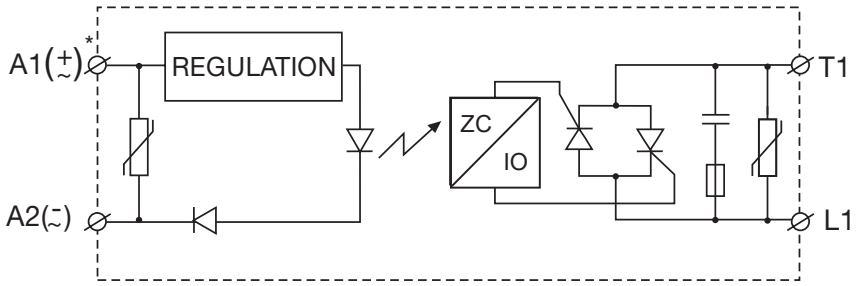
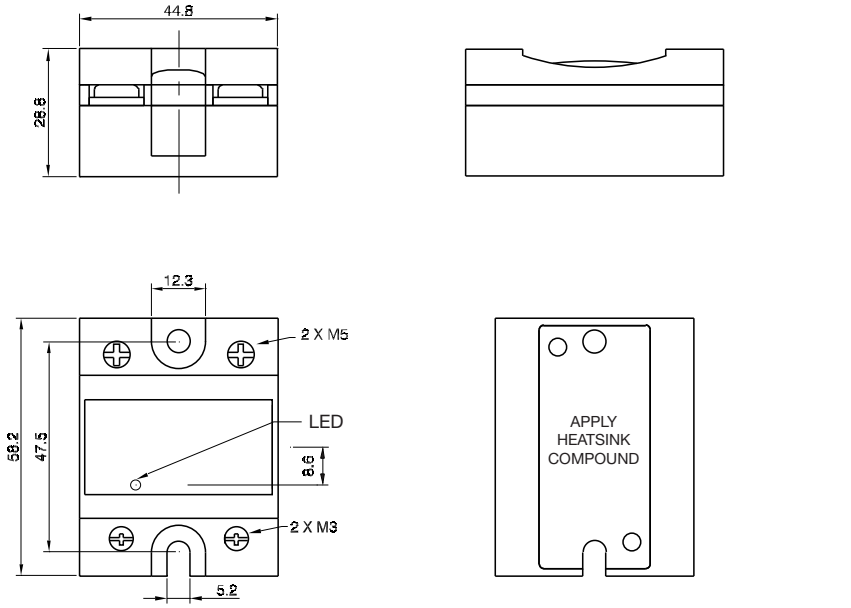
Functional Diagram



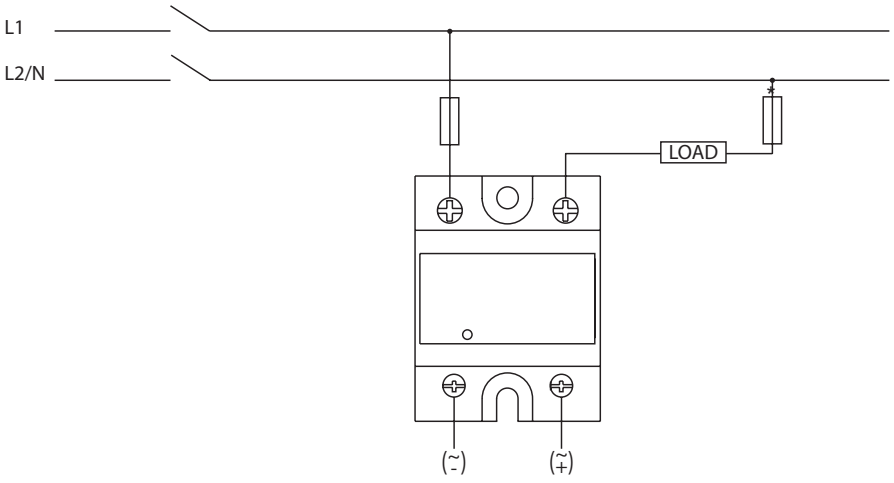
* Varistor across input applies to AC control versions only.

Dimensions



All dimensions in mm

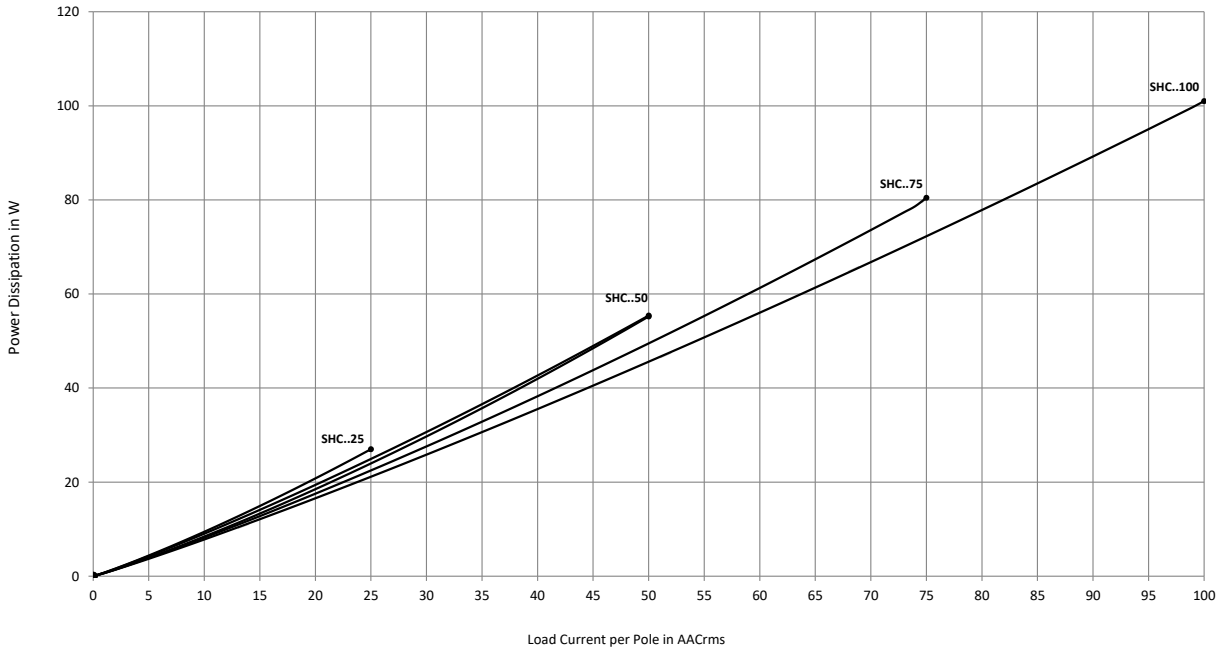
Connection Diagram



* Depends on system requirements

Control Input

Output Power Dissipation



Heatsink Dimensions (Load Current vs Ambient Temperature)

SHC..25

Load Current (A)	Thermal Resistance (°C/W)					
	20	30	40	50	60	70
25.0	2.70	2.34	1.98	1.61	1.25	0.89
22.5	3.10	2.69	2.28	1.86	1.45	1.04
20.0	3.61	3.13	2.65	2.18	1.70	1.23
17.5	4.26	3.70	3.14	2.59	2.03	1.47
15.0	5.14	4.47	3.80	3.14	2.47	1.80
12.5	6.38	5.56	4.73	3.91	3.09	2.27
10.0	8.25	7.19	6.14	5.08	4.02	2.97
7.5	11.4	9.94	8.49	7.04	5.59	4.14
5.0	17.7	15.4	13.2	11.0	8.74	6.51
2.5	-	-	-	-	18.2	13.6
	20	**30**	**40**	**50**	**60**	**70**
	Ambient Temp. (°C) T_A					

SHC..50

Load Current (A)	Thermal Resistance (°C/W)					
	20	30	40	50	60	70
50.0	1.03	0.86	0.70	0.53	0.37	0.20
45.0	1.27	1.32	0.90	0.71	0.52	0.33
40.0	1.54	1.59	1.10	0.89	0.67	0.45
35.0	1.85	1.95	1.34	1.08	0.82	0.57
30.0	2.26	2.47	1.65	1.34	1.03	0.72
25.0	2.85	3.24	2.08	1.70	1.32	0.94
20.0	3.73	3.24	2.75	2.26	1.77	1.27
15.0	5.22	4.54	3.86	3.19	2.51	1.83
10.0	8.21	7.16	6.11	5.05	4.00	2.95
5.0	17.2	15.0	12.9	10.7	8.51	6.33
	20	**30**	**40**	**50**	**60**	**70**
	Ambient Temp. (°C)					

Junction to ambient thermal resistance, $R_{th\ j\text{-}a}$	< 20.0	°C/W
Junction to case thermal resistance, $R_{th\ j\text{-}c}$	< 0.80	°C/W
Case to heatsink thermal resistance, $R_{th\ c\text{-}s}$[2]	< 0.20	°C/W
Maximum allowable case temperature	100	°C
Maximum allowable junction temperature	125	°C

Junction to ambient thermal resistance, $R_{th\ j\text{-}a}$	< 20.0	°C/W
Junction to case thermal resistance, $R_{th\ j\text{-}c}$	< 0.50	°C/W
Case to heatsink thermal resistance, $R_{th\ c\text{-}s}$[2]	< 0.20	°C/W
Maximum allowable case temperature	100	°C
Maximum allowable junction temperature	125	°C

SHC..75

Load Current (A)	Thermal Resistance (°C/W)					
	20	30	40	50	60	70
	Ambient Temp. (°C)					
75.0	0.91	0.78	0.65	0.52	0.39	0.26
67.5	1.10	0.96	0.81	0.66	0.51	0.36
60.0	1.34	1.17	1.00	0.83	0.66	0.49
52.5	1.60	1.40	1.20	1.00	0.80	0.60
45.0	1.93	1.68	1.44	1.20	0.96	0.72
37.5	2.38	2.08	1.78	1.49	1.19	0.89
30.0	3.06	2.68	2.30	1.91	1.53	1.15
22.5	4.21	3.68	3.16	2.63	2.10	1.58
15.0	6.51	5.70	4.88	4.07	3.26	2.44
7.5	13.5	11.77	10.09	8.41	6.73	5.04

Junction to ambient thermal resistance, $R_{th\ j\text{-}a}$	< 20.0	°C/W
Junction to case thermal resistance, $R_{th\ j\text{-}c}$	< 0.35	°C/W
Case to heatsink thermal resistance, $R_{th\ c\text{-}s}$[2]	< 0.10	°C/W
Maximum allowable heatsink temperature	100	°C
Maximum allowable junction temperature	125	°C

SHC..100

Load Current (A)	Thermal Resistance (°C/W)					
	20	30	40	50	60	70
	Ambient Temp. (°C)					
100.0	0.54	0.45	0.36	0.27	0.18	0.09
90.0	0.68	0.58	0.47	0.37	0.27	0.17
80.0	0.86	0.74	0.62	0.50	0.38	0.26
70.0	1.08	0.94	0.80	0.66	0.52	0.38
60.0	1.37	1.20	1.03	0.85	0.68	0.51
50.0	1.70	1.49	1.28	1.06	0.85	0.64
40.0	2.21	1.93	1.66	1.38	1.10	0.83
30.0	3.06	2.68	2.30	1.91	1.53	1.15
20.0	4.78	4.18	3.59	2.99	2.39	1.79
10.0	9.98	8.73	7.49	6.24	4.99	3.74

Junction to ambient thermal resistance, $R_{th\ j\text{-}a}$	< 20.0	°C/W
Junction to case thermal resistance, $R_{th\ j\text{-}c}$	< 0.30	°C/W
Case to heatsink thermal resistance, $R_{th\ c\text{-}s}$[2]	< 0.10	°C/W
Maximum allowable heatsink temperature	100	°C
Maximum allowable junction temperature	125	°C

Thermal Specifications

	SHC...25	SHC...50	SHC60..50	SHC...75	SHC...100
Operating Temperature Range	-20° to 70°C	-20° to 70°C	-20° to 70°C	-20° to 70°C	-20° to 70°C
Storage Temperature Range	-40° to 100°C	-40° to 100°C	-40° to 100°C	-40° to 100°C	-40° to 100°C
Junction Temperature	≤ 125°C	≤ 125°C	≤ 125°C	≤ 125°C	≤ 125°C
R_{th} Junction to Case	≤ 0.80°C/W	≤ 0.50°C/W	≤ 0.72°C/W	≤ 0.35°C/W	≤ 0.30°C/W
R_{th} Junction to Ambient	≤ 20.0°C/W	≤ 20.0°C/W	≤ 20.0°C/W	≤ 20.0°C/W	≤ 20.0°C/W

Short Circuit Protection

Protection Co-ordination, Type 1 vs. Type 2:
Type 1 protection implies that after a short circuit, the device under test will no longer be in a functioning state. In type 2 co-ordination the device under test will still be functional after the short circuit. In both cases, however, the short circuit has to be interrupted. The fuse between enclosure and supply shall not open. The door or cover of the enclosure shall not be blown open. There shall be no damage to conductors of terminals and the conductors shall not separate from terminals. Therese shall be no breakage or cracking of insulating bases to the extent that the integrity of the mounting of live parts is impaired. Discharge of parts or any risk of fire shall not occur.

The product variants listed in the table hereunder are suitable for use on a circuit capable of delivering not more than 65,000A rms Symmetrical Amperes, 600Volts maximum when protected by fuses. Tests at 65,000A were performed with Class J, fast acting: please refer to the table below for maximum allowed ampere rating of the fuse. Use fuses only.

Co-ordination Type 1 (UL508)

Part No.	Prospective short circuit current (kArms)	Max. fuse size (A)	Class/ Model	Voltage (VAC)
SHC..25	65	30	J or CC	600
SHC..50	65	30 20	J HSJ20 (Mersen*)	600 600
SHC..75	65	80 60	J HSJ60 (Mersen*)	600 600
SHC..100	65	80 60	J HSJ60 (Mersen*)	600 600

Co-ordination Type 2 (IEC/EN60947-4-3)

Part No.	**Prospective short circuit current (kArms)**	**Max. fuse size (A)**	**Brand**	**Model**	**Size**
SHCxx.25 (xx = 23, 40, or 48)	10	25	Mersen*	6.9 gRB 10-25	10.3 x 38
SHCxx.50 (xx = 23 or 40)	10	50	Mersen*	6.9zz CP gRC 14x51/50	14 x 51
SHCxx.50 (xx = 48 or 60)	10	50	Mersen*	6.9zz CP gRC 22x58/50	22 x 58
SHCxx.75 (xx = 23, 40, 48, 60)	10	63	Mersen*	6.9zz CP gRC 22x58/63	22 x 58
SHCxx.100 (xx = 23 or 40)	10	100	Mersen*	6.9zz CP gRC 22x58/100	22 x 58

zz = 00, without fuse trip indication
zz = 21, with fuse trip indication

* Formerly Ferraz Shawmut

Type 2 Protection with Miniature Circuit Breakers (M.C.B.S)

Solid State Relay type	ABB Model no. for Z - type M. C. B. (Rated Current)	ABB Model no. for B - type M. C. B. (Rated Current)	Wire cross sectional area (mm^2)	Minimum length of Cu wire conductor (m)*
SHC..25	**1-pole**			
	S201-Z4 (4A)	S201-B2 (2A)	1.0	21.0
	S201-Z6 UC (6A)	S201-B2 (2A)	1.0	21.0
			1.5	31.5
SHC..50..	**1-pole**			
	S201-Z10 (10A)	S201-B4 (4A)	1.0	7.6
			1.5	11.4
			2.5	19.0
	S201-Z16 (16A)	S201-B6 (6A)	1.0	5.2
			1.5	7.8
			2.5	13.0
			4.0	20.8
	S201-Z20 (20A)	S201-B10 (10A)	1.5	12.6
			2.5	21.0
	S201-Z25 (25A)	S201-B13 (13A)	2.5	25.0
			4.0	40.0
	2-pole			
	S202-Z25 (25A)	S202-B13 (13A)	2.5	19.0
			4.0	30.4
SHC..75	**1-pole**			
	S201-Z20 (20A)	S201-B10 (10A)	1.5	4.2
			2.5	7.0
			4.0	11.2
	S201-Z32 (32A)	S201-B16 (16A)	2.5	13.0
			4.0	20.8
			6.0	31.2
	2-pole			
	S202-Z20 (20A)	S202-B10 (10A)	1.5	1.8
			2.5	3.0
			4.0	4.8
	S202-Z32 (32A)	S202-B16 (16A)	2.5	5.0
			4.0	8.0
			6.0	12.0
			10.0	20.0
	S202-Z50 (50A)	S202-B25 (25A)	4.0	14.8
			6.0	22.2
			10.0	37.0
SHC..100	**1-pole**			
	S201-Z50 (50A)	S201-B25 (25A)	4.0	4.8
			6.0	7.2
			10.0	12.0
			16.0	19.2
	S201-Z63 (63A)	S201-B32 (32A)	6.0	7.2
			10.0	12.0
			16.0	19.2

* Between MCB and Load (including return path which goes back to the mains).

Note: A prospective current of 6kA and a 230/400V power supply system is assumed for the above suggested specifications. For cables with different cross section than those mentioned above please consult Teledyne Relays' Technical Support Group.

Environmental Information

The declaration in this section is prepared in compliance with People's Republic of China Electronic Industry Standard SJ/T11364-2014: Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products.

Part Name	Toxic or Harardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Power Unit Assembly	x	O	O	O	O	O

O: Indicates that said hazardous substance contained in homogeneous materials for this part are below the limit requirement of GB/T 26572.

X: Indicates that said hazardous substance contained in one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

Questions? Call us at (914) 592-7726. www.alltechelectronics.com