

**CRYDOM***Control over power*

# Series HA60/HD60

25-125Amp • 600 Vac • AC Output

- **Zero Voltage and Random Turn-On Switching**
- **Panel Mount**
- **1200V Blocking Capability**
- **600Vac - the preferred choice in Canada**
- **Integrated Overvoltage Protection by Automatic Self Turn-On (Suffix P)**

Featuring state-of-the-art Surface Mount Technology, these SPST-NO relays deliver proven reliability in the most demanding applications. Output consists of an SCR AC switch and is available in zero-cross, random turn-on (phase controllable) and versions with either AC or DC input (coil) control.

Manufactured in Crydom's ISO 9001 Certified facility for optimum product performance and reliability.

| MODEL NUMBERS                                                             | AC CONTROL<br>DC CONTROL | HA6025<br>HD6025                           | HA6050<br>HD6050 | HA6090<br>HD6090 | HA60125<br>HD60125 |
|---------------------------------------------------------------------------|--------------------------|--------------------------------------------|------------------|------------------|--------------------|
| <b>OUTPUT SPECIFICATIONS ①</b>                                            |                          |                                            |                  |                  |                    |
| Nominal Line Voltage ( $\pm 10\%$ ) [Vrms]                                |                          | 600                                        | 600              | 600              | 600                |
| Operating Voltage Range (47-63 Hz) [Vrms]                                 |                          | 48-660                                     | 48-660           | 48-660           | 48-660             |
| Max. Load Current ③ [Arms]                                                |                          | 25                                         | 50               | 90               | 125                |
| Min. Load Current, [mArms]                                                |                          | 40                                         | 40               | 40               | 150                |
| Transient Overvoltage [Vpk]                                               |                          | 1200                                       | 1200             | 1200             | 1200               |
| Max. Surge Current, (16.6ms) [Apk]                                        |                          | 250                                        | 625              | 1,200            | 1,750              |
| Max. On-State Voltage Drop @ Rated Current [Vpk]                          |                          | 1.7                                        | 1.7              | 1.7              | 1.7                |
| Thermal Resistance Junction to Case ( $R_{\theta JC}$ ) [ $^{\circ}C/W$ ] |                          | 1.02                                       | 0.63             | 0.28             | 0.22               |
| Maximum $I^2 t$ for Fusing, (8.3 msec.) [ $A^2 sec$ ]                     |                          | 260                                        | 1,620            | 6,000            | 12,700             |
| Max. Off-State Leakage Current @ Rated Voltage [mArms] ⑦                  |                          | 5                                          | 5                | 5                | 5                  |
| Min. Off-State dv/dt @ Max. Rated Voltage [V/ $\mu sec$ ] ②               |                          | 500                                        | 500              | 500              | 500                |
| Max. Turn-On Time ⑤                                                       |                          | 1/2 Cycle (DC Input), 10.0 msec (AC Input) |                  |                  |                    |
| Max. Turn-Off Time                                                        |                          | 1/2 Cycle (DC Input), 40.0 msec (AC Input) |                  |                  |                    |
| Power Factor (Min.) with Max. Load                                        |                          | 0.5                                        | 0.5              | 0.5              | 0.5                |

| INPUT SPECIFICATIONS ①  | DC CONTROL<br>(D PREFIX) | AC CONTROL<br>(A PREFIX) ④     | AC CONTROL<br>(E SUFFIX) |
|-------------------------|--------------------------|--------------------------------|--------------------------|
| Control Voltage Range   | 3-32 Vdc                 | 90-280 Vrms (60Hz)             | 18-36 Vrms               |
| Max. Reverse Voltage    | -32 Vdc                  | ---                            | ---                      |
| Max. Turn-On Voltage    | 3.0 Vdc                  | 90 Vrms                        | 18 Vrms                  |
| Min. Turn-Off Voltage   | 1.0 Vdc                  | 10 Vrms                        | 4.0 Vrms                 |
| Nominal Input Impedance | See Note ⑥               | 60K Ohms                       | 9.0K Ohms                |
| Typical Input Current   | 2.0 mA ⑥                 | 2mA @ 120 Vrms, 4mA @ 240 Vrms | 3mA @ 24 Vrms            |

## GENERAL NOTES

- ① All parameters at 25°C unless otherwise specified.
- ② Off-State dv/dt test method per EIA/NARM standard RS-443, paragraph 13.11.1
- ③ Heat sinking required, for derating curves see page 2.
- ④ 24 Vac Input option, E suffix.
- ⑤ Turn-on time for random turn-on versions is 0.02 msec (DC Control Models).
- ⑥ Input circuitry incorporates active current limiter.
- ⑦ No internal snubber.

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### GENERAL SPECIFICATIONS

|                                               |                     |
|-----------------------------------------------|---------------------|
| Dielectric Strength 50/60Hz Input/Output/Base | 4000 Vrms           |
| Insulation Resistance (Min.) @ 500 Vdc        | 10 <sup>9</sup> Ohm |
| Max. Capacitance Input/Output                 | 8 pF                |
| Ambient Operating Temperature Range           | -40 to 80°C         |
| Ambient Storage Temperature Range             | -40 to 125°C        |

### MECHANICAL SPECIFICATIONS

|                   |                                               |
|-------------------|-----------------------------------------------|
| Weight: (typical) | 3.0 oz. (86.5g)                               |
| Encapsulation:    | Thermally Conductive Epoxy                    |
| Terminals:        | Screws and Saddle Clamps Furnished, Unmounted |

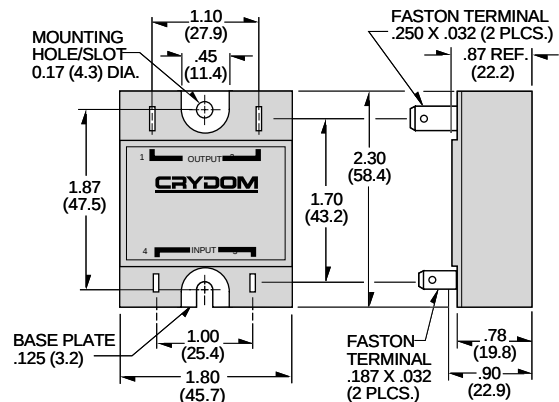
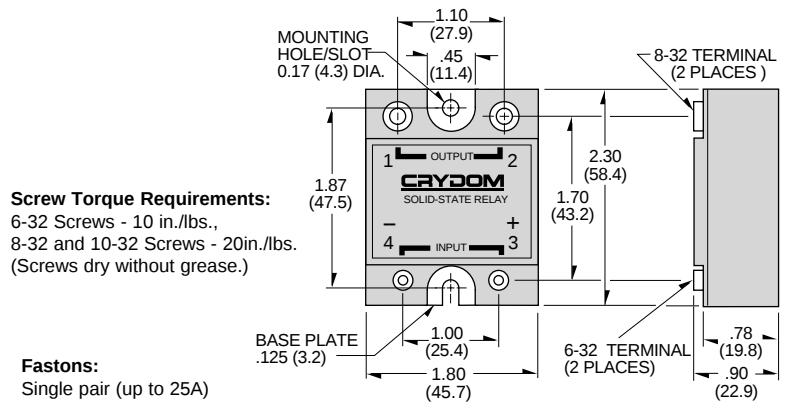
### AVAILABLE OPTIONS

- E** 24 VAC Input (18-36 Vac)  
Example: **HA6025E**
- F** Faston Terminals (Up to 50 Amp Models)  
Example: **HD6050F**
- G** Input Status LED.  
Agencies Approval Pending  
Example: **HD6050G**  
**Note:** Control Voltage Range 4.5-32Vdc for DC Control Models.
- P** Internal Overvoltage Protection.  
Relay Will Self Trigger Between 900-1200 Vpk. Not Suitable For Capacitive Loads.  
Agencies Approval Pending.  
Example: **HD6025P**
- 10** Random Turn-On (AC & DC Control)  
Phase Controllable (DC Control)  
Example: **HD6090-10**

**Ordering System:** Combination of the suffixes should be made in the following order:  
**EFPG-10.**

Example: **HA6050EFPG-10**

**Crydom Heat Sinks** offer excellent thermal management and are perfectly matched to the load current ratings of Crydom panel mount relays. Request Crydom's Heat Sink specification sheet for all the details.



All dimensions are in inches (millimeters)

### APPROVALS

UL E116950  
CSA LR81689  
VDE 10143 UG



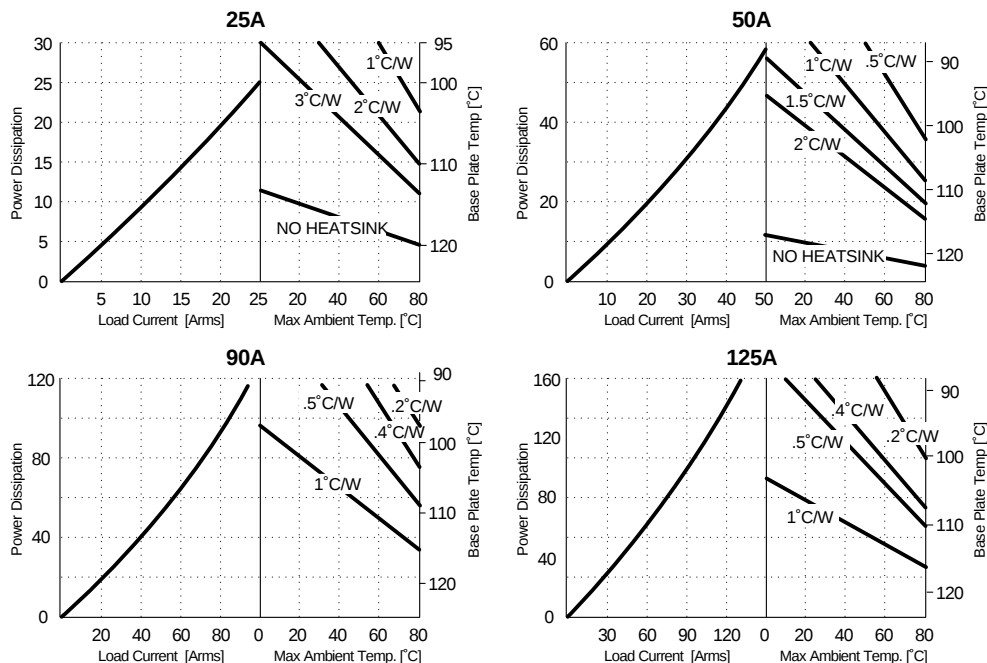
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### CURRENT DERATING CURVES



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