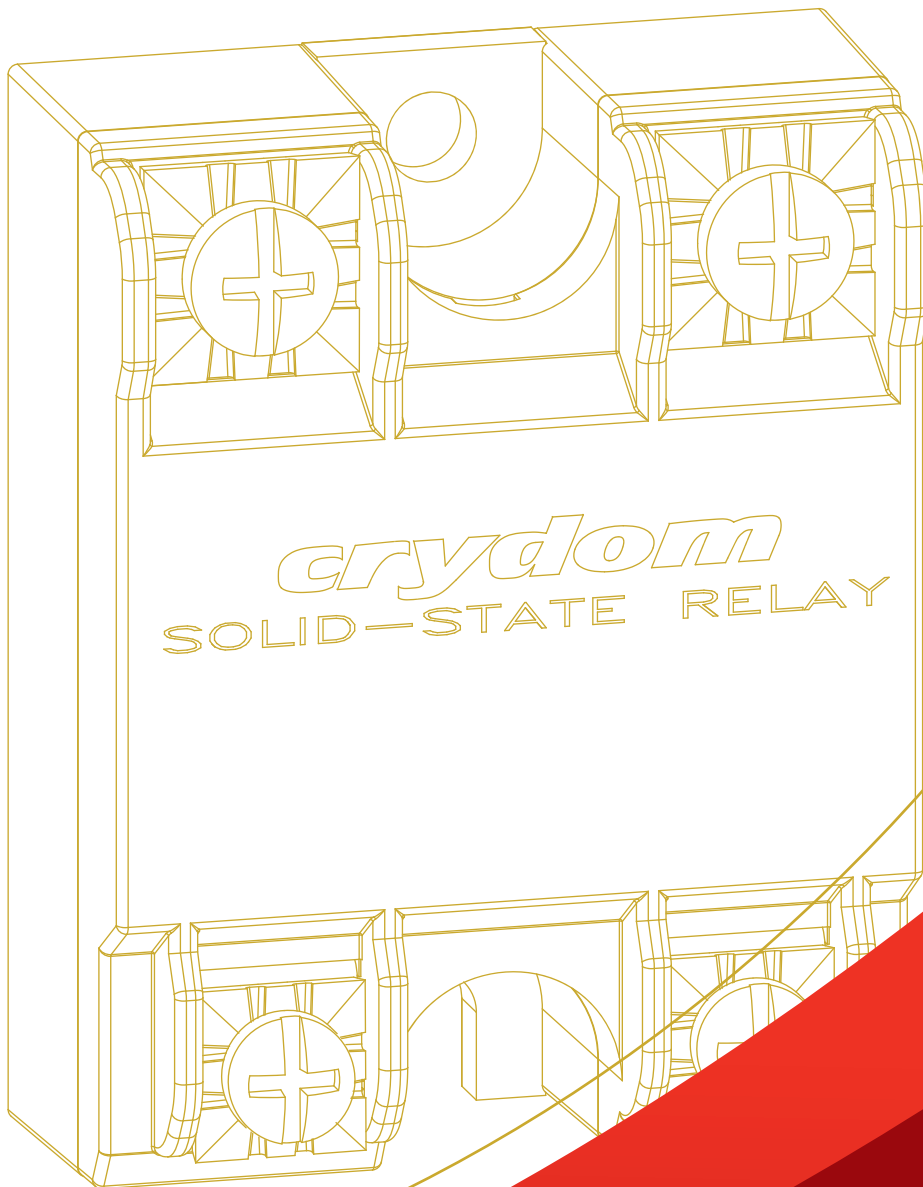


crydom[®]

The Global Expert in **Solid State Switching** Technology



Panel Mount Solid State Relays Vol. II





Crydom, a brand of Sensata Technologies and **global expert in Solid State Relay Technology**, has a distinguished record of providing high quality, world class Solid State Relay and Control Products for a variety of heating, lighting and motion control applications. Crydom products, coupled with **unparalleled technical support, timely delivery and competitive pricing**, provide Crydom's clients with the innovative products and support necessary to succeed in today's competitive and fast paced global markets.

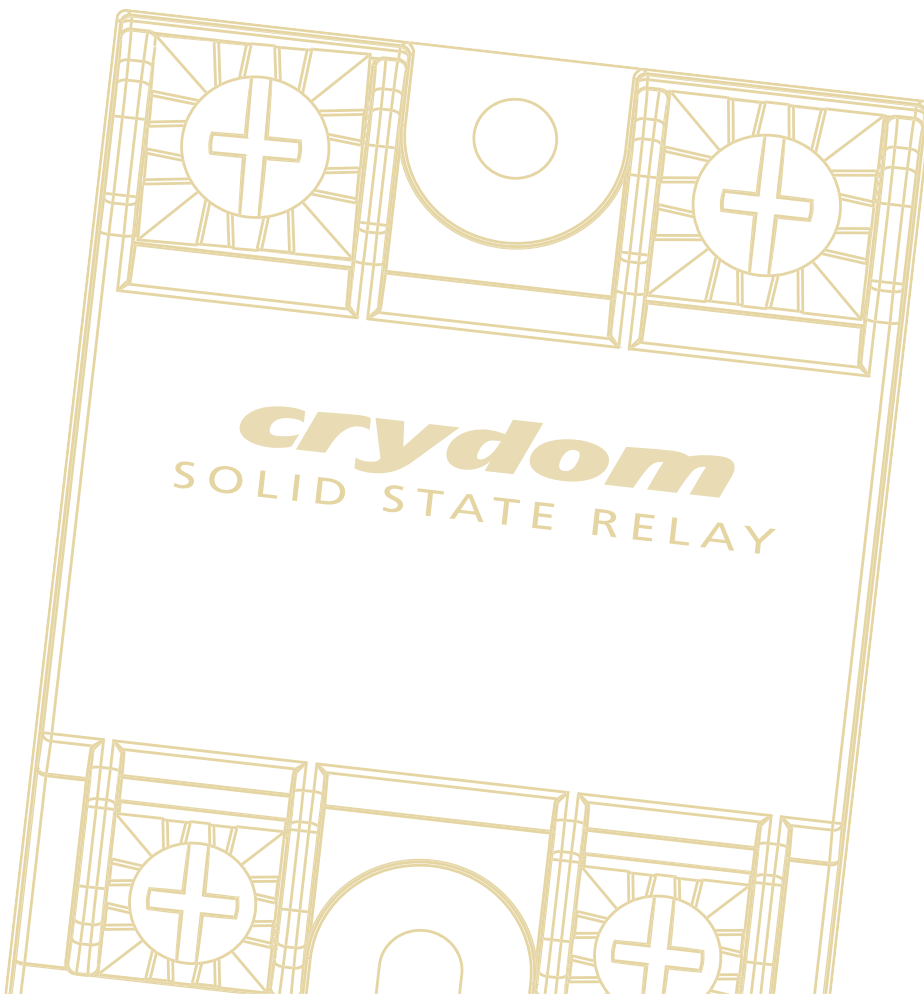
Crydom's extensive selection of standard off-the-shelf products is constantly being updated and expanded through its continuous improvement and aggressive new product development programs. Utilizing state of the art designs, materials and technology, Crydom offers a wide range of AC and DC output SSRs and solid state contactors in industry standard Panel Mount, PCB Mount, DIN Rail and Plug-In packages, all **meeting global safety and standards agency requirements** such as CE, RoHS, UL, IEC, etc.

Bolstered by four decades of Solid State Relay operations experience, Crydom also specializes and encourages **adapted and fully custom-designed SSR products** for nearly any application where unique specifications and optimized performance are critical for success.

Crydom's modern purpose-built **100,000 square foot manufacturing facility** houses all aspects of its ISO certified operation including Design and Development Engineering, Manufacturing Operations and Quality Assurance, Customer Service, Finance, Marketing and General Management, permitting close coordination of all aspects of Crydom's activities. Applications Engineering and Sales support are both performed in the field to provide Crydom's Customers with the unparalleled technical and commercial support.

Following rigid design guidelines and standards, Crydom products have set the bench mark for SSR performance and reliability world wide. In addition to **award winning designs**, Crydom has acquired an impressive list of **patents** related to SSRs and Solid State Controls, while continuing to develop new circuit and technology-related inventions as part of **extensive R&D programs**.

To learn more about Crydom SSR technology and products, or how an alliance with Crydom can contribute to the success of your project, visit **www.crydom.com** or contact your authorized Crydom Distributor or Crydom Customer Service Representative today.



www.crydom.com



The New **EXPANDED** range of **S1 Generation 4** **PANEL MOUNT SOLID STATE RELAYS**

Now including DC Outputs & IP20 covers

New housing with anti-rotation barriers



Improved IP00 touch safe cover



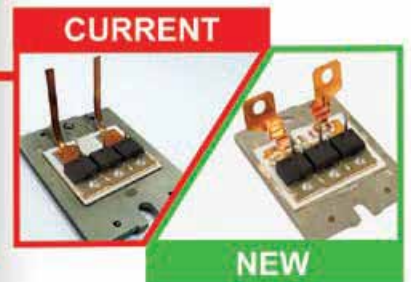
Improved IP20 safety cover



Direct output "lead frame" termination



Improved thermal performance with DBC



Improved "SEMS" screw & washer hardware



Stress & epoxy free construction



Improved performance





CW Series 280/660 VAC 10-125 Amps

- Heavy duty Solid State Relays
- Ratings from 10 to 125 Amps @ 24-280 VAC or 48-660 VAC
- AC or DC control and Universal AC/DC control
- SCR Output for heavy industrial loads
- UL/CSA/TUV Approved, CE Compliant to EN60950-1
- Certified according to EN 62314:2006



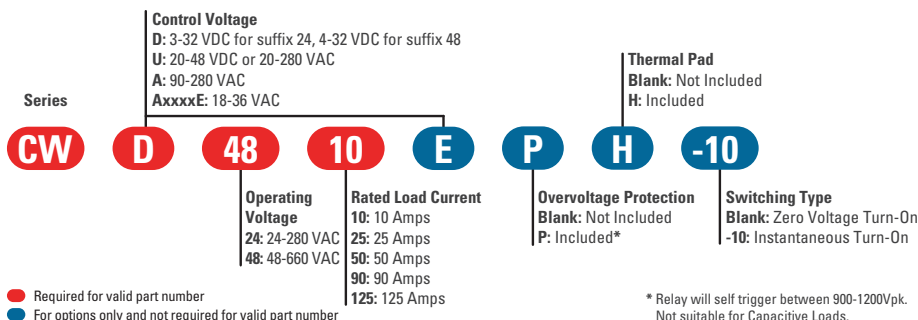
Output Specifications (A)	CWx2410	CWx2425	CWx2450	CWx2490	CWx24125	CWx4810	CWx4825	CWx4850	CWx4890	CWx48125
Operating Voltage (47-440Hz) [Vrms]	24-280	24-280	24-280	24-280	24-280	48-660	48-660	48-660	48-660	48-660
Transient Voltage [Vpk]	600	600	600	600	600	1200	1200	1200	1200	1200
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	380/400	570/600	810/850	1290/1350	1900/2000	380/400	570/600	810/850	1290/1350	1900/2000
Thermal Resistance Junction to Case [Rjc] [°C/W]	0.35	0.3	0.2	0.16	0.11	0.35	0.3	0.2	0.16	0.11
HP Rating UL 508/IEC60947 [HP] (KW): 120 VAC zero voltage t/o	0.5 (0.37)	0.75 (0.56)	1 (0.74)	2 (1.5)	3 (2.24)	0.5 (0.37)	0.75 (0.56)	1 (0.74)	2 (1.5)	3 (2.24)
HP Rating UL 508/IEC60947 [HP] (KW): 240 VAC zero voltage t/o	1.5 (1.1)	2 (1.5)	3 (2.2)	5 (3.73)	7.5 (5.6)	1.5 (1.1)	2 (1.5)	3 (2.2)	5 (3.73)	7.5 (5.6)
HP Rating UL 508/IEC60947 [HP] (KW): 480 VAC zero voltage t/o	-	-	-	-	-	3 (2.24)	5 (3.7)	7.5 (5.6)	10 (7.4)	15 (11.2)
HP Rating UL 508/IEC60947 [HP] (KW): 120 VAC instantaneous t/o	0.5 (0.4)	1 (0.7)	2 (1.0)	3 (2.2)	5 (3.7)	0.5 (0.4)	1 (0.7)	2 (1.0)	3 (2.2)	5 (3.7)
HP Rating UL 508/IEC60947 [HP] (KW): 240 VAC instantaneous t/o	1.5 (1.1)	3 (2.2)	5 (3.5)	7.5 (5.6)	10 (7.5)	1.5 (1.1)	3 (2.2)	5 (3.5)	7.5 (5.6)	10 (7.5)
HP Rating UL 508/IEC60947 [HP] (KW): 480 VAC instantaneous t/o	-	-	-	-	-	3 (2.24)	5 (3.7)	7.5 (5.6)	10 (7.4)	15 (11.2)

Output Specifications (A)	10 A	25 A	50 A	90 A	125 A
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	1	1	1	1	1
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500	500	500	500
Maximum Load Current [Arms] (B)	10	25	50	90	125
Minimum Load Current [mArms]	150	150	150	250	250
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.3	1.3	1.3	1.3	1.25
Maximum 1/2 Cycle I ² t for Fusing (50/60Hz) [A ² sec]	720/660	1620/1500	3280/3000	8320/7560	18000/16600
Minimum Power Factor (at Maximum load)	0.5	0.5	0.5	0.5	0.5

Input Specifications (A)	CWD	CWA	CWAxxxxE	CWU
Control Voltage Range	3-32 VDC [suffix 24] / 4-32 VDC [suffix 48]	90-280 VAC (D)	18-36 VAC	20-48 VDC / 20-280 VAC
Maximum Reverse Voltage	-32 VDC	-	-	-
Minimum Turn-On Voltage	3 VDC [suffix 24] / 4 VDC [suffix 48] (C)	90 VAC	18 VAC	19 VDC / VAC
Minimum Turn-Off Voltage	1 VDC	10 VAC	4 VAC	5 VDC / VAC
Minimum Input Current (for on-state) [mA]	10	6	13	7/13
Maximum Input Current [mA]	15	10	15	11/9
Nominal Input Impedance [Ohms]	Current Regulated			
Maximum Turn-On Time [msec]	1/2 Cycle (E)	20	20	20
Maximum Turn-Off Time [msec]	1/2 Cycle	30	30	30

General Specifications (A)	CW Series
Dielectric Strength, Input/Output/Base (50/60Hz) [Vrms]	4000
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (F)	-40 to 80
Ambient Storage Temperature Range [°C]	-40 to 125
LED Input Status Indicator	Yes, Green
Weight (Typical) [oz] (gr)	2.88 (81.53)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	7,210,376 hours (823 years)

Part Number Nomenclature



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



CL Series 280 VAC 5-10 Amps

- Economical Solid State Relays with triac output
- Ratings of 5 and 10 Amps @ 280 VAC
- Flexible 3 to 32 VDC or 90 to 250 VAC Control Voltage
- New "K" Option for PCB mounting for IP00 versions
- UL Approved, CE Compliant to EN60950-1
- Optional IP20 safety cover



Output Specifications (A)

	5 A	10 A
Operating Voltage (47-63Hz) [Vrms]	24-280	24-280
Transient Overvoltage [Vpk] (H)	600	600
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	7	7
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500
Maximum Load Current [Arms] (B)	5	10
Minimum Load Current [mArms]	150	150
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	84/100	120/126
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.6	1.5
Thermal Resistance Junction to Case [Rjc] [°C/W]	2.3	2.3
Maximum 1/2 Cycle I ² t for Fusing (50/60Hz) [A ² sec]	35/42	72/66
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	3	1.5
Minimum Power Factor (at Maximum load)	0.5	0.5

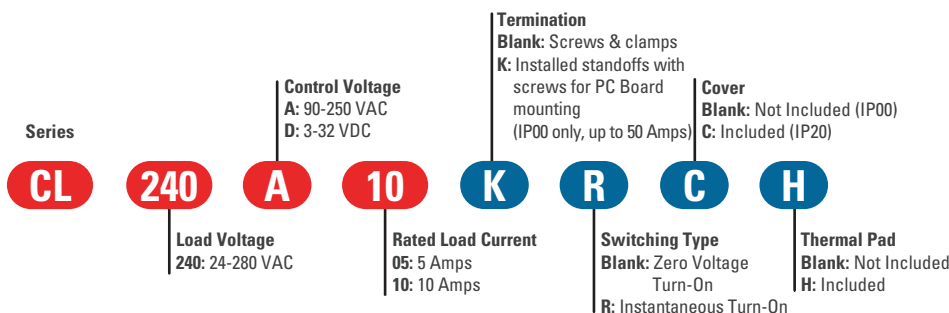
Input Specifications (A)

	AC Input	DC Input
Control Voltage Range	90-250 VAC	3-32 VDC (C)
Maximum Reverse Voltage	N/A	-32 VDC
Minimum Turn-On Voltage	90 VAC	3 VDC
Must Turn-Off Voltage	10 VAC	1 VDC
Minimum Input Current (for on-state) [mA]	6	10
Maximum Input Current [mA]	10	14
Nominal Input Impedance [Ohms]	Current Limited	Current Limited
Maximum Turn-On Time [msec]	20	1/2 Cycle (E)
Maximum Turn-Off Time [msec]	30	1/2 Cycle

General Specifications (A)

	CL Series
Dielectric Strength, Input to Output (50/60Hz) [Vrms]	4000
Dielectric Strength, Input/Output to Ground (50/60Hz)	2500
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (F)	-40 to 80
Ambient Storage Temperature Range [°C]	-40 to 125
LED Input Status Indicator	Yes, Green
Weight (Typical) [oz] (gr)	2.88 (81.53)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	7,210,376 hours (823 years)

Part Number Nomenclature



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

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

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e-mail: sales-europe@crydom.com

Asia Tel.: +86 (21) 2306 1648
e-mail: sales-cn@crydom.com



DC60 Series 60 VDC 3-7 Amps

- Economical Bipolar transistor output Solid State Relays
- Ratings from 3 to 7 Amps @ 60 VDC
- Flexible 3.5 to 32 VDC Control Voltage
- New "K" Option for PCB mounting for IP00 versions
- UL Approved, CE Compliant to EN60950-1

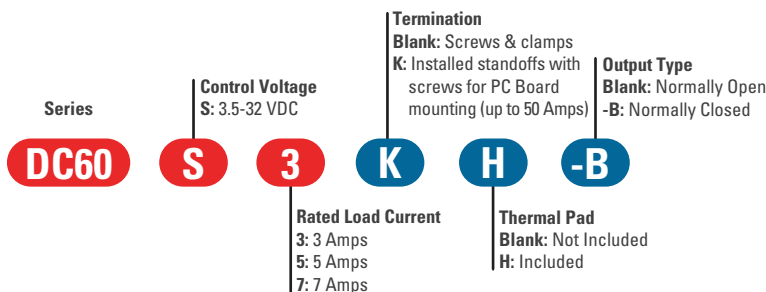


Output Specifications (A)	3 A	5 A	7 A
Recommended Operating Voltage [VDC]	3-48	3-48	3-48
Absolute Maximum Rating [VDC]	60	60	60
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.1	0.1	0.1
Maximum Load Current [Adc] (B)	3	5	7
Minimum Load Current [mA]	20	20	20
Maximum Surge Current [Adc] (10 ms)	6	10	14
Maximum On-State Voltage Drop @ Rated Current [VDC]	1.0	1.2	1.3
Thermal Resistance Junction to Case [Rjc] [°C/W]	2	2	2
Minimum Heat Sink @ Ambient [for max current = °C/W & Ta]	5 @ 60°C	5 @ 60°C	5 @ 40°C

Input Specifications (A)	DC60 Series
Control Voltage Range	3.5-32 VDC
Maximum Reverse Voltage	-32 VDC
Minimum Turn-On Voltage (J)	3.5 VDC
Minimum Turn-Off Voltage (K)	1 VDC
Minimum Input Current (for on-state) [mA]	2.2
Maximum Input Current [mA]	25
Nominal Input Impedance [Ohms]	1500
Maximum Turn-On Time [msec] (L)	0.1
Maximum Turn-Off Time [msec] (M)	0.3

General Specifications (A)	DC60 Series
Dielectric Strength, Input/Output/Base (50/60Hz) [Vrms]	4000
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C]	-30 to 80
Ambient Storage Temperature Range [°C]	-40 to 125
Weight (Typical) [oz] (gr)	2.46 (70)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	21,395,130 hours (2,441 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	11,545,504 hours (1,317 years)

Part Number Nomenclature



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



D06D Series

60 VDC
60-100 Amps

- Solid State Relays with low impedance MOSFET output
- Ratings from 60 to 100 Amps @ 60 VDC
- Flexible 3.5 to 32 VDC Control Voltage
- New "K" Option for PCB mounting for IP00 versions
- UL Approved, CE Compliant to EN60950-1

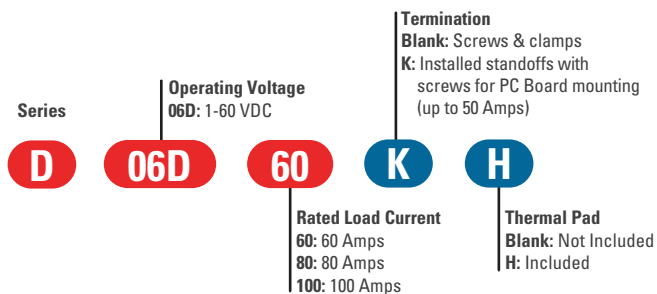


Output Specifications (A)	60 A	80 A	100 A
Recommended Operating Voltage [VDC]	1-48	1-48	1-48
Absolute Maximum Rating [VDC]	60	60	60
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.1	0.1	0.3
Maximum Load Current [Adc] (B)	60	80	100
Minimum Load Current [mA] (N)	5	5	5
Maximum Surge Current [Adc] (10 ms)	180	220	270
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.6	0.7	0.5
Maximum On-State Resistance [R _{DS-ON}] [Ohms]	0.010	0.008	0.005
Thermal Resistance Junction to Case [Rjc] [°C/W]	0.73	0.73	0.51
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	1.0	0.5	0.5
Maximum Pulse Wide Modulation Frequency [Hz] (P)	1000	900	700

Input Specifications (A)	D06D Series
Control Voltage Range [VDC]	3.5-32
Maximum Reverse Voltage [VDC]	-32
Minimum Turn-On Voltage [VDC] (C)	3.5
Must Turn-Off Voltage [VDC]	1
Minimum Input Current (for on-state) [mA]	10
Maximum Input Current [mA]	15
Nominal Input Impedance	Current Regulated
Maximum Turn-On Time [µsec]	100
Maximum Turn-Off Time [µsec]	150

General Specifications (A)	D06D Series
Dielectric Strength, Input/Output/Base (50/60Hz) [Vrms]	3750
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (O)	-40 to 100
Ambient Storage Temperature Range [°C]	-40 to 125
Weight (Typical) [oz] (gr)	2.66 (75.5)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	21,395,130 hours (2,441 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	11,545,504 hours (1,317 years)

Part Number Nomenclature



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

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

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e-mail: sales-cn@crydom.com



Series 1-DC & 1-DCL

100/200/400/500 VDC

7-100 Amps

- Solid State Relays with low impedance MOSFET output
- Ratings from 7 to 100 Amps @ 100 VDC, from 7 to 40 Amps @ 200 VDC, from 7 to 12 Amps @ 400 VDC, and from 7 to 10 Amps @ 500 VDC
- Flexible 3.5 to 32 VDC Control Voltage
- New "K" Option for PCB mounting for IP00 versions
- UL Approved, CE Compliant to EN60950-1



Output Specifications (A)	D1D07x	D1D12x	D1D20x	D1D40x	D1D60x	D1D80x	D1D100x	D2D07x	D2D12x	D2D40x	D4D07x	D4D12x	D5D07x	D5D10x
Recommended Operating Voltage [VDC]	1-72	1-72	1-72	1-72	1-72	1-72	1-72	1-150	1-150	1-150	1-300	1-300	1-385	1-385
Absolute Maximum Rating [VDC]	100	100	100	100	100	100	100	200	200	200	400	400	500	500
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.1	0.2	0.3	0.3	0.1	0.2	0.3	0.1	0.3	0.3	0.3	0.3	0.2	0.3
Maximum Load Current [Adc] (B)	7	12	20	40	60	80	100	7	12	40	7	12	7	10
Minimum Load Current [mA] (N)	1	1	1	1	5	5	5	1	1	1	1	1	1	1
Maximum Surge Current [Adc] (10 ms)	23	28	42	106	180	220	330	22	31	106	18	36	19	29
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.5	0.9	0.8	1.0	0.6	0.7	0.5	1.5	0.7	0.8	2.3	2.6	3.5	3.3
Maximum On-State Resistance [R _{DS-ON}] [Ohms]	0.07	0.072	0.039	0.025	0.010	0.008	0.005	0.21	0.062	0.021	0.33	0.22	0.5	0.33
Thermal Resistance Junction to Case [Rjc] [°C/W]	2.00	2.00	1.71	0.68	0.34	0.34	0.27	1.24	0.71	0.22	0.56	0.39	0.60	0.43
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	5.0	3.0	2.0	1.0	1.0	0.5	0.5	3.0	3.0	0.7	2.0	1.0	1.0	0.7
Maximum Pulse Wide Modulation Frequency [Hz] (P)	5000	4000	3500	2500	1000	900	800	3500	2000	950	1200	900	1100	900

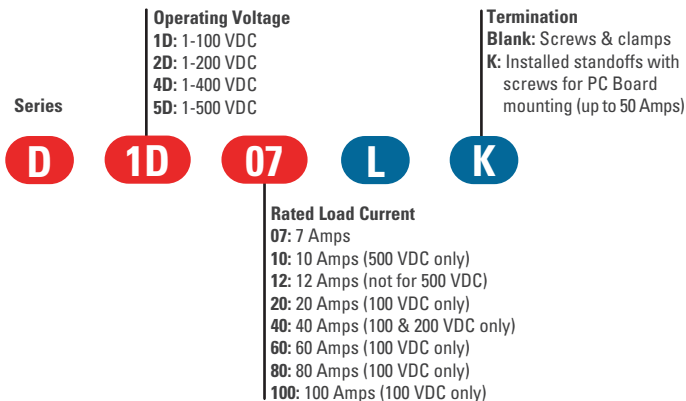
Input Specifications (A)

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

General Specifications (A)

	Series 1-DC & 1-DCL
Dielectric Strength, Input/Output/Base (50/60Hz) [Vrms]	3750
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (Q)	-40 to 100
Ambient Storage Temperature Range [°C]	-40 to 125
Weight (Typical) [oz] (gr)	2.66 (75.5)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	21,395,130 hours (2,441 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	11,545,504 hours (1,317 years)

Part Number Nomenclature



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

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



SSC Series 1000 VDC 25 Amps

- Solid State Relays with high voltage IGBT output
- Rated at 25 Amps @ 1000 VDC
- Flexible 8 to 16 VDC or 20 to 28 VDC Control Voltage
- New "K" Option for PCB mounting for IP00 versions
- CE Compliant to EN60950-1



Output Specifications (A)

	SSC Series
Recommended Operating Voltage [VDC]	1-1000
Absolute Maximum Rating [VDC]	1200
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.3
Maximum Load Current [A] (B)	25
Minimum Load Current [mA] (N)	20
Maximum Surge Current [A] (10 ms)	75
Maximum On-State Voltage Drop @ Rated Current [VDC]	1.55
Thermal Resistance Junction to Case [Rjc] [°C/W]	0.45
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	1
Maximum Pulse Wide Modulation Frequency [Hz] (P)	500

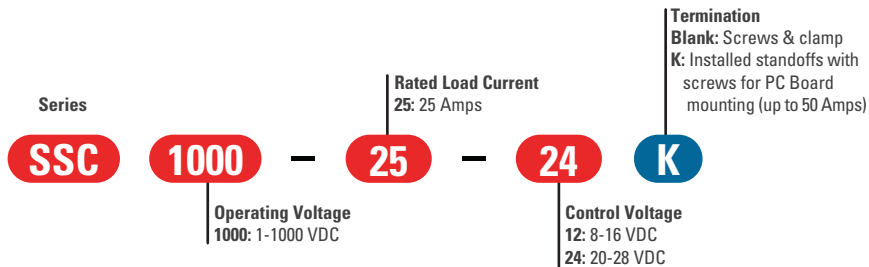
Input Specifications (A)

	Option -12	Option -24
Nominal Control Voltage [VDC]	12	24
Control Voltage Range [VDC]	8-16	20-28
Maximum Reverse Voltage [VDC]	-16	-28
Minimum Turn-On Voltage [VDC]	8	20
Must Turn-Off Voltage [VDC]	1	1
Minimum Input Current (for on-state) [mA]	12.5	12.5
Maximum Input Current [mA]	15	15
Nominal Input Impedance [Ohms]	Current Regulated	Current Regulated
Maximum Turn-On Time [µsec]	200	200
Maximum Turn-Off Time [µsec]	150	150

General Specifications (A)

	SSC Series
Dielectric Strength, Input/Output/Base (50/60Hz) [Vrms]	3750
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (D)	-40 to 100
Ambient Storage Temperature Range [°C]	-40 to 125
Weight (Typical) [oz] (gr)	2.88 (81.53)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	21,395,130 hours (2,441 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	11,545,504 hours (1,317 years)

Part Number Nomenclature



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



PowerPlus DC Series 60/100/200/400/500 VDC 10-100 Amps

- Solid State Relays with low impedance MOSFET output
- Solid State Relays with ratings up to 100 Amps @ 60 VDC, 100 Amps @ 100 VDC, 40 Amps @ 200 VDC, 20 Amps @ 400 VDC and 60 Amps @ 500 VDC
- Flexible 4 to 32 VDC or 30 to 60 VDC Control Voltage
- New "K" Option for PCB mounting for IP00 versions
- UL Approved, CE Compliant to EN60950-1
- Optional IP20 safety cover



Output Specifications (A)	DC60x10	DC60x20	DC60x40	DC60x60	DC60x80	DC60x100
Recommended Operating Voltage [VDC]	1-48	1-48	1-48	1-48	1-48	1-48
Absolute Maximum Rating [VDC]	60	60	60	60	60	60
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.1	0.1	0.1	0.1	0.1	0.1
Maximum Load Current [Adc] (B)	10	20	40	60	80	100
Minimum Load Current [mA] (N)	2.5	2.5	2.5	2.5	2.5	2.5
Maximum Surge Current [Adc] (10 ms)	78	108	163	200	258	326
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.17	0.30	0.36	0.51	0.46	0.56
Maximum On-State Resistance [R _{DS-ON}] [Ohms]	0.0170	0.0150	0.0090	0.0085	0.0058	0.0056
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.60	1.60	0.74	0.74	0.51	0.51
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	5	5	2	1	0.5	0.5
Maximum Pulse Wide Modulation Frequency [Hz] (P)	1000	1000	900	900	700	700

Output Specifications (A)	DC100x10	DC100x20	DC100x40	DC100x60	DC100x80	DC100x100
Recommended Operating Voltage [VDC]	1-72	1-72	1-72	1-72	1-72	1-72
Absolute Maximum Rating [VDC]	100	100	100	100	100	100
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.1	0.1	0.1	0.1	0.1	0.1
Maximum Load Current [Adc] (B)	10	20	40	60	80	100
Minimum Load Current [mA] (N)	2.5	2.5	2.5	2.5	2.5	2.5
Maximum Surge Current [Adc] (10 ms)	66	91	136	180	220	330
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.13	0.24	0.28	0.36	0.40	0.40
Maximum On-State Resistance [R _{DS-ON}] [Ohms]	0.013	0.012	0.007	0.006	0.005	0.004
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.27	0.73	0.58	0.45	0.34	0.27
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	N/R	5	2	1	0.5	0.5
Maximum Pulse Wide Modulation Frequency [Hz] (P)	1000	1000	900	900	700	700

Output Specifications (A)	DC200x10	DC200x20	DC200x40	DC200x60	DC400x10	DC400x20	DC500x60
Recommended Operating Voltage [VDC]	1-150	1-150	1-150	1-150	1-300	1-300	1-500
Absolute Maximum Rating [VDC]	200	200	200	200	400	400	500
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.2	0.2	0.2	0.2	0.4	0.4	0.1
Maximum Load Current [Adc] (B)	10	20	40	60	10	20	60
Minimum Load Current [mA] (N)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Maximum Surge Current [Adc] (10 ms)	71	71	142	224	32	48	95
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.40	0.78	0.64	0.66	1.55	2.2	0.8
Maximum On-State Resistance [R _{DS-ON}] [Ohms]	0.040	0.039	0.016	0.011	0.155	0.11	0.013
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.9	0.85	0.41	0.28	0.5	0.37	0.25
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	5	2.5	1	0.5	1.5	0.5	0.7
Maximum Pulse Wide Modulation Frequency [Hz] (P)	1000	1000	900	700	900	700	500

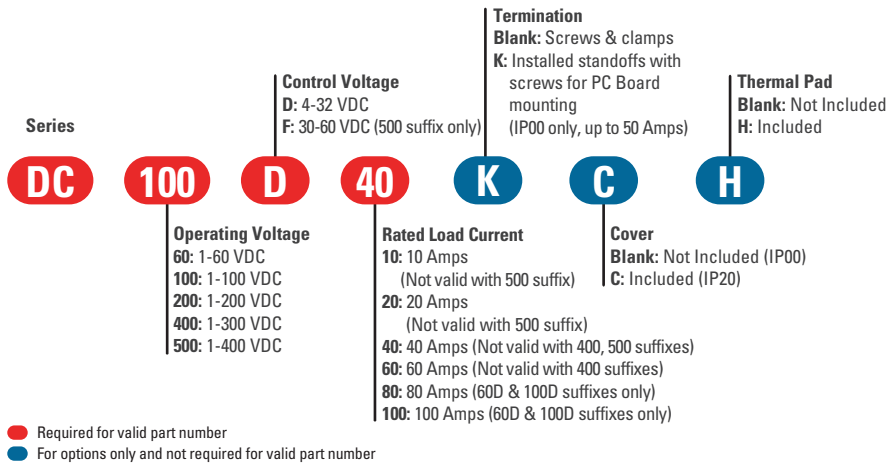
Input Specifications (A)	DC60xx	DC100xx	DC200xx	DC400xx	DC500Dx	DC500Fx
Control Voltage Range [VDC]	4-32	4-32	4-32	4-32	4-32	30-60
Maximum Reverse Voltage [VDC]	-32	-32	-32	-32	-32	-60
Minimum Turn-On Voltage [VDC] (C)	4	4	4	4	4	30
Must Turn-Off Voltage [VDC]	1	1	1	1	1	20
Minimum Input Current (for on-state) [mA]	11	11	11	11	11	12
Maximum Input Current [mA]	14	14	14	14	14	17
Nominal Input Impedance	Current Regulated					
Maximum Turn-On Time [µsec]	75	75	75	75	100	100
Maximum Turn-Off Time [µsec]	150	150	100	100	100	100

General Specifications (A)

PowerPlus DC Series

Dielectric Strength, Input/Output/Base (50/60Hz) [Vrms]	3750
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (Q)	-40 to 100
Ambient Storage Temperature Range [°C]	-40 to 125
LED Input Status Indicator	Yes, Green
Weight (Typical) [oz] (gr)	2.53 (72) except DC500xx, 2.88 (81.53) for DC500xxx
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Humidity	85% non-condensing
MTBF (Mean Time Between Failures) at 40°C ambient temperature (G)	21,395,130 hours (2,441 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (G)	11,545,504 hours (1,317 years)

Part Number Nomenclature



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

General Notes

- (A) All parameters at 25°C unless otherwise specified.
- (B) Heat sinking required, see derating curves. For "K" option maximum current up to 50 Amp.
- (C) Increase minimum voltage by 1 V for operations from -20 to -40°C.
- (D) For ambient temperatures above 40°C the maximum control voltage must not exceed 250 VAC.
- (E) Turn-on time for Instantaneous turn-on versions is 0.1 msec for CWA, CWD & CL240D, and 7 ms for CWU models.
- (F) AC input models operating range is -20 to 80 °C
- (G) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
- (H) Output will self trigger between 450-600 Vpk, not suitable for capacitive loads.
- (J) Minimum turn-on voltage for -B, DC control is 1 VDC and AC control is 10 Vrms/VDC.
- (K) Minimum turn-off voltage for -B, DC control is 3.5 VDC and AC control is 90 Vrms/VDC.

- (L) Turn-on time for -B version is 300 µs
- (M) Turn-off time for -B version is 100 µs.
- (N) Low current loads and high ambient temperature can affect turn-on time.
- (P) 8 VDC Minimum control voltage. Resistive loads only. Consider switching losses; at maximum frequency reduce to 75% output current.
- (Q) Decrease maximum control voltage 1.35V/°C above 80°C ambient temperature.
- (R) Select "P" option for overvoltage protection.
- (S) Option "K" is intended only for use in attaching a printed circuit board to the SSR or mounting the SSR to a printed circuit board (PCB thicknesses from .031 to .093 inches [0.79 to 2.36 mm]).

Block Diagrams

Diagram 1: CW Series, AC Control

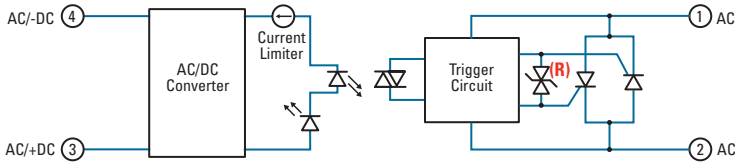


Diagram 2: CW Series, DC Control

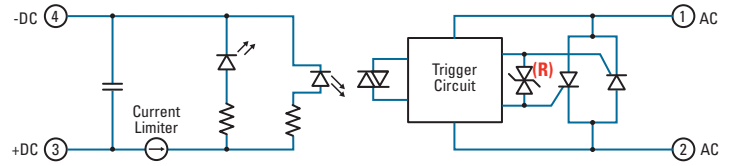


Diagram 3: CL Series, AC Control

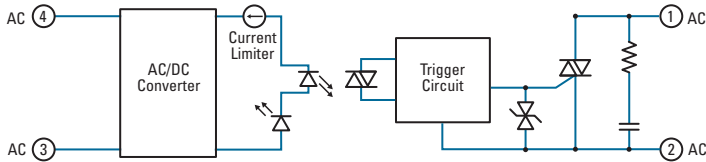


Diagram 4: CL Series, DC Control

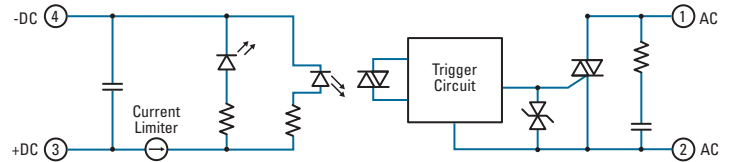


Diagram 5: DC60 Series

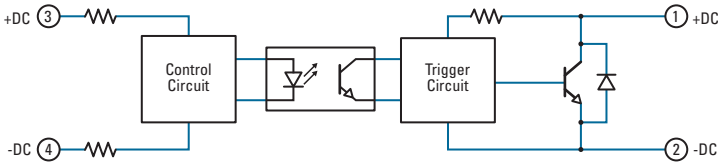


Diagram 6: 1-DC, 1-DCL, D1D, D06D Series

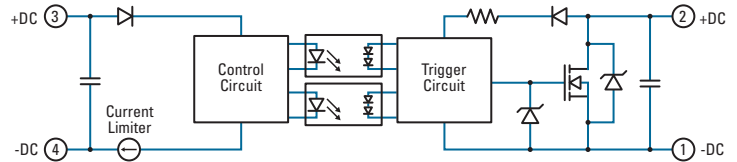


Diagram 7: SSC Series

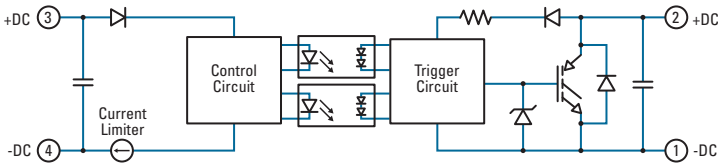


Diagram 8: PowerPlus DC Series

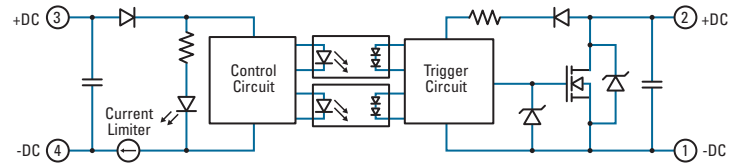


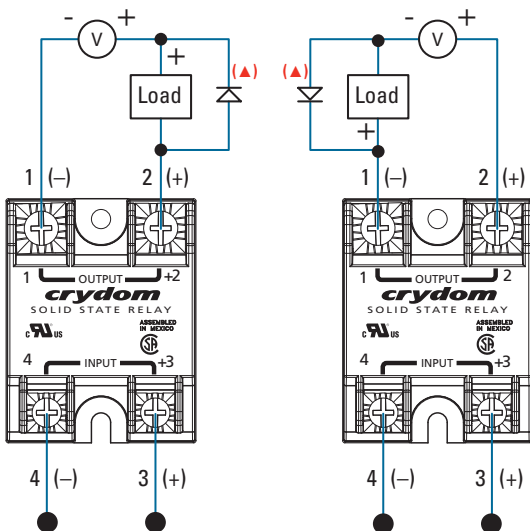
TABLE 1. Block Diagrams

Diagram 1	CW Series, AC Control
Diagram 2	CW Series, DC Control
Diagram 3	CL Series, AC Control
Diagram 4	CL Series, DC Control
Diagram 5	DC60 Series
Diagram 6	1-DC, 1-DCL, D1D, D06D Series
Diagram 7	SSC Series
Diagram 8	PowerPlus DC Series

Wiring Diagrams

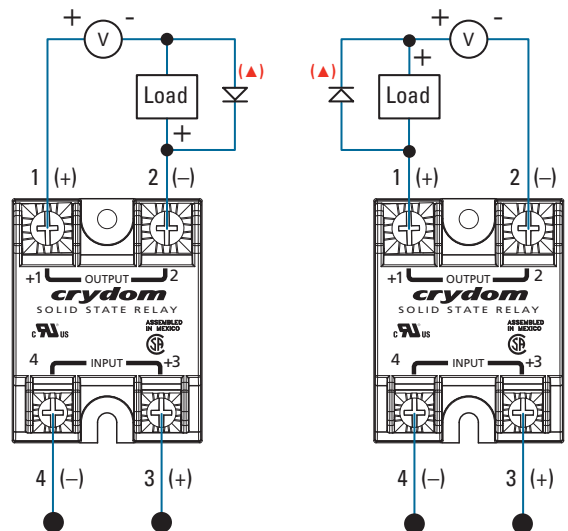
All DC Output Relays, Except DC60Sx

(▲) Inductive loads must be diode suppressed



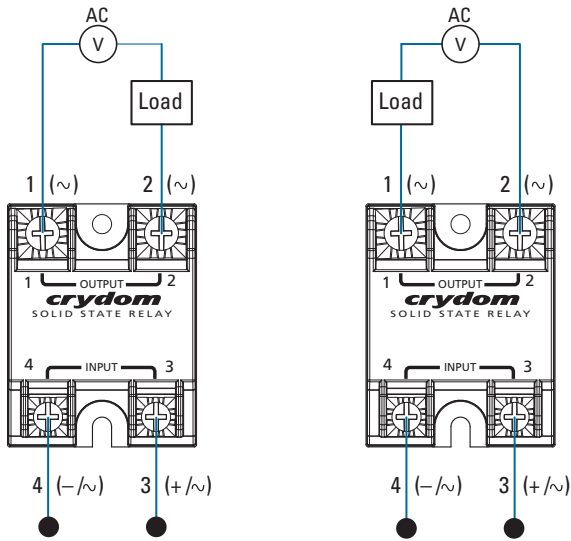
DC60Sx

(▲) Inductive loads must be diode suppressed



Wiring Diagrams

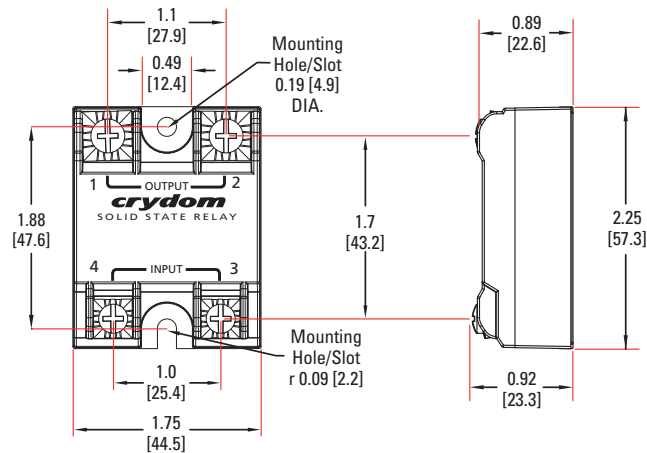
All AC Output Relays



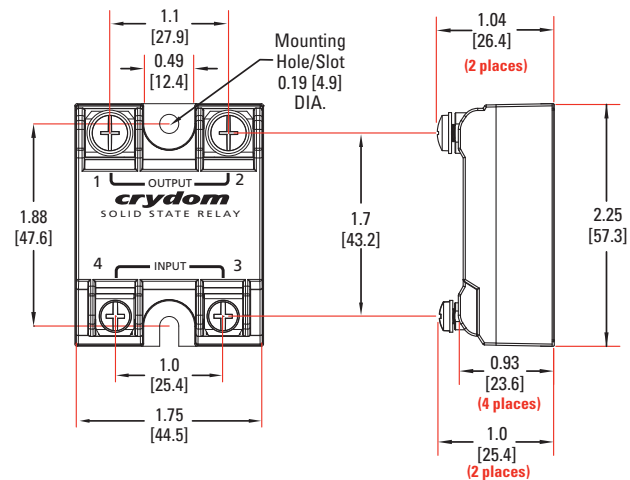
Mechanical Dimensions

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

Screw Termination



Standoff Termination (Option "K") (S)



New Accessories!

Protective Cover & Hardware Kit

Protective Cover

Part number: KS101



Clear plastic cover compatible with all new S1 designs. Safety covers provide added protection from electric shock when installing or checking equipment. Not applicable for IP20 models (CW, CL & PowerPlus DC Series).

Hardware Kit

Part number: HK4



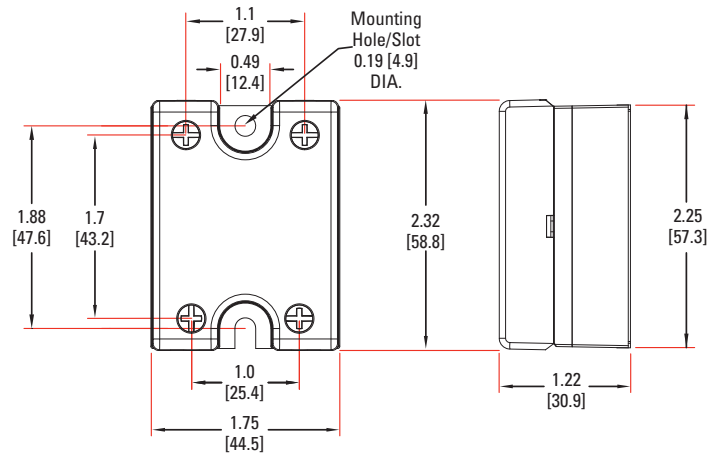
Bag with 2 square brass accessories and 2 screw 8-32 x 5/8 for output. Used to mount TMR1 lug terminals.

TABLE 2. Recommended Accessories

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

(■) Not suitable for use with IP20 versions

Screw Termination, IP20 (Option "C" & CW Series)



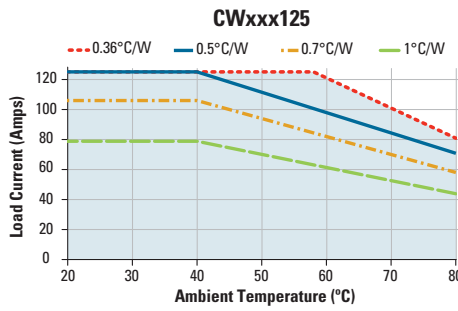
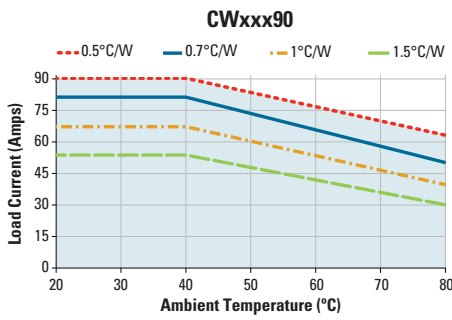
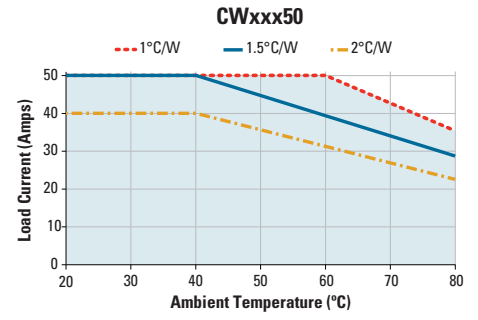
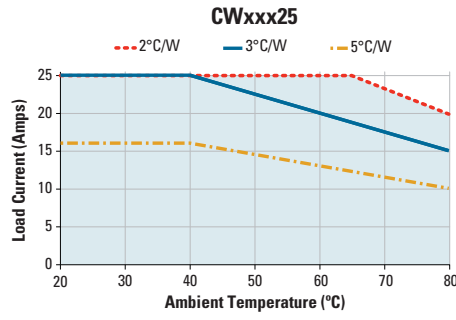
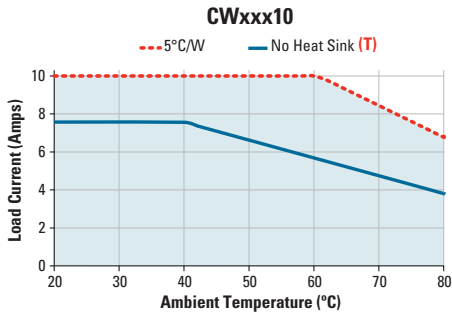
Questions?
Call or e-mail:

America Tel.: +1 (877) 502 5500
e-mail: sales@crydom.com

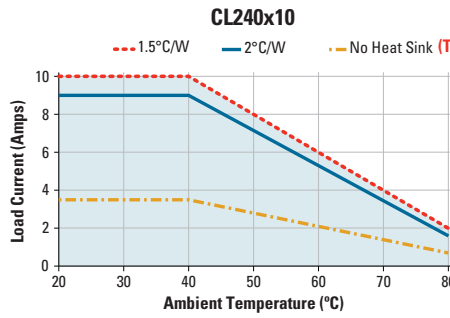
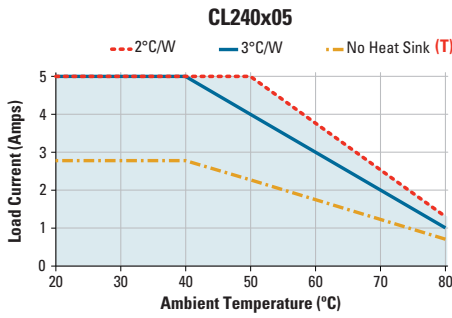
EMEA Tel.: +44 (0) 1202 416170
e-mail: sales-europe@crydom.com

Asia Tel.: +86 (21) 2306 1648
e-mail: sales-cn@crydom.com

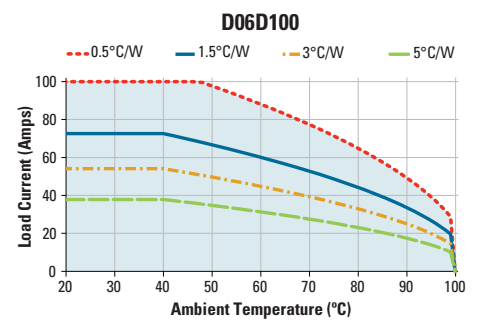
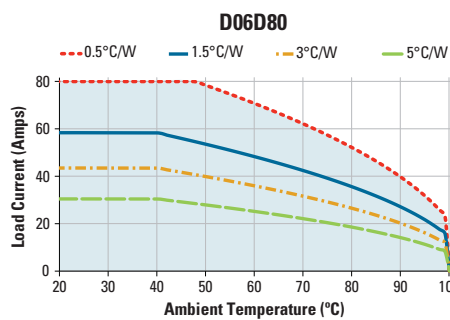
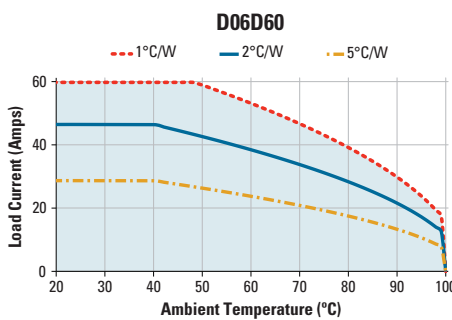
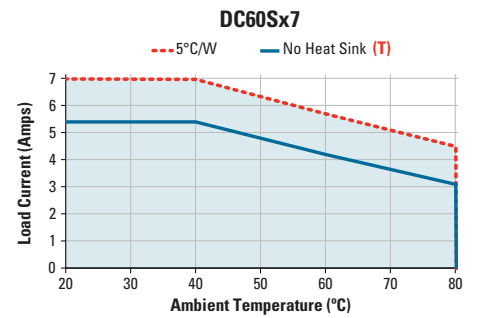
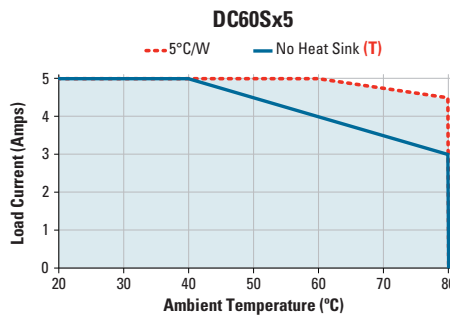
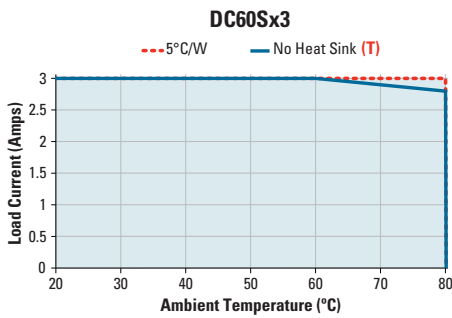
Derating Curves: CW Series



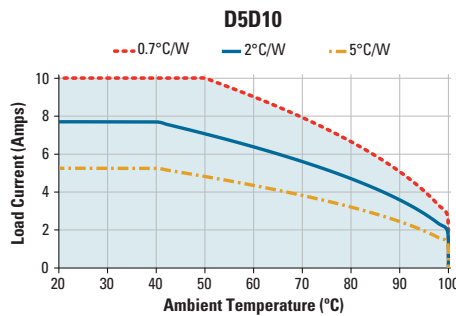
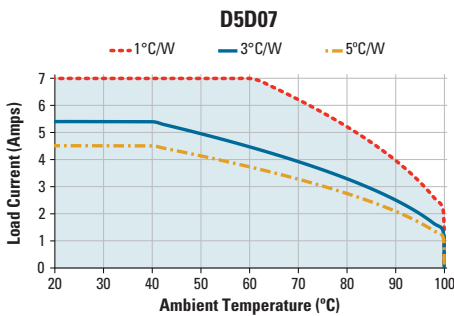
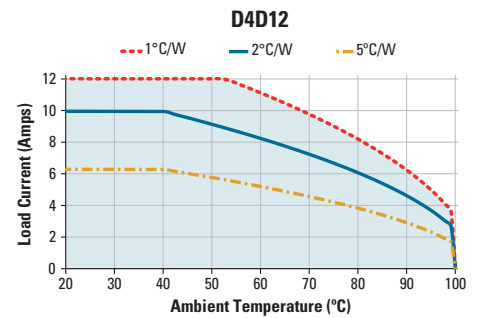
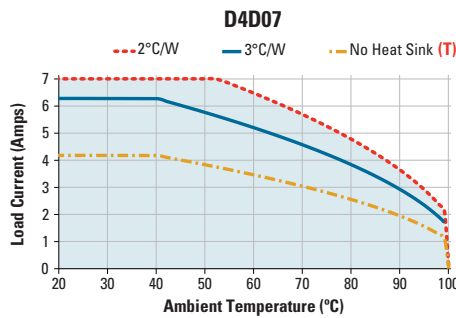
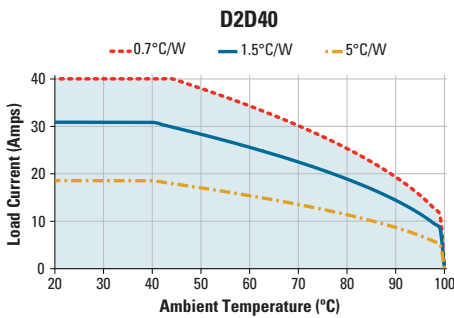
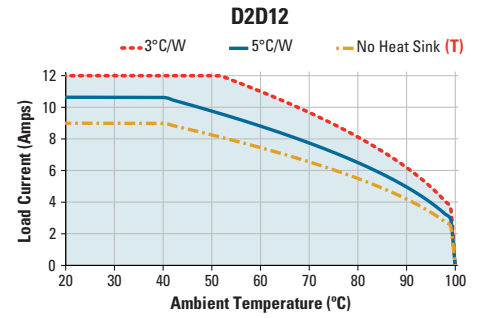
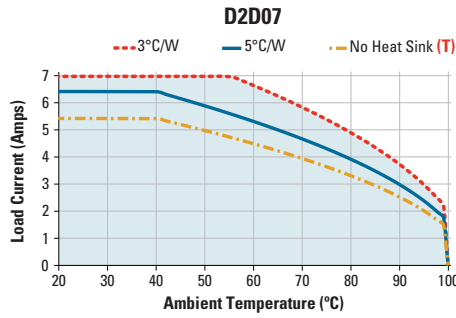
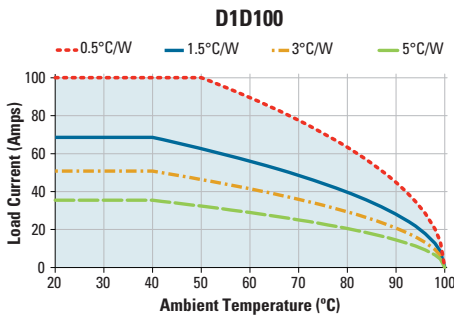
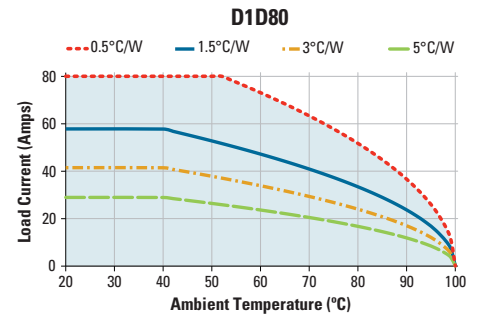
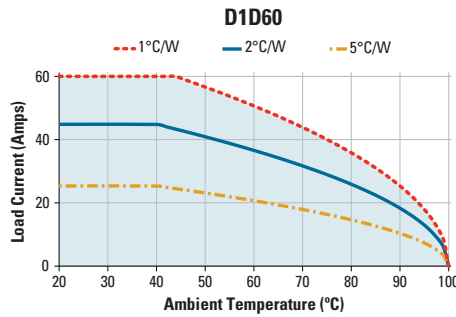
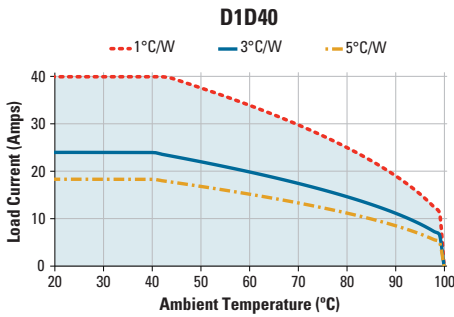
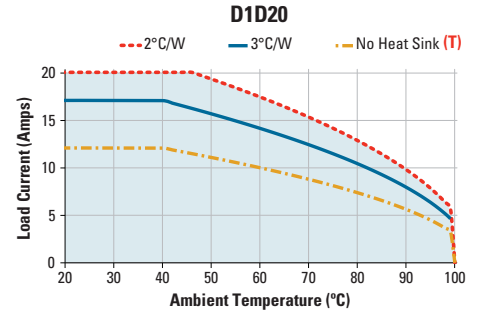
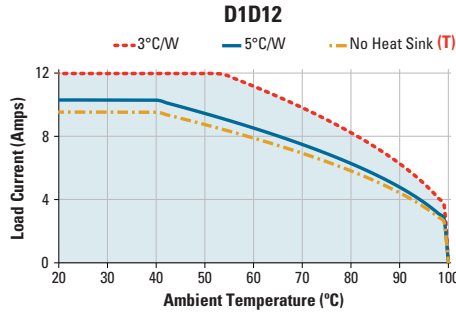
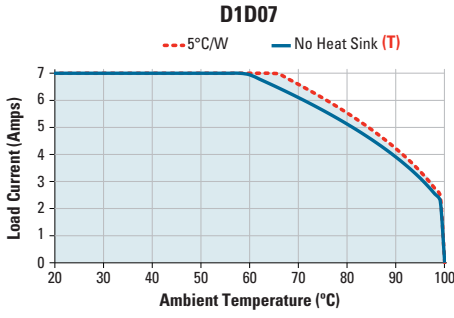
Derating Curves: CL Series



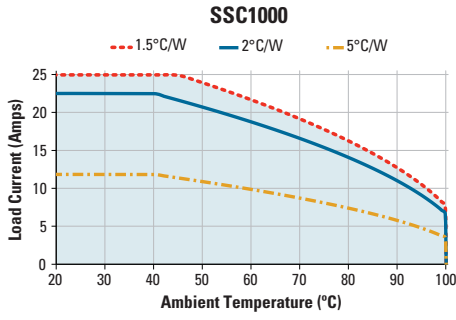
Derating Curves: DC60 Series



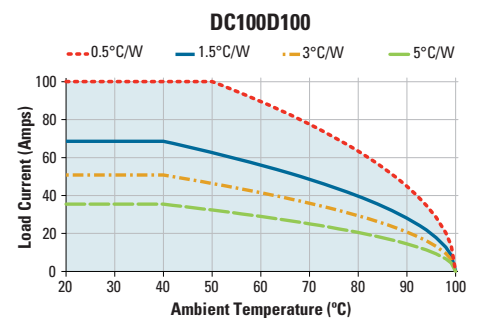
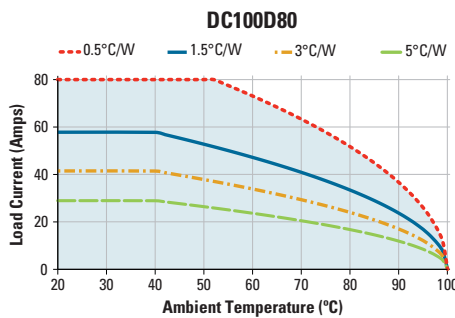
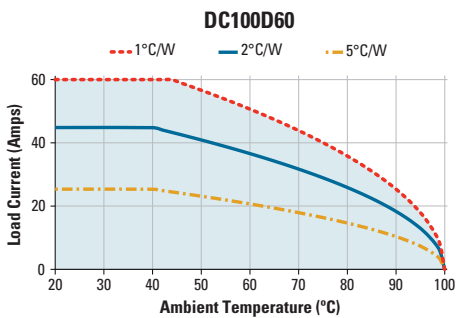
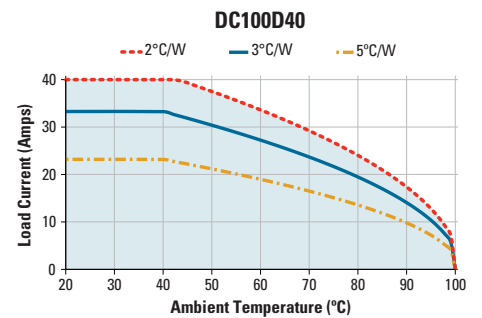
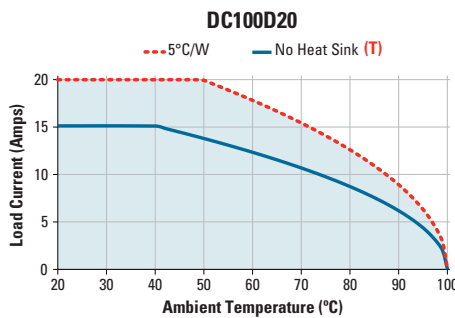
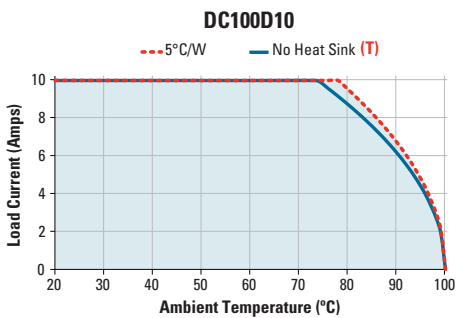
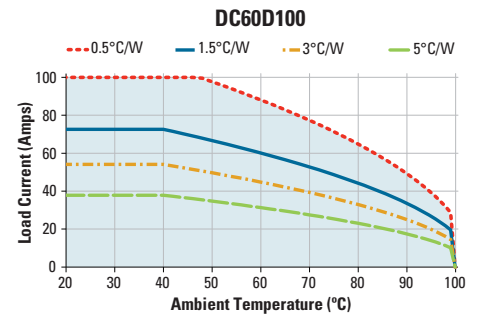
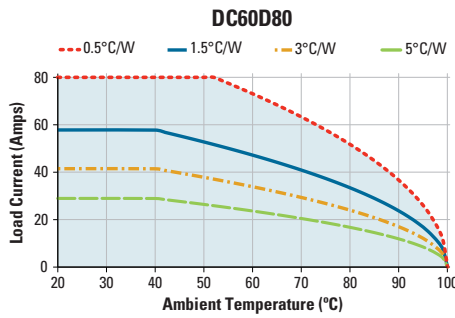
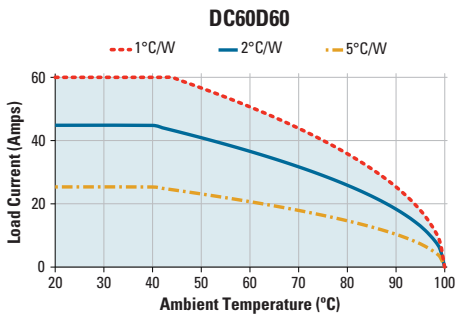
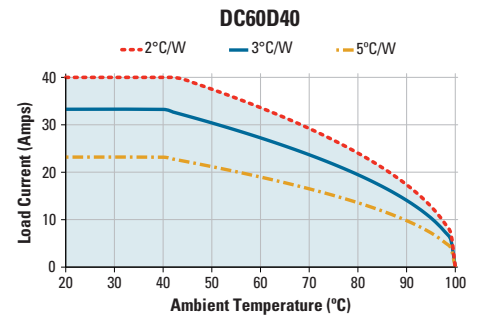
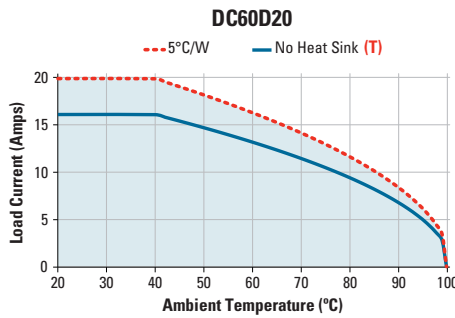
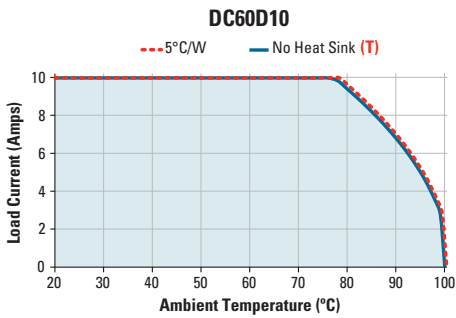
Derating Curves: Series 1-DC & 1-DCL



Derating Curves: SSC Series



Derating Curves: PowerPlus DC Series



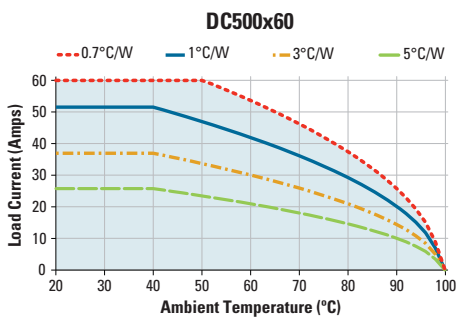
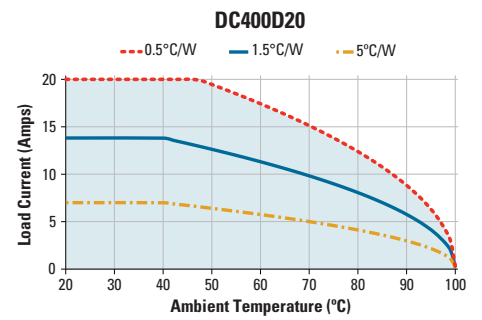
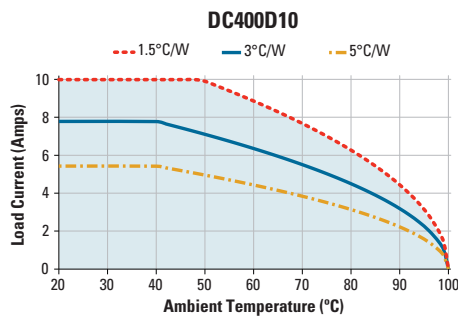
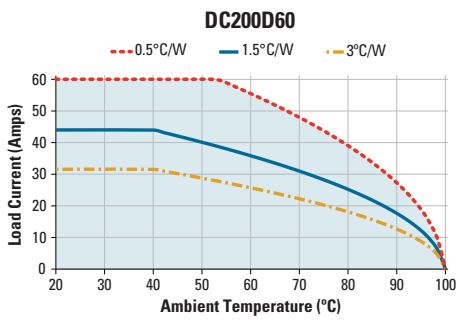
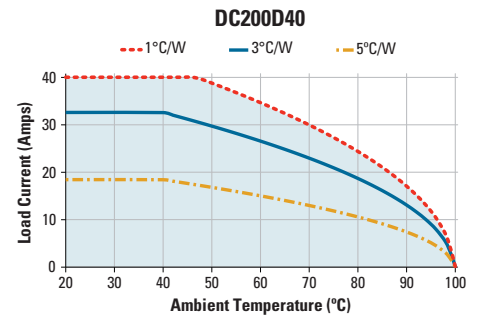
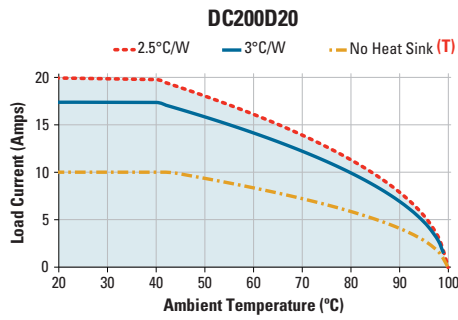
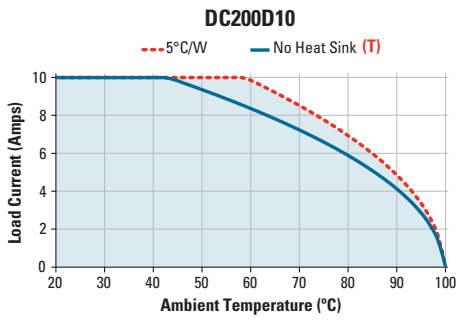


TABLE 3: Heat Sinks

Crydom Part No.	Thermal Resistance [°C/W]
HS501DR	5
HS301 / HS301DR	3
HS251	2.5
HS202 / HS202DR	2
HS201 / HS201DR	2
HS172	1.7
HS151 / HS151DR	1.5
HS122 / HS122DR	1.2
HS103 / HS103DR	1
HS101	1
HS073	0.7
HS072	0.7
HS053	0.5
HS033	0.36
HS023	0.25

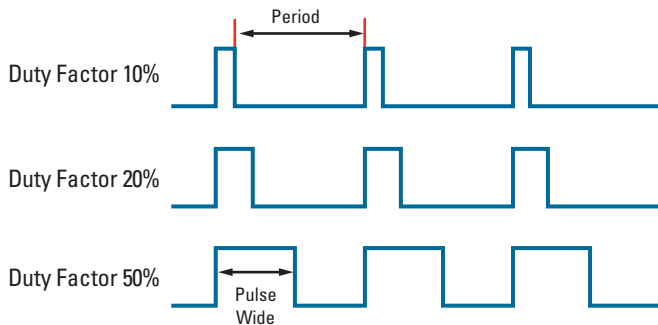
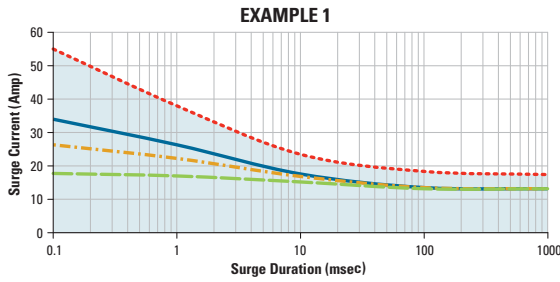
General Notes

(T) SSR metal base plate acting as heat sink, it must be exposed to free ambient air.

Surge Current Graphics

Surge Current Duty Factor

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



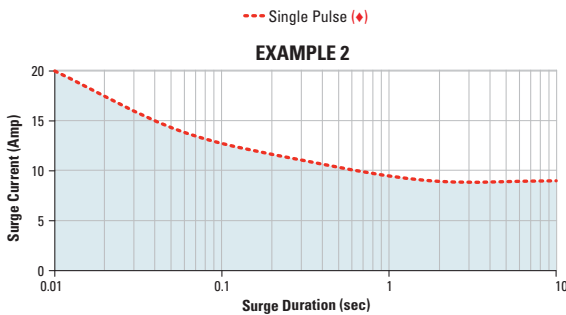
For Pulse Wide Modulation applications select the curve according duty factor and pulse duration as following.

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

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

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

Surge Current Single Pulse



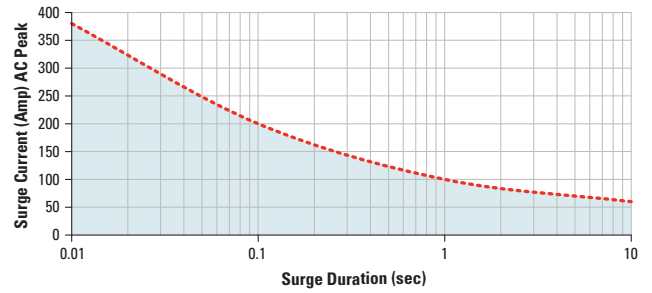
(*) for Single Surge Pulse $T_c=25^\circ\text{C}$; $T_j 150^\circ\text{C}$.

For Single Surge Pulse, AC Output [CW & CL series]: $T_c=25^\circ\text{C}$; $T_j=125^\circ\text{C}$

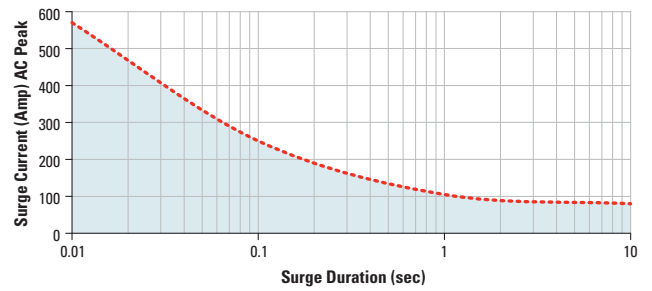
For AC Output SSRs, AC Rms value of surge current equals the peak value divided by $\sqrt{2}$ (1.414).

Surge Current Graphics: CW Series

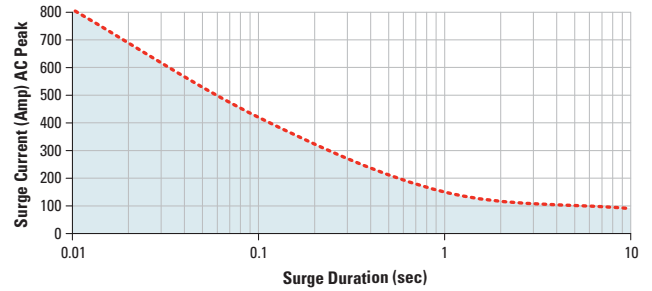
CWxx10



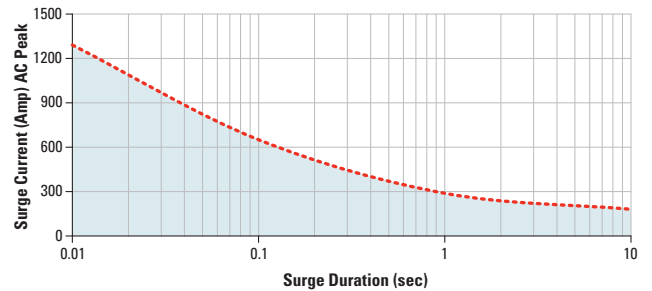
CWxx25



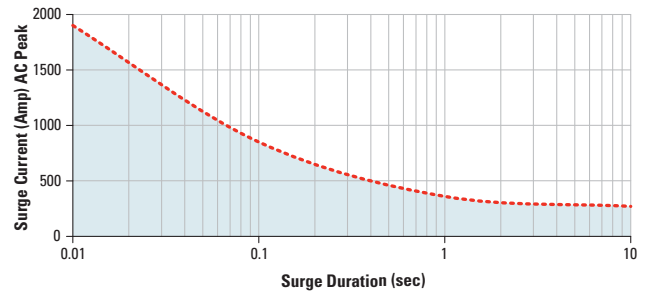
CWxx50



CWxx90

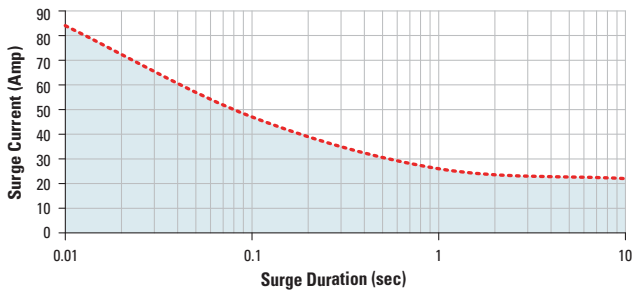


CWxx125

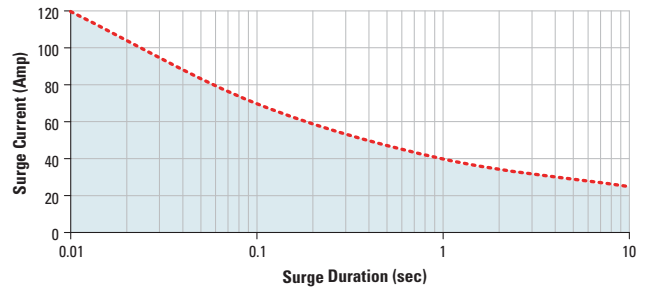


Surge Current Graphics: CL Series

CL240x05

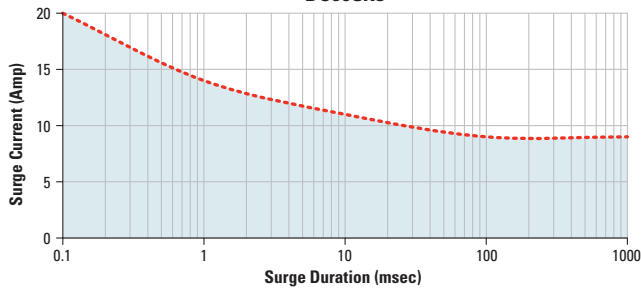


CL240x10

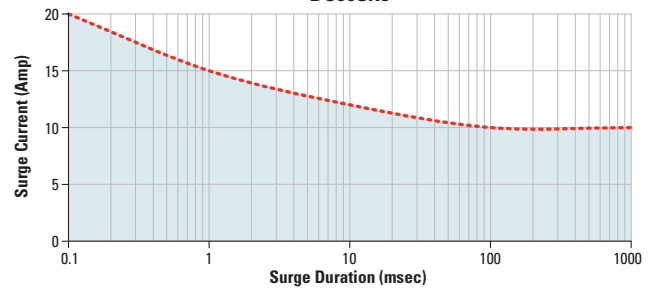


Surge Current Graphics: DC60 Series

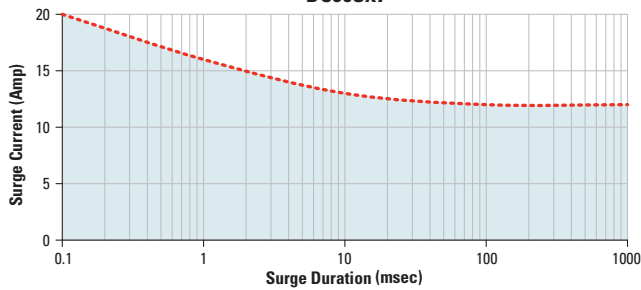
DC60Sx3



DC60Sx5

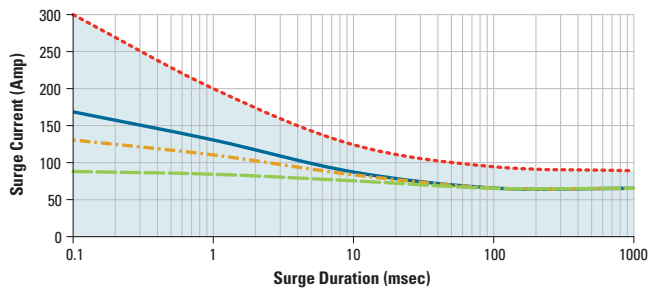


DC60Sx7

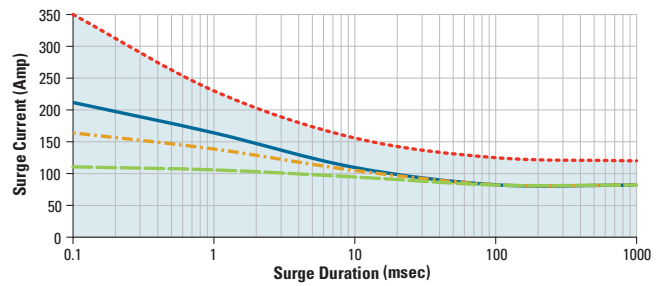


Surge Current Graphics: DC06D Series

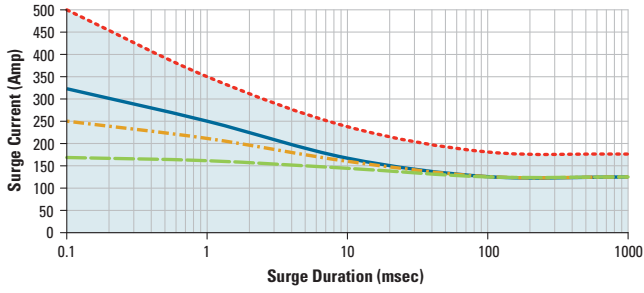
DC06D60



DC06D80

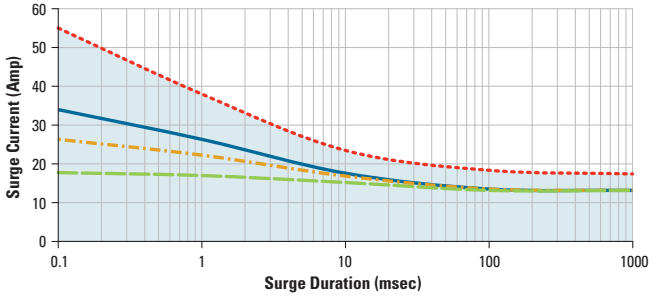


DC06D100

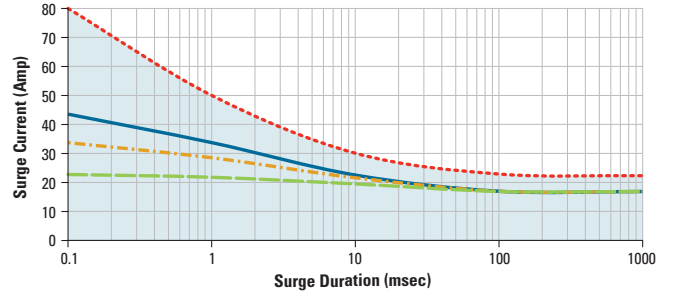


Derating Curves: Series 1-DC & 1-DCL

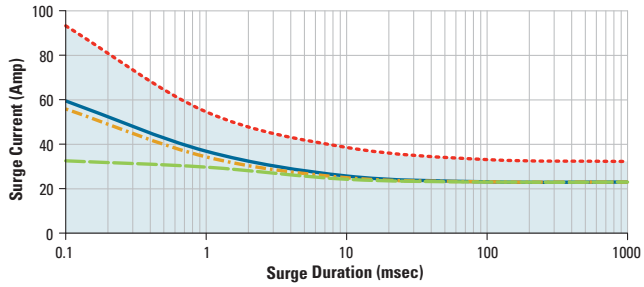
D1D07



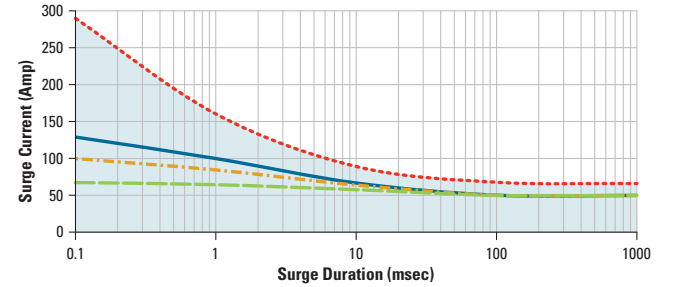
D1D12



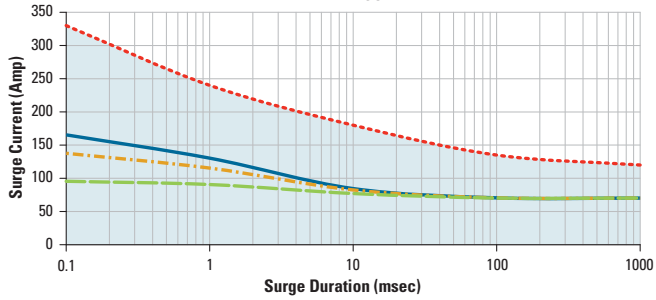
D1D20



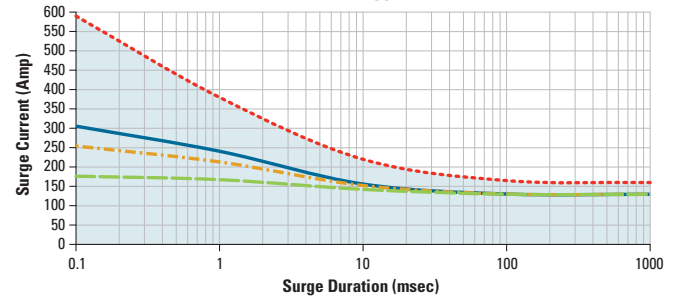
D1D40



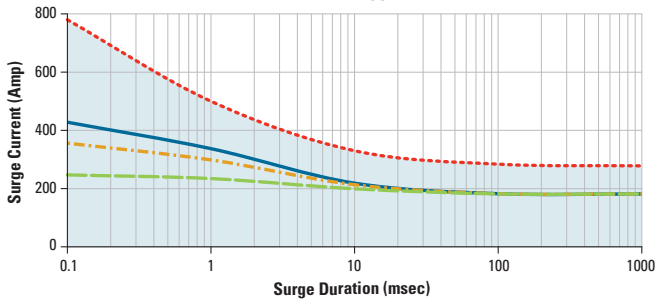
D1D60



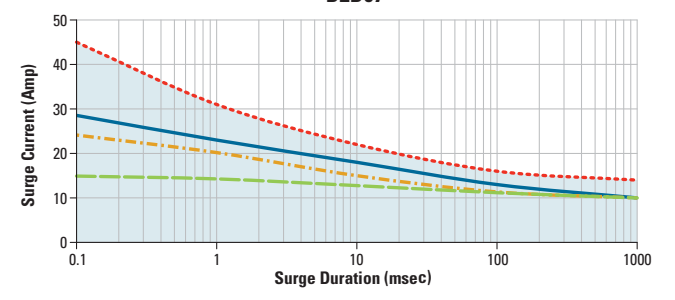
D1D80



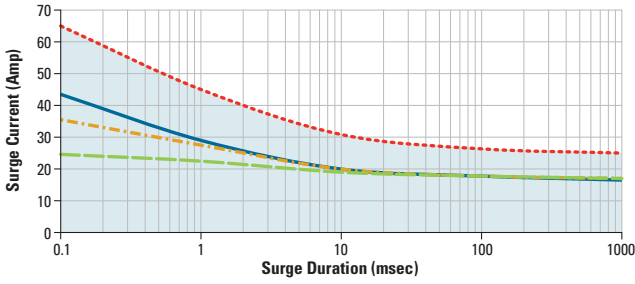
D1D100



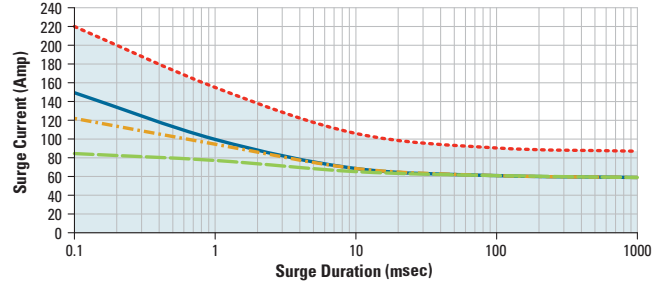
D2D07



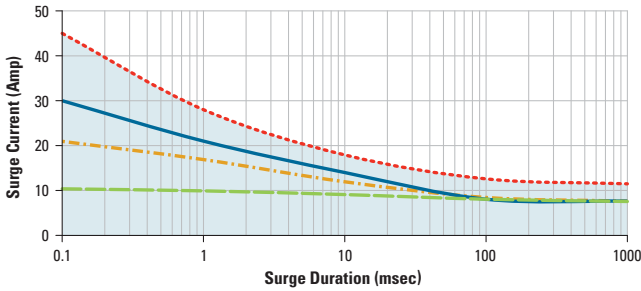
D2D12



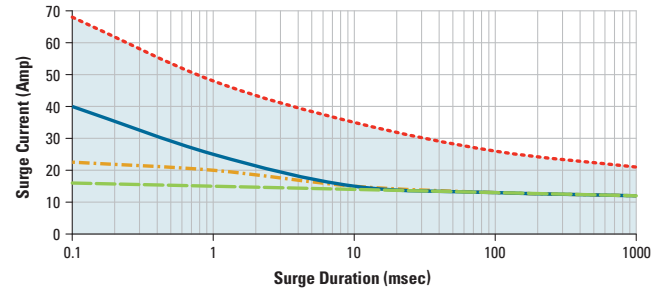
D2D40



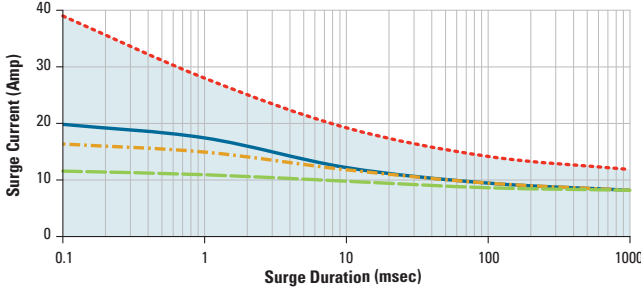
D4D07



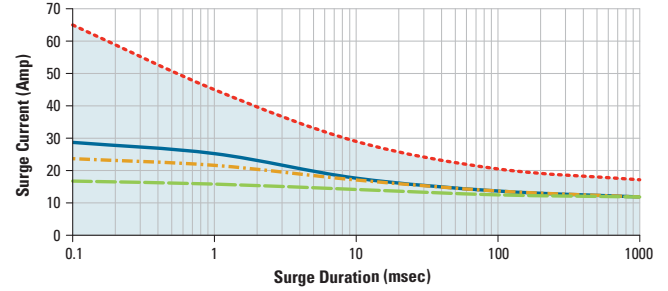
D4D12



D5D07

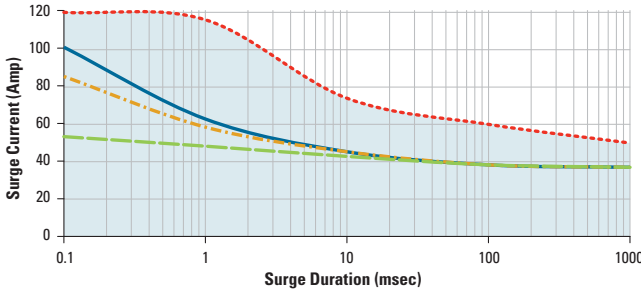


D5D10



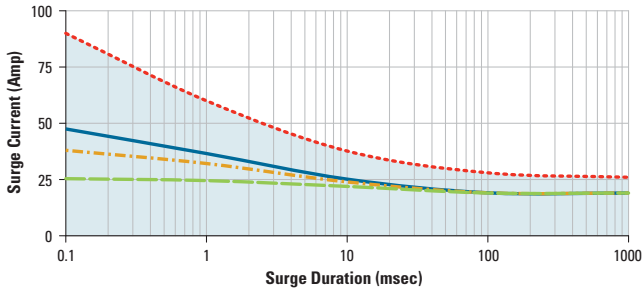
Derating Curves: SSC Series

SSC1000

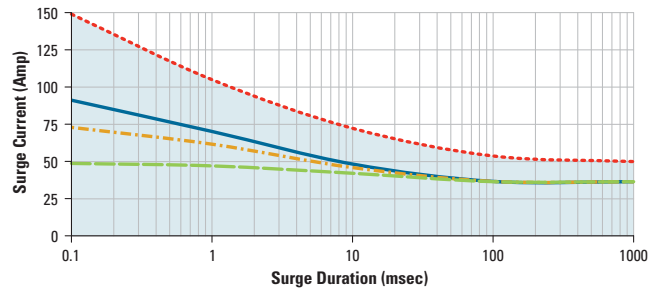


Derating Curves: PowerPlus DC Series

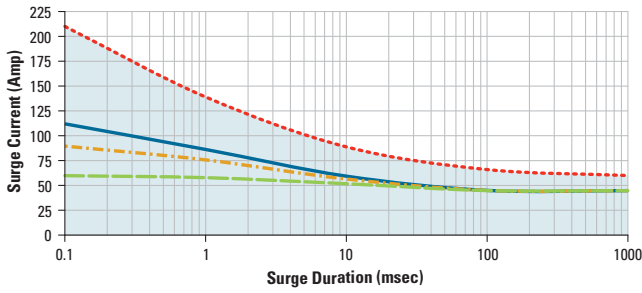
DC60D10



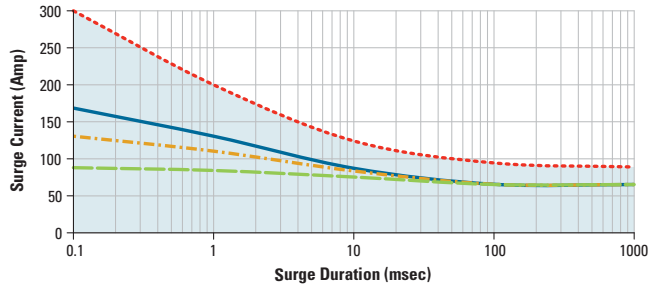
DC60D20



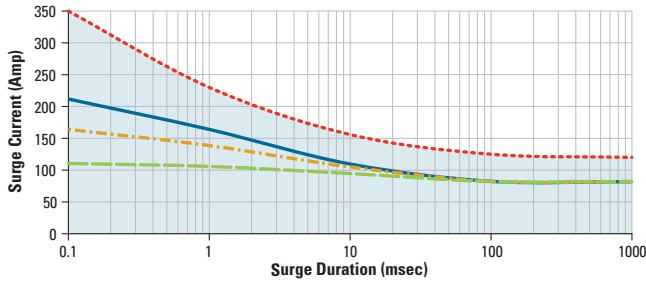
DC60D40



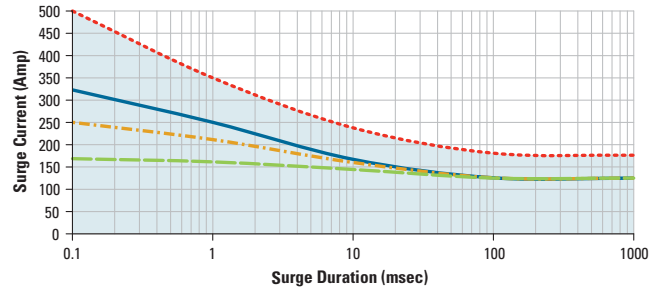
DC60D60



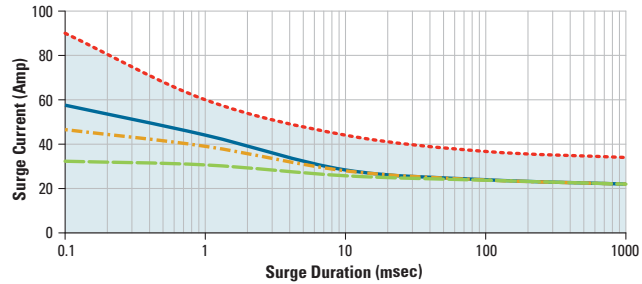
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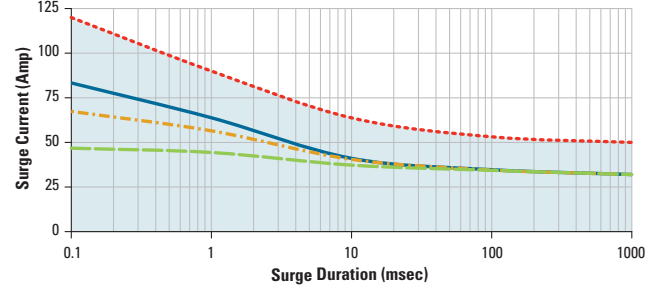
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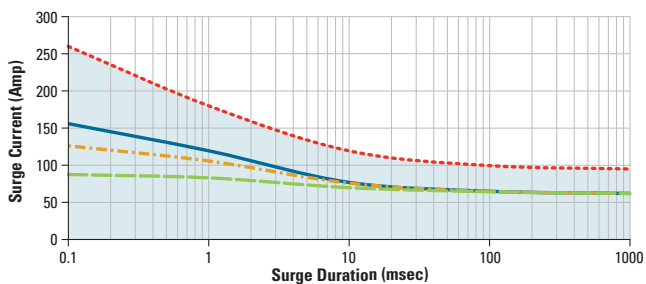
DC100D10



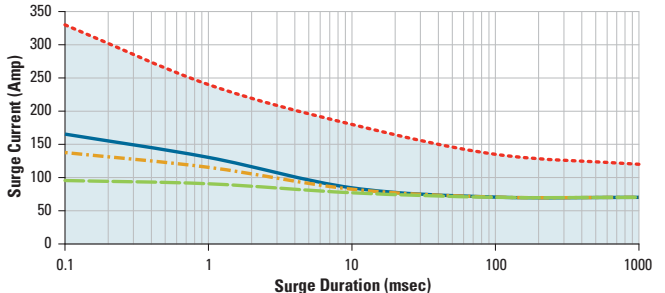
DC100D20

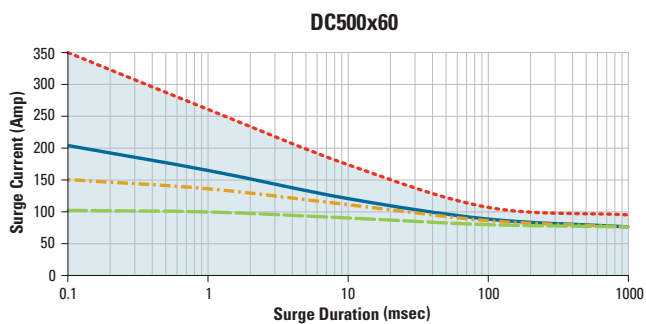
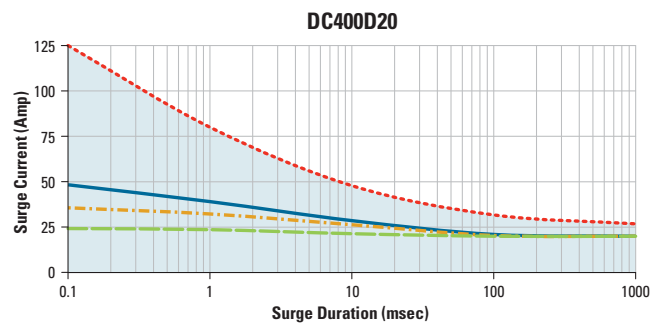
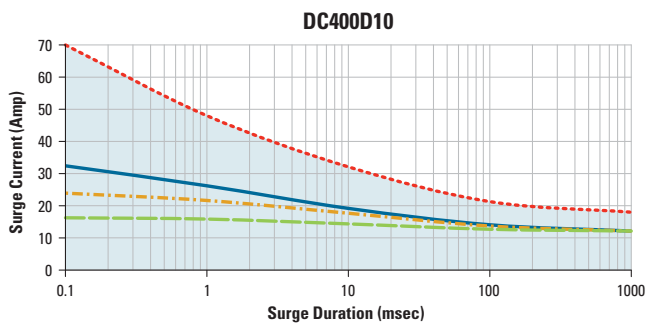
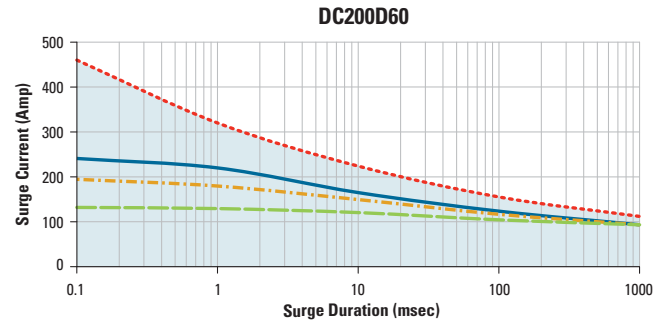
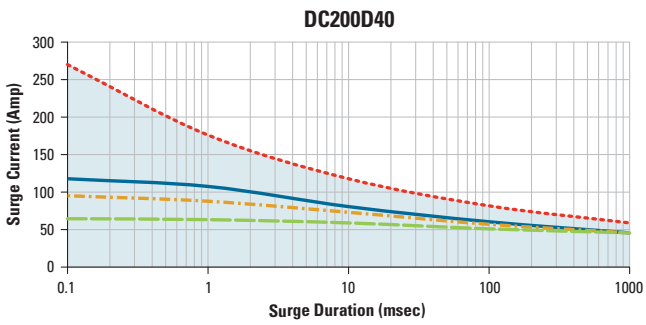
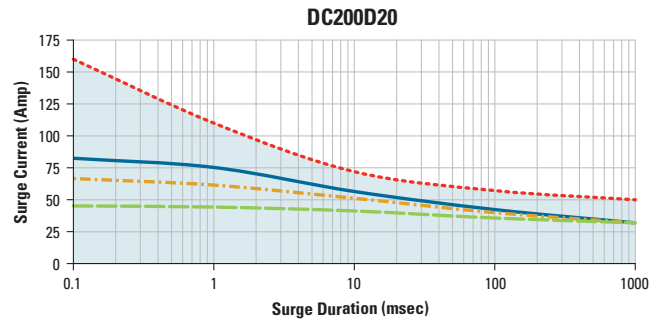
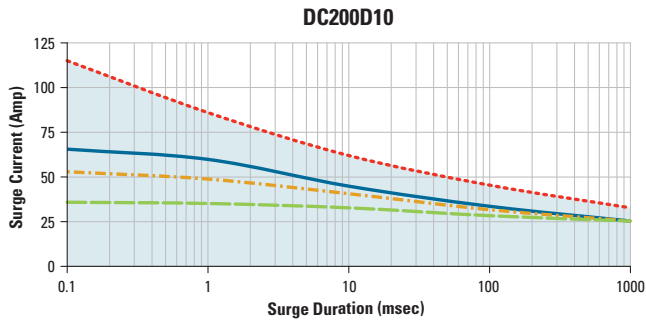
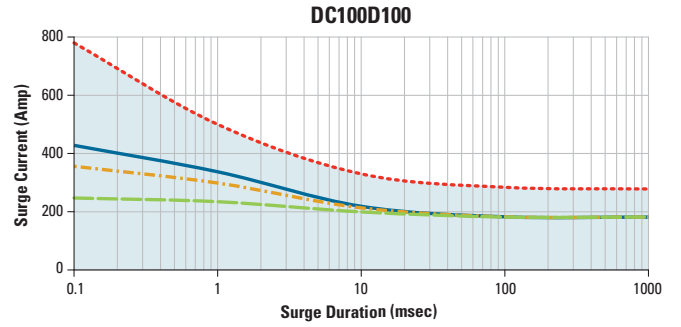
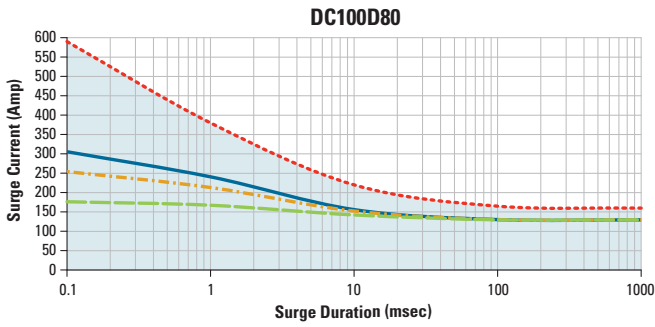


DC100D40



DC100D60





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