

THYRISTOR & DIODE MODULES

POW-R-BLOK™ Modules

Applications Include:

- Battery Chargers
- Induction Heating / Melting
- Medical Equipment
- Motor Controls
- Power Supplies
- UPS
- Welding

POW-R-BRIK™

Applications Include:

- AC Motor Starters
- DC Motor Controls
- Mining Power Centers
- Resistance Welding Controls
- Transportation

Circuit Configurations:

- Single
- Dual
- Split Dual
- Common Anode
- Common Cathode
- AC Switch

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POW-R-BLOK™ Modules
VOLTAGE: 600V TO 11,000V
CURRENT: 20A TO 2500A

POW-R-BRIK™ Modules
VOLTAGE: 1200V TO 5000V
CURRENT: 300A TO 1585A

Custom Modules

IGBT Assemblies

Assemblies

Fast Recovery & Three-Phase Diode Modules

Thyristor & Diode Modules

Discrete Rectifiers

Discrete Thyristors

Accessories

DIPIPM

IPMs

MOSFET Modules

Hybrid IGBTs

IGBTs

Numbering System

Thyristor (SCR) and Diode Modules

CD431290B is a 90 Ampere, 1200 Volt, Dual Switch Module

CD 4 3 12 90 B
 (1) (2) (3) (4) (5) (6)

(1) Type Number:

CD, CM, ND, LD, PD = Dual Switches
 CS, LS, PS = Single Switches
 CSD = Single SCR
 CT = Split Dual Switch
 PA = AC Switch
 CC = Common Cathode
 CN, LN = Common Anode

(2) Package Style

(3) Configuration:

1 = Diode
 2 = SCR / Diode
 3 = SCR
 7 = Diode / SCR

(4) Voltage Rating (x 100):

08 = 800V
 12 = 1200V
 16 = 1600V
 20 = 2000V
 24 = 2400V
 36 = 3600V
 40 = 4000V

(5) Current Rating:

| Device | Current |
|--------|------------|
| CD4 | A2 = 25A |
| CM4 | 40 = 40A |
| CS4 | 50 = 50A |
| CT | 60 = 60A |
| CC4 | 90 = 90A |
| CN4 | 99 = 100A |
| CD5 | |
| CD6 | |
| CDD | x 10 |
| CM5 | Example: |
| CS6 | 25 = 250A |
| ND | |
| LD | |
| LS | |
| PD | 06 = 600A |
| PA | 07 = 700A |
| PS | 15 = 1500A |
| PS | 20 = 2000A |
| PS | 25 = 2500A |

(6) Revision

CSD3080H is a 400 Ampere, 800 Volt, Single Thyristor Module

CSD3 08 0H
 (1) (2) (2)

(1) Type / Package Number

(2) Voltage Rating (x 100)

(3) Current Rating:
 0H = 400A

TM400DZ-24 is a 400 Ampere, 1200 Volt, Dual Thyristor Module

TM 400 DZ - 24
 (1) (2) (3) (4)

(1) Type / Package Number (4) Voltage Rating (x 100):

H = 800V
 24 = 1200V
 2H = 1600V

(2) Current Rating (x 1)

(3) Circuit Configuration

QRD6565001 is a 6,500V, 650A High Voltage Dual Diode Module

Q R D 65 65 001
 (1) (2) (3) (4) (5) (6)

(1) Product Line:
 Q = Custom Module

(4) Voltage:
 65 = 6500
 B1 = 11,000

(2) Device:
 R = Rectifier

(5) Current:
 650A

(3) Configuration:
 D = Double / Dual
 S = Single

(6) Serial Designation:
 Numbered from 001 – 999 for each individual combination of 7 previous digits.)

POW-R-BRIKs™

P3Z7ACT700W16 is a 1600 Volt, Dual SCR Module with Standard Thermistor

P3 Z 7 A CT7 00 W16
 (1) (2) (3) (4) (5) (6) (7)

(1) Type Number:

P1 = Dual Diode
 P2 = SCR / Diode
 P3 = Dual SCR
 P7 = Diode / SCR

(2), (3), (4) Package Style
 (3) Indicates Size of the Block & Elements

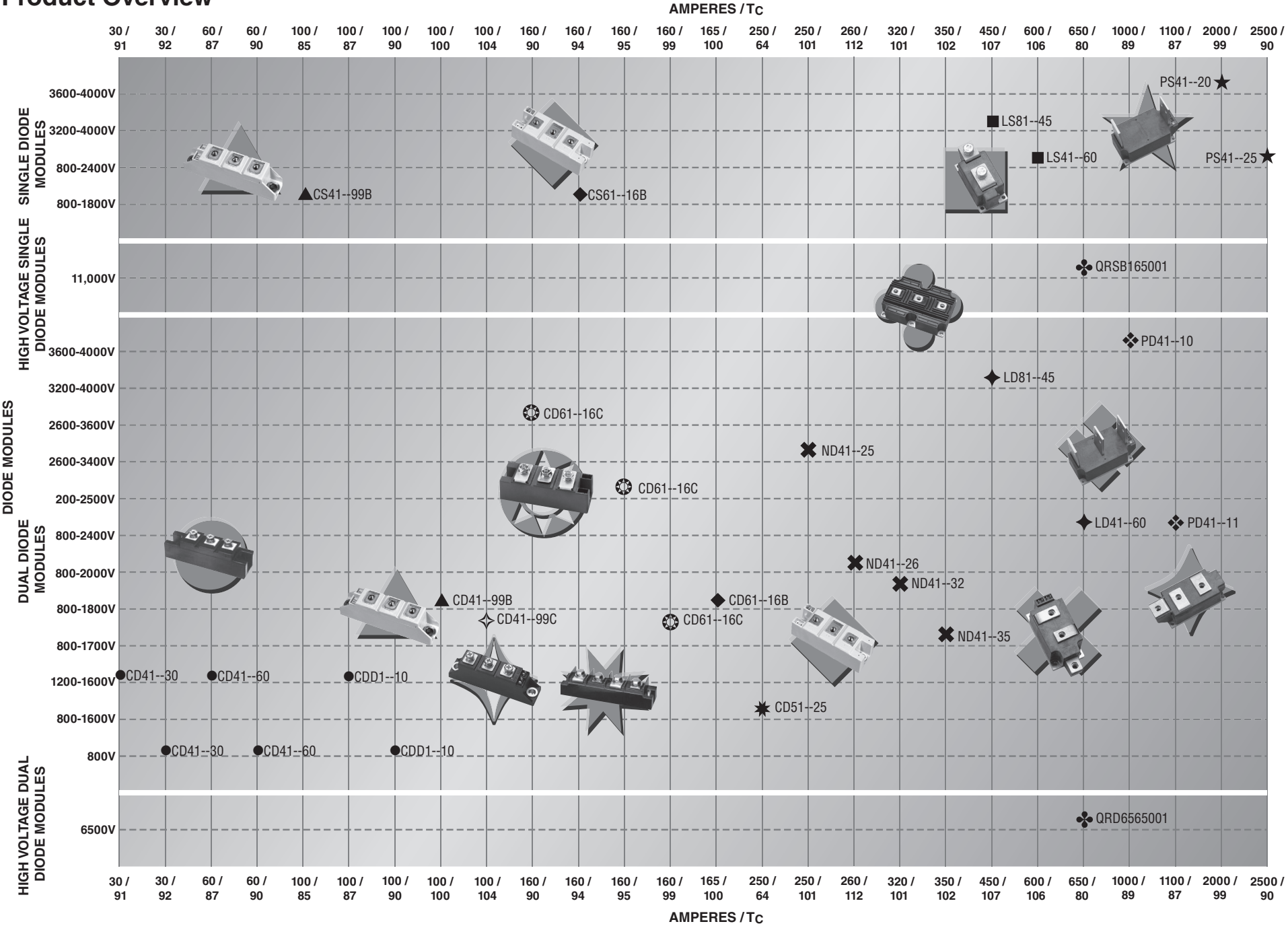
(5) Element Code:

Refer to Product Datasheet for the Element Codes to Reference the Corresponding Disc Device for Additional Specifications

(6) Special Features:
 00 = Module Includes Standard Thermistor
 XT = No Thermistor
 All Other Codes Denote Unique Customer Specifications

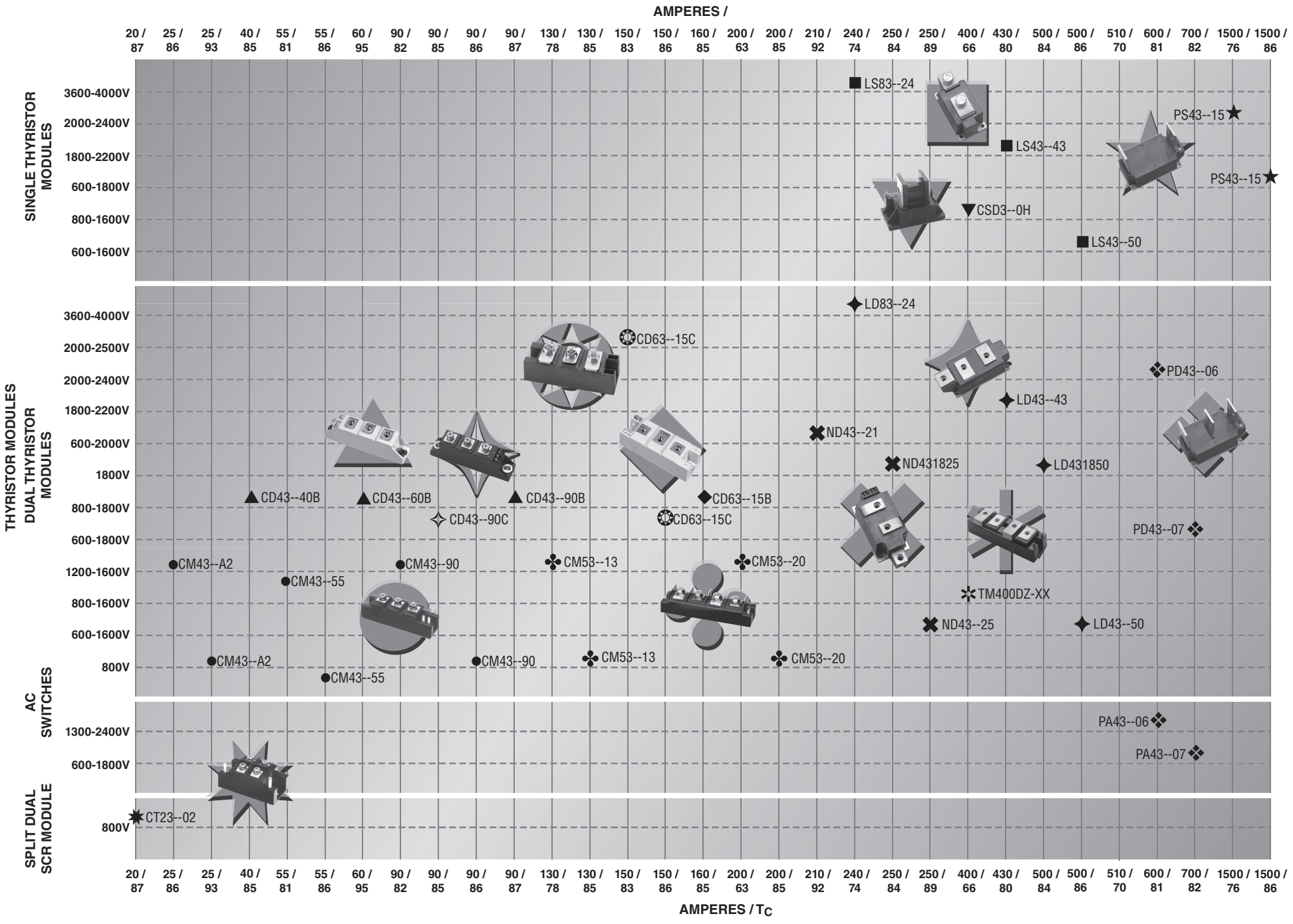
(7) Voltage Rating:
 V04 = 400V
 V08 = 800V
 W12 = 1200V
 W16 = 1600V

Product Overview

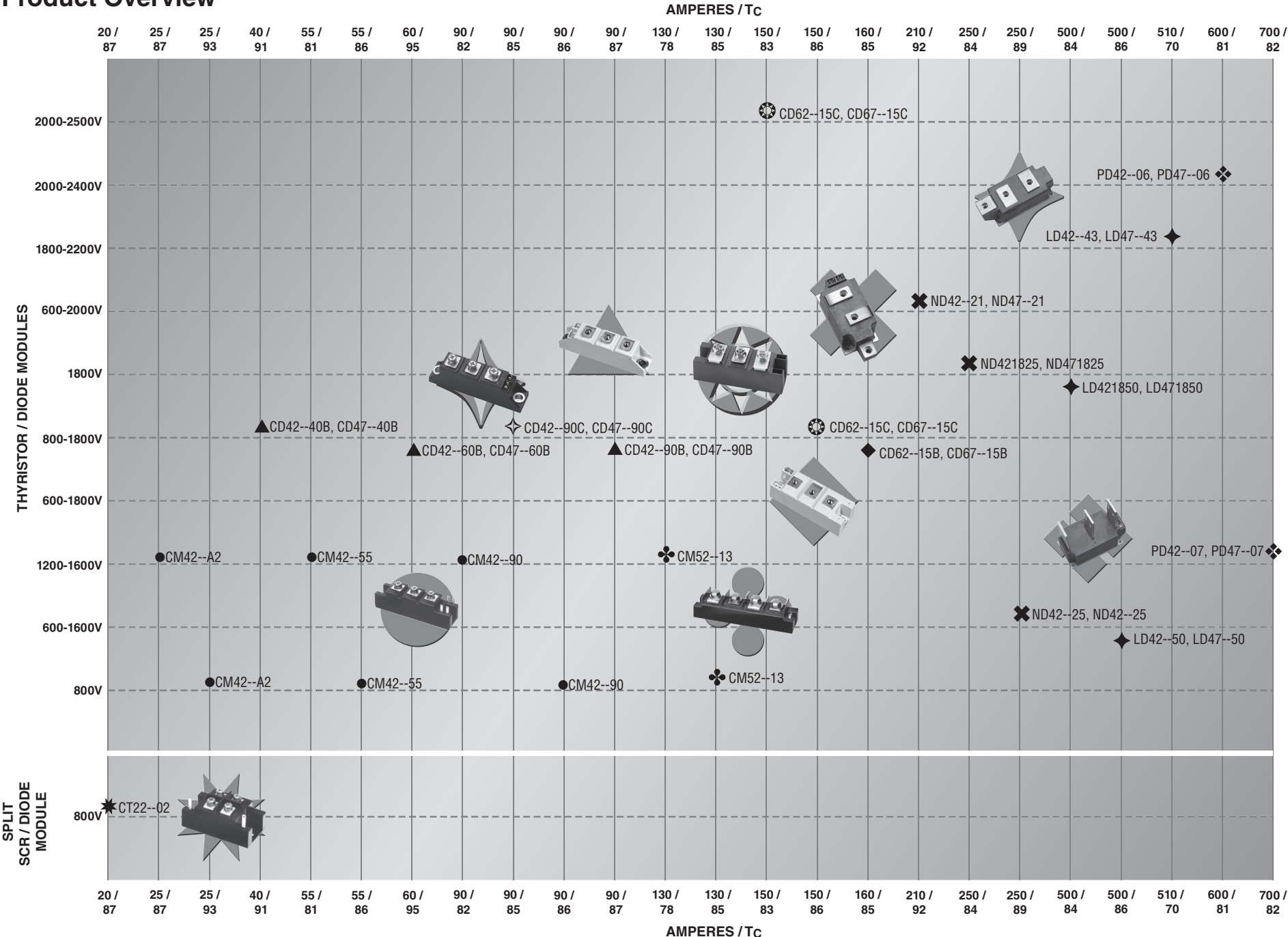


- Custom Modules
- IGBT Assemblies
- Assemblies
- Fast Recovery & Three-Phase Diode Modules
- Thyristor & Diode Modules**
- Discrete Rectifiers
- Discrete Thyristors
- Accessories
- DIPIPM
- IPMs
- MOSFET Modules
- Hybrid IGBTs
- IGBTs

Product Overview

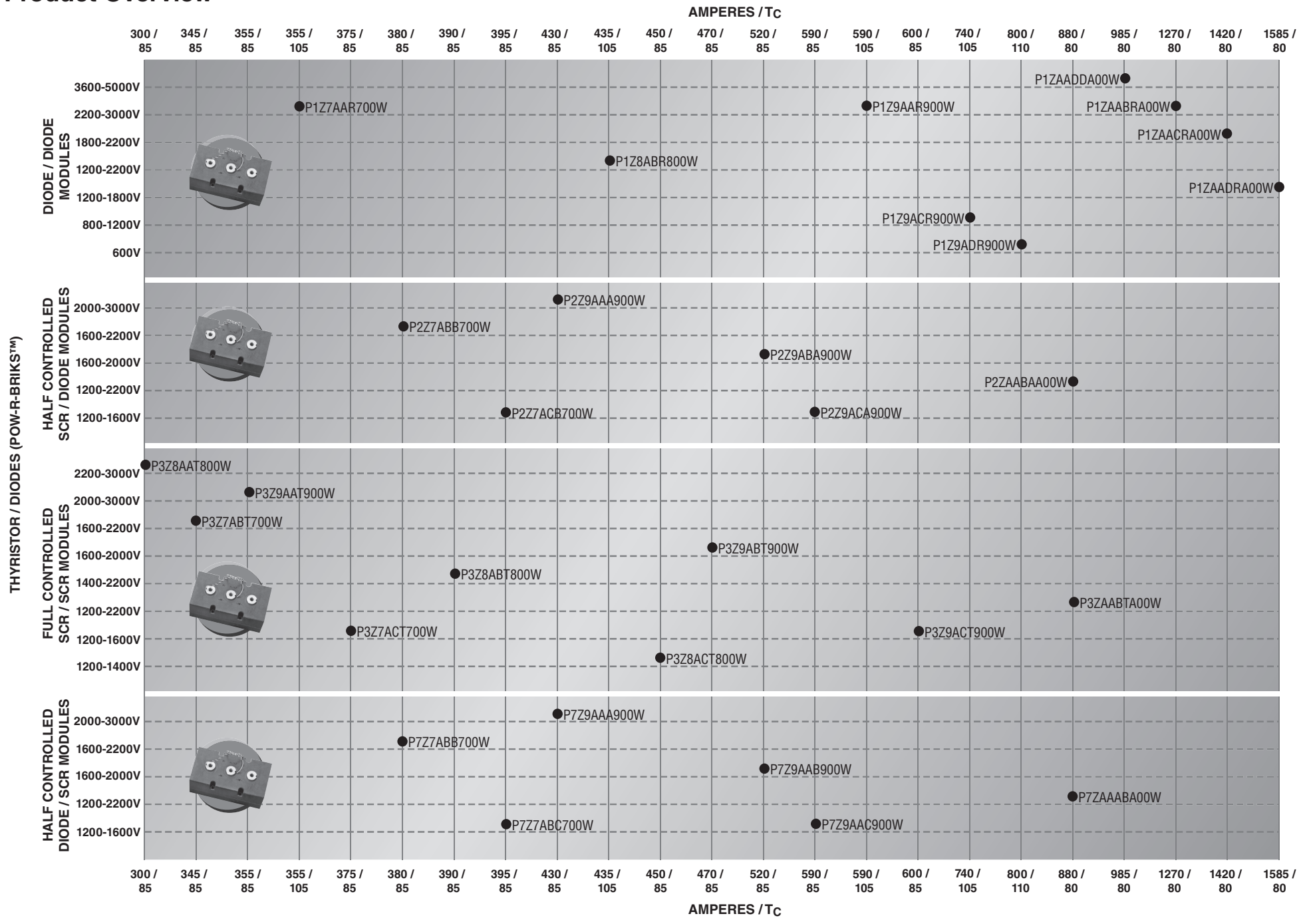


Product Overview



- Custom Modules
- IGBT Assemblies
- Assemblies
- Fast Recovery & Three-Phase Diode Modules
- Thyristor & Diode Modules**
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Product Overview

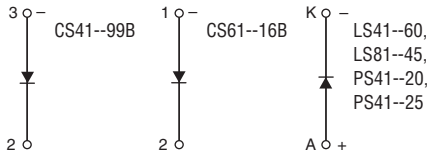


Diode Modules

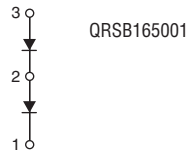
| Type | V _{DRM} / V _{RRM} Volts (V _{RRM} = V _{RRM} + 100V) | I _{F(av)} /T _C Amperes/°C (180° sin) | I _{F(RMS)} Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V _{FM} /I _{FM} Volts/Amperes (T _{j(max)}) | V _{TO} Volts (T _{j(max)}) | R _T mΩ (T _{j(max)}) | R _{th(j-c)} °C/W | R _{th(c-s)} °C/W | T _{j(max)} °C | Outline Drawings Number | Page |
|-----------------------------|--|--|--|---|--|--|---|---|--|--|------------------------------|------------------------------|---------------------------|-------------------------------|------|
| | | | | I _{FSM} Amperes (10ms, T _{j(max)} , No V _{RRM} Reapplied) | i ² t A ² sec (10ms, T _{j(max)} , No V _{RRM} Reapplied) | I _{FSM} Amperes (8.3ms, T _{j(max)} , 100% V _{RRM} Reapplied) | i ² t A ² sec (8.3ms, T _{j(max)} , 100% V _{RRM} Reapplied) | | | | | | | | |
| Single Diode Modules | | | | | | | | | | | | | | | |
| CS41--99B | 800 – 1800 | 100 / 85 | 157 | 2,000 | 20,000 | 1,333 | 7,407 | 1.0 / 100 | 0.85 | 1.30 | 0.175 | 0.1 | 125 | 1 | I-14 |
| CS61--16B | 800 – 1800 | 160 / 94 | 250 | 5,000 | 125,000 | 3,333 | 46,296 | 1.08 / 200 | 0.85 | 1.20 | 0.09 | 0.05 | 135 | 2 | I-14 |
| LS81--45 | 3200 – 4000 | 450 / 107 | 710 | 15,050 | 1.13 x 10 ⁶ | 11,000 | 504,000 | 1.90 / 1800 (150°C) | 0.85 | 0.55 | 0.065 | 0.02 | 150 | 3 | I-14 |
| LS41--60 | 800 – 2400 | 600 / 106 | 950 | 31,500 | 4.9 x 10 ⁶ | 21,000 | 1.8 x 10 ⁶ | 1.16 / 1500 | 0.747 | 0.243 | 0.065 | 0.02 | 150 | 3 | I-14 |
| PS41--20 | 3600 – 4000 | 2000 / 99 | 3,140 | 60,690 | 18.4 x 10 ⁶ | 47,600 | 9.4 x 10 ⁶ | 1.2 / 3000 (150°C) | 0.745 | 0.064 | 0.024 | 0.009 | 150 | 4 | I-15 |
| PS41--25 | 800 – 2400 | 2500 / 90 | 3,925 | 72,600 | 26.3 x 10 ⁶ | 53,000 | 11.7 x 10 ⁶ | 0.85 / 3000 (150°C) | 0.681 | 0.051 | 0.024 | 0.009 | 150 | 4 | I-15 |

| Type | V _{DRM} / V _{RRM} Volts (V _{RRM} = V _{RRM} + 100V) | I _{F(av)} /T _C Amperes/°C (180° sin) | I _{F(RMS)} Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V _{FM} /I _{FM} Volts/Amperes (T _j = 25°C) | V _{TO} Volts (T _{j(max)}) | R _T mΩ (T _{j(max)}) | R _{th(j-c)} °C/W | R _{th(c-s)} °C/W | T _{j(max)} °C | Outline Drawings Number | Page |
|---|--|--|--|---|--|--|---|--|--|--|------------------------------|------------------------------|---------------------------|-------------------------------|------|
| | | | | I _{FSM} Amperes (10ms, T _{j(max)} , No V _{RRM} Reapplied) | i ² t A ² sec (10ms, T _{j(max)} , No V _{RRM} Reapplied) | I _{FSM} Amperes (8.3ms, T _{j(max)} , No V _{RRM} Reapplied) | i ² t A ² sec (8.3ms, T _{j(max)} , No V _{RRM} Reapplied) | | | | | | | | |
| High Voltage Single Diode Module | | | | | | | | | | | | | | | |
| QRSB165001 | 11,000 | 650 / 80 | 1021 | 6,000 | 1.80 x 10 ⁵ | 6,200 | 1.60 x 10 ⁵ | 2.89 / 500 | 1.575 | 2.587 | 0.0185 | 0.01 | 150 | 15 | I-19 |

Single Diode Modules



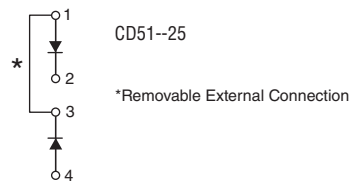
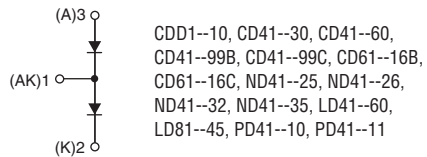
High Voltage Single Diode Module



Diode Modules

| Type | V_{DRM} / V_{RRM} Volts ($V_{RSM} = V_{RRM} + 100V$) | $I_{F(av)}/T_C$ Amperes/°C ($180^\circ \sin$) | $I_{F(RMS)}$ Amperes ($180^\circ \sin$) | EUROPEAN | | NORTH AMERICAN | | V_{FM}/I_{FM} Volts/Amperes ($T_{j(max)}$) | V_{TO} Volts ($T_{j(max)}$) | R_T mΩ ($T_{j(max)}$) | $R_{th(j-c)}$ °C/W | $R_{th(c-s)}$ °C/W | $T_{j(max)}$ °C | Outline Drawings | |
|---------------------------|--|---|---|--|--|---|---|--|---------------------------------------|---------------------------------|-----------------------|-----------------------|--------------------|------------------|------|
| | | | | I_{FSM} Amperes (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | i^2t A ² sec (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | I_{FSM} Amperes (8.3ms, $T_{j(max)}$, 100% V_{RRM} Reapplied) | i^2t A ² sec (8.3ms, $T_{j(max)}$, 100% V_{RRM} Reapplied) | | | | | | | Number | Page |
| Dual Diode Modules | | | | | | | | | | | | | | | |
| CD41--30 | 800 | 30 / 92 | 47 | 545 | 1,500 | 600 | 1,500 | 1.4 / 90 | — | — | 0.8 | 0.2 | 125 | 7 | I-16 |
| CD41--30 | 1200 - 1600 | 30 / 91 | 47 | 545 | 1,500 | 600 | 1,500 | 1.5 / 90 | — | — | 0.8 | 0.2 | 125 | 7 | I-16 |
| CD41--60 | 800 | 60 / 90 | 95 | 1,095 | 6,000 | 1,200 | 6,000 | 1.25 / 180 | — | — | 0.5 | 0.2 | 125 | 7 | I-16 |
| CD41--60 | 1200 - 1600 | 60 / 87 | 95 | 1,095 | 6,000 | 1,200 | 6,000 | 1.35 / 180 | — | — | 0.5 | 0.2 | 125 | 7 | I-16 |
| CD41--99B | 800 - 1800 | 100 / 100 | 157 | 2,000 | 20,000 | 1,333 | 7,407 | 1.0 / 100 | 0.85 | 1.30 | 0.175 | 0.1 | 125 | 1 | I-14 |
| CD41--99C | 800 - 1800 | 100 / 104 | 157 | 2,860 | 40,890 | 2,089 | 18,190 | 1.45 / 330 (25°C) | 0.80 | 1.74 | 0.350 | 0.15 | 150 | 16 | I-18 |
| CDD1--10 | 800 | 100 / 90 | 155 | 1,800 | 16,500 | 2,000 | 16,500 | 1.25 / 320 | — | — | 0.3 | 0.2 | 125 | 7 | I-16 |
| CDD1--10 | 1200 - 1600 | 100 / 87 | 155 | 1,800 | 16,500 | 2,000 | 16,500 | 1.35 / 320 | — | — | 0.3 | 0.2 | 125 | 7 | I-16 |
| CD51--25 | 800 - 1600 | 250 / 64 | 390 | 4,500 | 100,000 | 5,000 | 100,000 | 1.3 / 500 | — | — | 0.2 | 0.05 | 125 | 8 | I-16 |
| CD61--16B | 800 - 1800 | 165 / 100 | 260 | 5,000 | 125,000 | 3,333 | 52,000 | 1.08 / 200 | 0.85 | 1.20 | 0.09 | 0.05 | 135 | 2 | I-14 |
| CD61--16C | 800 - 1800 | 160 / 99 | 250 | 6,600 | 217,800 | 4,822 | 96,880 | 1.56 / 480 (25°C) | 0.80 | 1.35 | 0.23 | 0.08 | 150 | 18 | I-20 |
| CD61--16C | 2000 - 2500 | 160 / 95 | 250 | 6,600 | 217,800 | 4,822 | 96,880 | 1.66 / 480 (25°C) | 0.80 | 1.45 | 0.23 | 0.08 | 150 | 18 | I-20 |
| CD61--16C | 2600 - 3600 | 160 / 90 | 250 | 5,720 | 163,590 | 4,179 | 72,760 | 1.90 / 480 (25°C) | 0.90 | 1.35 | 0.23 | 0.08 | 150 | 18 | I-20 |
| ND41--25 | 2600 - 3400 | 250 / 101 | 392 | 7,125 | 254,000 | 5,000 | 104,000 | 1.80 / 1500 | 1.095 | 0.48 | 0.07 | 0.14 | 150 | 5 | I-15 |
| ND41--26 | 800 - 2000 | 260 / 112 | 408 | 12,000 | 720,000 | 8,000 | 266,667 | 1.35 / 1500 | 0.764 | 0.360 | 0.07 | 0.03 | 150 | 5 | I-15 |
| ND41--32 | 800 - 2000 | 320 / 101 | 502 | 12,000 | 720,000 | 8,000 | 266,667 | 1.35 / 1500 | 0.764 | 0.360 | 0.07 | 0.03 | 150 | 5 | I-15 |
| ND41--35 | 800 - 1700 | 350 / 102 | 550 | 11,000 | 605,000 | 8,450 | 297,510 | 1.15 / 1500 | 0.654 | 0.320 | 0.07 | 0.03 | 150 | 5 | I-15 |
| LD81--45 | 3200 - 4000 | 450 / 107 | 710 | 15,050 | 1.13×10^6 | 11,000 | 504,000 | 1.90 / 1800 | 0.85 | 0.55 | 0.0325 | 0.065 | 150 | 6 | I-15 |
| LD41--60 | 800 - 2400 | 600 / 106 | 950 | 31,500 | 4.9×10^6 | 21,000 | 1.8×10^6 | 1.16 / 1500 | 0.747 | 0.243 | 0.0325 | 0.01 | 150 | 6 | I-15 |
| PD41--10 | 3600 - 4000 | 1000 / 87 | 1570 | 35,700 | — | 28,000 | 3.6×10^6 | 1.35 / 3000 | 0.741 | 0.132 | 0.029 | 0.009 | 150 | 4 | I-15 |
| PD41--11 | 800 - 2400 | 1100 / 87 | 1725 | 40,350 | 8.1×10^6 | 29,500 | 3.26×10^6 | 1.00 / 3000 | 0.869 | 0.237 | 0.029 | 0.009 | 150 | 4 | I-15 |

Dual Diode Modules



Diode Modules

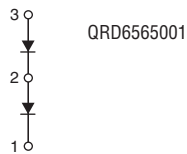
| Type | V_{DRM} / V_{RRM} Volts ($V_{RSM} = V_{RRM} + 100V$) | $I_{F(av)}/T_C$ Amperes/°C (180° sin) | $I_{F(RMS)}$ Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V_{FM}/I_{FM} Volts/Amperes ($T_j = 25^\circ C$) | V_{TO} Volts ($T_{j(max)}$) | R_T mΩ ($T_{j(max)}$) | $R_{th(j-c)}$ °C/W | $R_{th(c-s)}$ °C/W | $T_{j(max)}$ °C | Outline Drawings | |
|---------------------------------------|--|---|---------------------------------------|--|--|---|---|--|---------------------------------------|---------------------------------|-----------------------|-----------------------|--------------------|------------------|------|
| | | | | I_{FSM} Amperes (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | i^2t A ² sec (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | I_{FSM} Amperes (8.3ms, $T_{j(max)}$, No V_{RRM} Reapplied) | i^2t A ² sec (8.3ms, $T_{j(max)}$, No V_{RRM} Reapplied) | | | | | | | Number | Page |
| High Voltage Dual Diode Module | | | | | | | | | | | | | | | |
| QRD6565001 | 6,500 | 650 / 80 | 1021 | 6,000 | 1.80×10^5 | 6,200 | 1.60×10^5 | 1.45 / 500 | 0.788 | 1.294 | 0.0185 | 0.01 | 150 | 15 | I-19 |

Thyristor Modules

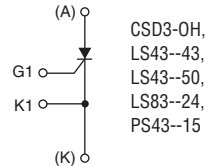
| Type | V_{DRM} / V_{RRM} Volts ($V_{RSM} = V_{RRM} + 100V$) | $I_{T(av)}/T_C$ Amperes/°C (180° sin) | $I_{T(RMS)}$ Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V_{TM}/I_{TM} Volts/Amperes ($T_{j(max)}$) | V_{TO} Volts ($T_{j(max)}$) | R_T mΩ ($T_{j(max)}$) | di/dt Amperes/μsec (Non-Repelitive) | dV/dt Volts/μsec | $R_{th(j-c)}$ °C/W | $R_{th(c-s)}$ °C/W | $T_{j(max)}$ °C | Outline Drawings | |
|---------------------------------|--|---|---------------------------------------|--|--|---|---|--|---------------------------------------|---------------------------------|---|-----------------------|-----------------------|-----------------------|--------------------|------------------|------|
| | | | | I_{TSM} Amperes (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | i^2t A ² sec (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | I_{TSM} Amperes (8.3ms, $T_{j(max)}$, 100% V_{RRM} Reapplied) | i^2t A ² sec (8.3ms, $T_{j(max)}$, 100% V_{RRM} Reapplied) | | | | | | | | | Number | Page |
| Single Thyristor Modules | | | | | | | | | | | | | | | | | |
| •LS83--24 | 3600 – 4000 | 240 / 74 | 377 | 7,525 | 236,000 | 5,500 | 126,000 | 3.5 / 1000 (25°C) | 1.563 | 2.141 | TBD | 1000 | 0.065 | 0.02 | 125 | 3 | I-14 |
| CSD3--0H | 800 – 1600 | 400 / 66 | 620 | 8,000 | 267,000 | 7,300 | 267,000 | 1.4 / 1200 | — | — | 100 | 500 | 0.1 | 0.08 | 125 | 10 | I-17 |
| •LS43--43 | 1800 – 2200 | 430 / 80 | 800 | 12,000 | 0.72×10^6 | 12,000 | 0.82×10^6 | 1.77 / 1500 | 0.88 | 0.66 | 200 | 1000 | 0.065 | 0.02 | 130 | 3 | I-14 |
| •LS43--50 | 600 – 1600 | 500 / 86 | 900 | 25,500 | 3.25×10^6 | 17,000 | 1.20×10^6 | 1.29 / 1500 | 0.81 | 0.32 | 200 | 1000 | 0.065 | 0.02 | 130 | 3 | I-14 |
| •PS43--15 | 600 – 1800 | 1500 / 86 | 2355 | 93,000 | 43.2×10^6 | 68,000 | 19.3×10^6 | 1.02 / 3000 | 0.691 | 0.102 | 400 | 200 | 0.024 | 0.009 | 125 | 4 | I-15 |
| •PS43--15 | 2000 – 2400 | 1500 / 76 | 2355 | 74,640 | 27.8×10^6 | 54,570 | 12.4×10^6 | 1.50 / 3000 (25°C) | 0.849 | 0.130 | 400 | 300 | 0.024 | 0.009 | 125 | 4 | I-15 |

*To locate the Optional Cathode & Gate Lead Kits, go to page F-2 of the Accessories section.

High Voltage Dual Diode Module



Single Thyristor Modules



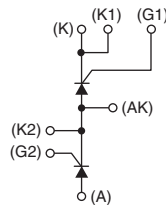
CSD3-0H,
LS43--43,
LS43--50,
LS83--24,
PS43--15

Thyristor Modules

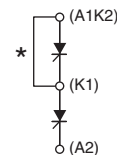
| Type | V _{DRM} / V _{RRM} Volts (V _{RSM} = V _{RRM} + 100V) | I _{T(av)} /T _C Amperes/°C (180° sin) | I _{T(RMS)} Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V _{TM} /I _{TM} Volts/Amperes (T _{j(max)}) | V _{TO} Volts (T _{j(max)}) | R _T mΩ (T _{j(max)}) | di/dt Amperes/μsec (Non-Repetitive) | dV/dt Volts/μsec | R _{th(j-c)} °C/W | R _{th(c-s)} °C/W | T _{j(max)} °C | Outline Drawings | |
|-------------------------------|--|--|--|---|--|--|---|---|--|--|---|---------------------|------------------------------|------------------------------|---------------------------|------------------|------|
| | | | | I _{TSM} Amperes (10ms, T _{j(max)} , No V _{RRM} Reapplied) | i ² t A ² sec (10ms, T _{j(max)} , No V _{RRM} Reapplied) | I _{TSM} Amperes (8.3ms, T _{j(max)} , 100% V _{RRM} Reapplied) | i ² t A ² sec (8.3ms, T _{j(max)} , 100% V _{RRM} Reapplied) | | | | | | | | | Number | Page |
| Dual Thyristor Modules | | | | | | | | | | | | | | | | | |
| •CD43--40B | 800 – 1800 | 40 / 85 | 63 | 850 | 3,610 | 750 | 2,330 | 1.46 / 100 | 0.88 | 5.90 | 150 | 500 | 0.230 | 0.1 | 125 | 1 | I-14 |
| •CD43--60B | 800 – 1800 | 60 / 95 | 95 | 1,665 | 13,860 | 1,470 | 8,960 | 1.28 / 100 | 0.82 | 3.00 | 150 | 500 | 0.165 | 0.1 | 125 | 1 | I-14 |
| •CD43--90B | 800 – 1800 | 90 / 87 | 140 | 1,785 | 15,910 | 1,570 | 10,270 | 1.10 / 100 | 0.80 | 2.40 | 150 | 500 | 0.135 | 0.1 | 125 | 1 | I-14 |
| •CD43--90C | 800 – 1800 | 90 / 85 | 141 | 2,200 | 24,200 | 1,600 | 10,760 | 1.70 / 270 (25°C) | 0.80 | 3.01 | TBD | 800 | 0.28 | 0.15 | 125 | 17 | I-19 |
| •CD63--15B | 800 – 1800 | 160 / 85 | 250 | 4,870 | 119,000 | 4,300 | 76,700 | 0.99 / 100 | 0.80 | 1.67 | 300 | 1000 | 0.08 | 0.05 | 125 | 2 | I-14 |
| •CD63--15C | 800 – 1800 | 150 / 86 | 235 | 5,940 | 176,415 | 4,340 | 78,470 | 1.70 / 480 (25°C) | 0.80 | 1.69 | TBD | 800 | 0.17 | 0.08 | 125 | 19 | I-20 |
| •CD63--15C | 2000 – 2500 | 150 / 83 | 235 | 4,950 | 122,510 | 3,615 | 54,490 | 2.20 / 480 (25°C) | 1.10 | 1.96 | TBD | 800 | 0.17 | 0.08 | 125 | 19 | I-20 |
| CM43--A2 | 800 | 25 / 93 | 39 | 445 | 1,000 | 490 | 1,000 | 1.5 / 75 | — | — | 100 | 500 | 0.8 | 0.2 | 125 | 9 | I-16 |
| CM43--A2 | 1200 – 1600 | 25 / 86 | 39 | 445 | 1,000 | 490 | 1,000 | 1.8 / 75 | — | — | 100 | 500 | 0.8 | 0.2 | 125 | 9 | I-16 |
| CM43--55 | 800 | 55 / 86 | 86 | 1,000 | 5,000 | 1,100 | 5,000 | 1.35 / 165 | — | — | 100 | 500 | 0.5 | 0.2 | 125 | 9 | I-16 |
| CM43--55 | 1200 – 1600 | 55 / 81 | 86 | 1,000 | 5,000 | 1,100 | 5,000 | 1.5 / 165 | — | — | 100 | 500 | 0.5 | 0.2 | 125 | 9 | I-16 |
| CM43--90 | 800 | 90 / 86 | 140 | 1,730 | 15,000 | 1,800 | 15,000 | 1.3 / 270 | — | — | 100 | 500 | 0.3 | 0.2 | 125 | 9 | I-16 |
| CM43--90 | 1200 – 1600 | 90 / 82 | 140 | 1,730 | 15,000 | 1,800 | 15,000 | 1.4 / 270 | — | — | 100 | 500 | 0.3 | 0.2 | 125 | 9 | I-16 |
| CM53--13 | 800 | 130 / 85 | 205 | 2,365 | 28,000 | 2,600 | 28,000 | 1.3 / 390 | — | — | 100 | 500 | 0.22 | 0.05 | 125 | 11 | I-17 |
| CM53--13 | 1200 – 1600 | 130 / 78 | 205 | 2,365 | 28,000 | 2,600 | 28,000 | 1.5 / 390 | — | — | 100 | 500 | 0.22 | 0.05 | 125 | 11 | I-17 |
| CM53--20 | 800 | 200 / 85 | 310 | 3,600 | 65,000 | 4,000 | 67,000 | 1.3 / 600 | — | — | 100 | 500 | 0.2 | 0.05 | 125 | 11 | I-17 |
| CM53--20 | 1200 – 1600 | 200 / 63 | 310 | 3,600 | 65,000 | 4,000 | 67,000 | 1.35 / 600 | — | — | 100 | 500 | 0.2 | 0.05 | 125 | 11 | I-17 |
| •ND43--21 | 600 – 2000 | 210 / 92 | 330 | 13,200 | 871,200 | 8,800 | 320,000 | 1.30 / 625 | 0.813 | 0.810 | 800 | 500 | 0.07 | 0.03 | 130 | 5 | I-15 |
| •LD83--24 | 3600 – 4000 | 240 / 74 | 377 | 7,525 | 236,000 | 5,500 | 126,000 | 3.5 / 1000 (25°C) | 1.563 | 2.141 | TBD | 1000 | 0.0325 | 0.065 | 125 | 6 | I-15 |
| •ND43--25 | 600 – 1600 | 250 / 89 | 393 | 13,200 | 871,200 | 8,800 | 322,000 | 1.20 / 625 | 0.819 | 0.589 | 800 | 500 | 0.07 | 0.03 | 130 | 5 | I-15 |
| •ND431825 | 1800 | 250 / 84 | 393 | 13,200 | 871,200 | 8,800 | 322,000 | 1.36 / 625 | 0.877 | 0.731 | 800 | 500 | 0.07 | 0.03 | 130 | 5 | I-15 |
| •LD43--43 | 1800 – 2200 | 430 / 80 | 800 | 12,000 | 0.72 x 10 ⁶ | 12,000 | 0.82 x 10 ⁶ | 1.77 / 1500 | 0.88 | 0.66 | 200 | 1000 | 0.0325 | 0.01 | 130 | 6 | I-15 |
| •LD43--50 | 600 – 1600 | 500 / 86 | 900 | 25,500 | 3.25 x 10 ⁶ | 17,000 | 1.20 x 10 ⁶ | 1.29 / 1500 | 0.81 | 0.32 | 200 | 1000 | 0.0325 | 0.01 | 130 | 6 | I-15 |
| •LD431850 | 1800 | 500 / 84 | 900 | 25,500 | 3.25 x 10 ⁶ | 17,000 | 1.20 x 10 ⁶ | 1.4 / 1500 | 0.916 | 0.280 | 200 | 1000 | 0.0325 | 0.01 | 130 | 6 | I-15 |
| •PD43--06 | 2000 - 2400 | 600 / 81 | 942 | 40,350 | 8.14 x 10 ⁶ | 29,500 | 3.63 x 10 ⁶ | 1.60 / 3000 | 0.869 | 0.237 | 400 | 200 | 0.029 | 0.009 | 125 | 4 | I-15 |
| •PD43--07 | 600 - 1800 | 700 / 82 | 1100 | 54,750 | 14.9 x 10 ⁶ | 40,000 | 6.60 x 10 ⁶ | 1.30 / 3000 | 0.703 | 0.184 | 400 | 200 | 0.029 | 0.009 | 125 | 4 | I-15 |
| TM400DZ-XX | 800 - 1600 | 400 / 66 | 620 | — | — | 8,000 | 270,000 | 1.4 / 1200 (125°C) | — | — | 200 | 500 | 0.1 | 0.05 | 125 | 12 | I-17 |

•To locate the Optional Cathode & Gate Lead Kits, go to page F-2 of the Accessories section.

Dual Thyristor Modules and AC Switches



CD43--40B, CD43--60B, CD43--90B,
 CD43--90C, CD63--15B, CD63--15C,
 CM43--A2, CM43--55, CM43--90,
 ND43--21, ND43--25, ND431825,
 LD43--43, LD43--50, LD431850,
 LD83--24, PD43--06, PD43--07



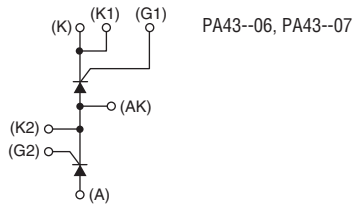
CM53--13, CM53--13,
 CM53--20, CM53--20,
 TM400DZ-XX

*Removable External Connection

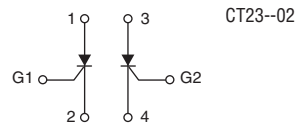
Thyristor Modules

| Type | V_{DRM} / V_{RRM} Volts ($V_{RSM} = V_{RRM} + 100V$) | $I_{T(av)/TC}$ Amperes/°C (180° sin) | $I_{T(RMS)}$ Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V_{FM}/I_{FM} Volts/Amperes ($T_j = 25^\circ C$) | V_{TO} Volts ($T_{j(max)}$) | R_T mΩ ($T_{j(max)}$) | di/dt Amperes/μsec (Non-Repetitive) | dV/dt Volts/μsec | $R_{th(j-c)}$ °C/W | $R_{th(c-s)}$ °C/W | $T_{j(max)}$ °C | Outline Drawings | |
|------------------------------|--|--|---------------------------------------|--|--|---|---|--|---------------------------------------|---------------------------------|---|---------------------|-----------------------|-----------------------|--------------------|------------------|------|
| | | | | I_{TSM} Amperes (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | i^2t A ² sec (10ms, $T_{j(max)}$, No V_{RRM} Reapplied) | I_{TSM} Amperes (8.3ms, $T_{j(max)}$, 100% V_{RRM} Reapplied) | i^2t A ² sec (8.3ms, $T_{j(max)}$, 100% V_{RRM} Reapplied) | | | | | | | | | Number | Page |
| AC Switches | | | | | | | | | | | | | | | | | |
| PA43--06 | 1300 - 2400 | 600 / 81 | 1330 | 40,350 | 8.14×10^6 | 29,500 | 3.63×10^6 | 1.75 / 3000 | 0.869 | 0.237 | 400 | 600 | 0.029 | 0.009 | 125 | 4 | I-15 |
| PA43--07 | 600 - 1800 | 700 / 82 | 1550 | 54,750 | 14.9×10^6 | 40,000 | 6.60×10^6 | 1.30 / 3000 | 1.010 | 0.117 | 400 | 600 | 0.029 | 0.009 | 125 | 4 | I-15 |
| Split Dual SCR Module | | | | | | | | | | | | | | | | | |
| CT23--02 | 800 | 20 / 87 | 30 | 365 | 667 | 400 | 670 | 1.8 / 60 | — | — | 100 | 500 | 1.0 | 0.25 | 125 | 13 | I-18 |

AC Switches



Split Dual SCR Modules

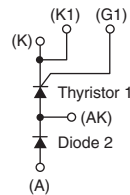


Thyristor / Diode Modules

| Type | V _{DRM} / V _{RRM} Volts (V _{RSM} = V _{RRM} + 100V) | I _{T(av)} /T _c Amperes/°C (180° sin) | I _{T(RMS)} Amperes (180° sin) | EUROPEAN | | NORTH AMERICAN | | V _{TM} /I _{TM} Volts/Amperes (T _{j(max)}) | V _{TO} Volts (T _{j(max)}) | R _T mΩ (T _{j(max)}) | di/dt Amperes/μsec (Non-Repetitive) | dV/dt Volts/μsec | R _{th(j-c)} °C/W | R _{th(c-s)} °C/W | T _{j(max)} °C | Outline Drawings | |
|---------------------------------|--|--|--|---|--|--|---|---|--|--|---|---------------------|------------------------------|------------------------------|---------------------------|------------------|------|
| | | | | I _{TSM} Amperes (10ms, T _{j(max)} ; No V _{RRM} Reapplied) | i ² t A ² sec (10ms, T _{j(max)} ; No V _{RRM} Reapplied) | I _{TSM} Amperes (8.3ms, T _{j(max)} ; 100% V _{RRM} Reapplied) | i ² t A ² sec (8.3ms, T _{j(max)} ; 100% V _{RRM} Reapplied) | | | | | | | | | Number | Page |
| •CD42--40B, CD47--40B | 800 – 1800 | 40 / 91 | 63 | 850 | 3,610 | 750 | 2,330 | 1.46 / 100 | 0.88 | 5.90 | 150 | 500 | 0.230 | 0.1 | 125 | 1 | I-14 |
| •CD42--60B, CD47--60B | 800 – 1800 | 60 / 95 | 95 | 1,665 | 13,860 | 1,470 | 8,960 | 1.28 / 100 | 0.82 | 3.00 | 150 | 500 | 0.165 | 0.1 | 125 | 1 | I-14 |
| •CD42--90B, CD47--90B | 800 – 1800 | 90 / 87 | 140 | 1,785 | 15,910 | 1,570 | 10,270 | 1.10 / 100 | 0.80 | 2.40 | 150 | 500 | 0.135 | 0.1 | 125 | 1 | I-14 |
| •CD42--90C, CD47--90C | 800 – 1800 | 90 / 85 | 141 | 2,200 | 24,200 | 1,600 | 10,760 | 1.70 / 270 (25°C) | 0.80 | 3.01 | TBD | 800 | 0.28 | 0.15 | 125 | 20 | I-20 |
| •CD62--15B, CD67--15B | 800 – 1800 | 160 / 85 | 250 | 4,870 | 119,000 | 4,300 | 76,700 | 0.99 / 100 (25°C) | 0.80 | 1.67 | 300 | 1000 | 0.08 | 0.05 | 125 | 2 | I-14 |
| •CD62--15C, C67--15C | 800 – 1800 | 150 / 86 | 235 | 5,940 | 176,415 | 4,340 | 78,470 | 1.70 / 480 (25°C) | 0.80 | 1.69 | TBD | 800 | 0.17 | 0.08 | 125 | 21 | I-21 |
| •CD62--15C, C67--15C | 2000 – 2500 | 150 / 83 | 235 | 4,950 | 122,510 | 3,615 | 54,490 | 2.20 / 480 (25°C) | 1.10 | 1.96 | TBD | 800 | 0.17 | 0.08 | 125 | 21 | I-21 |
| CM42--A2 | 800 | 25 / 93 | 39 | 445 | 1,000 | 490 | 1,000 | 1.5 / 75 | — | — | 100 | 500 | 0.8 | 0.2 | 125 | 9 | I-16 |
| CM42--A2 | 1200 – 1600 | 25 / 87 | 39 | 445 | 1,000 | 490 | 1,000 | 1.8 / 75 | — | — | 100 | 500 | 0.8 | 0.2 | 125 | 9 | I-16 |
| CM42--55 | 800 | 55 / 86 | 86 | 1,000 | 5,000 | 1,100 | 5,000 | 1.35 / 165 | — | — | 100 | 500 | 0.5 | 0.2 | 125 | 9 | I-16 |
| CM42--55 | 1200 – 1600 | 55 / 81 | 86 | 1,000 | 5,000 | 1,100 | 5,000 | 1.5 / 165 | — | — | 100 | 500 | 0.8 | 0.2 | 125 | 9 | I-16 |
| CM42--90 | 800 | 90 / 86 | 140 | 1,730 | 15,000 | 1,800 | 15,000 | 1.3 / 270 | — | — | 100 | 500 | 0.3 | 0.2 | 125 | 9 | I-16 |
| CM42--90 | 1200 – 1600 | 90 / 82 | 140 | 1,730 | 15,000 | 1,800 | 15,000 | 1.4 / 270 | — | — | 100 | 500 | 0.3 | 0.2 | 125 | 9 | I-16 |
| CM52--13 | 800 | 130 / 85 | 205 | 2,365 | 28,000 | 2,600 | 28,000 | 1.3 / 390 | — | — | 100 | 500 | 0.22 | 0.05 | 125 | 11 | I-17 |
| CM52--13 | 1200 – 1600 | 130 / 78 | 205 | 2,365 | 28,000 | 2,600 | 28,000 | 1.3 / 390 | — | — | 100 | 500 | 0.22 | 0.05 | 125 | 11 | I-17 |
| •ND42--21, ND47--21 | 600 – 2000 | 210 / 92 | 330 | 13,200 | 871,200 | 8,800 | 320,000 | 1.30 / 625 | 0.813 | 0.810 | 800 | 500 | 0.07 | 0.03 | 130 | 5 | I-15 |
| •ND42--25, ND47--25 | 600 – 1600 | 250 / 89 | 393 | 13,200 | 871,200 | 8,800 | 322,000 | 1.20 / 625 | 0.819 | 0.589 | 800 | 500 | 0.07 | 0.03 | 130 | 5 | I-15 |
| •ND421825, ND471825 | 1800 | 250 / 84 | 393 | 13,200 | 871,200 | 8,800 | 322,000 | 1.36 / 625 | 0.877 | 0.731 | 800 | 500 | 0.07 | 0.03 | 130 | 5 | I-15 |
| •LD42--43, LD47--43 | 1800 – 2200 | 510 / 70 | 800 | 12,000 | 0.72 x 10 ⁶ | 12,000 | 0.82 x 10 ⁶ | 1.77 / 1500 | 0.88 | 0.66 | 200 | 1000 | 0.0325 | 0.01 | 130 | 6 | I-15 |
| •LD42--50, LD47--50 | 600 – 1600 | 500 / 86 | 900 | 25,500 | 3.2 x 10 ⁶ | 17,000 | 1.20 x 10 ⁶ | 1.29 / 1500 | 0.81 | 0.32 | 200 | 1000 | 0.0325 | 0.01 | 130 | 6 | I-15 |
| •LD421850, LD471850 | 1800 | 500 / 84 | 900 | 25,500 | 3.2 x 10 ⁶ | 17,000 | 1.20 x 10 ⁶ | 1.36 / 1500 | 0.916 | 0.280 | 200 | 1000 | 0.0325 | 0.01 | 130 | 6 | I-15 |
| •PD42--07, PD47--07 | 600 – 1800 | 700 / 82 | 1100 | 60,000 | 18.0 x 10 ⁶ | 40,000 | 6.60 x 10 ⁶ | 1.30 / 3000 | 0.703 | 0.184 | 400 | 200 | 0.029 | 0.009 | 125 | 4 | I-15 |
| •PD42--06, PD47--06 | 2000 – 2400 | 600 / 81 | 942 | 44,250 | 9.7 x 10 ⁶ | 29,500 | 3.63 x 10 ⁶ | 1.60 / 3000 | 0.869 | 0.237 | 400 | 200 | 0.029 | 0.009 | 125 | 4 | I-15 |
| Split SCR / Diode Module | | | | | | | | | | | | | | | | | |
| CT22--02 | 800 | 20 / 87 | 30 | 365 | 667 | 400 | 670 | 1.8 / 60 | — | — | 100 | 500 | 0.10 | 0.25 | 125 | 13 | I-18 |

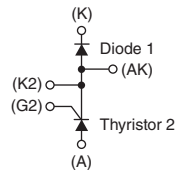
•To locate the Optional Cathode & Gate Lead Kits, go to page F-2 of the Accessories section.

Thyristor 1, Diode 2 Modules

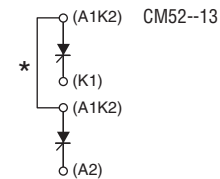


CD42--40B, CD42--60B, CD42--90B, CD42--90C, CD62--15B, CD62--15C, CM42--A2, CM42--55, CM42--90, CM52--13, ND42--21, ND42--25, ND421825, LD42--43, LD42--50, LD421850, PD42--07, PD42--06,

Diode 1, Thyristor 2 Modules

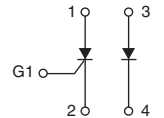


CD47--40B, CD47--60B, CD47--90B, CD47--90C, CD67--15B, CD67--15C, LD47--43, LD47--50, LD471850, ND47--21, ND47--25, ND471825, PD47--07, PD47--06



*Removable External Connection

Split SCR / Diode SCR Module

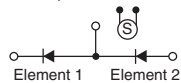


CT22--02

Thyristor / Diodes (POW-R-BRIKs™)

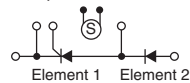
| Type | V _{DRM} / V _{RRM} Volts (V _{RRM} = V _{DRM} + 100V) | I _{T(av)} /T _c Amperes/°C (180° sin) | Maximim Power Dissipation (Watts) | E1 - I _{TSM} /I _{FSM} Amperes (180° sin) | E2 - I _{TSM} /I _{FSM} Amperes (180° sin) | Gate V _{gt} Volts | Gate I _{gt} mAmperes | di/dt Amperes/μsec (Non-Repelitive) | dV/dt Volts/μsec | R _{th(j-c)} °C/W (Per Module) | R _{th(c-s)} °C/W (Per Module) | R _{th(c-a)} °C/W (Per Module) | T _{j(max)} °C | Outline Drawings Number Page |
|--|--|--|---|--|--|----------------------------------|-------------------------------------|---|---------------------|--|--|--|---------------------------|------------------------------------|
| Diode / Diode Modules | | | | | | | | | | | | | | |
| P1Z7AAR700W_ | 2200 – 3000 | 355 / 105 | 1125 | 7,000 | 7,000 | — | — | — | — | 0.04 | 0.010 | 0.10 | 150 | 14 I-18 |
| P1Z8ABR800W_ | 1200 – 2200 | 435 / 105 | 1125 | 9,000 | 9,000 | — | — | — | — | 0.04 | 0.010 | 0.10 | 150 | 14 I-18 |
| P1Z9AAR900W_ | 2200 – 3000 | 590 / 105 | 1500 | 16,000 | 16,000 | — | — | — | — | 0.03 | 0.008 | 0.08 | 150 | 14 I-18 |
| P1Z9ACR900W_ | 800 - 1200 | 740 / 105 | 1500 | 30,000 | 30,000 | — | — | — | — | 0.03 | 0.008 | 0.08 | 150 | 14 I-18 |
| P1Z9ADR900W_ | 600 | 800 / 110 | 1330 | 50,000 | 50,000 | — | — | — | — | 0.03 | 0.008 | 0.08 | 150 | 14 I-18 |
| P1ZAADA00W_ | 3600 - 5000 | 985 / 80 | — | 24,000 | 24,000 | — | — | — | — | 0.024 | 0.007 | 0.08 | 150 | 14 I-18 |
| P1ZAABRA00W_ | 2200 - 3000 | 1270 / 80 | — | — | — | — | — | — | — | 0.03 | 0.008 | 0.08 | 150 | 14 I-18 |
| P1ZAACRA00W_ | 1800 - 2200 | 1420 / 80 | — | — | — | — | — | — | — | 0.03 | 0.008 | 0.08 | 150 | 14 I-18 |
| P1ZAADRA00W_ | 1200 - 1800 | 1585 / 80 | — | — | — | — | — | — | — | 0.03 | 0.008 | 0.08 | 150 | 14 I-18 |
| Half Controlled SCR / Diode Modules | | | | | | | | | | | | | | |
| P2Z7ABB700W_ | 1600 – 2200 | 380 / 85 | 1100 | 9,000 | 9,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P2Z7ACB700W_ | 1200 – 1600 | 395 / 85 | 1100 | 10,000 | 14,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P2Z9AAA900W_ | 2000 – 3000 | 430 / 85 | 1325 | 15,000 | 16,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 125 | 14 I-18 |
| P2Z9ABA900W_ | 1600 - 2000 | 520 / 85 | 1465 | 17,000 | 16,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 130 | 14 I-18 |
| P2Z9ACA900W_ | 1200 - 1600 | 590 / 85 | 1465 | 25,000 | 16,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 130 | 14 I-18 |
| P2ZAABA00W_ | 1200 - 2200 | 880 / 80 | — | — | — | 3 | 200 | 400 | 300 | 0.03 | 0.008 | 0.08 | 125 | 14 I-18 |
| Full Control SCR / SCR Modules | | | | | | | | | | | | | | |
| P3Z8AAT800W_ | 2200 – 3000 | 300 / 85 | 1095 | 9,000 | 9,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P3Z7ABT700W_ | 1600 – 2200 | 345 / 85 | 1095 | 9,000 | 9,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P3Z9AAT900W_ | 2000 - 3000 | 355 / 85 | 1295 | 15,000 | 15,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 125 | 14 I-18 |
| P3Z7ACT700W_ | 1200 – 1600 | 375 / 85 | 1095 | 10,000 | 10,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P3Z8ABT800W_ | 1400 - 2200 | 390 / 85 | 1095 | 12,000 | 12,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P3Z8ACT800W_ | 1200 - 1400 | 450 / 85 | 1095 | 15,000 | 15,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P3Z9ABT900W_ | 1600 - 2000 | 470 / 85 | 1460 | 17,000 | 17,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 130 | 14 I-18 |
| P3Z9ACT900W_ | 1200 - 1600 | 600 / 85 | 1460 | 25,000 | 25,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 130 | 14 I-18 |
| P3ZAABTA00W_ | 1200 - 2200 | 880 / 80 | — | — | — | 3 | 200 | 400 | 300 | 0.03 | 0.008 | 0.08 | 125 | 14 I-18 |
| Half Controlled Diode / SCR Modules | | | | | | | | | | | | | | |
| P7Z7ABB700W_ | 1600 – 2200 | 380 / 85 | 1100 | 9,000 | 9,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P7Z7ABC700W_ | 1200 – 1600 | 395 / 85 | 1100 | 14,000 | 10,000 | 3 | 150 | 600 | 300 | 0.04 | 0.010 | 0.10 | 130 | 14 I-18 |
| P7Z9AAA900W_ | 2000 – 3000 | 430 / 85 | 1325 | 16,000 | 15,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 125 | 14 I-18 |
| P7Z9AAB900W_ | 1600 - 2000 | 520 / 85 | 1465 | 16,000 | 17,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 130 | 14 I-18 |
| P7Z9AAC900W_ | 1200 - 1600 | 590 / 85 | 1465 | 16,000 | 25,000 | 3 | 200 | 600 | 300 | 0.03 | 0.008 | 0.08 | 130 | 14 I-18 |
| P7ZAABA00W_ | 1200 - 2200 | 880 / 80 | — | — | — | 3 | 200 | 400 | 300 | 0.03 | 0.008 | 0.08 | 125 | 14 I-18 |

Diode / Diode



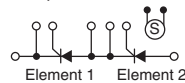
P1Z7AAR700W_ , P1Z8ABR800W_ ,
P1Z9AAR900W_ , P1Z9ACR900W_ ,
P1Z9ADR900W_ , P1ZAADA00W_ ,
P1ZAABRA00W_ , P1ZAACRA00W_ ,
P1ZAADRA00W_

SCR / Diode



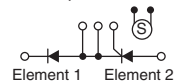
P2Z7ABB700W_ , P2Z7ACB700W_ ,
P2Z9AAA900W_ , P2Z9ABA900W_ ,
P2Z9ACA900W_ , P2ZAABA00W_

SCR / SCR



P3Z7ABT700W_ , P3Z7ACT700W_ ,
P3Z8AAT800W_ , P3Z8ABT800W_ ,
P3Z8ACT800W_ , P3Z9AAT900W_ ,
P3Z9ABT900W_ , P3Z9ACT900W_ ,
P3ZAABTA00W_

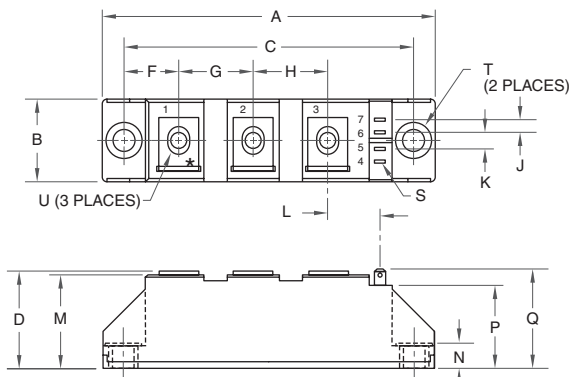
Diode / SCR



P7Z7ABB700W_ , P7Z7ABC700W_ ,
P7Z9AAA900W_ , P7Z9AAB900W_ ,
P7Z9AAC900W_ , P7ZAABA00W_

1

CD41--99B, CD42--40B, CD42--60B, CD42--90B, CD43--40B,
CD43--60B, CD43--90B, CD47--40B, CD47--60B, CD47--90B,
*CS41--99B



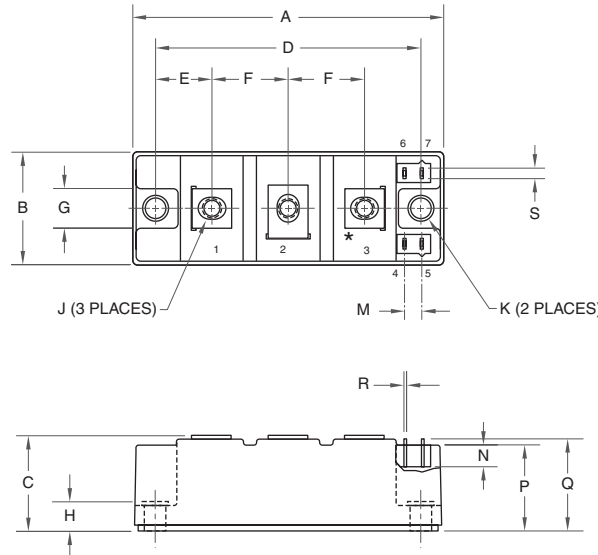
*CS41 TERMINAL 1 IS NOT PRESENT

| Dim. | Inches | Millimeters |
|------|--------|-------------|
| A | 3.66 | 93.0 |
| B | 0.79 | 20.0 |
| C | 3.15 | 80.0 |
| D | 1.18 | 30.0 |
| F | 0.61 | 15.5 |
| G | 0.79 | 20.0 |
| H | 0.79 | 20.0 |
| J | 0.16 | 4.0* |
| K | 0.22 | 5.7* |

*Does not apply to CD41--99B and CS41--99B.

2

CD61, CD62, CD63, CD67, CS61*



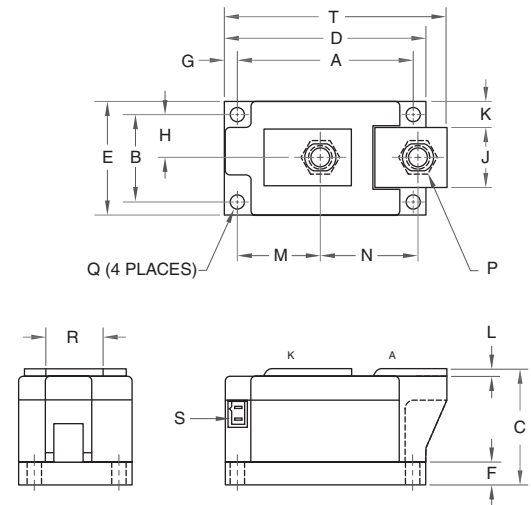
*CS61 TERMINAL 3 IS NOT PRESENT

| Dim. | Inches | Millimeters |
|------|--------|-------------|
| A | 3.70 | 94.0 |
| B | 1.34 | 34.0 |
| C | 1.18 | 30.0 |
| D | 3.15 | 80.0 |
| E | 0.67 | 17.0 |
| F | 0.91 | 23.0 |
| G | 0.51 | 13.0 |
| H | 0.35 | 8.3 |

*Does not apply to CD61--16B, and CS61--16B.

3

LS41, LS43, LS81, LS83

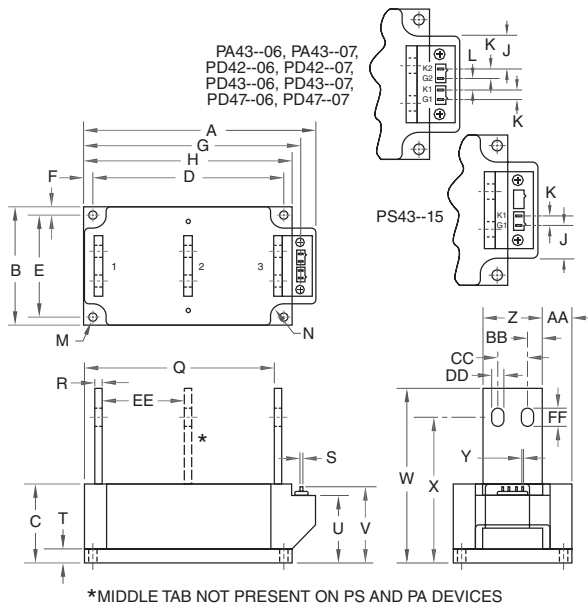


| Dim. | Inches | Millimeters |
|------|--------|-------------|
| A | 3.15 | 80.0 |
| B | 1.50 | 38.0 |
| C | 2.05 | 52.1 |
| D | 3.62 | 92.0 |
| E | 1.97 | 50.0 |
| F | 0.39 | 9.9 |
| G | 0.24 | 6.1 |
| H | 0.75 | 19.0 |
| J | 0.99 | 25.1 |

*Does not apply to LS41--60.

| Dim. | Inches | Millimeters |
|------|---------------|-------------|
| K | 0.48 | 12.2 |
| L | 0.12 | 3.1 |
| M | 1.45 | 36.8 |
| N | 1.76 | 44.77 |
| P | M10 Metric | M10 |
| Q | 9.25 Dia. | 6.35 Dia. |
| S | 0.110 x 0.032 | 2.5 x 0.8* |
| T | 3.99 | 101.3 |

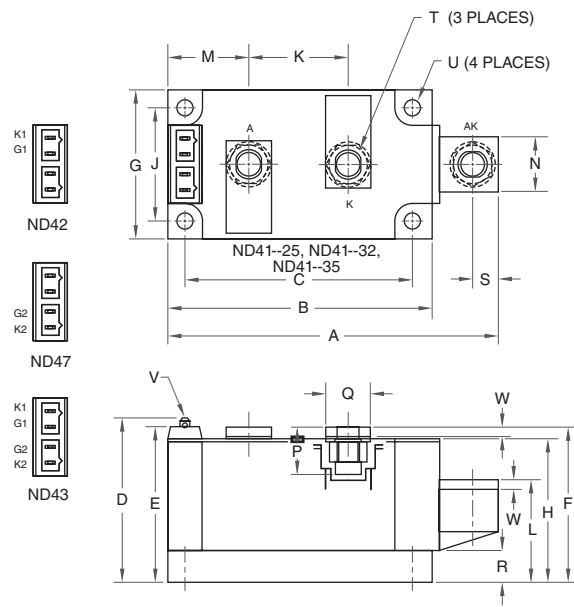
4 PA43, PD41, PD42, PD43, PD47, PS41, PS43



| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|--------|-------------|
| A | 7.80 | 198.1 | R | 0.19 | 4.8 |
| B | 4.0 | 101.6 | S | 0.11 | 2.8* |
| C | 2.68 | 68.1 | T | 0.48 | 12.2 |
| D | 6.44 | 163.6 | U | 2.28 | 58.0 |
| E | 3.44 | 87.4 | V | 2.54 | 64.5 |
| F | 0.28 | 7.1 | W | 4.93 | 125.2 |
| G | 7.31 | 185.7 | X | 3.81 | 96.8 |
| H | 7.0 | 177.8 | Y | 0.03 | 0.8* |
| J | 1.65 | 42.0* | Z | 2.0 | 50.8 |
| K | 0.21 | 5.3* | AA | 1.0 | 25.4 |
| L | 0.28 | 7.1* | BB | 0.5 | 12.7 |
| M | 0.281 | 7.1 | CC | 1.0 | 25.4 |
| N | 0.45 | 11.4 | DD | 0.406 | 10.3 |
| P | 0.54 | 13.7 | EE | 2.87 | 72.9* |
| Q | 5.93 | 150.6 | FF | 0.66 | 16.8 |

*Does not apply to PD41--11, PS41--25.

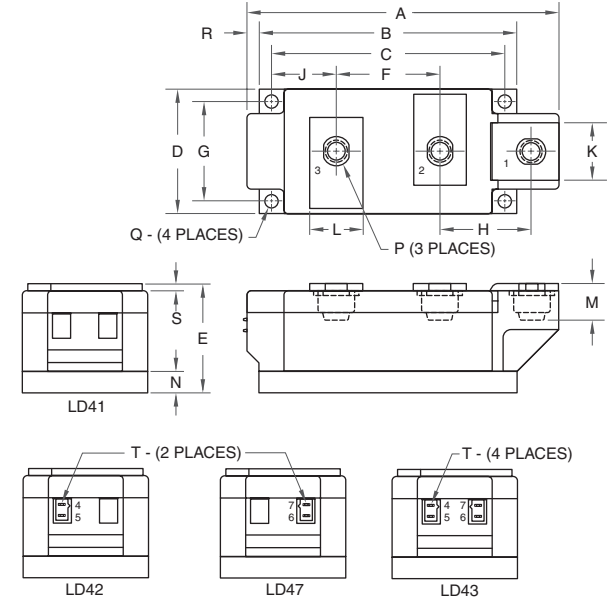
5 ND41, ND42, ND43, ND47



| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|---------------|-------------|
| A | 4.57 | 116.0 | M | 1.122 | 28.5 |
| B | 3.66 | 93.0 | N | 0.71 | 18.0 |
| C | 3.15 | 80.0 | P | 0.57 | 14.5 |
| D | 2.17 | 55.1 | Q | 0.625 | 15.9 |
| E | 2.06 | 52.3 | R | 0.394 | 10.0 |
| F | 2.07 | 52.0 | S | 0.35 | 8.9 |
| G | 1.97 | 50.0 | T | M8 Metric | M8 |
| H | 1.90 | 48.3 | U | 0.25 Dia. | 6.35 Dia. |
| J | 1.50 | 38.1 | V | 0.110 x 0.032 | 2.8 x 0.8* |
| K | 1.36 | 35.0 | W | 0.12 | 3.0 |
| L | 1.26 | 32.0 | | | |

*Does not apply to ND41--26, ND41--32, and ND41--35.

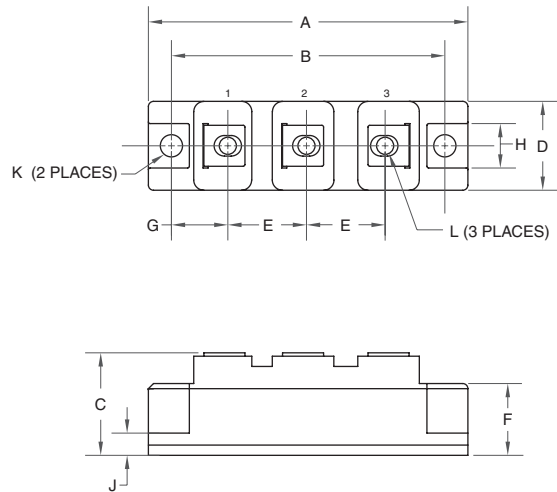
6 LD41, LD42, LD43, LD47, LD81, LD83



| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|--------------|-------------|
| A | 5.91 | 150.0 | K | 1.10 | 28.0 |
| B | 4.88 | 124.0 | L | 1.00 | 25.4 |
| C | 4.41 | 112.0 | M | 0.69 | 17.5 |
| D | 2.36 | 60.0 | N | 0.39 | 10.0 |
| E | 2.05 | 52.0 | P | M10 Metric | M10 |
| F | 1.97 | 50.0 | Q | 0.26 Dia. | 6.5 Dia. |
| G | 1.89 | 48.0 | R | 0.24 | 6.0 |
| H | 1.73 | 44.0 | S | 0.12 | 3.0 |
| J | 1.22 | 31.0 | T | 0.110 x 0.32 | 2.5 x 0.8* |

*Does not apply to LD41--60.

7 CD41, CDD1



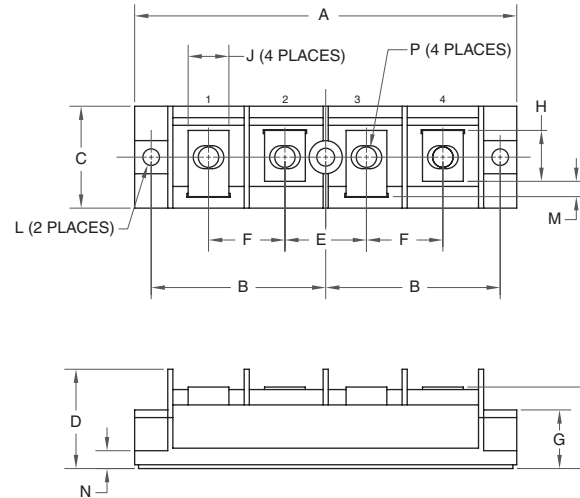
CD41, CDD1 (800V)

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| A | 3.68 Max. | 93.5 Max. |
| B | 3.15 | 80.0 |
| C | 1.18 Max. | 30.0 Max. |
| D | 1.02 Max. | 26.0 Max. |
| E | 0.79 | 20.0 |
| F | 0.83 | 21.0 |

CD41, CDD1 (1200V/ 1600V)

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| A | 3.68 Max. | 93.5 Max. |
| B | 3.15 | 80.0 |
| C | 1.18 Max. | 30.0 Max. |
| D | 1.02 Max. | 26.0 Max. |
| E | 0.90 | 23.0 |
| F | 0.83 | 21.0 |

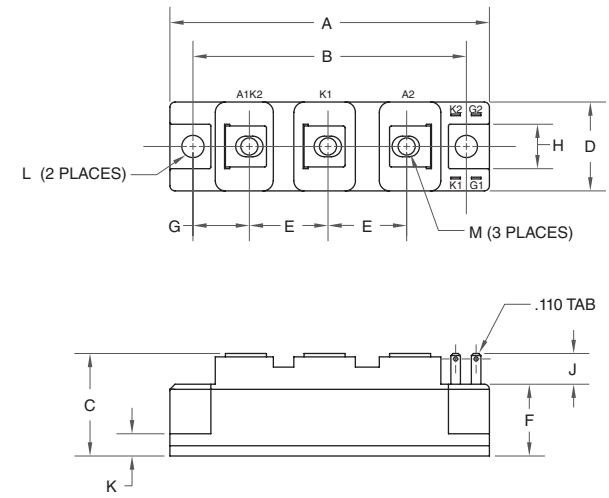
8 CD51--25



| Dim. | Inches | Millimeters |
|------|-------------|-------------|
| A | 5.9 | 150.0 |
| B | 2.697±0.008 | 68.5±0.2 |
| C | 1.57 | 40.0 |
| D | 1.53 | 39.0 |
| E | 1.26 | 32.0 |
| F | 1.18 | 30.0 |
| G | 0.9 | 23.0 |

| Dim. | Inches | Millimeters |
|------|------------------|--------------|
| H | 0.79 | 20.0 |
| J | 0.63 | 16.0 |
| L | 0.256±0.008 Dia. | 6.5±0.2 Dia. |
| M | 0.24 | 6.0 |
| N | 0.2 | 5.0 |
| P | M8 Metric | M8 |

9 CM42, CM43



CM42, CM43 (800V)

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| A | 3.68 Max. | 93.5 Max. |
| B | 3.15 | 80.0 |
| C | 1.18 Max. | 30.0 Max. |
| D | 1.02 Max. | 26.0 Max. |
| E | 0.79 | 20.0 |
| F | 0.83 | 21.0 |

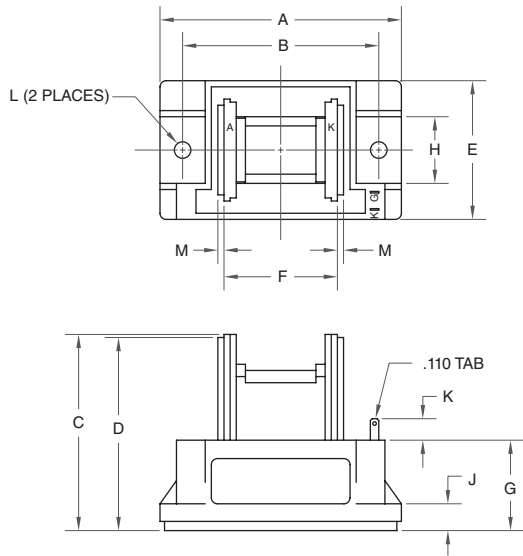
| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| G | 0.69 | 17.5 |
| H | 0.49 | 12.5 |
| J | 0.35 | 9.0 |
| K | 0.26 | 6.5 |
| L | 0.26 Dia. | 6.5 Dia. |
| M | M5 Metric | M5 |

CM42, CM43 (1200V / 1600V)

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| A | 3.68 Max. | 93.5 Max. |
| B | 3.15 | 80.0 |
| C | 1.18 Max. | 30.0 Max. |
| D | 1.02 Max. | 26.0 Max. |
| E | 0.90 | 23.0 |
| F | 0.83 | 21.0 |

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| G | 0.65 | 16.5 |
| H | 0.51 | 13.0 |
| J | 0.35 | 9.0 |
| K | 0.26 | 6.5 |
| L | 0.26 Dia. | 6.5 Dia. |
| M | M5 Metric | M5 |

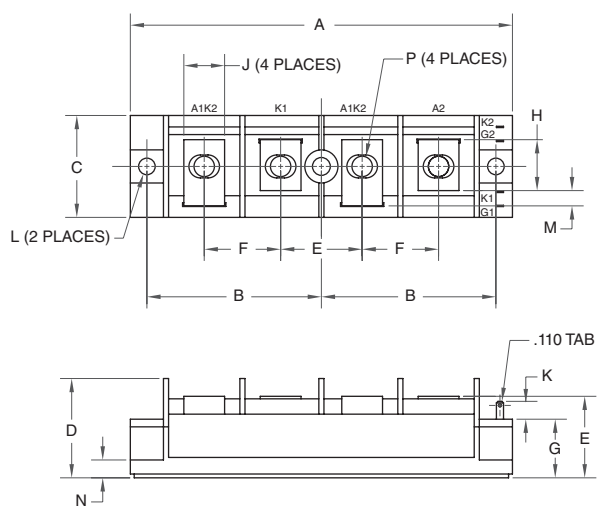
10 CSD3--0H



| Dim. | Inches | Millimeters |
|------|------------|-------------|
| A | 3.15 | 80.0 |
| B | 2.56±0.012 | 65.0±0.3 |
| C | 2.56 | 65.0 |
| D | 2.52 | 64.0 |
| E | 1.81 | 46.0 |
| F | 1.38 | 35.0 |

| Dim. | Inches | Millimeters |
|------|------------|-------------|
| G | 1.18 | 46.0 |
| H | 0.87 | 22.0 |
| J | 0.35 | 9.0 |
| K | 0.28 | 7.0 |
| L | 0.216 Dia. | 5.5 Dia. |
| M | 0.08 | 2.0 |

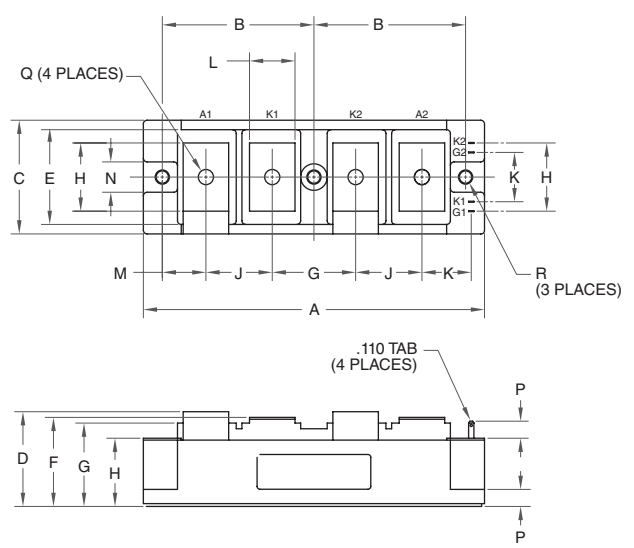
11 CM52--13, CM53--13, CM53--20



| Dim. | Inches | Millimeters |
|------|-------------|-------------|
| A | 5.9 | 150.0 |
| B | 2.697±0.008 | 68.5±0.2 |
| C | 1.57 | 40.0 |
| D | 1.53 | 39.0 |
| E | 1.26 | 32.0 |
| F | 1.18 | 30.0 |
| G | 0.9 | 23.0 |

| Dim. | Inches | Millimeters |
|------|------------------|--------------|
| H | 0.79 | 20.0 |
| J | 0.63 | 16.0 |
| K | 0.28 | 7.0 |
| L | 0.256±0.008 Dia. | 6.5±0.2 Dia. |
| M | 0.24 | 6.0 |
| N | 0.2 | 5.0 |
| P | M8 Metric | M8 |

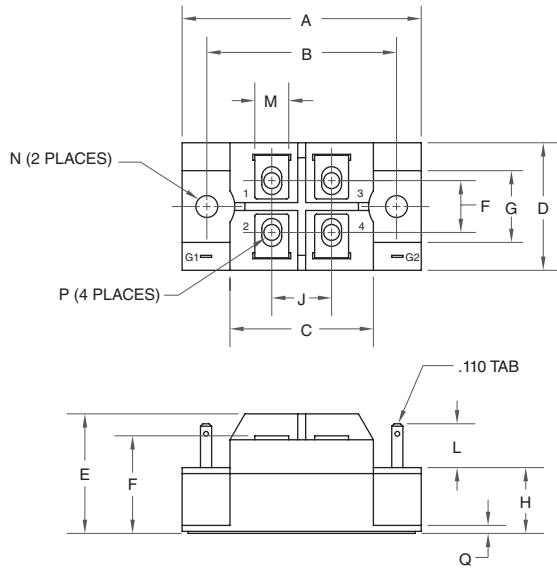
12 TM400DZ--XX



| Dim. | Inches | Millimeters |
|------|------------|-------------|
| A | 7.09 | 180.0 |
| B | 3.15±0.008 | 80.0±0.2 |
| C | 2.36 | 60.0 |
| D | 1.97 Max. | 50.0 Max. |
| E | 1.97 | 50.0 |
| F | 1.87 Max. | 47.5 Max. |
| G | 1.73 | 44.0 |
| H | 1.42 | 36.0 |

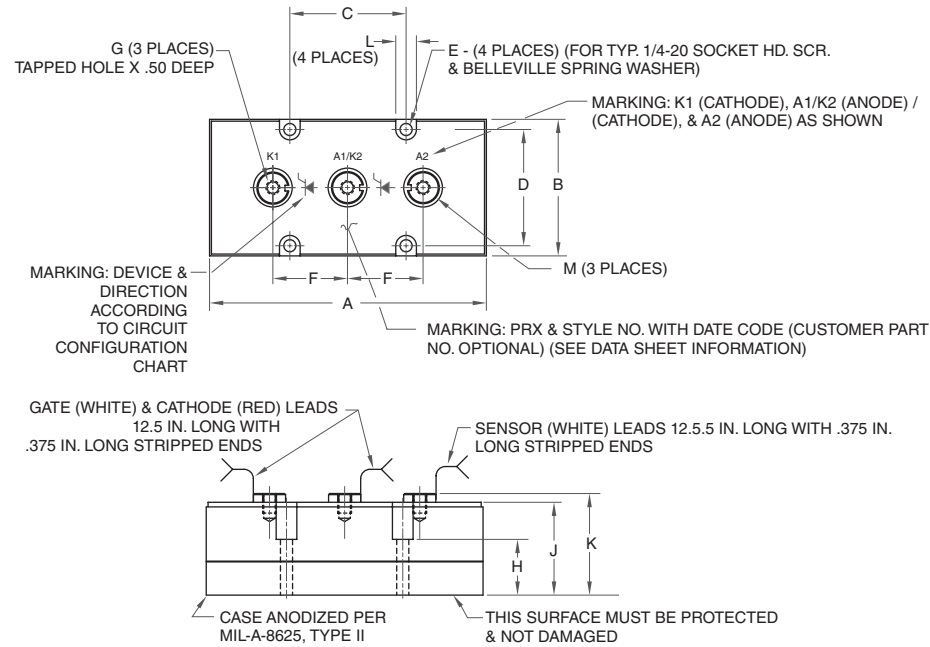
| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| J | 1.38 | 35.0 |
| K | 1.02 | 26.0 |
| L | 0.94 | 24.0 |
| M | 0.90 | 23.0 |
| N | 0.63 | 16.0 |
| P | 0.35 | 9.0 |
| Q | M8 Metric | M8 |
| R | 0.26 Dia. | 6.5 Dia. |

13 CT22--02, CT23--02



| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|-----------|-------------|------|-----------|-------------|
| A | 2.36 Max. | 60.0 Max. | J | 0.59 | 15.0 |
| B | 1.87 | 47.6 | K | 0.51 | 13.0 |
| C | 1.42 | 36.0 | L | 0.43 | 11.0 |
| D | 1.26 Max. | 32.0 Max. | M | 0.33 | 8.5 |
| E | 1.18 Max. | 30.0 Max. | N | 0.216 | 5.5 |
| F | 0.96 | 24.5 | P | M4 Metric | M4 |
| G | 0.71 | 18.0 | Q | 0.08 | 2.0 |
| H | 0.65 | 16.5 | | | |

14 P1Z7, P1Z8, P1Z9, P1ZA, P2Z7, P2Z9, P2ZA, P3Z7, P3Z8, P3Z9, P3ZA, P7Z7, P7Z9, P7ZA



ZAA Modules

| Dim. | Inches | Millimeters |
|------|----------------|-------------|
| A | 8.5 | 215.9 |
| B | 4.33 | 109.98 |
| C | 3.15 | 80.01 |
| D | 3.78 | 96.01 |
| E | 0.328 Dia. | 8.33 Dia. |
| F | 2.34±0.03 | 59.4±0.8 |
| G | 7/16-14 UNC-2B | |
| H | 2.14 | 54.36 |
| J | 3.15 | 80.01 |
| K | 3.38 | 85.85 |
| L | 0.56 | 14.22 |
| M | 1.12 | 28.45 |

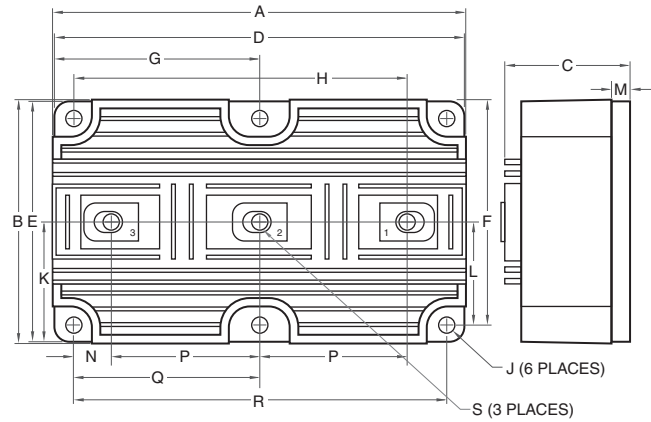
Z7A / Z8A Modules

| Dim. | Inches | Millimeters |
|------|----------------|-------------|
| A | 6.30 | 153.16 |
| B | 3.03 | 76.96 |
| C | 3.15 | 80.01 |
| D | 2.47 | 62.73 |
| E | 0.328 Dia. | 8.33 Dia. |
| F | 1.83±0.03 | 46.48±0.8 |
| G | 5/16-18 UNC-2B | |
| H | 1.27 | 32.25 |
| J | 2.09 | 53.08 |
| K | 2.25 | 57.15 |
| L | 0.58 | 14.22 |

Z9A Modules

| Dim. | Inches | Millimeters |
|------|---------------|-------------|
| A | 7.50 | 190.5 |
| B | 3.70 | 93.98 |
| C | 3.15 | 80.01 |
| D | 3.15 | 80.01 |
| E | 0.328 Dia. | 8.33 Dia. |
| F | 2.03±0.03 | 51.56±0.8 |
| G | 3/8-16 UNC-2B | |
| H | 1.51 | 38.35 |
| J | 2.52 | 64.0 |
| K | 2.75 | 69.85 |
| L | 0.56 | 14.22 |

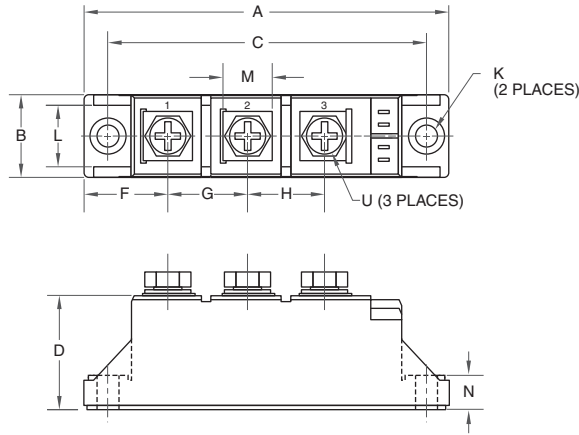
15 QRSB165001, QRD6565001



| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| A | 6.40 | 162.6 |
| B | 4.31 | 109.5 |
| C | 1.90 | 48.1 |
| D | 6.21 | 157.7 |
| E | 4.20 | 106.6 |
| F | 3.70 | 93.7 |
| G | 3.10 | 78.9 |
| H | 5.17 | 131.3 |
| J | 0.28 Dia. | 7.1 Dia. |

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| K | 2.10 | 53.3 |
| L | 1.84 | 46.9 |
| M | 0.28 | 7.1 |
| N | 0.61 | 15.5 |
| P | 2.28 | 57.9 |
| Q | 2.89 | 73.4 |
| R | 5.78 | 146.8 |
| S | M8 Metric | M8 |

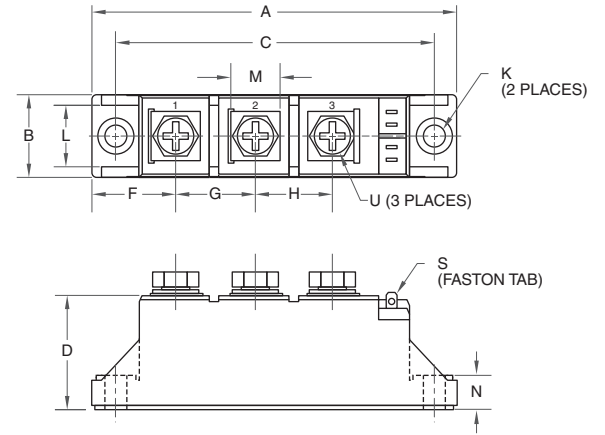
16 CD41--99C



| Dim. | Inches | Millimeters |
|------|--------|-------------|
| A | 3.62 | 92.0 |
| B | 0.83 | 21.0 |
| C | 3.15 | 80.0 |
| D | 1.18 | 30.0 |
| F | 0.83 | 21.0 |
| G | 0.79 | 20.0 |

| Dim. | Inches | Millimeters |
|------|-----------|-------------|
| H | 0.79 | 20.0 |
| K | 0.24 Dia. | 6.2 Dia. |
| L | 0.63 | 16.0 |
| M | 0.51 | 13.0 |
| N | 0.33 | 8.5 |
| U | M5 Metric | M5 |

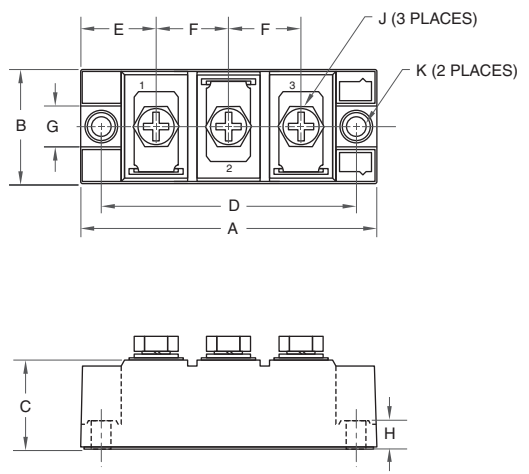
17 CD43--90C



| Dim. | Inches | Millimeters |
|------|--------|-------------|
| A | 3.62 | 92.0 |
| B | 0.83 | 21.0 |
| C | 3.15 | 80.0 |
| D | 1.18 | 30.0 |
| F | 0.83 | 21.0 |
| G | 0.79 | 20.0 |
| H | 0.79 | 20.0 |

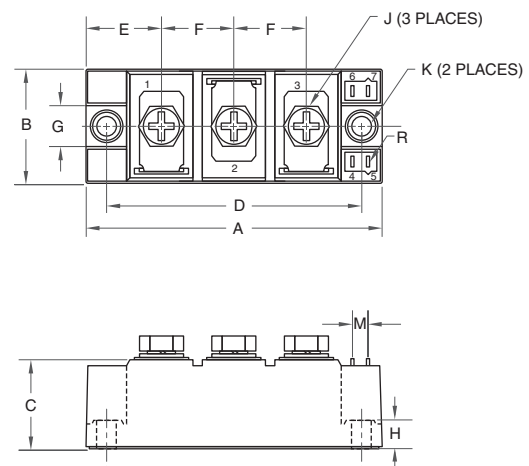
| Dim. | Inches | Millimeters |
|------|-------------|-------------|
| K | 0.24 | 6.2 |
| L | 0.63 | 16.0 |
| M | 0.51 | 13.0 |
| N | 0.33 | 8.5 |
| S | 0.11 x 0.02 | 2.8 x 0.5 |
| U | M5 Metric | M5 |

18 CD61--16C



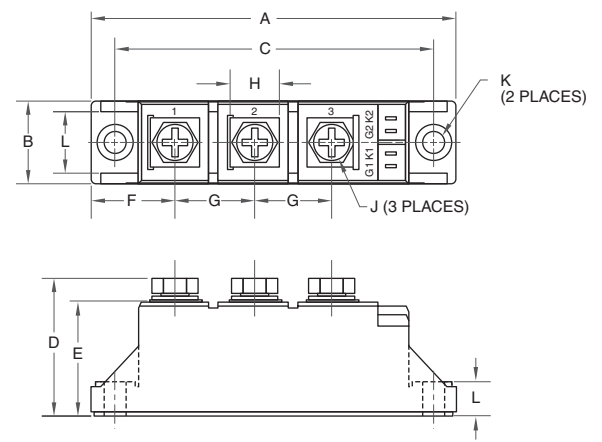
| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|-----------|-------------|
| A | 3.70 | 94.0 | F | 0.91 | 23.0 |
| B | 1.34 | 34.0 | G | 0.51 | 13.0 |
| C | 1.15 | 29.2 | H | 0.35 | 9.0 |
| D | 3.15 | 80.0 | J | M6 Metric | M6 |
| E | 0.94 | 24.0 | K | 0.24 Dia. | 6.2 Dia. |

19 CD63--15C



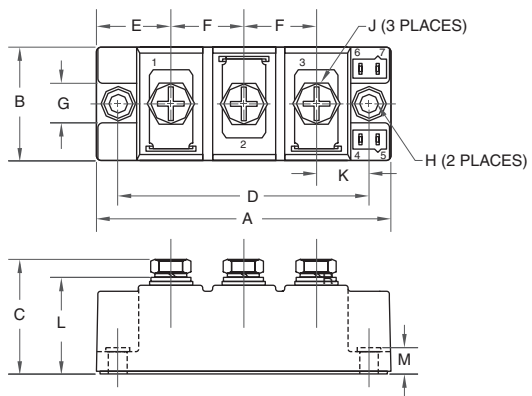
| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|-------------|-------------|
| A | 3.70 | 94.0 | G | 0.51 | 13.0 |
| B | 1.34 | 34.0 | H | 0.35 | 9.0 |
| C | 1.15 | 29.2 | J | M6 Metric | M6 |
| D | 3.15 | 80.0 | K | 0.24 Dia. | 6.2 Dia. |
| E | 0.94 | 24.0 | M | 0.19 | 4.9 |
| F | 0.91 | 23.0 | R | 0.03 x 0.11 | 2.8 x 0.8 |

20 CD42--90C, CD47--90C



| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|-----------|-------------|
| A | 3.62 | 92.0 | F | 0.83 | 21.0 |
| B | 0.83 | 21.0 | G | 0.79 | 20.0 |
| C | 3.15 | 80.0 | H | 0.51 | 13.0 |
| D | 1.38 | 35.0 | J | M5 Metric | M5 |
| E | 1.18 | 30.0 | K | 0.24 Dia. | 6.2 Dia. |

21 CD62--15C, CD67--15C



| Dim. | Inches | Millimeters | Dim. | Inches | Millimeters |
|------|--------|-------------|------|-----------|-------------|
| A | 3.70 | 94.0 | G | 0.51 | 13.0 |
| B | 1.34 | 34.0 | H | 0.24 Dia. | 6.2 Dia. |
| C | 1.42 | 36.0 | J | M6 Metric | M6 |
| D | 3.15 | 80.0 | K | 0.67 | 17.0 |
| E | 0.94 | 24.0 | L | 1.15 | 29.2 |
| F | 0.91 | 23.0 | M | 0.35 | 9.0 |