

SOLID STATE RELAIS FOR DC CURRENT WITH MOSFET

- Designed and approved for railway applications (EN 50155)
- For DIN RAIL mounting
- Latest MOSFET technology generation
- Ultra low voltage drop
- Built-in overvoltage protection
- Control display LED (green)
- Applications :
 - Traffic lights
 - Small motors, electromagnets, lights, heaters
 - Measurement products
 - ...
- Other control and output voltages on request



XKLD31006



Control voltage range	10-30VDC
Max output peak voltage	40V (clamp =60V)
Nom. Load current without heatsink	10ADC

Application voltages	Load current range	Control input voltage range	In & case / Out insulation	Connections	Dimensions (WxHxD in mm)	Weight
12-24-36VDC	0 to 10A	10-30VDC (12,7-30VDC for EN50155)	2.5kV	Screw terminals	12.2 x 76.4 x 53	30g

Fig. 1

HIGH SIDE WIRING DIAGRAM (Load connected to "-")

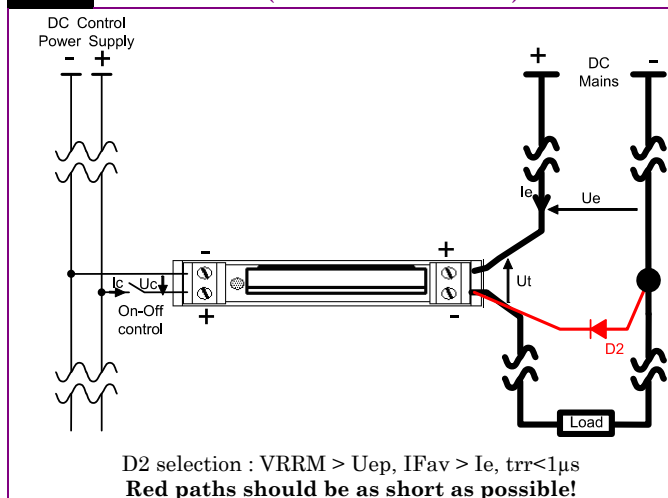


Fig. 2

LOW SIDE WIRING DIAGRAM (Load connected to "+")

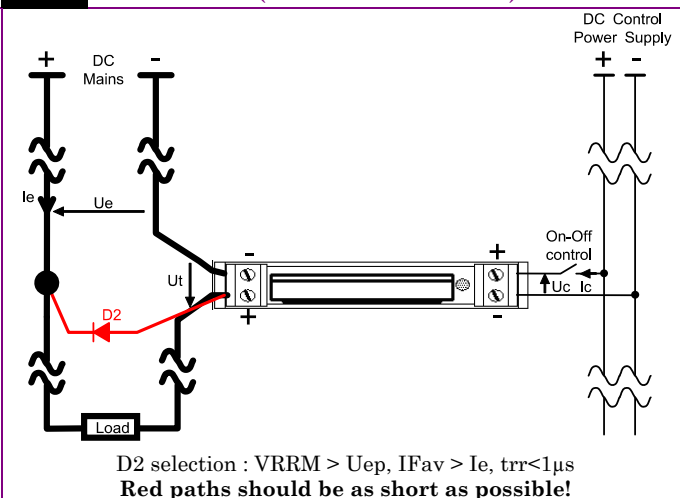
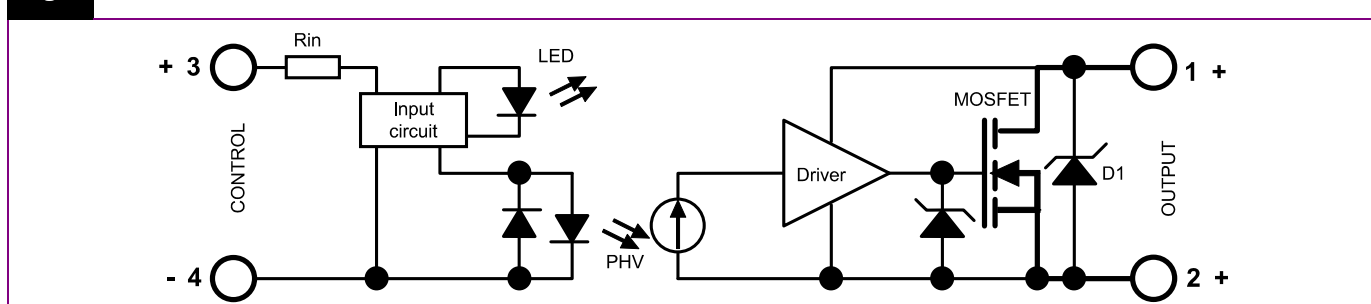


Fig. 3

INTERNAL DIAGRAM



Proud to serve you

Data given at Tambient=25°C and subject to modification without previous notice

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CONTROL INPUT CHARACTERISTICS

INPUT CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Nominal control voltage	Ucnom	12-24VDC	
	Nominal control current	Icnom	9-20mADC	
	Control voltage range	Uc	10-30VDC	
	Control voltage range	Uc	12,7 – 30VDC	For EN50155
	Current consumption	Ic	7-26mADC	See fig. 5
	Releasing voltage	Ucoffmax	1VDC	
	Max. reverse voltage	-Ucmax	30VDC	
	Input impedance	Rin	1000Ω	See fig. 5

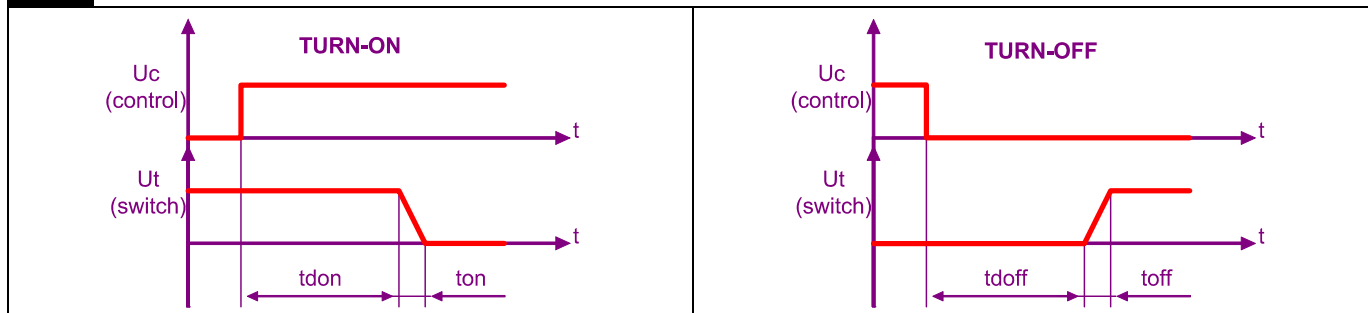
POWER OUTPUT CHARACTERISTICS

POWER CIRCUIT	CHARACTERISTIC	LABEL	VALUE		INFO.
	Mains Nominal voltage	Uenom	12-24-36VDC		
	Mains voltage range	Ue	10-40VDC		
	Non-repetitive peak voltage	Uep	60V		
	Overvoltage protection	D1	Pulse = 600W 1.2/50μs Permanent = 0.5W		
	Reverse voltage drop (internal diode)	-Ue	0.82VDC		@Ie=10A @Uc=0
	Maximum nominal currents	Ie	10A		See fig. 7 for limits
	Non-repetitive peak overload current	Iepeak	100A @10ms		See fig. 8
	Min. load current	Iemin	0.1mA		
	Max. leakage current	Ielk	0.1mADC		@Uep @Tjmax
	Max. on-state resistance	RDSon	14mΩ @Tj=25°C	22.4mΩ @Tj=125°C	@Iemax
	Typ. output capacitance	Cout	360pF		@1MHz @VDS=25V @Uc=0
	Junction/case thermal resistance per power element	Rthjc	1K/W		Total = 1 power elements
	Relay/ambient thermal resistance vertically mounted	Rthra	22K/W		@ΔTra=60°C
	Relay thermal time constant	Tthra	2min		@ΔTra=60°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
	Operating ambient temperature	Tamb	-25->+70°C (OT3)		For EN50155 (See fig. 7)
	Max. case temperature	Tc	100°C		

TIME CHARACTERISTICS

Fig. 4

TIME DIAGRAM



TIME CHARACT.	CHARACTERISTIC	LABEL	VALUE	INFO.
	Turn on time	ton	1μs	
	Turn on delay	tdon	10μs	
	Turn off time	toff	10μs	
	Turn off delay	tdoff	150μs	
	Max. On-Off frequency	F_(on-off)	1 to 700Hz depending on the circuit configuration : please consult us	

GENERAL INFORMATION

MISC.	Display LED (control)		Green	
	Housing		UL94V0	
	Mounting		DIN RAIL	
	Noise level		No audible noise	
	Weight		30g	

STANDARDS

GENERAL	Standards		IEC60947-1	
	Railway application		EN 50155 – 06/2022	
	Protection level		IP00	
	Protection against direct touch		None	
	CE marking		Yes	
	UL, cULUS and VDE approvals		-	
	Shocks and vibration		EN 61373 – 04/2011	

E.M.C IMMUNITY	TYPE OF TEST	STANDARD	LEVEL	EFFECT
	E.S.D. (Electrostatic discharges)	EN61000-4-2	Criteria B	
	Radiated electromagnetic fields	EN61000-4-3	Criteria A	
	Fast transients bursts	EN61000-4-4	Criteria A	
	Electric chocks	EN61000-4-5	Criteria B	
	Conducted radio frequency immunity	EN61000-4-6	Criteria A	

E.M.C. EMISSION	Conducted emission	EN55016-2-1	OK	
	Radiated emission	EN61000-6-4	OK	

CHARACTERISTIC CURVES

Fig. 5 INPUT CHARACTERISTIC

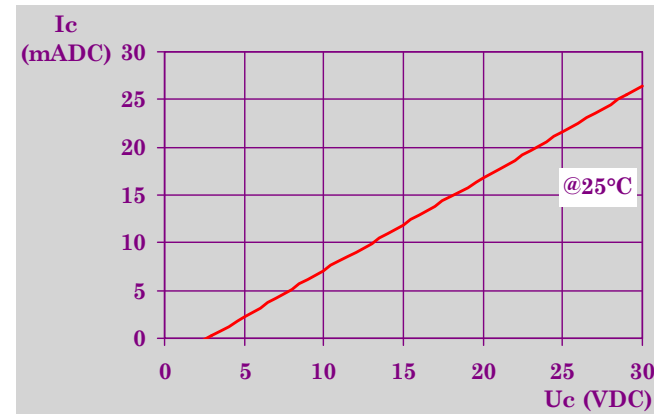


Fig. 6 ON-STATE VOLTAGE DROP VS TEMPERATURE

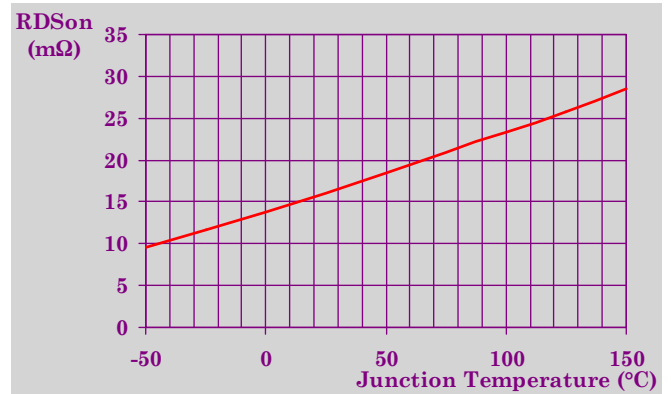


Fig. 7 LOAD CURRENT LIMIT VS TEMPERATURE

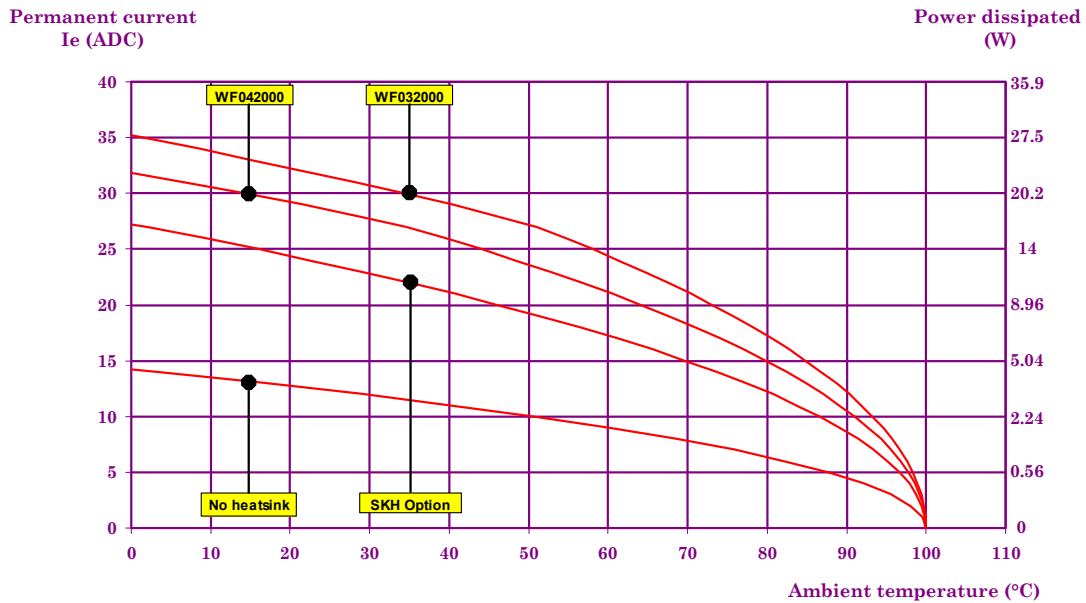
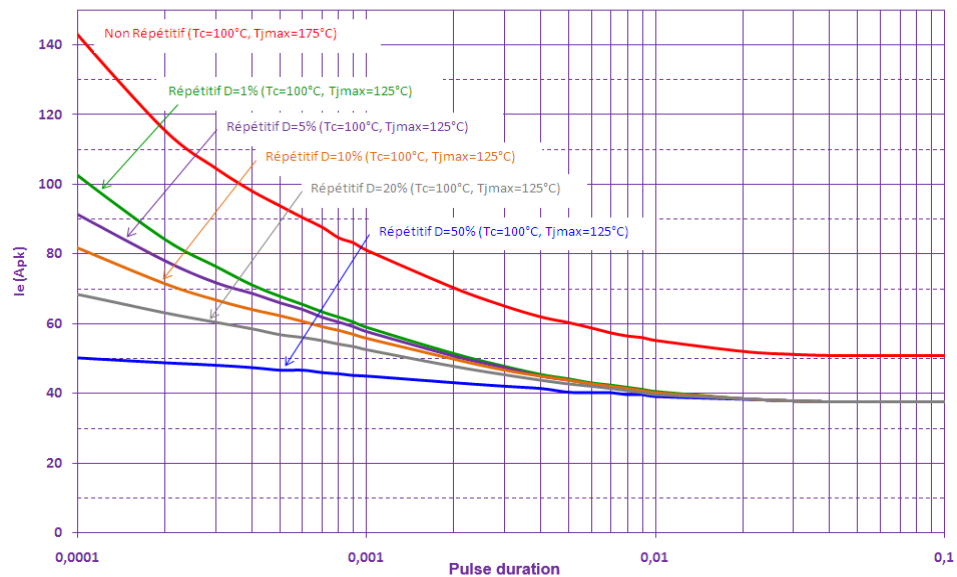


Fig. 8 CURRENT OVERLOAD CHARACTERISTIC (ITSM)



DIMENSIONS AND ACCESSORIES

Fig. 9

DIMENSIONS

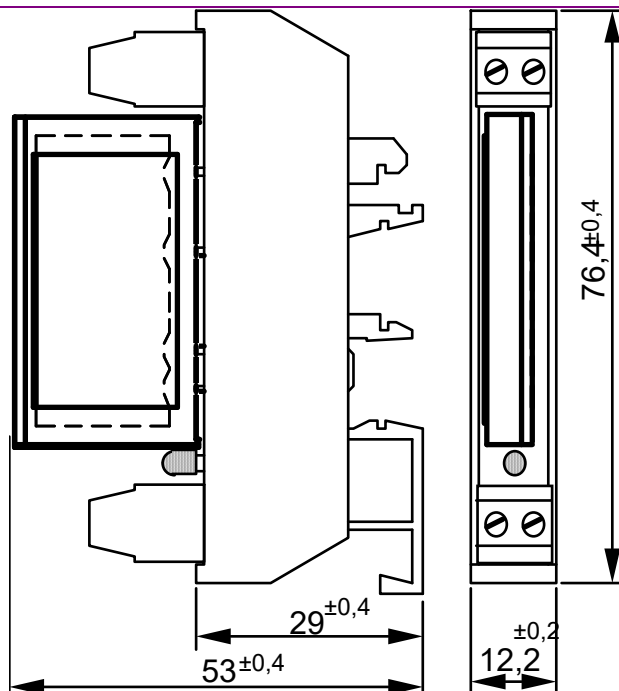


Fig.
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ACCESSORIES