CHORDN

Mini AC Solid State Relay

CR1M2802D12ZL

- Zero Cross Solid State Relay for printed circuit board designed for resistive loads.
- Pin to pin compatible with Electro mechanical relays.
- Operating range: 48 to 280VAC 2A.
- Input control range:10-15VDC.
- Very low zero cross voltage.
- Designed in conformity with IEC/ EN60947-4-2,3 ,IEC/EN61000-4-4,5. IEC/EN62314.

Product Model Specification

Model:CR1M2802D12ZL

CR CHORDN Relay Factory Code
1M single phase M series Mini Solid State Relay
28 nominal voltage 280VAC
02 nominal current 2A
D DC control
12 control voltage(10-15VDC)
Z zero cross
L relay thickness 5.2mm

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Control characteristics (at 25°C)

DC				
Parameter	Min	Typ	Max	Unit
Control voltage	10	12	15	V
Control current (@ Uc) Ic			25	mA
Turn on voltage		10		V
Turn off voltage		3		V
Reverse voltage		-15		V
Input immunity: EN61000-4-4,5		2		KV

Output characteristics (at 25°C)

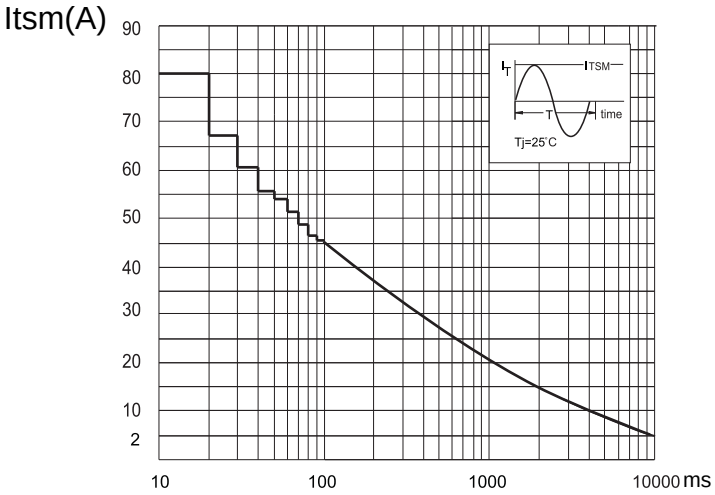
Parameter	Min	Typ	Max	Unit
Operating voltage range	48	230	280	V rms
Peak voltage		600		V
Zero cross level		35		V
Nominal current (AC-51)			2	A rms
Nominal current (AC-15)			2	A rms
Non repetitive overload current tp=10ms (Fig. 2)Itsm			80	A
On state voltage drop (Ie = nominal current)			1.2	V
On state Threshold voltage			1	V
Output power dissipation (max value)			3	W
Thermal resistance between junction to case		33		K/W
Off state leakage current @Ue typ, 50Hz			1.5	mA
Minimum load current Iemin	100			mA
Turn on time @Ue typ, 50Hz Ton max			10	ms
Turn off time @Ue typ, 50Hz Toff max			10	ms
Mains frequency range F mains	47	50-60	63	Hz
Off state dv/dt	100			V/µs
Maximum di/dt non repetitive			50	A/µs
Value for fusing I^2t (<10ms)		32		A^2s
Power factor	0.5			
Conducted immunity level IEC/EN61000-4-4		2kV criterion B		
Conducted immunity level IEC/EN61000-4-5		2kV criterion B		

General characteristics (at 25°C)

Input to output insulation	4000	VRMS
Output to case insulation	2500	VRMS
Insulation resistance	1000 (@500VDC)	MΩ
Rated impulse voltage	4000	V
Protection level	IP00	
Pollution degree	2	
Vibration withstand 10 -150 Hz according to IEC 60068-2-6	10	g
Shocks withstand according to IEC 60068-2-27 @11ms	30	g
Ambient temperature (no icing, no condensation)	-30 /+80	°C
Storage temperature (no icing, no condensation)	-30/+100	°C
Ambient humidity	40 to 85	%
Weight	5	g
Conformity IEC/ EN60947-4-3	CE	
max soldering terminals temperature	300°C/5s 260°C/10s	
Housing Material	PA 6 UL94-V0	

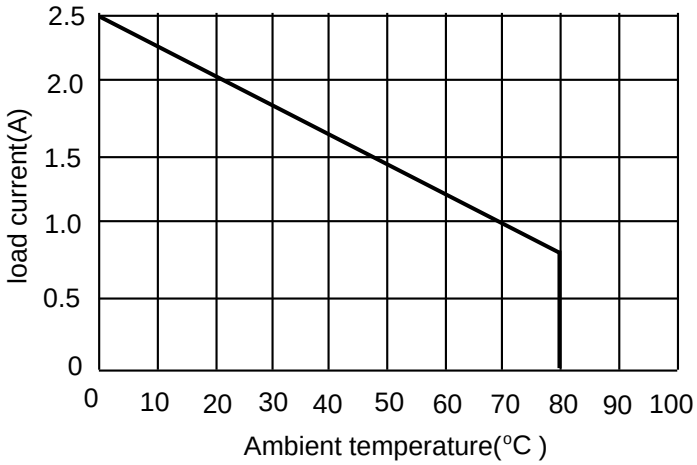
All technical characteristics are subject to change without previous notice.

fig 2 : *Overload currents*

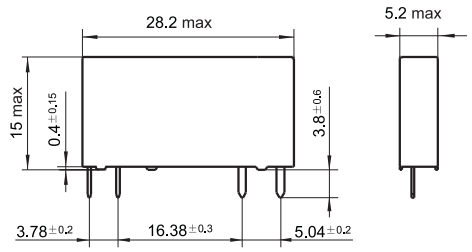


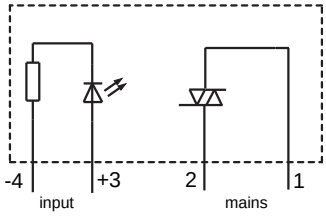
Warning ! semiconductor relays don't provide any galvanic insulation between the load and the mains. Always use in conjunction with an adapted circuit breaker with isolation feature or a similar device in order to ensure a reliable insulation in the event of wrong function and when the relay must be insulated from the mains (maintenance; if not used for a long duration ....)
It is important that the solid state relay is subject to correct installation, maintenance and use conforming to its intended regulations and standards, to the supplier's instructions and to accepted rules of art.

fig 3 : *Thermal curves*



Dimensions(mm):





Typical LOADS

> CR1M products are designed for most types of loads.
We give in our data-sheet the AC-51 current value corresponding to resistive loads.
For other loads, check the inrush current at turn ON and possible overvoltages at turn OFF:
* AC-55b: Incandescent lamps : Inrush current is generally 10 times In during few 10ms.

Protection :

> To protect a SSR against a short-circuit of the load, use a fuse with a I^2t value = 1/2 I^2t.

EMC :

Immunity: We give in our data-sheets immunity level according to the main standards for these products: IEC/EN61000-4-4 & IEC/EN61000-4-5.
But we are also in conformity with other standards IEC/EN61000-4-2, IEC/EN61000-4-6, ... in compliance with IEC/EN60947-4-3.
Emission: chordn SSRs are mainly designed in compliance with standards for class A equipment (Industry).
Use of this product in domestic environments may cause radio interference. In this case the user may be required to employ additional devices to reduce noise.
SSRs are complex devices that must be interconnected with other equipment (loads, cables, etc.) to form a system.
Because the other equipment or the interconnections may not be under the control of chordn, it shall be the responsibility of the system integrator to ensure that systems containing SSRs comply with the requirement of any rules and regulations applicable at the system level.
Consult chordn for advices. Tests can be performed in our laboratory.