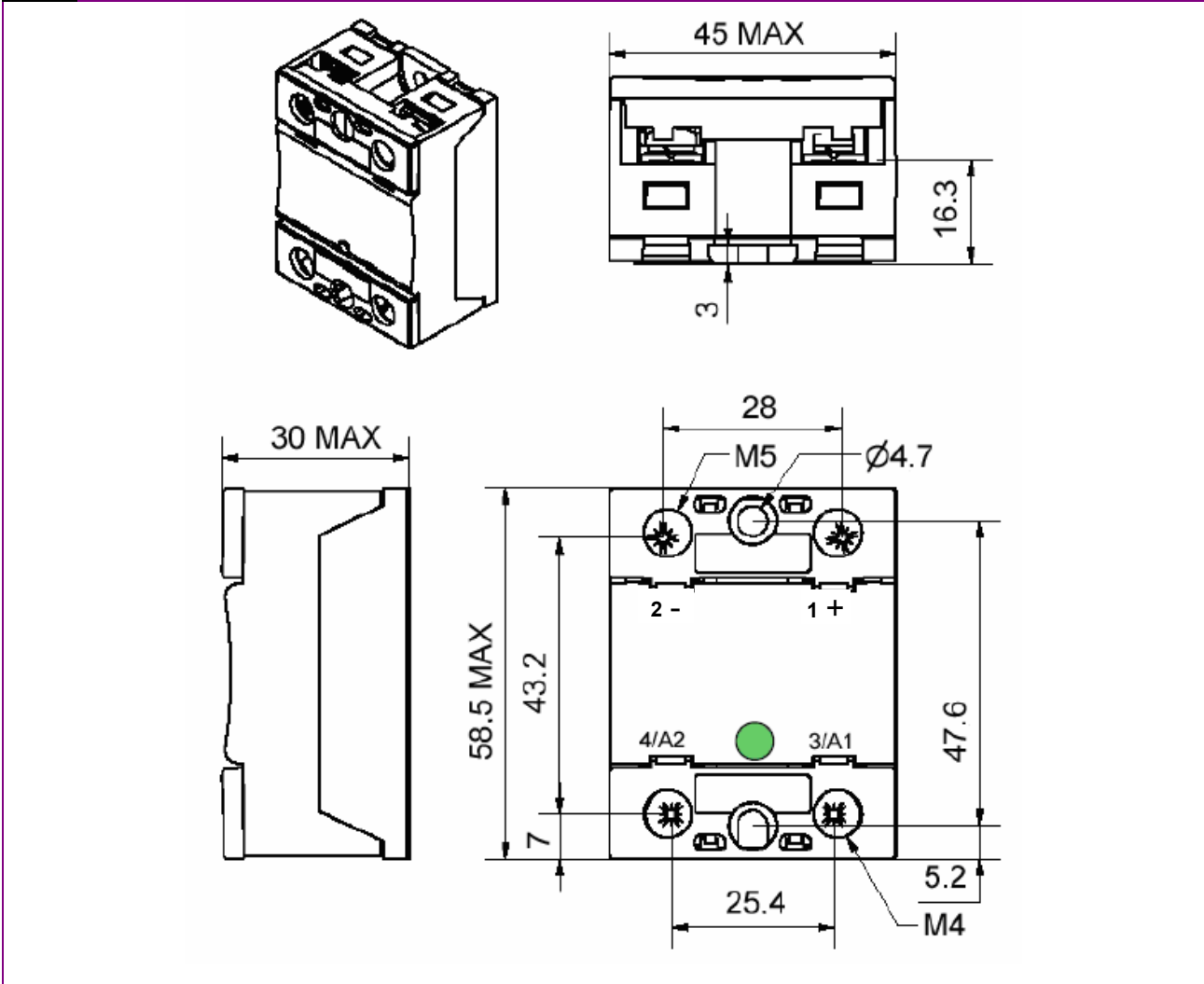


Fig. 10

ACCESSORIES

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