



1-DC | SERIES

PANEL MOUNT



Features

- Ratings from 60 A to 100 A @ 100 VDC
- Mosfet Output
- UL Approved, CE Compliant to EN60950-1
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- DC control
- EMC Compliant to Level 3
- Epoxy Free Design



PRODUCT SELECTION

| Control Voltage | 60 A | 80 A | 100 A |
|-----------------|-------|-------|--------|
| 3.5-32 VDC | D1D60 | D1D80 | D1D100 |



SPECIFICATIONS

Output ⁽²⁾

| Description | 7 A | 12A | 20A |
|---|------|-------|-------|
| Recommended Operating Voltage [Vdc] | 1-72 | 1-72 | 1-72 |
| Absolute Maximum Rating [Vdc] | 100 | 100 | 100 |
| Maximum Off-State Leakage Current @ Rated Voltage [mA] | 0.1 | 0.2 | 0.3 |
| Maximum Load Current [A _{dc}] ^{(1), (3)} | 60 | 80 | 100 |
| Minimum Load Current [mA] ⁽⁴⁾ | 5 | 5 | 5 |
| Maximum Surge Current (10msec) [A _{dc}] | 180 | 220 | 330 |
| Maximum On-State Voltage Drop @ Rated Current [Vdc] | 0.6 | 0.7 | 0.5 |
| Maximum On-State Resistance [R _{DS-ON}] [Ohms] | 0.01 | 0.008 | 0.005 |
| Thermal Resistance Junction to Case (R _{jc}) [°C/W] | 0.34 | 0.34 | 0.27 |
| Minimum Heat Sink for Rated Current @ 40°C [°C/W] | 1 | 0.5 | 0.5 |
| Maximum Pulse Width Modulation Frequency [Hz] ⁽⁵⁾ | 1000 | 900 | 800 |

Input ⁽²⁾

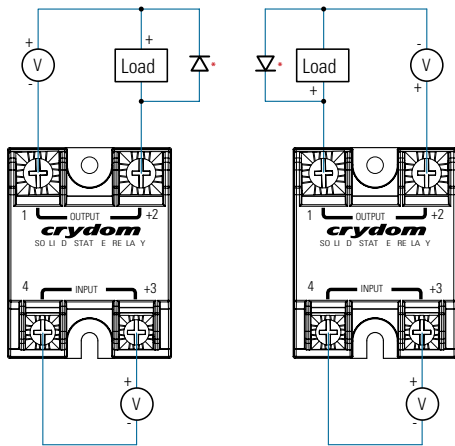
| Description | DC Control |
|---|-------------------|
| Control Voltage Range | 3.5-32 VDC |
| Maximum Reverse Voltage | -32 VDC |
| Minimum Turn-On Voltage ⁽⁶⁾ | 3.5 VDC |
| Must Turn-Off Voltage | 1 VDC |
| Minimum Input Current (for on-state) | 10 mA |
| Maximum Input Current | 15 mA |
| Nominal Input Impedance | Current Regulated |
| Maximum Turn-On Time [μsec] | 100 |
| Maximum Turn-Off Time [μsec] | 100 |

General ⁽²⁾

| Description | Parameters |
|---|--------------------------------|
| Dielectric Strength, Input/Output/Base (50/60Hz) | 3750 Vrms |
| Minimum Insulation Resistance (@ 500 VDC) | 10 ⁹ Ohms |
| Maximum Capacitance, Input/Output | 8 pF |
| Ambient Operating Temperature Range ⁽⁷⁾ | -40 to 100 °C |
| Ambient Storage Temperature Range | -40 to 125 °C |
| Weight (typical) | 2.66 oz (75.5 g) |
| Housing Material | UL94 V-0 |
| Baseplate Material | Aluminum |
| Input Terminal Screw Torque Range (in-lb/Nm) | 13-15 / 1.5-1.7 |
| Load Terminal Screw Torque Range (in-lb/Nm) | 18-20 / 2-2.2 |
| SSR Mounting Screw Torque Range (in-lb/Nm) | 18-20 / 2-2.2 |
| Input/Load Terminal Screw Torque Range (in-lb/Nm) ¹ | w/"K" option 8-10 / 0.9-1.13 |
| Input/Output Terminal Screw Thread Size | #6-32 UNC / #8-32 UNC |
| Humidity per IEC60068-2-78 | 93% non-condensing |
| MTBF (Mean Time Between Failures) at 40°C ambient temperature ⁽⁸⁾ | 21,395,130 hours (2,441 years) |
| MTBF (Mean Time Between Failures) at 60°C ambient temperature ⁽⁸⁾ | 11,545,504 hours (1,317 years) |

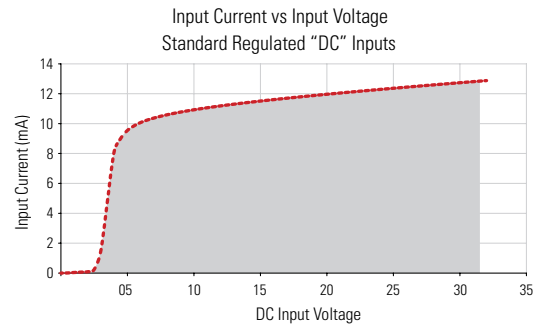
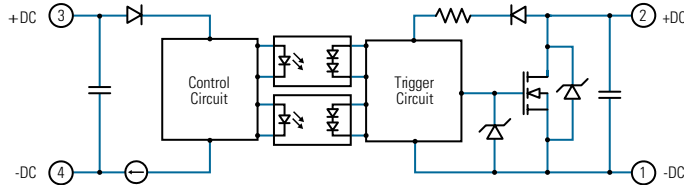
WIRING DIAGRAM

* Inductive loads must be diode suppressed.



| Recommended Wire Sizes | | |
|------------------------|---|---------------------------------|
| Terminals | Wire Size (Solid / Stranded) | Wire Pull-Out Strength (lbs)[N] |
| Input | 24 AWG (0.2 mm ²) / 0.2 [minimum] | 10 [44.5] |
| | 2 x 12 AWG (3.3 mm ²) / 3.3 [maximum] | 90 [400] |
| Output | 20 AWG (0.5 mm ²) / 0.518 [minimum] | 30 [133] |
| | 2 x 10 AWG (5.3 mm ²) / 5.3 | 110 [490] |
| | 2 x 8 AWG (8.4 mm ²) / 8.4 [maximum] | 90 [400] |

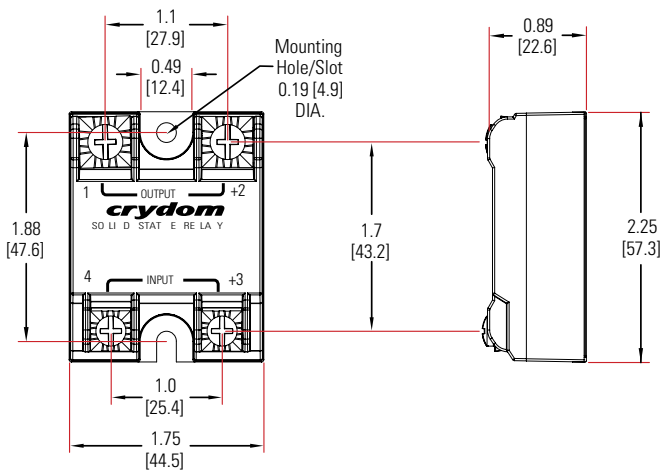
EQUIVALENT CIRCUIT BLOCK DIAGRAMS



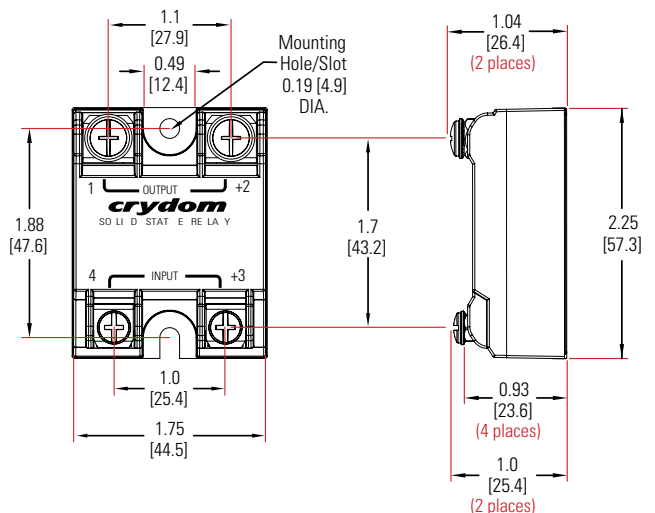
MECHANICAL SPECIFICATIONS (2)

*Tolerances: ±0.02 in / 0.5 mm All dimensions are in: inches [millimeters]

Screw Termination



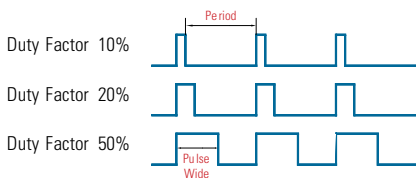
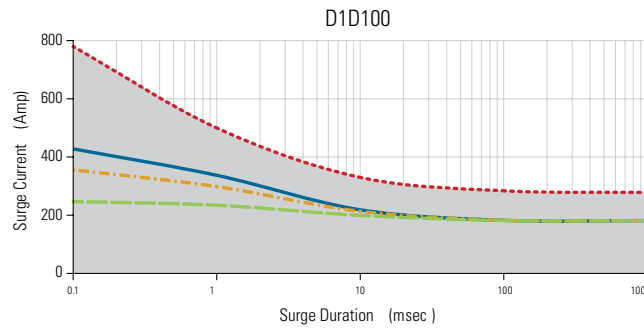
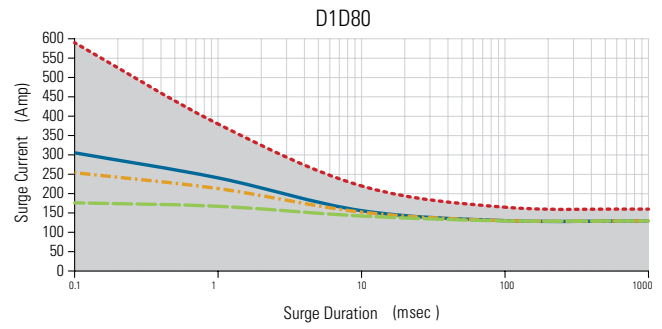
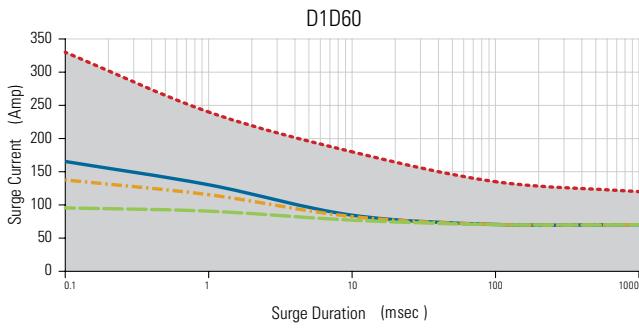
Hex Standoff Termination ("K" Option)¹





SURGE CURRENT INFORMATION

--- Single Pulse (i) — Duty Factor (10%) (ii) - - - Duty Factor (20%) (ii) — Duty Factor (50%) (ii)



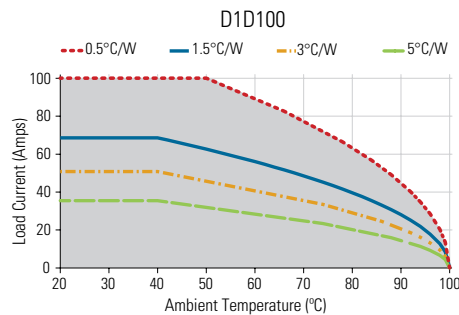
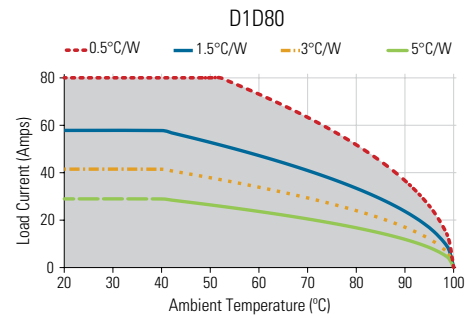
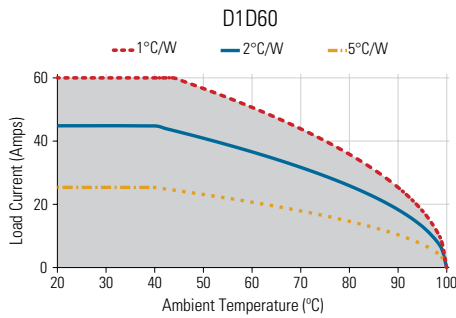
For Pulse Wide Modulation applications select the curve according to duty factor and pulse duration as following.

$$= \text{Duty Factor} \times \frac{\text{Pulse Wide}}{\text{Period}} \times 100 (\%)$$



(i) for Single Surge Pulse $T_c=40^\circ\text{C}; T_j 175^\circ\text{C}$
(ii) for Repetitive Surge Pulse $T_c=40^\circ\text{C}; T_j 130^\circ\text{C}$



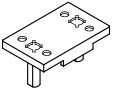

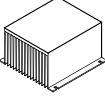
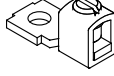
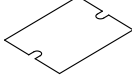
THERMAL DERATE INFORMATION



New Accessories! Protective Cover & Hardware Kits

| | | | |
|---|---|---|--|
| Protective Cover Part number: KS101 | | Hardware Kit Part number: HK4 | |
|  | Clear plastic cover compatible with all new S1 designs. Safety covers provide added protection from electric shock when installing or checking equipment. |  | Bag with 2 square brass accessories and 2 screw 8-32 x 5/8 for output. Used to mount TMR1 lug terminals. |

Recommended Accessories

|  Cover |  Hardware Kit |  Heat Sink Part No. | Thermal Resistance [°C/W] |  Lug Terminal |  Thermal Pad |
|---|--|---|---|--|---|
| KS101 | HK1 HK4 | HS501DR HS301 / HS301DR HS251 HS201 / HS201DR HS202 / HS202DR HS172 HS151 / HS151DR HS122 / HS122DR HS103 / HS103DR HS101 HS073 HS072 HS053 HS033 HS023 | 5.0 3.0 2.5 2.0 2.0 1.7 1.5 1.2 1.0 1.0 0.7 0.7 0.5 0.36 0.25 | TRM1 TRM6 | HSP-1 HSP-2 |



ORDERING OPTIONS

Example : D!D07K

Not all part number combinations are available.
Contact Crydom Technical Support for information on the availability of a specific part number.

| | | | | | | | |
|---------------------------|--|---|-----------|---|-----------|---|----------|
| | D | - | 1D | - | 60 | - | K |
| Family | D | | | | | | |
| Operating Voltage | 1D: 1-100 VDC | | | | | | |
| Rated Load Current | 60: 60 Amps 80: 80 Amps 100: 100 Amps | | | | | | |
| Termination Blank | Blank: Screws & clamps K: Installed standoffs with 1 screws for PC Board mounting | | | | | | |

Required for valid part number
 For options only and not required for valid part number



GENERAL NOTES

- (1) Option "K" is designed and tested for use with printed circuit boards or ring/fork terminals having a thickness between 0.031 and 0.093 inches (0.79 to 2.36 mm), and loads rated up to 50 Amps.
For higher load currents, the "K" standoff temperature must not exceed 105°C. For additional application assistance please contact Crydom Technical Support.
- (2) All parameters at Tc=25°C unless otherwise specified.
- (3) Heat sinking required, see derating curves.
- (4) Low current loads and high ambient temperature can affect turn-on time.
- (5) 8 VDC Minimum control voltage. Resistive loads only. Consider switching losses; at maximum frequency reduce to 75% output current.
- (6) Increase minimum voltage by 1V for operations from -20 to -40°C.
- (7) Decrease maximum control voltage 1.35V/°C above 80°C ambient temperature.
- (8) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).

For additional information or specific questions, contact Crydom Technical Support



AGENCY APPROVALS & CERTIFICATIONS

EN60950-1: Meets the requirements of sections 1.5: 1.7: 2.9: 2.10.5.3: 4.2: 4.5: 4.7:
IEC 61000-4-2 Electrostatic Discharge Level 3
IEC 61000-4-4 Electrically Fast Transients Level 3
IEC 61000-4-5 Electrical Surges Level 3



WARNINGS



RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

Failure to follow these instructions can result in serious injury, or equipment damage.



HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

Failure to follow these instructions will result in death or serious injury.

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Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

CONTACT US

Americas

+1 (877) 502 5500
sales.crydom@sensata.com

Europe, Middle East & Africa

+44 (1202) 416170
ssr-info.eu@sensata.com

Asia Pacific

sales.isasia@list.sensata.com
China +86 (21) 2306 1500
Japan +81 (45) 277 7117
Korea +82 (31) 601 2004
India +91 (80) 67920890
Rest of Asia +886 (2) 27602006
ext 2808



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- Техническая поддержка проекта;
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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.