

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:

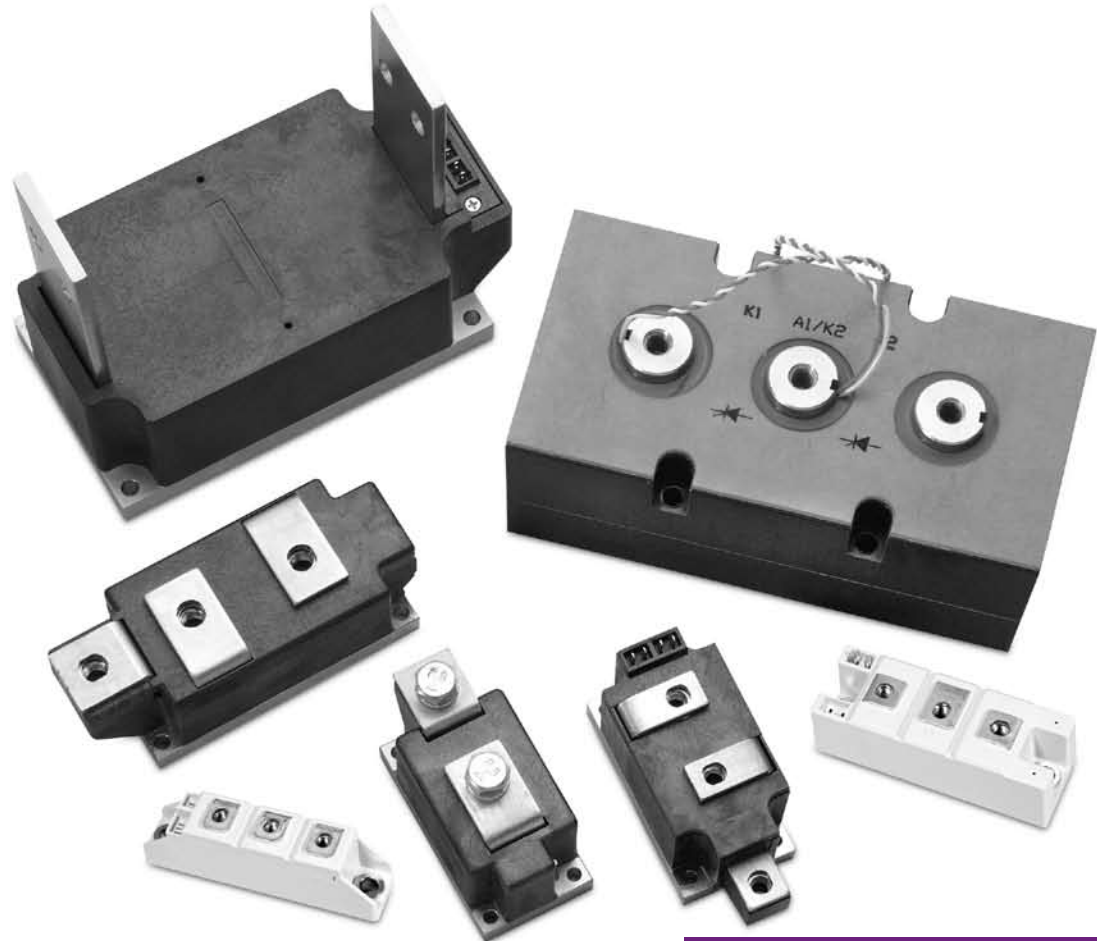
- AC Motor Starters
- DC Motor Controls
- Mining Power Centers
- Resistance Welding Controls
- Transportation

Circuit Configurations:

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

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POW-R-BLOK™ Modules
VOLTAGE: 600V TO 4000V
CURRENT: 20A TO 2500A

POW-R-BRIK™ Modules
VOLTAGE: 1200V TO 3300V
CURRENT: 345A TO 1585A

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

(5) Current Rating (x 10) for All Except for the Following:

A2 = 25A
 40 = 40A
 50 = 50A
 60 = 60A
 90 = 90A
 99 = 100A
 06 = 600A
 07 = 700A
 15 = 1500A on PS Modules
 20 = 2000A on PS Modules
 25 = 2500A on PS Modules

(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

(2) Current Rating (x 1)

(3) Circuit Configuration

(4) Voltage Rating (x 100):

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

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

(2) Device:
 R = Rectifier

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

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

(5) Current:
 650A

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

POW-R-BRIKs™

P3Z7A CT7 00 W16 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

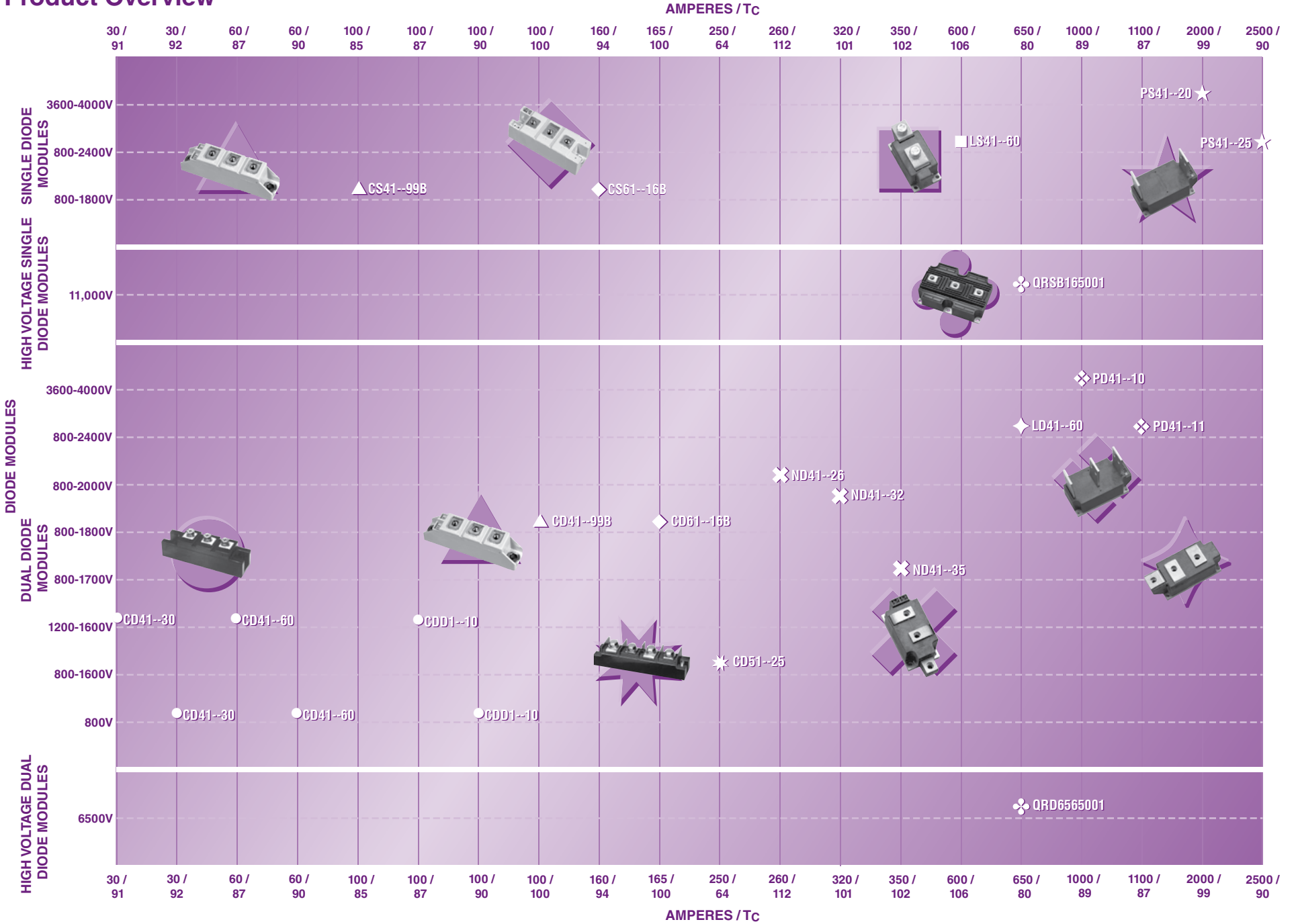
(6) Special Features:

00 = Module Includes Standard Thermistor
 XT = No Thermistor
 All Other Codes Denote Unique Customer Specifications

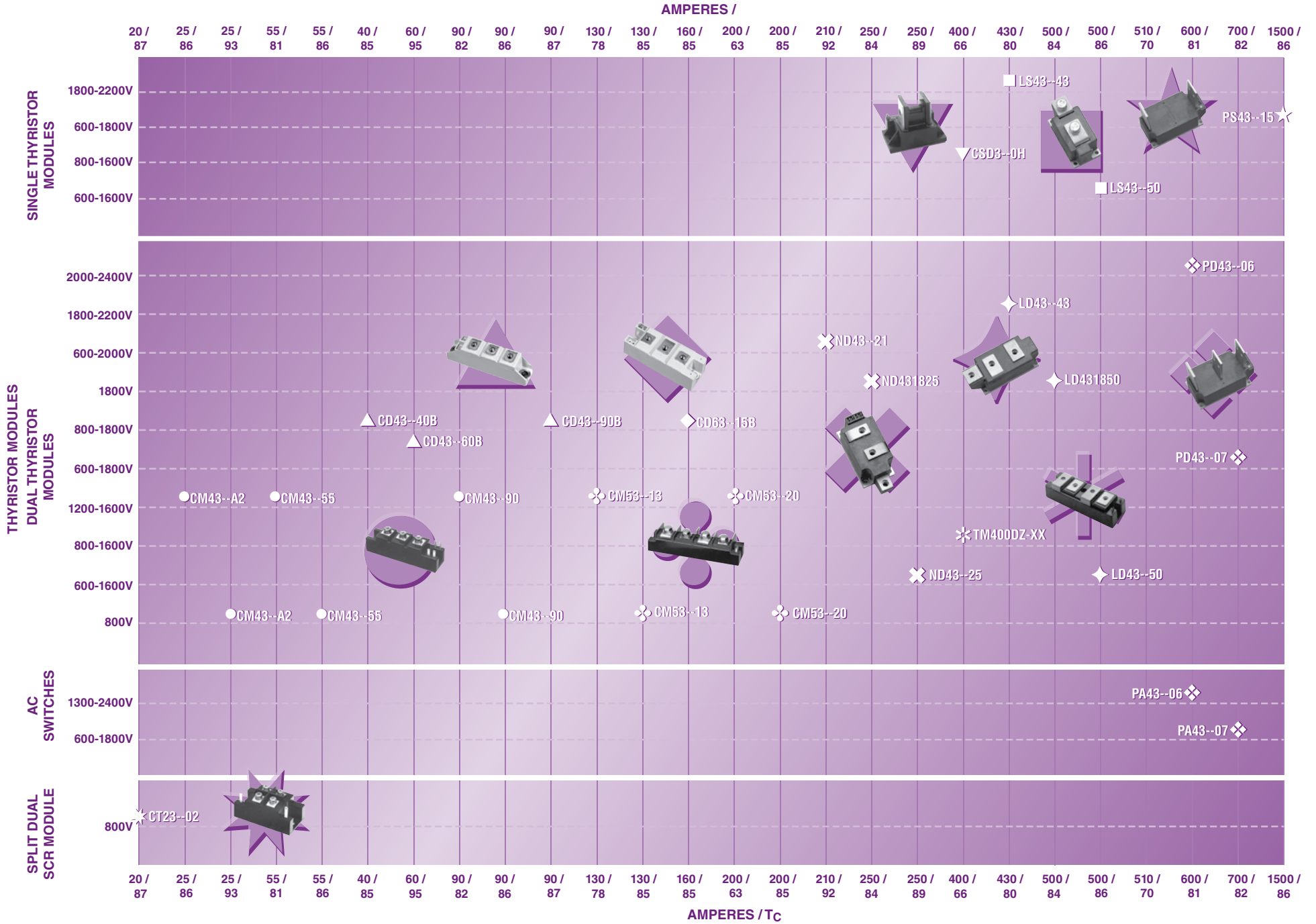
(7) Voltage Rating:

V04 = 400V
 V08 = 800V
 W12 = 1200V
 W16 = 1600V

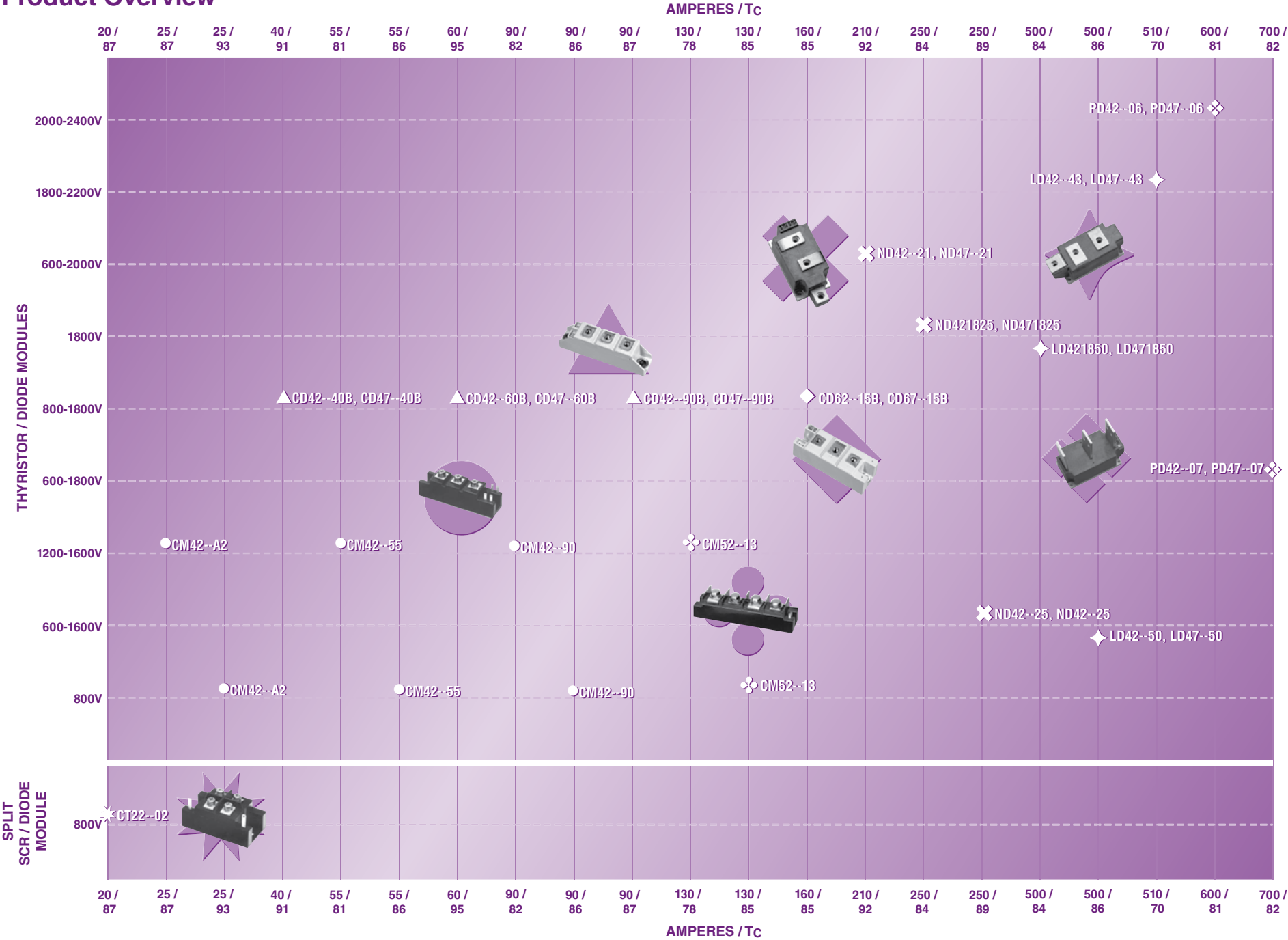
Product Overview



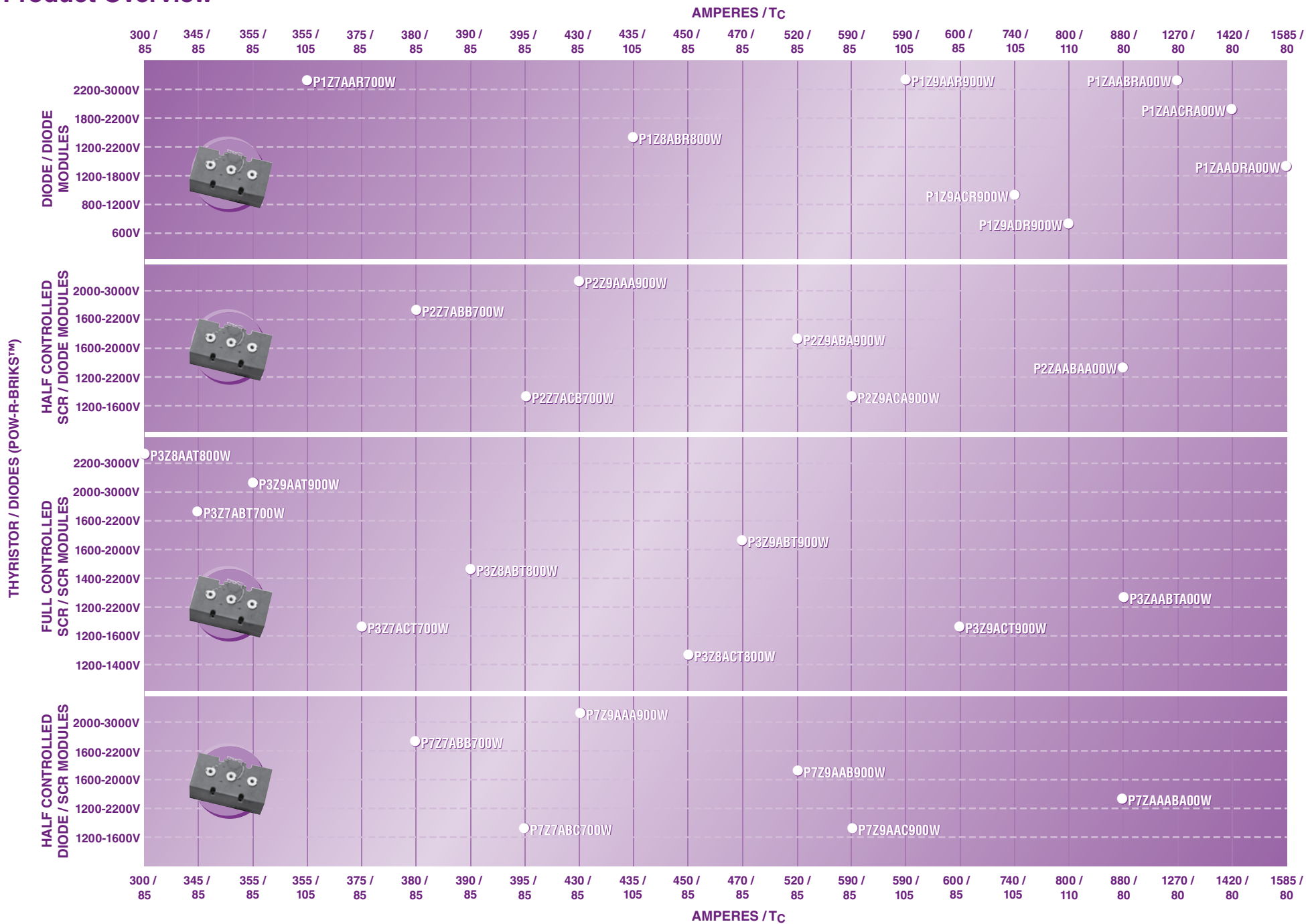
Product Overview



Product Overview



Product Overview

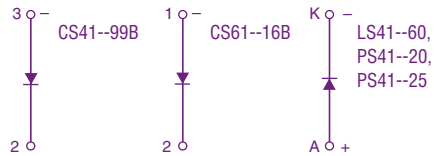


Diode Modules

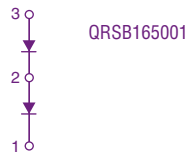
Type	V _{DRM} / V _{RRM} Volts (V _{RSM} = V _{RRM} + 100V)	I _{F(av)} /T _C Amperes/°C (180° sin)	I _{F(RMS)} Amperes (180° sin)	EUROPEAN		NORTH AMERICAN		V _{FM} /I _{FM} Volts/Amperes (T _J = 25°C)	V _{T0} Volts (T _{J(max)})	R _T mΩ (T _{J(max)})	R _{th(j-c)} °C/W	R _{th(c-s)} °C/W	T _{J(max)} °C	Outline Drawings	
				I _{FSM} Amperes (10ms, T _{J(max)} , No V _{RRM} Reapplied)	i 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)							Number	Page
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	H-13
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	H-13
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	H-13
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	0.745	0.064	0.024	0.009	150	4	H-14
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	0.681	0.051	0.024	0.009	150	4	H-14

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°C)	V _{T0} 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 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)							Number	Page
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	H-18

Single Diode Modules



High Voltage Single Diode Module

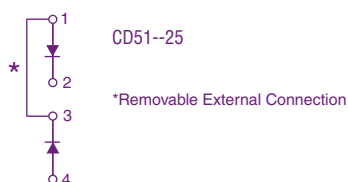


Diode Modules

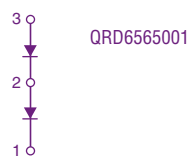
Type	V_{DRM} / V_{RRM} Volts ($V_{RRM} = V_{RRM} + 100V$)	$I_{F(av)/TC}$ Amperes/°C (180° sin)	$I_{F(RMS)}$ Amperes (180° sin)	EUROPEAN		NORTH AMERICAN		V_{FM}/I_{FM} Volts/Amperes ($T_j = 25^\circ C$)	V_{TO} Volts ($T_{j(max)}$)	R_T mΩ ($T_{j(max)}$)	$R_{th(j-c)}$ °C/W	$R_{th(c-s)}$ °C/W	$T_{j(max)}$ °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, $T_{j(max)}$, 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	H-15
CD41--30	1200 - 1600	30 / 91	47	545	1,500	600	1,500	1.5 / 90	—	—	0.8	0.2	125	7	H-15
CD41--60	800	60 / 90	95	1,095	6,000	1,200	6,000	1.25 / 180	—	—	0.5	0.2	125	7	H-15
CD41--60	1200 - 1600	60 / 87	95	1,095	6,000	1,200	6,000	1.35 / 180	—	—	0.5	0.2	125	7	H-15
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	H-13
CDD1--10	800	100 / 90	155	1,800	16,500	2,000	16,500	1.25 / 320	—	—	0.3	0.2	125	7	H-15
CDD1--10	1200 - 1600	100 / 87	155	1,800	16,500	2,000	16,500	1.35 / 320	—	—	0.3	0.2	125	7	H-15
CD51--25	800 - 1600	250 / 64	390	4,500	100,000	5,000	100,000	1.3 / 500	—	—	0.2	0.05	125	8	H-15
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	H-13
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	H-14
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	H-14
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	H-14
LD41--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	0.0325	0.01	150	6	H-14
PD41--10	3600 - 4000	1000 / 87	1570	35,700	—	28,000	3.6 x 10 ⁶	1.35 / 3000	0.741	0.132	0.029	0.009	150	4	H-14
PD41--11	800 - 2400	1100 / 87	1725	40,350	8.1 x 10 ⁶	29,500	3.26 x 10 ⁶	1.00 / 3000	0.869	0.237	0.029	0.009	150	4	H-14

Type	V_{DRM} / V_{RRM} Volts ($V_{RRM} = V_{RRM} + 100V$)	$I_{F(av)/TC}$ 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 x 10 ⁵	6,200	1.60 x 10 ⁵	1.45 / 500	0.788	1.294	0.0185	0.01	150	15	H-18

Dual Diode Modules



High Voltage Dual Diode Module

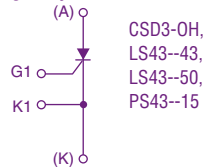


Thyristor Modules

Type	V _{DRM} / V _{RRM} Volts (V _{RRM} = V _{DRM} + 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 _{T0} 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 Number Page	
				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)										
Single Thyristor Modules																	
CSD3--0H	800 – 1600	400 / 66	620	8,000	267,000	7,3000	267,000	1.4 / 1200	—	—	100	500	0.1	0.08	125	10	H-16
•LS43--43	1800 – 2200	430 / 80	800	12,000	.72 x 10 ⁶	12,000	0.82 x 10 ⁶	1.77 / 1500	0.88	0.66	200	1000	0.065	0.02	130	3	H-13
•LS43--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	0.065	0.02	130	3	H-13
•PS43--15	600 – 1800	1500 / 86	2355	93,000	43.2 x 10 ⁶	68,000	19.3 x 10 ⁶	1.02 / 3000	0.691	0.102	400	200	0.024	0.009	125	4	H-14
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	H-13
•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	H-13
•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	H-13
•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	H-13
CM43--A2	800	25 / 93	39	445	1,000	490	1,000	1.5 / 75	—	—	100	500	0.8	0.2	125	9	H-15
CM43--A2	1200 – 1600	25 / 86	39	445	1,000	490	1,000	1.8 / 75	—	—	100	500	0.8	0.2	125	9	H-15
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	H-15
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	H-15
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	H-15
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	H-15
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	H-16
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	H-16
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	H-16
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	H-16
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
TM400DZ-XX	800 - 1600	400 / 66	620	—	—	8,000	270,000	1.4 / 1200 (125°C)	—	—	200	500	0.1	0.05	125	12	H-16

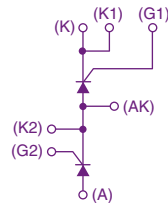
•To locate the Optional Cathode & Gate Lead Kits, go to page E-2 of the Accessories section.

Single Thyristor Modules

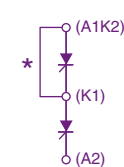


CSD3-0H,
LS43--43,
LS43--50,
PS43--15

Dual Thyristor Modules and AC Switches



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



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

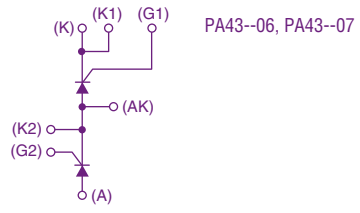
*Removable External Connection

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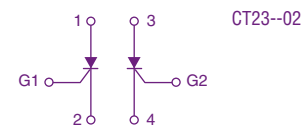
Thyristor Modules

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_{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	H-14
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	H-14
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	H-17

AC Switches



Split Dual SCR Modules

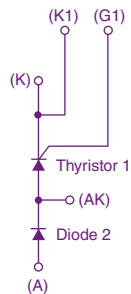


Thyristor / Diode Modules

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	H-13
•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	H-13
•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	H-13
•CD62--15B, CD67--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	H-13
CM42--A2	800	25 / 93	39	445	1,000	490	1,000	1.5 / 75	—	—	100	500	0.8	0.2	125	9	H-15
CM42--A2	1200 - 1600	25 / 87	39	445	1,000	490	1,000	1.8 / 75	—	—	100	500	0.8	0.2	125	9	H-15
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	H-15
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	H-15
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	H-15
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	H-15
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	H-16
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	H-16
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
•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	H-14
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	H-17

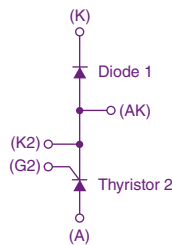
•To locate the Optional Cathode & Gate Lead Kits, go to page E-2 of the Accessories section.

Thyristor 1, Diode 2 Modules



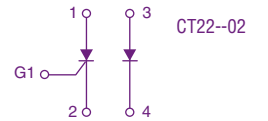
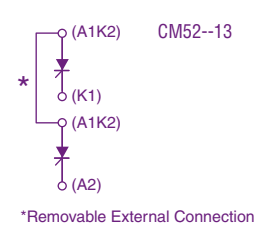
CD42--40B, CD42--60B, CD42--90B, CD62--15B, CM42--A2, CM42--55, CM42--90, CM52--13, ND42--21, ND42--25, ND421825, LD42--43, LD42--50, LD421850, PD42--07, PD42--06,

Diode 1, Thyristor 2 Modules



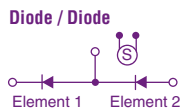
CD47--40B, CD47--60B, CD47--90B, CD67--15B, LD47--43, LD47--50, LD471850, ND47--21, ND47--25, ND471825, PD47--07, PD47--06

Split SCR / Diode SCR Module

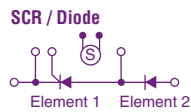


Thyristor / Diodes (POW-R-BRIKs™)

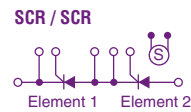
Type	V _{DRM} / V _{RRM} Volts (V _{RRM} = V _{DRM} + 100V)	I _{T(av)} /T _C Amperes/°C (180° sin)	Maximim Power Dissipation (Watts)	E1 - I _T (RMS) Amperes (180° sin)	E2 - I _T (RMS) Amperes (180° sin)	Gate V _{gt} Volts	Gate I _{gt} mAmperes	di/dt Amperes/μsec (Non-Repetitive)	dV/dt Volts/μsec	R _{th(j-c)} °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	H-17
P1Z8ABR800W_	1200 – 2200	435 / 105	1125	9,000	9,000	—	—	—	—	0.04	0.010	0.10	150	14	H-17
P1Z9AAR900W_	2200 – 3000	590 / 105	1500	16,000	16,000	—	—	—	—	0.03	0.008	0.08	150	14	H-17
P1Z9ACR900W_	800 - 1200	740 / 105	1500	30,000	30,000	—	—	—	—	0.03	0.008	0.08	150	14	H-17
P1Z9ADR900W_	600	800 / 110	1330	50,000	50,000	—	—	—	—	0.03	0.008	0.08	150	14	H-17
P1ZAABRA00W_	2200 - 3000	1270 / 80	—	—	—	—	—	—	—	0.03	0.008	0.08	150	14	H-17
P1ZAACRA00W_	1800 - 2200	1420 / 80	—	—	—	—	—	—	—	0.03	0.008	0.08	150	14	H-17
P1ZAADRA00W_	1200 - 1800	1585 / 80	—	—	—	—	—	—	—	0.03	0.008	0.08	150	14	H-17
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	H-17
P2Z7ACB700W_	1200 – 1600	395 / 85	1100	10,000	14,000	3	150	600	300	0.04	0.010	0.10	130	14	H-17
P2Z9AAA900W_	2000 – 3000	430 / 85	1325	15,000	16,000	3	200	600	300	0.03	0.008	0.08	125	14	H-17
P2Z9ABA900W_	1600 - 2000	520 / 85	1465	17,000	16,000	3	200	600	300	0.03	0.008	0.08	130	14	H-17
P2Z9ACA900W_	1200 - 1600	590 / 85	1465	25,000	16,000	3	200	600	300	0.03	0.008	0.08	130	14	H-17
P2ZAABA00W_	1200 - 2200	880 / 80	—	—	—	3	200	400	300	0.03	0.008	0.08	125	14	H-17
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	H-17
P3Z7ABT700W_	1600 – 2200	345 / 85	1095	9,000	9,000	3	150	600	300	0.04	0.010	0.10	130	14	H-17
P3Z9AAT900W_	2000 - 3000	355 / 85	1295	15,000	15,000	3	200	600	300	0.03	0.008	0.08	125	14	H-17
P3Z7ACT700W_	1200 – 1600	375 / 85	1095	10,000	10,000	3	150	600	300	0.04	0.010	0.10	130	14	H-17
P3Z8ABT800W_	1400 - 2200	390 / 85	1095	12,000	12,000	3	150	600	300	0.04	0.010	0.10	130	14	H-17
P3Z8ACT800W_	1200 - 1400	450 / 85	1095	15,000	15,000	3	150	600	300	0.04	0.010	0.10	130	14	H-17
P3Z9ABT900W_	1600 - 2000	470 / 85	1460	17,000	17,000	3	200	600	300	0.03	0.008	0.08	130	14	H-17
P3Z9ACT900W_	1200 - 1600	600 / 85	1460	25,000	25,000	3	200	600	300	0.03	0.008	0.08	130	14	H-17
P3ZAABTA00W_	1200 - 2200	880 / 80	—	—	—	3	200	400	300	0.03	0.008	0.08	125	14	H-17
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	H-17
P7Z7ABC700W_	1200 – 1600	395 / 85	1100	14,000	10,000	3	150	600	300	0.04	0.010	0.10	130	14	H-17
P7Z9AAA900W_	2000 – 3000	430 / 85	1325	16,000	15,000	3	200	600	300	0.03	0.008	0.08	125	14	H-17
P7Z9AAB900W_	1600 - 2000	520 / 85	1465	16,000	17,000	3	200	600	300	0.03	0.008	0.08	130	14	H-17
P7Z9AAC900W_	1200 - 1600	590 / 85	1465	16,000	25,000	3	200	600	300	0.03	0.008	0.08	130	14	H-17
P7ZAABA00W_	1200 - 2200	880 / 80	—	—	—	3	200	400	300	0.03	0.008	0.08	125	14	H-17



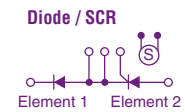
P1Z7AAR700W_ , P1Z8ABR800W_ ,
P1Z9AAR900W_ , P1Z9ACR900W_ ,
P1Z9ADR900W_ , P1ZAABRA00W_ ,
P1ZAACRA00W_ , P1ZAADRA00W_



P2Z7ABB700W_ , P2Z7ACB700W_ ,
P2Z9AAA900W_ , P2Z9ABA900W_ ,
P2Z9ACA900W_ , P2ZAABA00W_



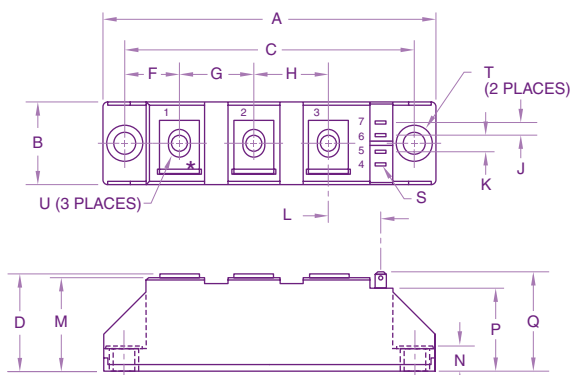
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P3Z8AAT800W_ , P3Z8ABT800W_ ,
P3Z8ACT800W_ , P3Z9AAT900W_ ,
P3Z9ABT900W_ , P3Z9ACT900W_ ,
P3ZAABTA00W_



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



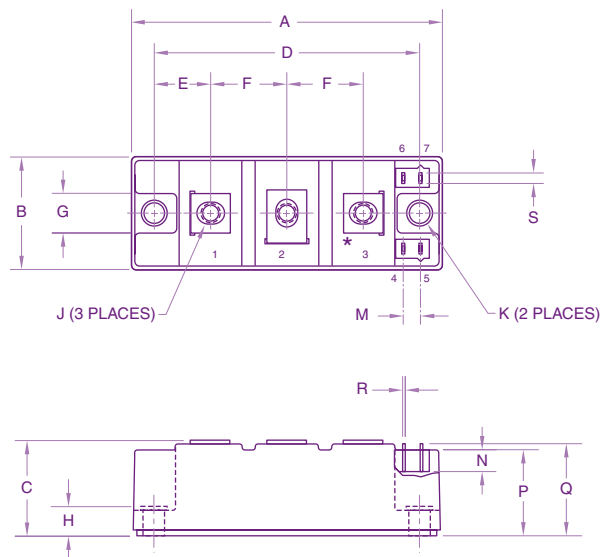
*CS41 TERMINAL 1 IS NOT PRESENT

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*



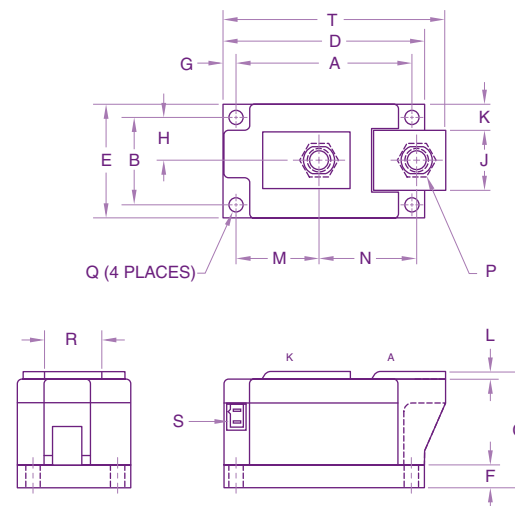
*CS61 TERMINAL 3 IS NOT PRESENT

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

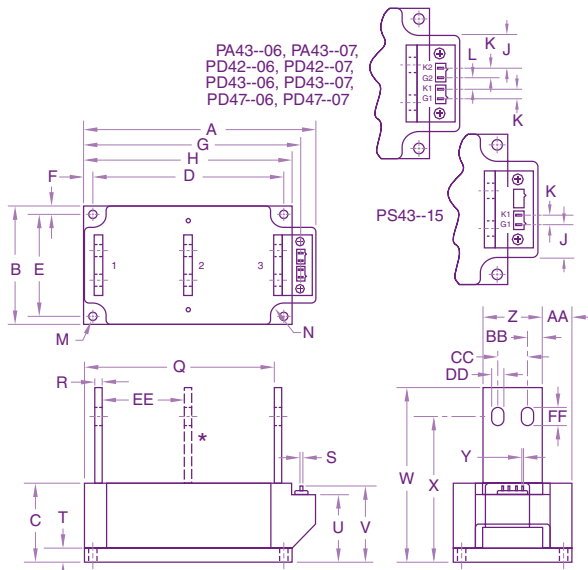
LS41, LS43



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

*Does not apply to LS41--60.

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



PA43--06, PA43--07,
PD42--06, PD42--07,
PD43--06, PD43--07,
PD47--06, PD47--07

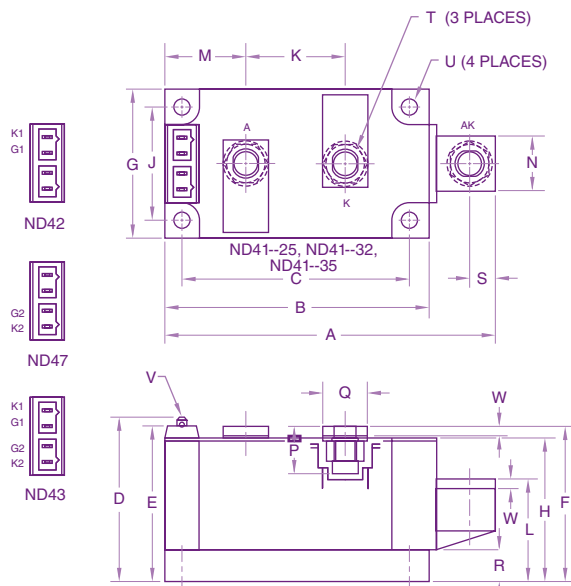
PS43--15

*MIDDLE TAB NOT PRESENT ON PS AND PA DEVICES

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



K1
G1

ND42

G2
K2

ND47

K1
G1

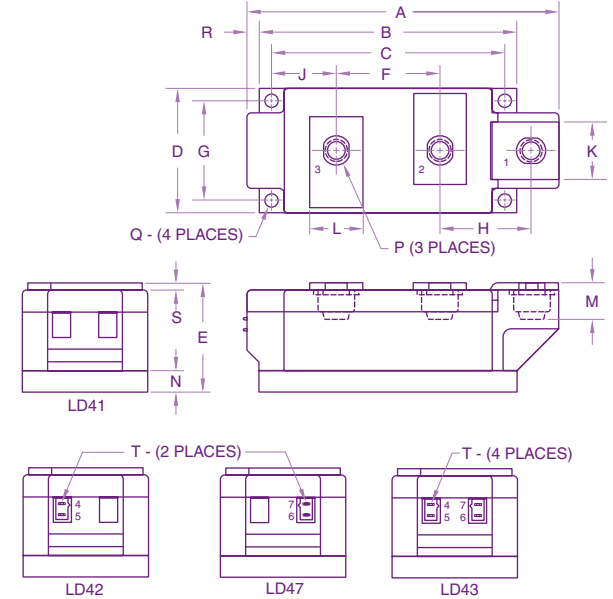
G2
K2

ND43

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	1.35	34.3			

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

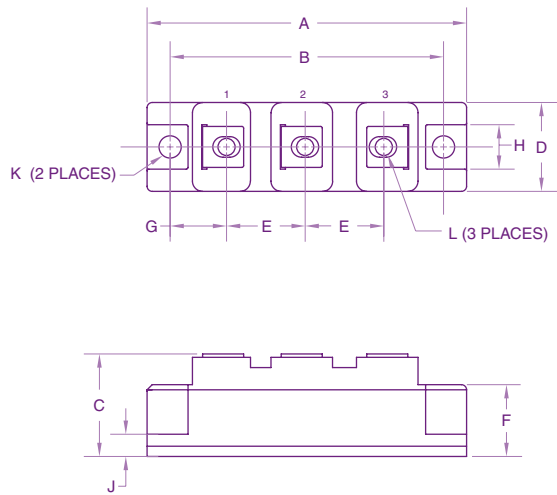
6 LD41, LD42, LD43



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



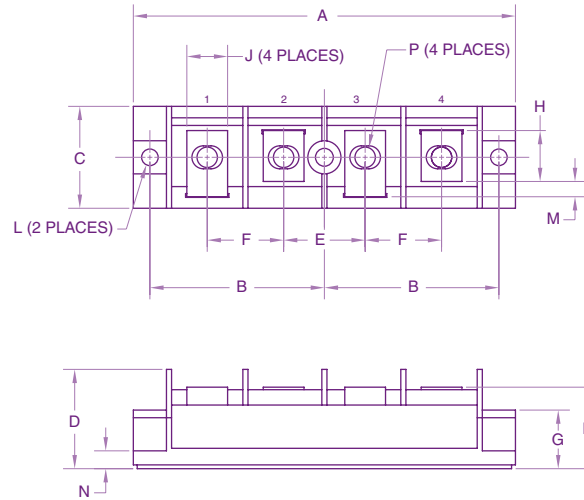
CD41, CDD1 (800V)

Dim.	Inches	Millimeters	Dim.	Inches	Millimeters
A	3.68 Max.	93.5 Max.	G	0.69	17.5
B	3.15	80.0	H	0.49	12.5
C	1.18 Max.	30.0 Max.	J	0.26	6.5
D	1.02 Max.	26.0 Max.	K	0.26 Dia.	6.5 Dia.
E	0.79	20.0	L	M5 Metric	M5
F	0.83	21.0			

CD41, CDD1 (1200V/ 1600V)

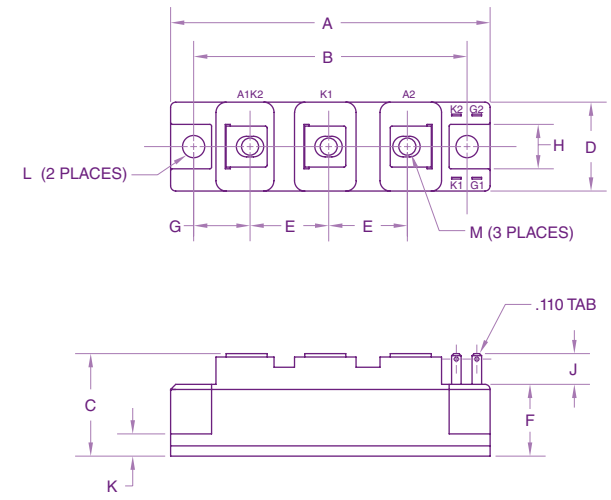
Dim.	Inches	Millimeters	Dim.	Inches	Millimeters
A	3.68 Max.	93.5 Max.	G	0.69	17.5
B	3.15	80.0	H	0.49	12.5
C	1.18 Max.	30.0 Max.	J	0.26	6.5
D	1.02 Max.	26.0 Max.	K	0.26 Dia.	6.5 Dia.
E	0.90	23.0	L	M5 Metric	M5
F	0.83	21.0			

8 CD51--25



Dim.	Inches	Millimeters	Dim.	Inches	Millimeters
A	5.9	150.0	H	0.79	20.0
B	2.697±0.008	68.5±0.2	J	0.63	16.0
C	1.57	40.0	L	0.256±0.008 Dia.	6.5±0.2 Dia.
D	1.53	39.0	M	0.24	6.0
E	1.26	32.0	N	0.2	5.0
F	1.18	30.0	P	M8 Metric	M8
G	0.9	23.0			

9 CM42, CM43



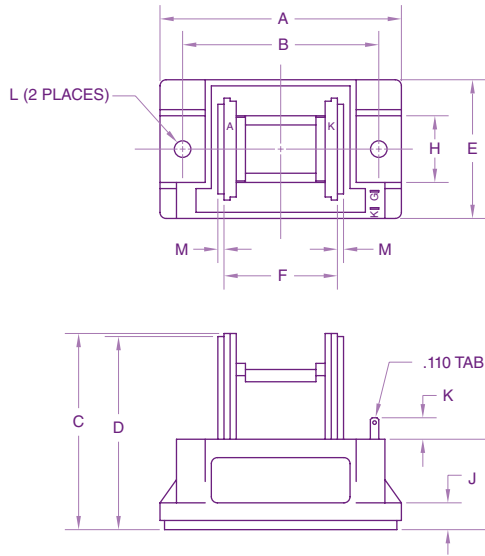
CM42, CM43 (800V)

Dim.	Inches	Millimeters	Dim.	Inches	Millimeters
A	3.68 Max.	93.5 Max.	G	0.69	17.5
B	3.15	80.0	H	0.49	12.5
C	1.18 Max.	30.0 Max.	J	0.35	9.0
D	1.02 Max.	26.0 Max.	K	0.26	6.5
E	0.79	20.0	L	0.26 Dia.	6.5 Dia.
F	0.83	21.0	M	M5 Metric	M5

CM42, CM43 (1200V / 1600V)

Dim.	Inches	Millimeters	Dim.	Inches	Millimeters
A	3.68 Max.	93.5 Max.	G	0.65	16.5
B	3.15	80.0	H	0.51	13.0
C	1.18 Max.	30.0 Max.	J	0.35	9.0
D	1.02 Max.	26.0 Max.	K	0.26	6.5
E	0.90	23.0	L	0.26 Dia.	6.5 Dia.
F	0.83	21.0	M	M5 Metric	M5

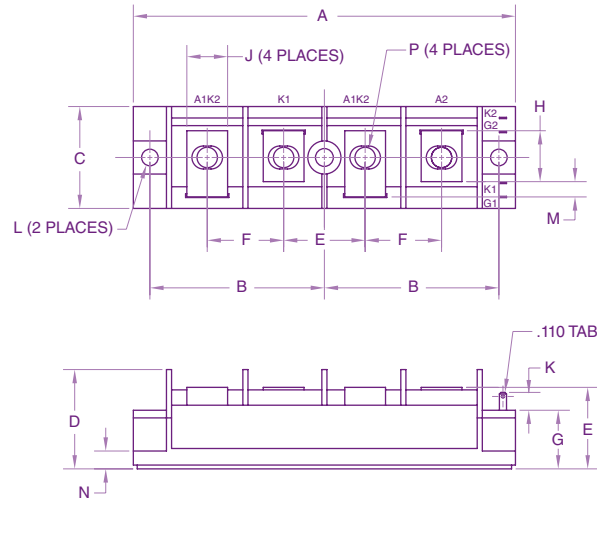
10 CSD3--0H



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

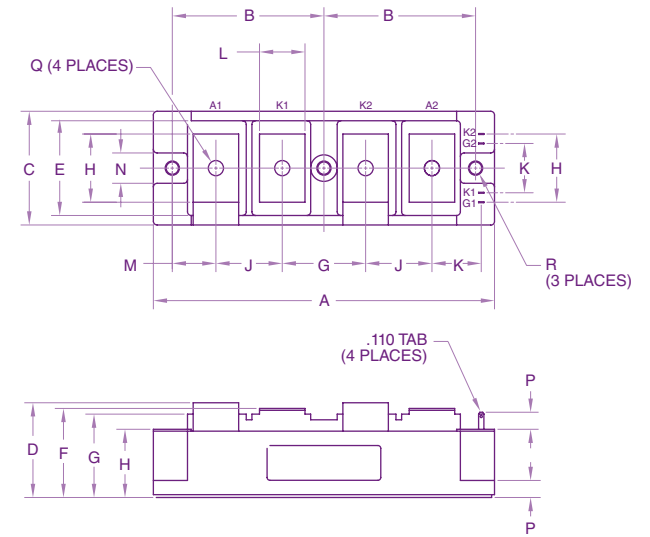
11 CM52--13, CM53--13, CM53--20



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

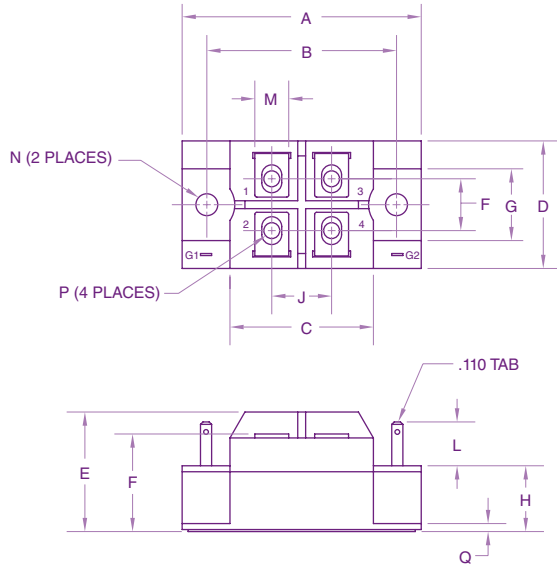
12 TM400DZ--XX



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.

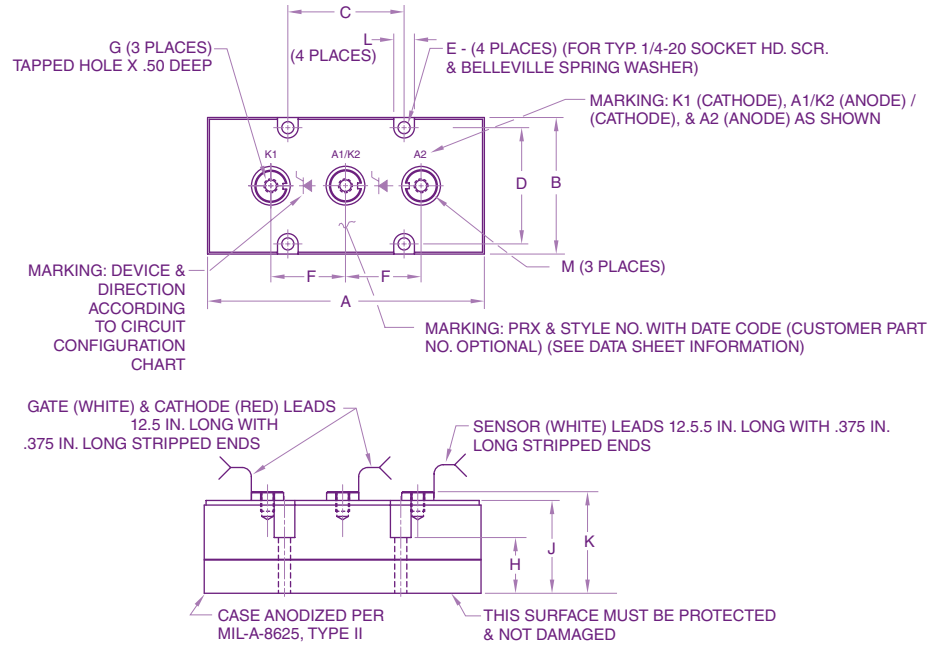
13 CT22--02, CT23--02



Dim.	Inches	Millimeters
A	2.36 Max.	60.0 Max.
B	1.87	47.6
C	1.42	36.0
D	1.26 Max.	32.0 Max.
E	1.18 Max.	30.0 Max.
F	0.96	24.5
G	0.71	18.0
H	0.65	16.5

Dim.	Inches	Millimeters
J	0.59	15.0
K	0.51	13.0
L	0.43	11.0
M	0.33	8.5
N	0.216	5.5
P	M4 Metric	M4
Q	0.08	2.0

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

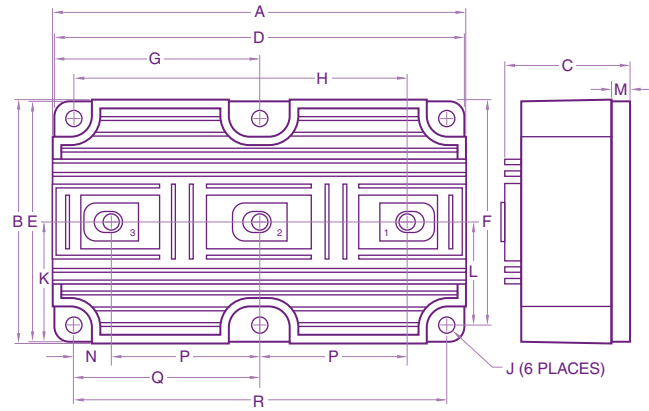
Dim.	Inches	Millimeters
A	6.30	153.16
B	3.03	76.96
C	3.15	80.01
D	2.47	62.73
E	0.328 Dia.	8.33 Dia.
F	1.83±0.03	46.48±0.8
G	5/16-18 UNC-2B	
H	1.27	32.25
J	2.09	53.08
K	2.25	57.15
L	0.58	14.22

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	Dim.	Inches	Millimeters
A	6.40	162.6	J	0.28 Dia.	7.1 Dia.
B	4.31	109.5	K	2.10	53.3
C	1.90	48.1	L	1.84	46.9
D	6.21	157.7	M	0.28	7.1
E	4.20	106.6	N	0.61	15.5
F	3.70	93.7	P	2.28	57.9
G	3.10	78.9	Q	2.89	73.4
H	5.17	131.3	R	5.78	146.8