



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 |

Fig. 1 HIGH SIDE WIRING DIAGRAM (Load connected to “-“) **Fig. 2 LOW SIDE WIRING DIAGRAM (Load connected to “+“)**

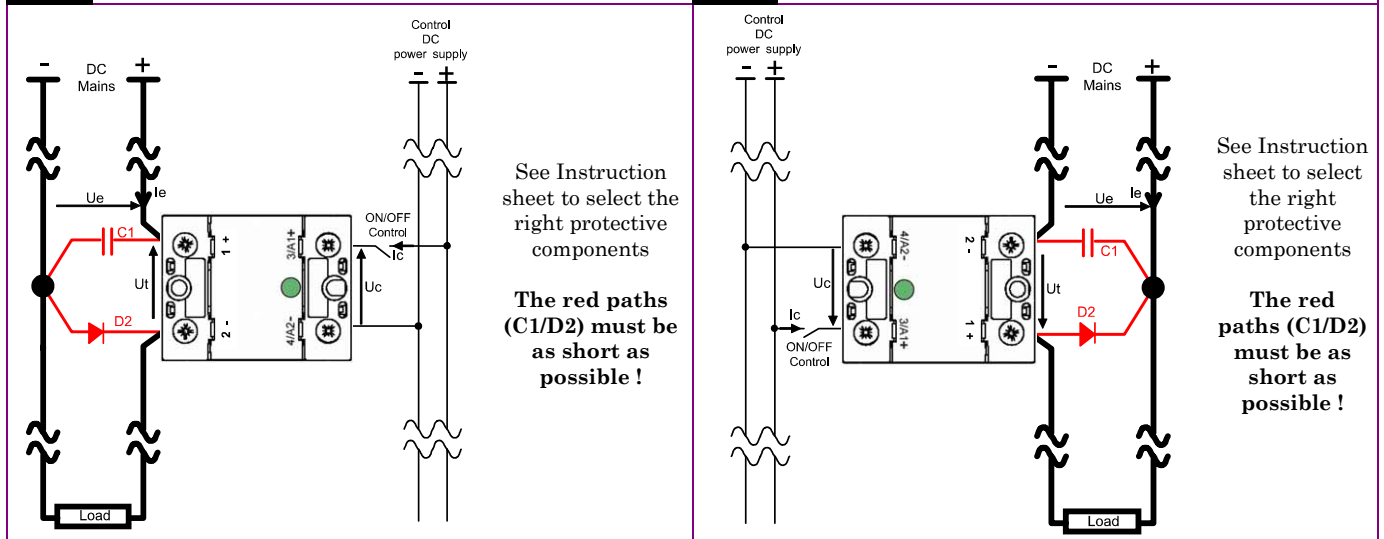
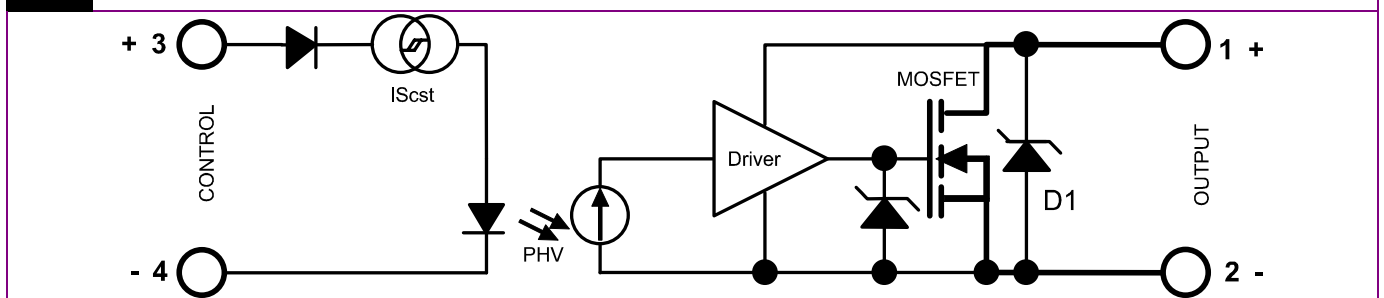


Fig. 3 INTERNAL DIAGRAM



Proud to serve you

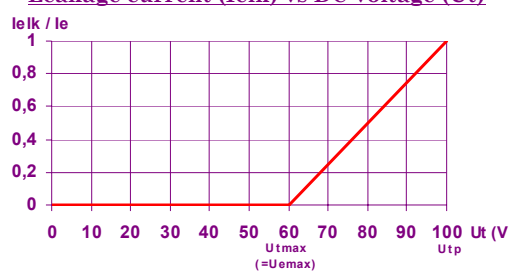
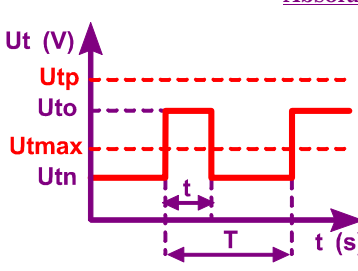
CONTROL INPUT CHARACTERISTICS

| INPUT CIRCUIT | CHARACTERISTIC | LABEL | VALUE | INFO. |
|---------------|------------------------------|-----------------|---|-------------------|
| | Nom. Control voltage | Ucnom | 12-24VDC | |
| | Min. Control current | Icmin | 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 | -Icmax<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 | See fig. 7 (limits) |
| | Non-repetitive peak overload current | Id max | 200A | | See fig. 8 |
| | Min. load current | Iemin | 5mA | | |
| | Max. leakage current | Ielk max | 3mA | | @Utmax @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 |
|------------|---|--|
| |  |  |

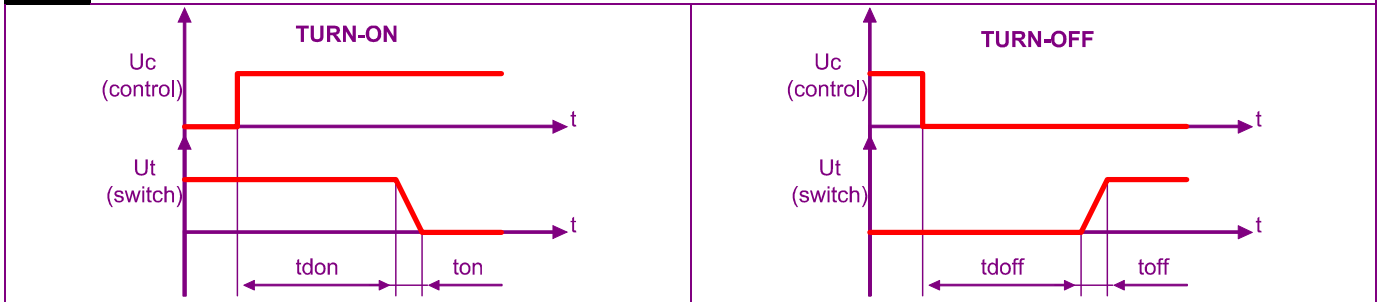
Ielk : Leakage current of the relay
Ie : User load nominal current
Utp : Relay max. non repetitive peak voltage
Utmax : Max. nominal voltage of the relay
Uto : Possible overvoltage above Utmax
Utn = Ue : User DC power supply voltage
t : Overvoltage duration
T : Time between 2 overvoltage



TIME CHARACTERISTICS

Fig. 4

TIME DIAGRAMS



| TIME CHARACTERISTIC | CHARACTERISTIC | LABEL | VALUE | INFO. |
|----------------------|-----------------------|-----------------------------|---|--------------------------------|
| TIME CHARACTERISTICS | 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 | |
|-----------------|-------------------------------------|-----------|---------|--|
|-----------------|-------------------------------------|-----------|---------|--|



CHARACTERISTIC CURVES

Fig. 5 INPUT CHARACTERISTIC

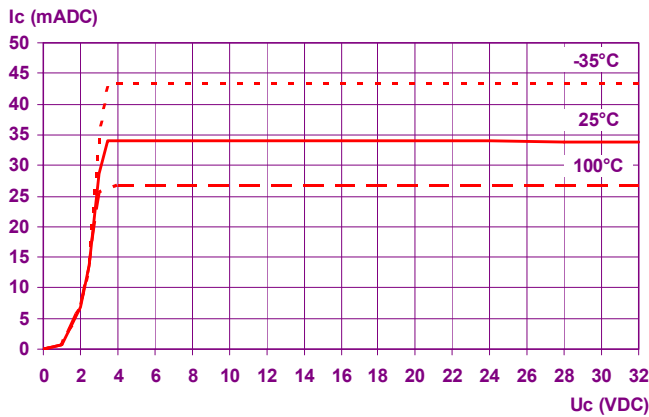


Fig. 6 ON RESISTANCE VS JUNCTION TEMPERATURE

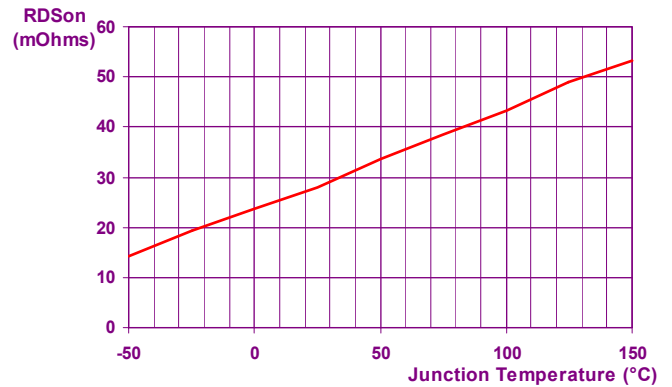


Fig. 7 POWER DISSIPATED AND LOAD CURRENT LIMIT VS TEMPERATURE

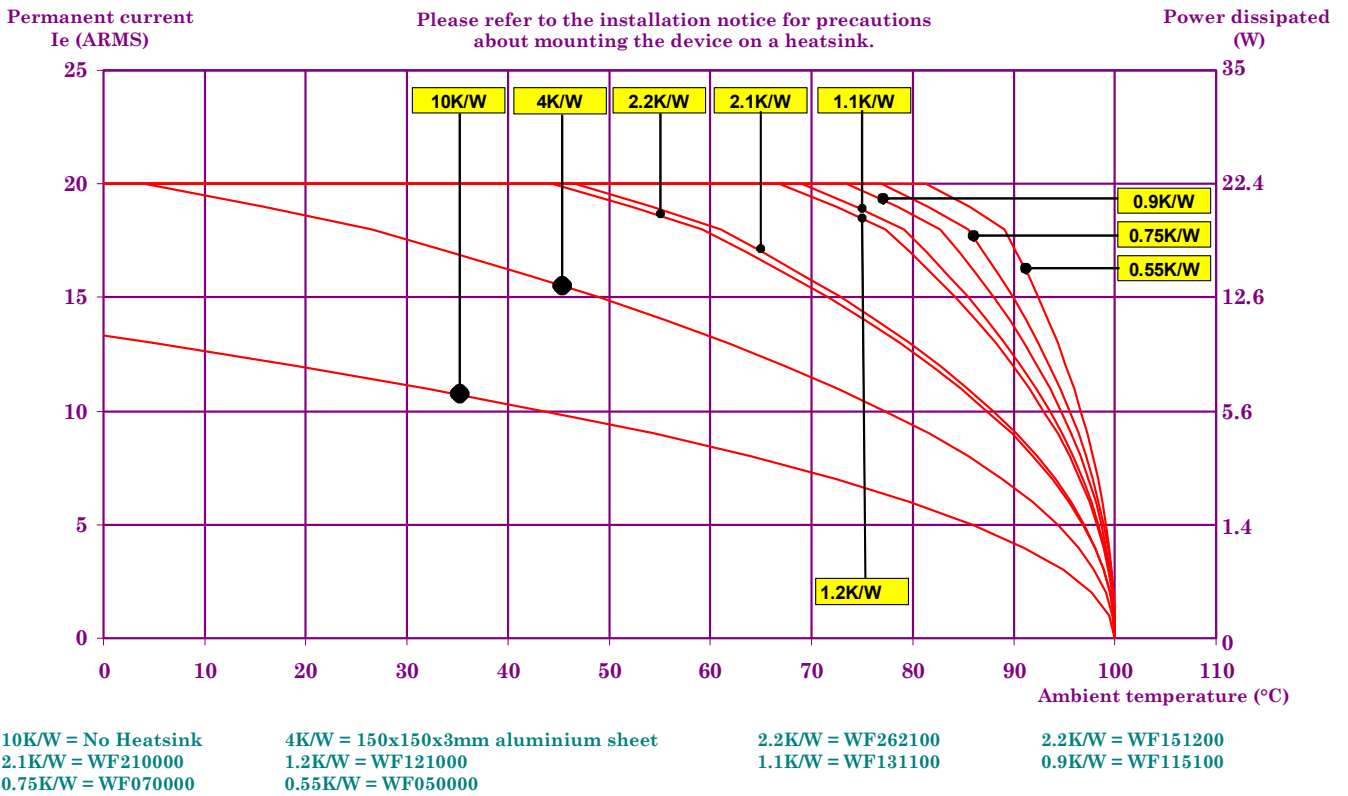
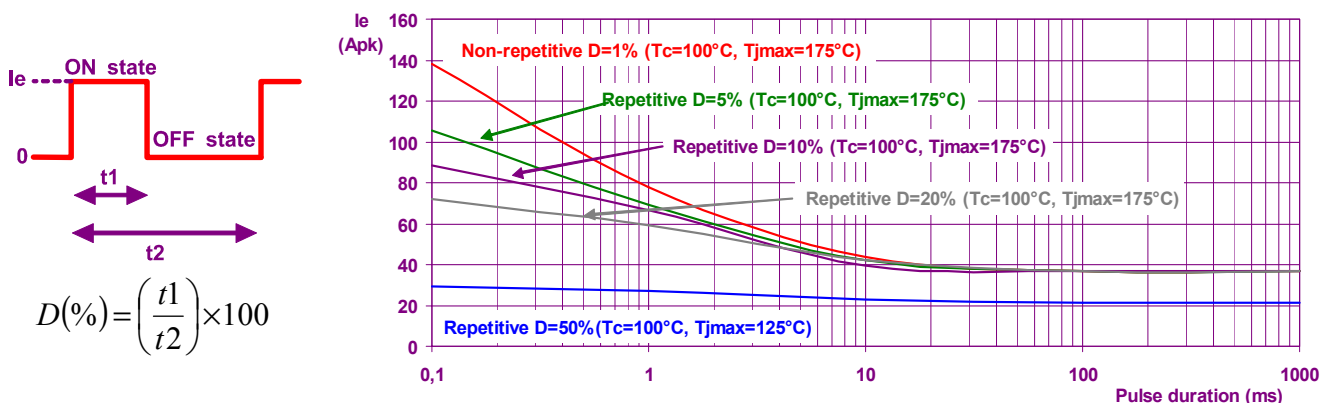


Fig. 8 PEAK OVERLOAD CURRENT vs. PULSE DURATION CHARACTERISTIC





DIMENSIONS AND ACCESSORIES

Fig. 9

DIMENSIONS (mm)

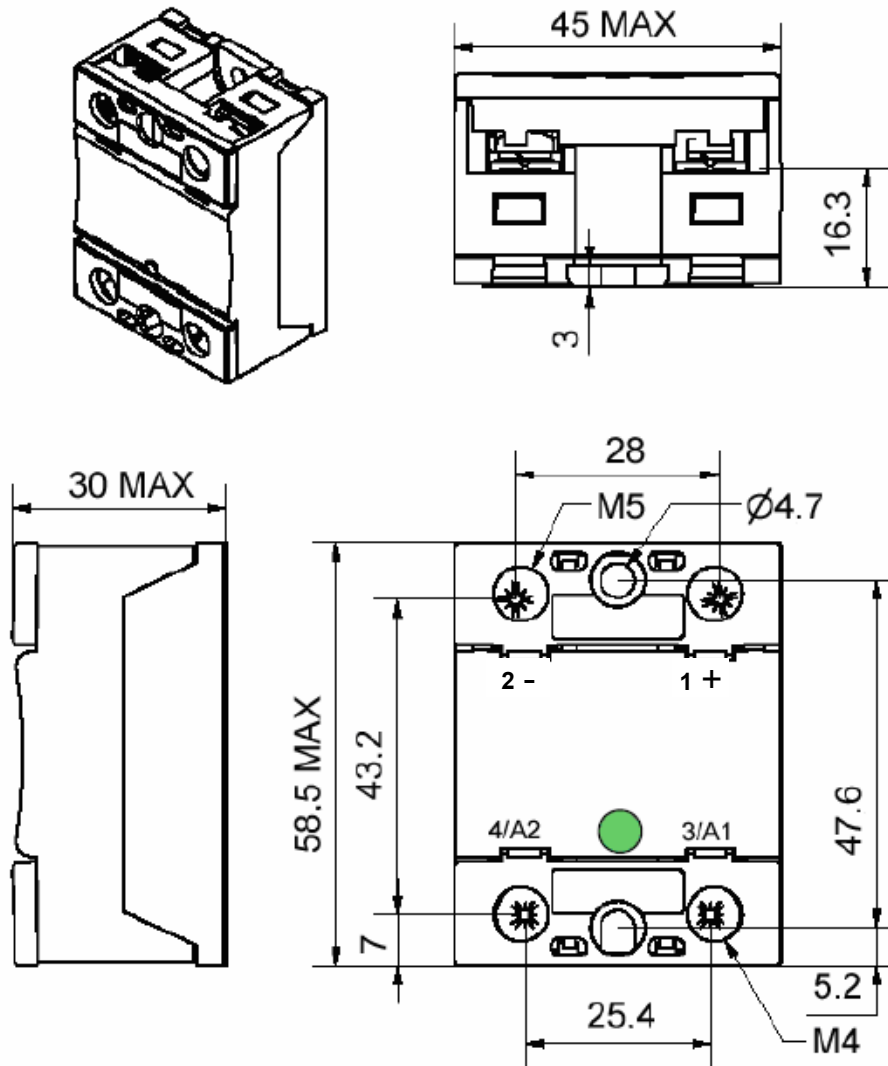


Fig. 10

ACCESSORIES

FASTON : Please contact us



ISO 9001
N° 1993/1106a

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LA QUALITÉ