

IGBT BASED DC SOLID-STATE RELAY



- ▶ Latest high voltage IGBT technology generation.
- ▶ New innovative isolated driver ensuring fast power transistor turn on and off therefore low power transient.
- ▶ Ultra low output leakage current
- ▶ Low control current consumption
- ▶ Triggered control input to avoid linear control risks
- ▶ Low conducted and radiated disturbances

SCI0501200



Control voltage range	4.5-32VDC
Max transient peak voltage	1200v
Advised max. DC Mains peak voltage	(Depends on protection clamping voltage)
Max. Load Current (with heatsink)	50ADC

DC Mains voltage range	Load current range	Control input voltage range	In & case / Out Insulation	Connections	Dimensions (WxHxD)	Weight
(Depends on protection clamping voltage)	0 to 50A (with heatsink)	4.5-32VDC	4kV	M3 round tabs M5 round tabs	44.5 x 58.2 x 27 (mm)	100g

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

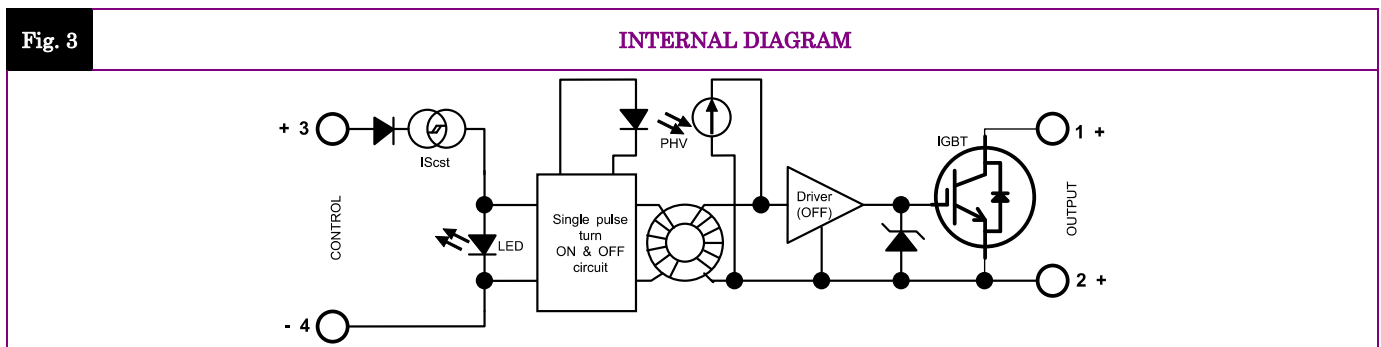
Please consult us to select the right protective components C1, D1 & D2.

The red paths (C1/D1/D2) must be as short as possible !

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

Please consult us to select the right protective components C1, D1 & D2.

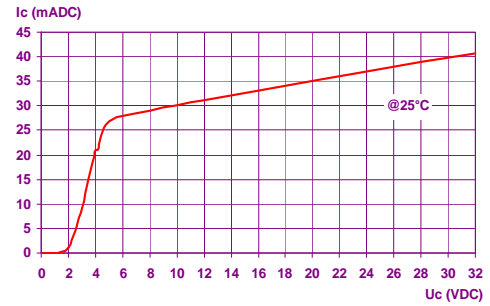
The red paths (C1/D1/D2) must be as short as possible !



Proud to serve you

CONTROL INPUT CHARACTERISTICS

INPUT CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.	Fig. 4 CONTROL CURRENT vs. CONTROL VOLTAGE
	Nom. Control voltage	U_{Cnom}	12-24VDC		
	Nom. Control current	I_{Cnom}	35mADC		
	Control voltage range	U_c	4.5 – 32VDC	typical=4.3V	
	Control current consumption	I_c	25 – 42mADC	See curve	
	Releasing control voltage	U_{Coffmax}	1VDC	Typical= 3.5V	
	Max. reverse control voltage	-U_{Cmax}	32VDC	-I _{Cmax} <100µA	
	Input impedance	R_{in}	Current limitation	See curve	



TIME CHARACTERISTICS

TIME CHARACT.	CHARACTERISTIC	LABEL	VALUE	Diagram	
	Turn on time	ton	10µs		
	Turn on delay	tdon	600µs		
	Turn off time	toff	50µs		
	Turn off delay	tdoff	100µs		
Max. On-Off frequency	F_(on-off)	200Hz			

POWER OUTPUT CHARACTERISTICS

POWER CIRCUIT	CHARACTERISTIC	LABEL	VALUE	INFO.
	Mains voltage range	U_t U_e	Min = VCEsat Max (Advised) = 650VDC	Depends on protection clamping voltage (D1)
	Non-repetitive peak voltage	U_{tp}	1200V	
	Overvoltage protection	D1	Not integrated A voltage clamping mean must be connected across the terminals 1 & 2 (see fig 1 & 2)	Please consult us to select the right protective components
	Off-state max reverse voltage drop (internal diode)	-U_t	1.4V	@I _e =50A
	Maximum nominal currents	I_{e max}	Resistive : 50A Motor : Please contact us	See fig. 9
	Max. non-repetitive non-switched peak current	I_{epeak}	320A	@T _c =100°C @T _j =175°C @U _{tp} (See fig. 8)
	Min. load current	I_{emin}	0mA	@T _j =25°C
	Max. leakage current	I_{elk max}	1mA	@U _{tp} @T _{jmax}
	Voltage drop : Resistance	r_t	9mΩ	@T _j =125°C
	Voltage drop : Voltage	v_t	0.8V	@T _j =125°C
	Max. on-state voltage (Vcesat = v _t + r _t . I _e)	VCEsat	1.5V @T _j =25°C 1.7V @T _j =125°C	@I _{emax}
	Typ. output capacitance	C_{out}	300pF	@U _{tp}
	Junction/case thermal resistance	R_{thjc}	0.365K/W	
	Built-in heatsink thermal resistance vertically mounted	R_{thra}	10K/W	@ΔT _{ra} =75°C
	Heatsink thermal time constant	T_{thra}	10 minutes	@ΔT _{ra} =60°C
	Control inputs / power outputs / case insulation voltage	U_{imp}	4kV	
	Isolation resistance / capacitance	R_{io} / C_{io}	1GΩ / <8pF	
	Maximum junction temperature	T_{jmax}	Steady state = 125°C Transient = 175°C	
	Storage ambient temperature	T_{stg}	-40->+100°C	
	Operating ambient temperature	T_{amb}	-40->+90°C	See fig. 9
	Max. case temperature	T_c	100°C	

OUTPUT SWITCH CHARACTERISTIC CURVES

Fig. 5 VOLTAGE DROP VS LOAD CURRENT

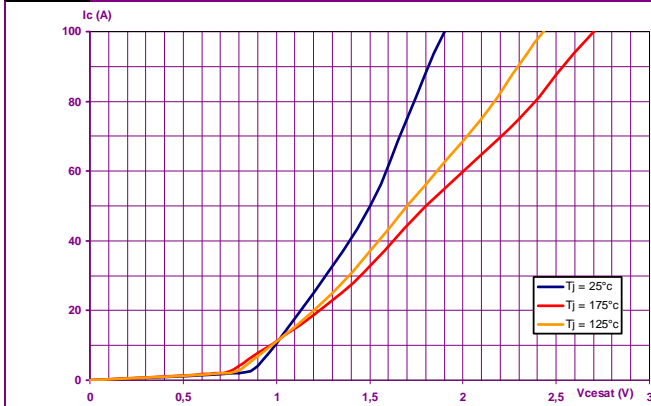


Fig. 6 REVERSE VOLTAGE DROP VS REVERSE CURRENT

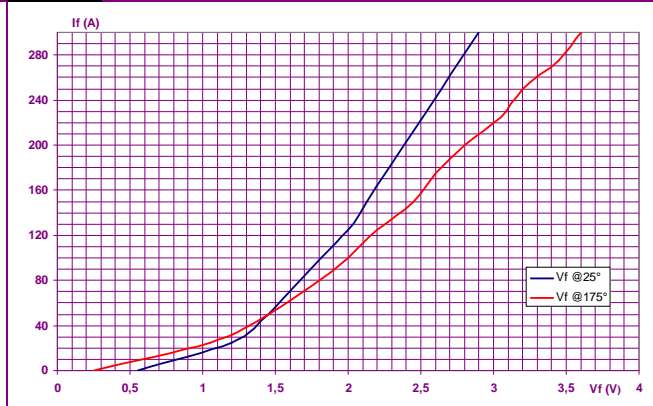


Fig. 7 POWER ELEMENT TRANSIENT THERMAL IMPEDANCE vs. PULSE DURATION

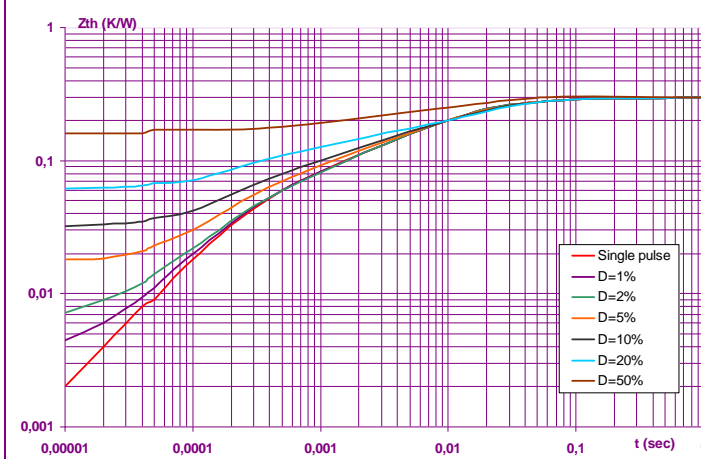


Fig. 8 ON-STATE PEAK OVERLOAD CURRENT vs. PULSE DURATION

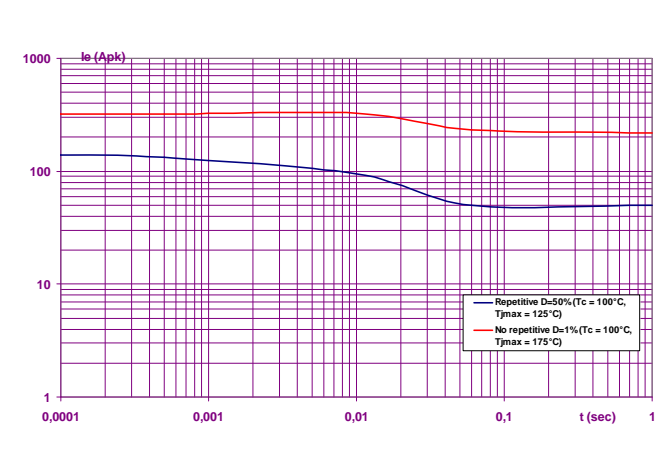
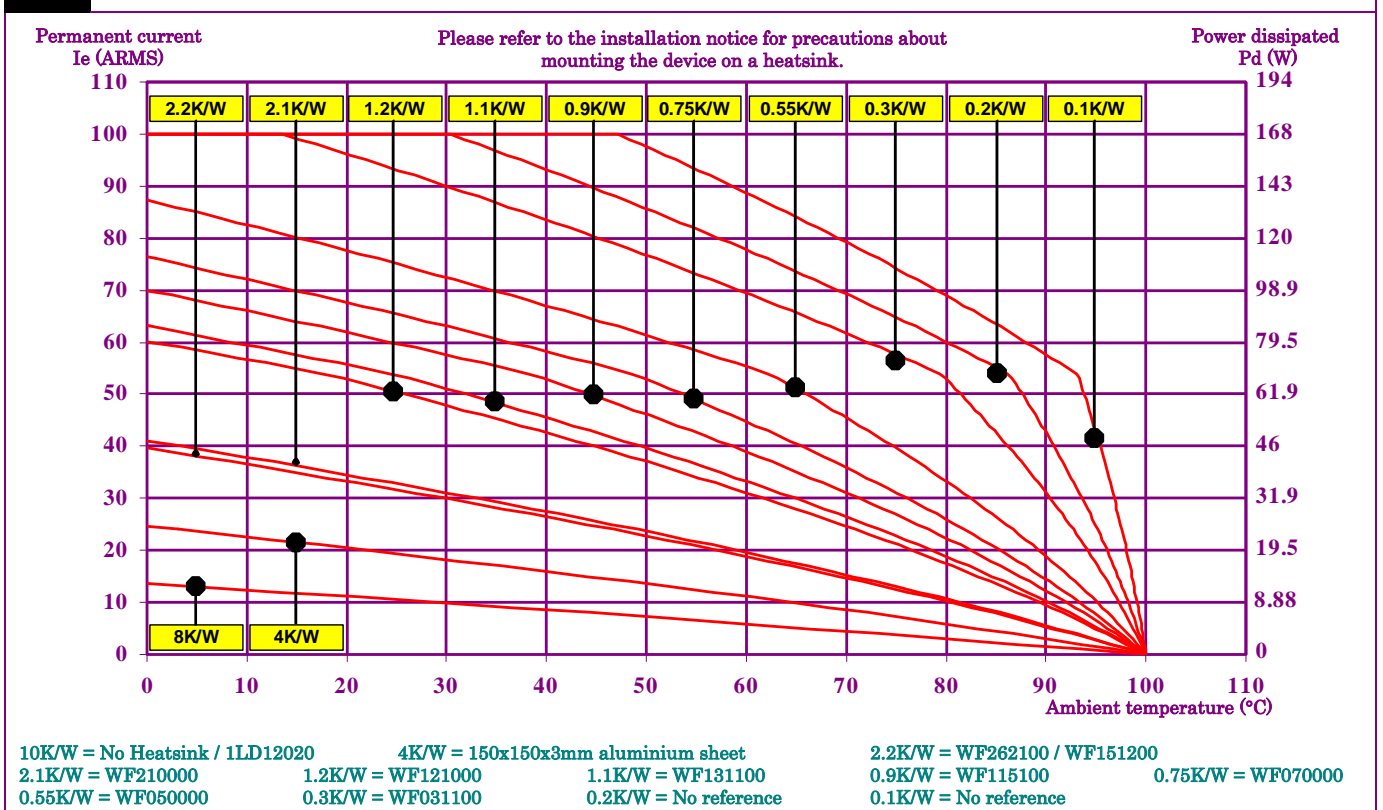


Fig. 9 POWER DISSIPATED AND LOAD CURRENT LIMIT VS TEMPERATURE



GENERAL INFORMATION

CONNECTIONS	Connections	Power	Control	
	Screwdriver advised	Philips™ NR2	Philips™ NR1	
	Min and max tightening torque	1.8 N.m	0.8 N.m	
	Insulated crimp terminals (round tabs, eyelet type)	M5	M3	
MISC.	Display	Green LED (indicates the power element is controlled)		
	Housing	UL94V0		
	Mounting	2 screws (M4x12mm)		See mounting sheet
	Noise level	No audible noise		
	Weight	100g		

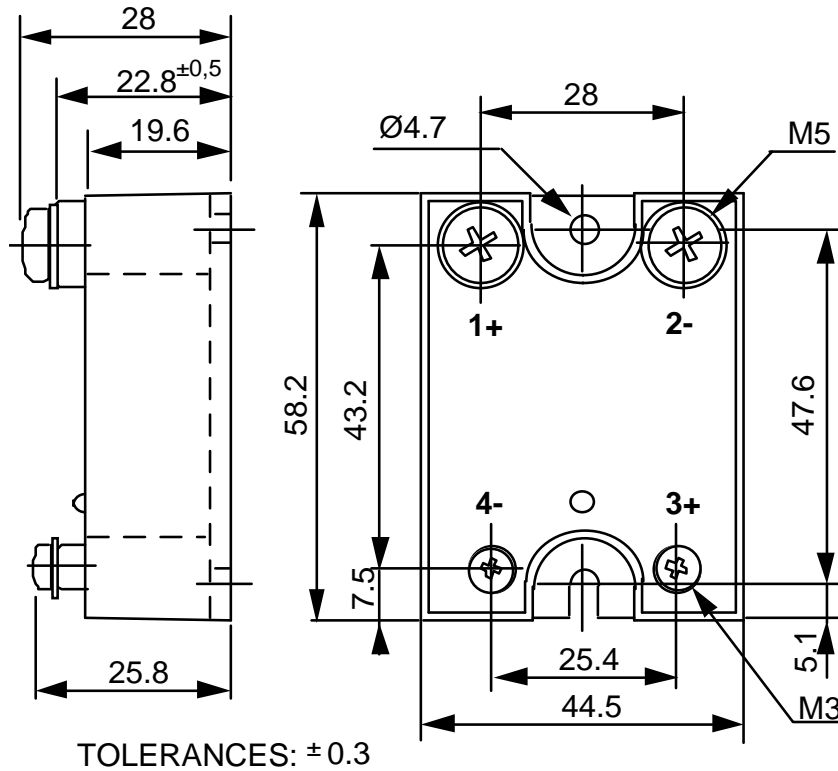
STANDARDS

GENERAL	Standards	IEC60947-1		
	Protection level	IP00		
	Protection against direct touch	None		
	CE marking	Yes		
	UL, cULUS	Yes		
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	No effect
	Electric chocks	EN61000-4-5	Pending	?
	Voltage drop	EN61000-4-11	-	
E.M.C. EMISSION	Radiated and conducted disturbances	NFEN55011	Pending	

DIMENSIONS AND ACCESSORIES

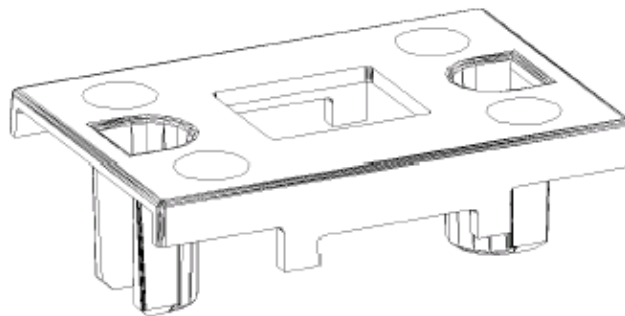
Fig. 10

DIMENSIONS (mm)



ACCESSORIES

PROTECTIVE COVER
1K470000



Please consult our website for other accessory references
(Heatsinks, mounting adaptors, thermal grease...)