

● **DC TO AC**

AC SOLID STATE RELAY

HDA-2010 HDA-2040
HDA-2015 HDA-2050
HDA-2025 HDA-2075

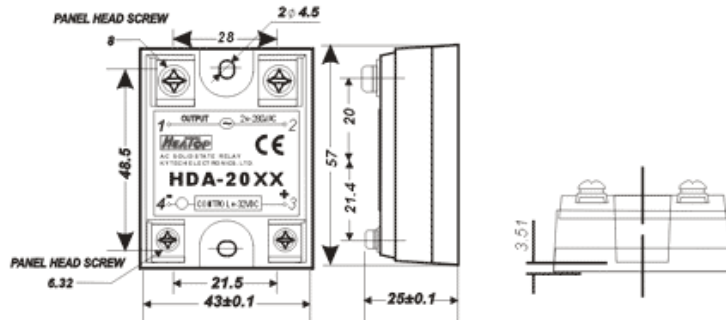


SPECIFICATIONS

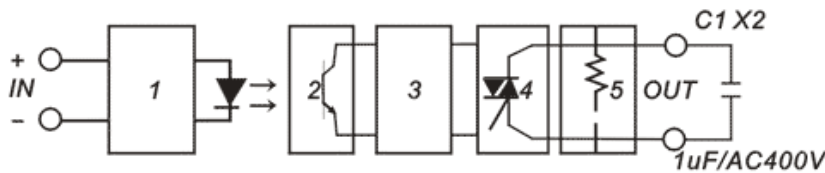
MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF-STATE LEAKAGE	FREQUENCY RANGE	MAX 1-CYCLE PEAK SURGE
HDA-2010	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	10A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	100A
HDA-2015	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	15A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	160A
HDA-2025	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	25A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	260A
HDA-2040	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	40A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	400A
HDA-2050	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	50A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	625A
HDA-2075	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	75A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	1000A

MODEL NO.	MAX OFF STATE dv/dt	MAX ON-STATE VOLTAGE DROP	ISOLATE IMPEDENCE	ISOLATE STRENGTH INET-OUTPUT	ISOLATE STRENGTH INPUT-OUTPUT-CASE	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
HDA-2010	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95A
HDA-2015	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95A
HDA-2025	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100A
HDA-2040	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100A
HDA-2050	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100A
HDA-2075	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100A

OUTLINE DIMENSIONS (unit:mm)

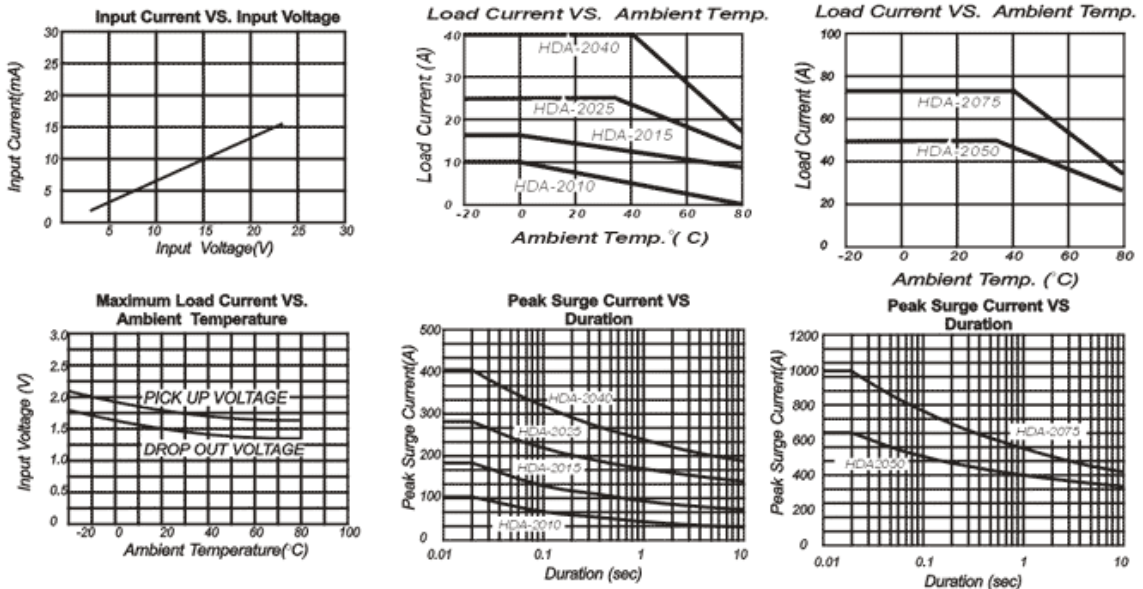


EQUIVALENT CIRCUIT



- 1.INPUT CIRCUIT
- 2.PHOTO DETECTOR
- 3.ZERO-CROSS CIRCUIT
- 4.OUTPUT CIRCUIT
- 5.PROTECTED CIRCUIT

CHARACTERISTIC CURVES



AC SOLID STATE RELAY

HDA-4025
HDA-4040
HDA-4050
HDA-4075

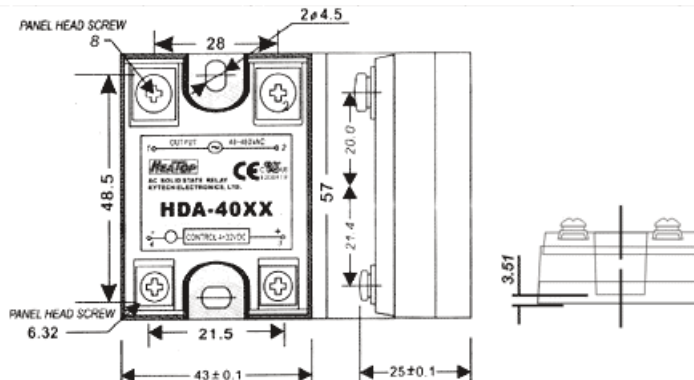


SPECIFICATIONS

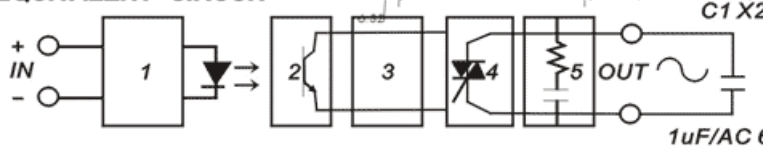
MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF STATE LEAKAGE	FREQUENCY RANGE	MAX 1/2 CYCLE PEAK SURGE
HDA-4025	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	25A	48-480VAC	1200VAC	LESS 15mA	47-70HZ	260A
HDA-4040	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	40A	48-480VAC	1200VAC	LESS 15mA	47-70HZ	400A
HDA-4050	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	50A	48-480VAC	1200VAC	LESS 15mA	47-70HZ	625A
HDA-4075	4 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	75A	48-480VAC	1200VAC	LESS 15mA	47-70HZ	1000A

MODEL NO.	MAX OFF STATE dv/dt	MAX ON STATE VOLTAGE DROP	ISOLATE IMPEDANCE	DIELECTRIC STRENGTH INPUT-OUTPUT	DIELECTRIC STRENGTH INPUT/OUTPUT CASE	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
HDA-4025	200 V/μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100g
HDA-4040	200 V/μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100g
HDA-4050	200 V/μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100g
HDA-4075	200 V/μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100g

OUTLINE DIMENSIONS (unit:mm)

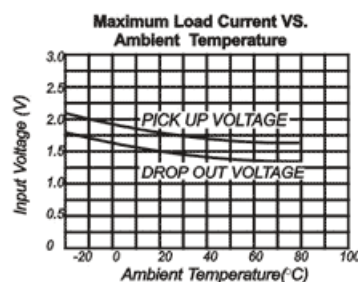
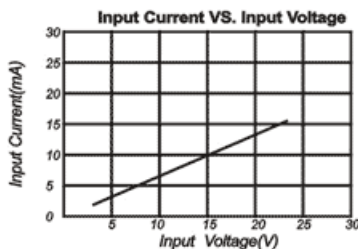


EQUIVALENT CIRCUIT



- 1.INPUT CIRCUIT
- 2.PHOTO DETECTOR
- 3.ZERO-CROSS CIRCUIT
- 4.OUTPUT CIRCUIT
- 5.PROTECTED CIRCUIT

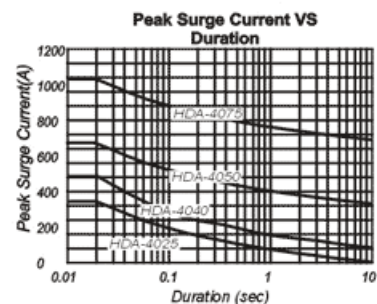
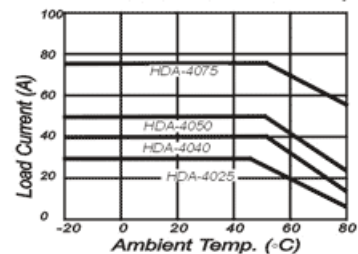
CHARACTERISTIC CURVES



Attention:

In order to be in compliance with the EMC Directive an additional X2 capacitor at the output is required if the SSR is operated as single component. In case the SSR is incorporated in an appliance the existing EMI filter may provide the required EMI suppression. The X2 capacitor must be placed as close as possible to the output terminals. See also above.

Load Current VS. Ambient Temp.



● AC TO AC

AC SOLID STATE RELAY

HAA-2010 HAA-2040
HAA-2015 HAA-2050
HAA-2025 HAA-2075

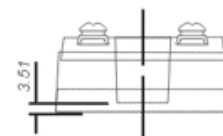
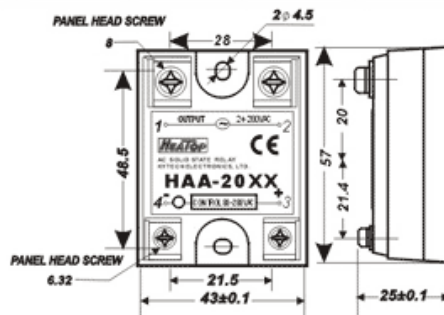


SPECIFICATIONS

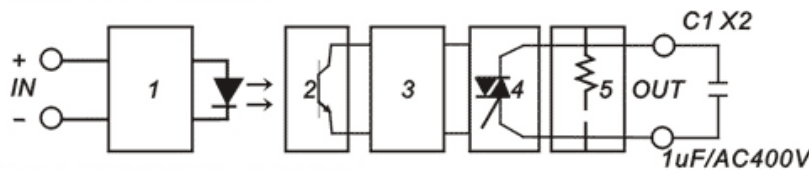
MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF-STATE LEAKAGE	FREQUENCY RANGE	MAX 1-CYCLE PEAK SURGE
HAA-2010	80 TO 280VAC	MAX 10 VAC	1.5 Kohm	10A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	100A
HAA-2015	80 TO 280VAC	MAX 10 VAC	1.5 Kohm	15A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	160A
HAA-2025	80 TO 280VAC	MAX 10 VAC	1.5 Kohm	25A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	260A
HAA-2040	80 TO 280VAC	MAX 10 VAC	1.5 Kohm	40A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	400A
HAA-2050	80 TO 280VAC	MAX 10 VAC	1.5 Kohm	50A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	625A
HAA-2075	80 TO 280VAC	MAX 10 VAC	1.5 Kohm	75A	24-280VAC	600VAC	LESS 7.5 mA	47-70HZ	1000A

MODEL NO.	MAX OFF STATE dv/dt	MAX ON-STATE VOLTAGE DROP	ISOLATE IMPEDANCE	DELAY TIME RISE INPUT-OUTPUT	DELAY TIME FALL INPUT-OUTPUT	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
HAA-2010	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	92 g
HAA-2015	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	92 g
HAA-2025	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HAA-2040	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HAA-2050	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g
HAA-2075	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g

OUTLINE DIMENSIONS (unit:mm)

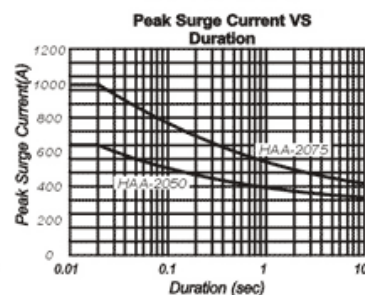
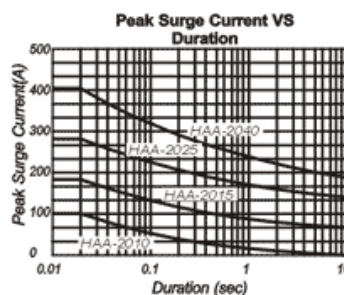
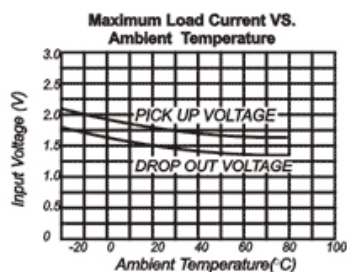
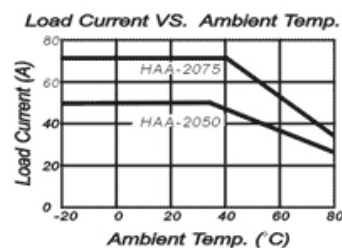
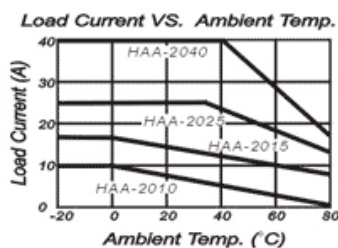
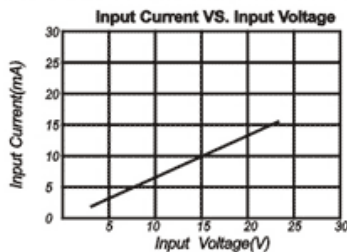


EQUIVALENT CIRCUIT



- 1.INPUT CIRCUIT
- 2.PHOTO DETECTOR
- 3.ZERO-CROSS CIRCUIT
- 4.OUTPUT CIRCUIT
- 5.PROTECTED CIRCUIT

CHARACTERISTIC CURVES



AC SOLID STATE RELAY

HAA-4025
HAA-4040
HAA-4050
HAA-4075

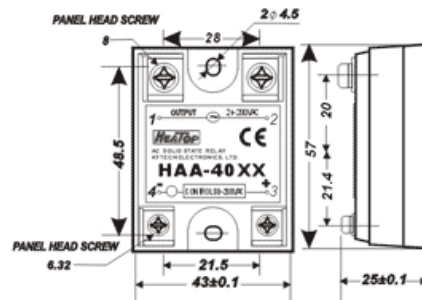


SPECIFICATIONS

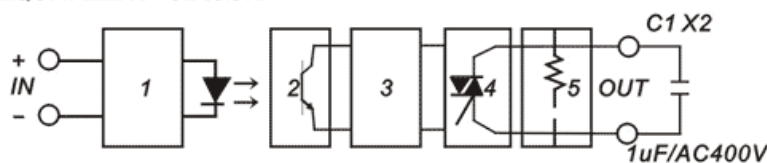
MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF-STATE LEAKAGE	FREQUENCY RANGE	MAX 1-CYCLE PEAK SURGE
HAA-4025	80-280VAC	MAX 10 VAC	1.5 Kohm	25A	48-480VAC	1200VAC	15 mA	47-70HZ	280A
HAA-4040	80-280VAC	MAX 10 VAC	1.5 Kohm	40A	48-480VAC	1200VAC	15 mA	47-70HZ	400A
HAA-4050	80-280VAC	MAX 10 VAC	1.5 Kohm	50A	48-480VAC	1200VAC	15 mA	47-70HZ	625A
HAA-4075	80-280VAC	MAX 10 VAC	1.5 Kohm	75A	48-480VAC	1200VAC	15 mA	47-70HZ	1000A

MODEL NO.	MAX OFF STATE dV/dt	MAX ON-STATE VOLTAGE DROP	ISOLATE IMPEDENCE	DIEL. STRENGTH INPUT-OUTPUT	DIEL. STRENGTH INPUT/OUTPUT-CASE	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
HAA-4025	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g
HAA-4040	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g
HAA-4050	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g
HAA-4075	200 V/ μ SEC	2.0VACrms	10^9 ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g

OUTLINE DIMENSIONS (unit:mm)

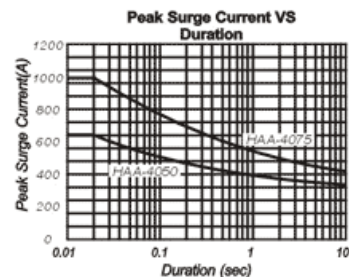
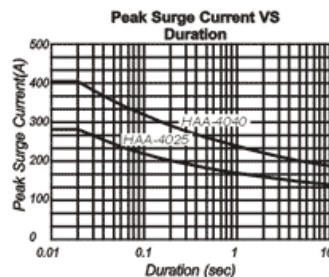
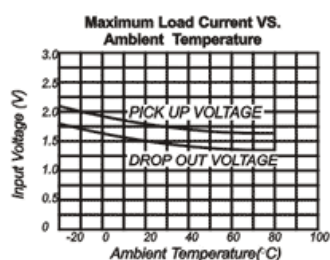
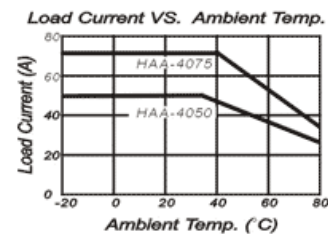
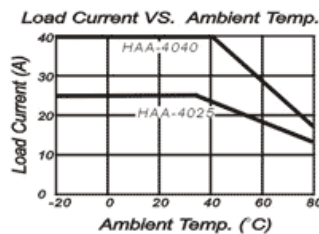
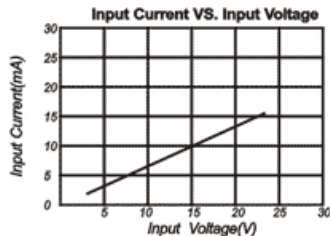


EQUIVALENT CIRCUIT



- 1.INPUT CIRCUIT
- 2.PHOTO DETECTOR
- 3.ZERO-CROSS CIRCUIT
- 4.OUTPUT CIRCUIT
- 5.PROTECTED CIRCUIT

CHARACTERISTIC CURVES



AC SOLID STATE RELAY

HSR-2010 HSR-2040
HSR-2015 HSR-4025
HSR-2025 HSR-4040

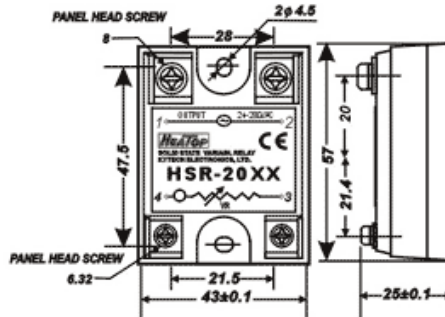


SPECIFICATIONS

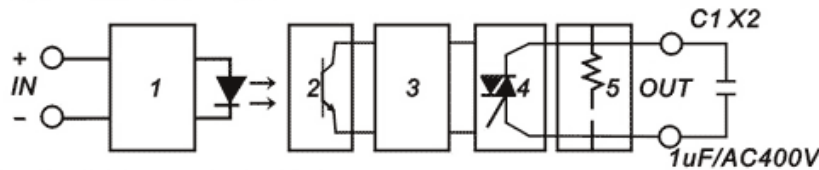
MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF-STATE LEAKAGE	FREQUENCY RANGE	MAX 1-CYCLE PEAK SURGE
HSR-2010	VRO-500k Ω	MAX 10 VAC	1.5 Kohm	10A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	100A
HSR-2015	VRO-500k Ω	MAX 10 VAC	1.5 Kohm	15A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	160A
HSR-2025	VRO-500k Ω	MAX 10 VAC	1.5 Kohm	25A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	260A
HSR-2040	VRO-500k Ω	MAX 10 VAC	1.5 Kohm	40A	24-280VAC	600VAC	LESS 5 mA	47-70HZ	400A
HSR-4025	VRO-1Mk Ω	MAX 10 VAC	1.5 Kohm	25A	48-480VAC	1200VAC	15 mA	47-70HZ	260A
HSR-4040	VRO-1Mk Ω	MAX 10 VAC	1.5 Kohm	40A	48-480VAC	1200VAC	15 mA	47-70HZ	400A

MODEL NO.	MAX OFF STATE $\frac{dV}{dt}$	MAX ON-STATE VOLTAGE DROP	ISOLATE IMPEDANCE	DIEN.TIC STRENGTH INPUT/OUTPUT	DIEN.TIC STRENGTH INPUT/OUTPUT-CASE	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
HSR-2010	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	92 g
HSR-2015	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	92 g
HSR-2025	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HSR-2040	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HSR-4025	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HSR-4040	200 V/ μ SEC	2.0VACrms	10 ⁹ ohm	4000 VACrms	2500 VAC (rms)	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g

OUTLINE DIMENSIONS (unit:mm)

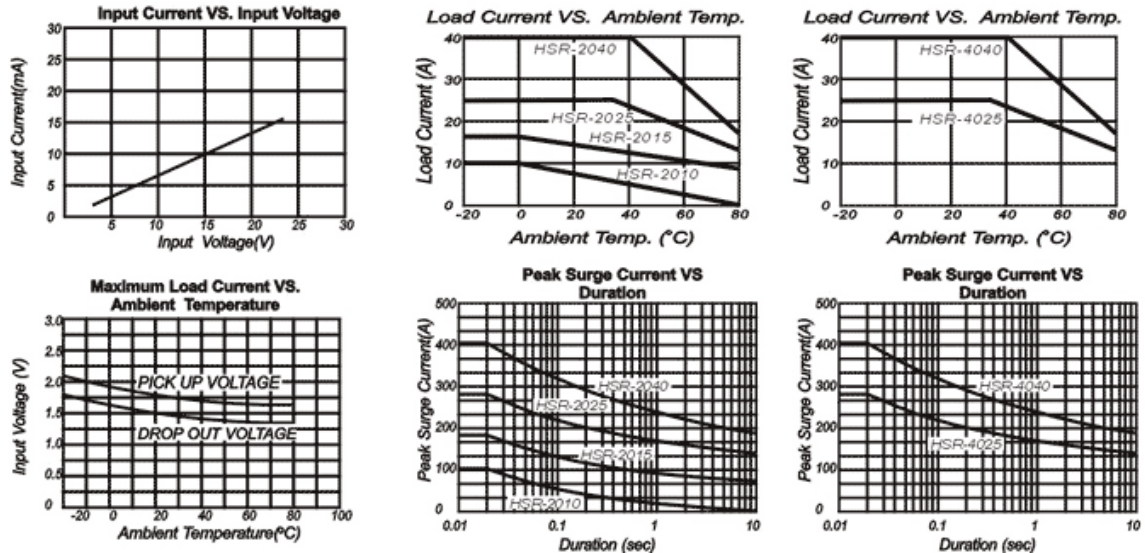


EQUIVALENT CIRCUIT



- 1.INPUT CIRCUIT
- 2.PHOTO DETECTOR
- 3.ZERO-CROSS CIRCUIT
- 4.OUTPUT CIRCUIT
- 5.PROTECTED CIRCUIT

CHARACTERISTIC CURVES



● **DC TO DC**

DC SOLID STATE RELAY

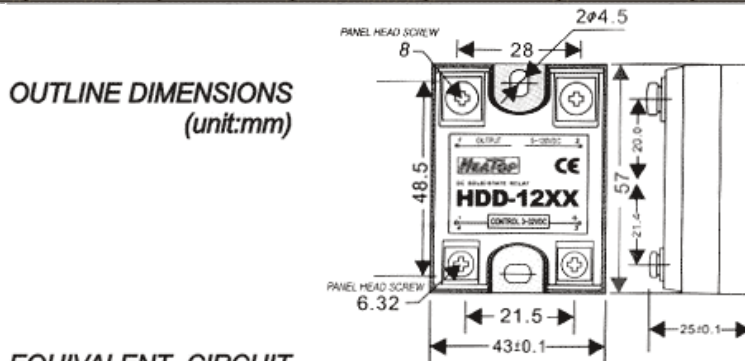
HDD-1205
HDD-1210
HDD-1225
HDD-1240
HDD-2010



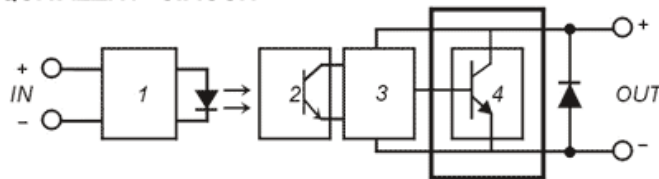
SPECIFICATIONS

MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF-STATE LEAKAGE	FREQUENCY RANGE	MAX 1-CYCLE PEAK SURGE
HDD-1205	3 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	5A	5-120VDC	140VDC	LESS 3 mA	47-70HZ	6A
HDD-1210	3 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	10A	5-120VDC	140VDC	LESS 5 mA	47-70HZ	15A
HDD-1225	3 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	25A	5-120VDC	140VDC	LESS 7 mA	47-70HZ	35A
HDD-1240	3 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	40A	5-120VDC	140VDC	LESS 7 mA	47-70HZ	50A
HDD-2010	3 TO 32 VDC	MAX 1.0 VDC	1.5 Kohm	10A	5-220VDC	240VDC	LESS 7 mA	47-70HZ	15A

MODEL NO.	MAX OFF STATE dv/dt	MAX ON-STATE VOLTAGE DROP	ISOLATE IMPEDANCE	DIELECTRIC STRENGTH INPUT-OUTPUT	DIELECTRIC STRENGTH INPUT-OUTPUT-CASE	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
HDD-1205	200 V/ μ SEC	2.0Vrms	10^9 ohm	4000 VACrms	2500 VACrms	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HDD-1210	200 V/ μ SEC	2.0Vrms	10^9 ohm	4000 VACrms	2500 VACrms	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	95 g
HDD-1225	200 V/ μ SEC	2.0Vrms	10^9 ohm	4000 VACrms	2500 VACrms	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g
HDD-1240	200 V/ μ SEC	2.0Vrms	10^9 ohm	4000 VACrms	2500 VACrms	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g
HDD-2010	200 V/ μ SEC	2.0Vrms	10^9 ohm	4000 VACrms	2500 VACrms	LESS 2 mSec	LESS 1/2 AC CYCLE	LESS 15 PF	100 g

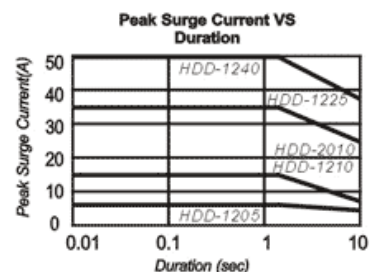
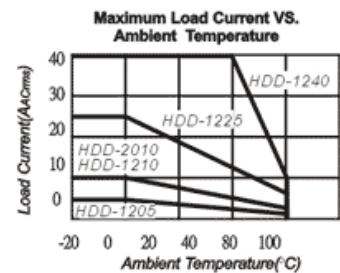
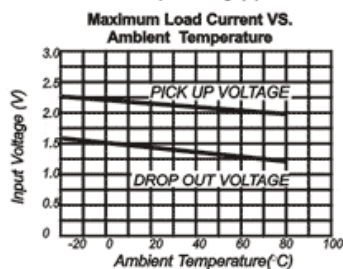
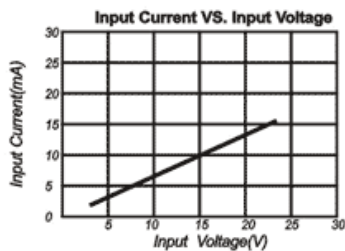


EQUIVALENT CIRCUIT



- 1.INPUT CIRCUIT
- 2.PHOTO DETECTOR
- 3.AMPLIFIER
- 4.PROTECTED CIRCUIT

CHARACTERISTIC CURVES



3 PHASE SOLID STATE RELAY

AC SOLID STATE RELAY

3PH2025 3PH4025
3PH2040 3PH4040
3PH2050 3PH4050

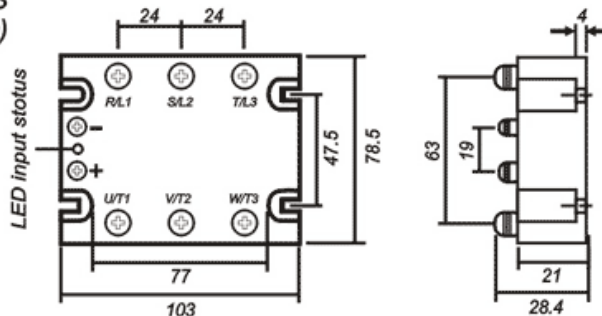


SPECIFICATIONS

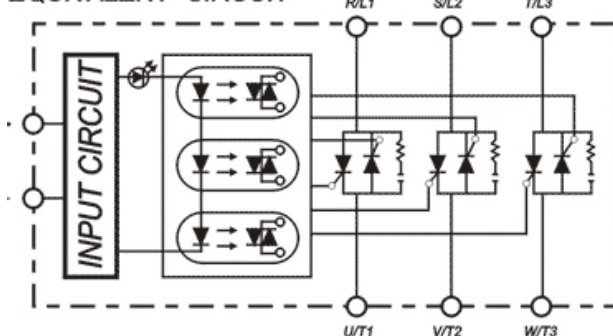
MODEL NO.	CONTROL VOLTAGE RANGE	MUST TURN OFF VOLTAGE	INPUT IMPEDANCE	MAX LOAD CURRENT	LOAD VOLTAGE RANGE	MIN BLOCKING VOLTAGE	MAX OFF-STATE LEAKAGE	FREQUENCY RANGE	MAX 1-CYCLE PEAK SURGE
3PH2025	6 TO 32VDC	MAX3VDC	1.5Kohm	25A	24-280VAC	600VAC	LESS 10 mA	47-63HZ	315A
3PH2040	6 TO 32VDC	MAX3VDC	1.5Kohm	40A	24-280VAC	600VAC	LESS 10 mA	47-63HZ	450A
3PH2050	6 TO 32VDC	MAX3VDC	1.5Kohm	50A	24-280VAC	600VAC	LESS 10 mA	47-63HZ	560A
3PH4025	10 TO 32VDC	MAX9.5VDC	1.5Kohm	25A	48-480VAC	1200VAC	LESS 10 mA	47-63HZ	315A
3PH4040	10 TO 32VDC	MAX9.5VDC	1.5Kohm	40A	48-480VAC	1200VAC	LESS 10 mA	47-63HZ	450A
3PH4050	10 TO 32VDC	MAX9.5VDC	1.5Kohm	50A	48-480VAC	1200VAC	LESS 10 mA	47-63HZ	560A

MODEL NO.	MAX OFF STATE dv/dt	MAX ON-STATE VOLTAGE DROP	ISOLATE IMPEDENCE	DIELECTRIC STRENGTH INPUT-OUTPUT	DIELECTRIC STRENGTH INPUT-OUTPUT-CASE	TURN ON TIME	TURN OFF TIME	CAPACITANCE IN-OUT	WEIGHT (g)
3PH2025	250V/μSEC	1.6Vrms	10 ⁹ ohm	2500Vrms	2500Vrms	LESS1/2mSee	LESS1/2cycle	LESS473pf	600g
3PH2040	250V/μSEC	1.6Vrms	10 ⁹ ohm	2500Vrms	2500Vrms	LESS1/2mSee	LESS1/2cycle	LESS473pf	600g
3PH2050	250V/μSEC	1.6Vrms	10 ⁹ ohm	2500Vrms	2500Vrms	LESS1/2mSee	LESS1/2cycle	LESS473pf	600g
3PH4025	500V/μSEC	1.6Vrms	10 ⁹ ohm	2500Vrms	2500Vrms	LESS1/2mSee	LESS1/2cycle	LESS473pf	600g
3PH4040	500V/μSEC	1.6Vrms	10 ⁹ ohm	2500Vrms	2500Vrms	LESS1/2mSee	LESS1/2cycle	LESS473pf	600g
3PH4050	500V/μSEC	1.6Vrms	10 ⁹ ohm	2500Vrms	2500Vrms	LESS1/2mSee	LESS1/2cycle	LESS473pf	600g

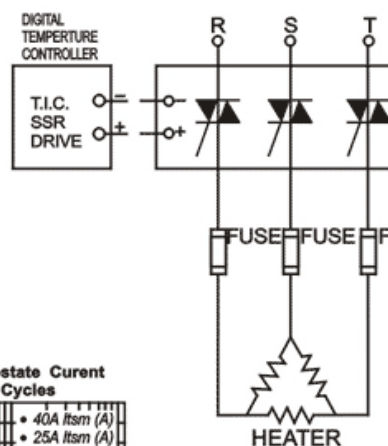
OUTLINE DIMENSIONS (unit:mm)



EQUIVALENT CIRCUIT



Example of 3Φ SSR Application



CHARACTERISTIC CURVES

