



Pulsed Power Applications

Type 	V_{BO} kV	V_{RRM} kV	V_{TM}/I_{TM} V/kA	I_{TSM} kA	$di/dt_{cr(on)}^{1)}$ A/ μ s	$di/dt_{cr(off)}^{1)}$ A/ μ s	R_{thJC} $^{\circ}C/W$	$T_{vj\ max}$ $^{\circ}C$	Outline / page
T 4003 NH	5,2	5,2	1,8/6	100	5000		0,0043	120	T172.40L/82
T 1503 NH	7,5	7,5 ... 8	3,0/4	40	5000		0,006	120	T150.40L/82
T 2563 NH	7,5	7,5 ... 8	2,95/6	56	5000		0,0043	120	T172.40L/82
D 2601 NH		9	4,9/4	45		7500	0,0075	140	D120.26K/86

Traction Crow Bar

Type 	V_{DRM} kV	V_{RRM} kV	$V_{D\ DC}$ kV	V_{TM}/I_{TM} V/kA	I_{TSM} kA	$di/dt_{cr(on)}^{1)}$ A/ μ s	R_{thJC} $^{\circ}C/W$	$T_{vj\ max}$ $^{\circ}C$	Outline / page
T 1101 N	3	3	typ 1,5	2,0/4	29	1000	0,012	125	T100.26K/81
D 2201 N		4,5	typ 2,5	1,3/2,5	35		0,01	140	D100.26K/86

¹⁾ Single pulse

Phase Control Thyristors

up to 600 V														
Type	V_{DRM}^{21} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ 50 V	I_{TRMSM} A	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms, $T_{vj max}$	I_{TSM} kA 10 ms, $T_{vj max}$	V_T/I_T V/kA $T_{vj max}$	I_{TAVM} A/°C 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj max}$	r_T mΩ $T_{vj} = T_{vj max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj max}$ °C	Outline / page
T 210 N	200 ... 600	330	151	5,5	1,33/0,6	210	0,80	0,850	200	200	F = 1000	0,1500	140	TSW27/78
T 348 N	200 ... 600	600	80	4,0	1,92/1,1	348	1,00	0,700	200	200	F = 1000	0,1000	140	T41.14/79
T 398 N	200 ... 600	800	151	5,5	1,63/1,5	398	1,00	0,400	200	200	F = 1000	0,1000	140	T41.14/79
T 568 N	200 ... 600	900	225	6,7	1,76/2,0	568	0,80	0,440	200	200	F = 1000	0,0680	140	T41.14/79
T 828 N	200 ... 600	1500	720	12,0	1,65/2,5	828	1,00	0,230	300	150	F = 1000	0,0450	140	T50.14/79
T 1078 N	200 ... 600	2000	1050	14,5	1,81/3,5	1078	1,02	0,200	200	150	F = 1000	0,0330	140	T50.14/79
T 1258 N	200 ... 600	2500	2000	20,0	1,5/4,5	1258	1,00	0,100	120	200	F = 1000	0,0330	140	T60.14/79
T 2509 N	200 ... 600*	4900	8820	42,0 ¹⁾	1,22/6	2509	0,75	0,072	200	200	F = 1000	0,0184	140	T75.26/79
T 3709 N	200 ... 600*	7000	18000	60,0 ²⁾	1,50/15	3710	0,75	0,0475	200	200	F = 1000	0,0125	140	T100.26/79

up to 1800 V														
Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ +100 V	I_{TRMSM} A	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms, $T_{vj max}$	I_{TSM} kA 10 ms, $T_{vj max}$	V_T/I_T V/kA $T_{vj max}$	I_{TAVM} A 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj max}$	r_T mΩ $T_{vj} = T_{vj max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj max}$ °C	Outline / page
T 86 N	1200 ... 1800*	200	20	2,00	1,99/0,4	86	1,00	2,60	150	200	F = 1000	0,3000	125	TSW27/78
T 130 N	1200 ... 1800	300	45	3,00	1,96/0,6	130	1,08	1,53	150	180	F = 1000	0,2000	125	TSW27/78 TFL36/78
T 160 N	1200 ... 1800	300	58	3,40	1,96/0,6	160	1,08	1,53	150	200	F = 1000	0,1500	125	TSW27/78 TFL36/78
T 178 N	1200 ... 1800	300	34	2,60	1,9/0,6	178	0,92	1,50	150	180	F = 1000	0,1400	125	T41.14/79
T 218 N	1200 ... 1800	400	58	3,40	2,2/0,8	218	0,90	1,35	150	200	F = 1000	0,1100	125	T41.14/79
T 221 N	1200 ... 1800	450	163	5,70	1,74/0,8	221	1,10	0,75	150	200	F = 1000	0,1200	125	TSW41/78 TFL54/78
T 298 N	600 ... 1600*	600	90,6	4,25	2,0/1,1	298	0,85	0,90	150	200	F = 1000	0,0880	125	T41.14/79
T 345 N	1200 ... 1800*	550	238	6,90	1,56/1,0	345	0,80	0,70	150	250	F = 1000	0,0800	125	TFL54/78
T 358 N	1200 ... 1800*	700	106	4,60	2,07/1,2	358	0,85	0,90	150	250	F = 1000	0,0680	125	T41.14/79
T 370 N	1200 ... 1800	650	320	8,00	1,65/1,2	370	0,80	0,50	200	250	F = 1000	0,0850	125	TSW41/78
T 378 N	1200 ... 1600*	800	202	6,35	1,85/1,2	378	0,80	0,75	150	250	F = 1000	0,0680	125	T41.14/79
T 388 N	1200 ... 1800*	730	205	6,40	2,1/1,5	388	0,90	0,75	120	220	F = 1000	0,0680	125	T50.14/79
T 508 N	1200 ... 1800*	800	238	6,90	1,92/1,6	510	0,80	0,60	120	250	F = 1000	0,0530	125	T50.14/79
T 509 N	1200 ... 1800*	800	238	6,90	1,92/1,6	510	0,80	0,60	120	250	F = 1000	0,0530	125	T57.26/79

■ Not for new design

◆ New type

* Highest voltage on request

¹⁾ Case rapture current 32 kA (sinusoidal half wave 50 Hz)

²⁾ Case rapture current 36 kA

Phase Control Thyristors

up to 1800 V														
Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ 50 V	I_{TRMSM} A	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj \max}$	I_{TSM} kA 10 ms $T_{vj \max}$	V_T/I_T V/kA $T_{vj \max}$	I_{TAVM} A 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj \max}$	r_T mΩ $T_{vj} = T_{vj \max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj \max}$ °C	Outline / page
T 588 N	1200 ... 1800*	1250	320	8,0	2,15/2,4	588	0,800	0,5000	200	250	F = 1000	0,0450	125	T50.14/79
T 589 N	1200 ... 1800*	1250	320	8,0	2,15/2,4	588	0,800	0,5000	200	250	F = 1000	0,0450	125	T57.26/79
T 618 N	1200 ... 1400	1250	451	9,5	1,75/2,0	618	0,800	0,4200	200	250	F = 1000	0,0450	125	T50.14/79
T 619 N	1200 ... 1400	1250	451	9,5	1,75/2,0	618	0,800	0,4200	200	250	F = 1000	0,0450	125	T57.26/79
T 648 N	1200 ... 1600	1300	605	11,0	2,1/2,5	649	1,000	0,3800	120	250	F = 1000	0,0380	125	T60.14/79
T 649 N	1200 ... 1600	1300	605	11,0	2,1/2,5	649	1,000	0,3800	120	250	F = 1000	0,0380	125	T57.26/79
T 718 N	1200 ... 1600*	1500	781	12,5	1,94/3,0	718	0,850	0,3500	120	250	F = 1000	0,0380	125	T60.14/79
T 719 N	1200 ... 1600*	1500	781	12,5	1,94/3,0	718	0,850	0,3500	120	250	F = 1000	0,0380	125	T57.26/79
T 878 N	1200 ... 1800	1750	1200	15,5	1,95/3,6	879	0,850	0,2700	200	250	F = 1000	0,0320	125	T60.14/79
T 879 N	1200 ... 1800	1750	1200	15,5	1,95/3,6	879	0,850	0,2700	200	250	F = 1000	0,0320	125	T57.26/79
T 1049 N	1200 ... 1800	1870	1280	16,0	1,34/1,8	1050	0,850	0,2250	200	250	F = 1000	0,0265	125	T75.26/79
T 1189 N	1200 ... 1800	2800	2530	22,5	2,05/5,4	1190	0,900	0,1900	200	240	F = 1000	0,0230	125	T75.26/79
T 1500 N	1200 ... 1800	3500	5611	33,5 ²⁾	2,1/7,0	1500	0,900	0,1500	200	240	F = 1000	0,0184	125	T75.26K/80
T 1509 N	1200 ... 1800	3500	5611	33,5 ²⁾	2,1/7,0	1500	0,900	0,1500	200	240	F = 1000	0,0184	125	T75.26/79
T 1986 N	1200 ... 1800	4200	6480	36,0	2,05/8,0	1990	0,900	0,1200	200	250	F = 1000	0,0133	125	T100.26/79
T 1989 N	1200 ... 1800	4200	6480	36,0	2,05/8,0	1990	0,900	0,1200	200	250	F = 1000	0,0133	125	T100.26K/81
T 3159 N	1200 ... 1800	7000	16245	57,0 ¹⁾	1,37/6,0	3160	0,850	0,0820	200	250	F = 1000	0,0850	125	T110.26/80

■ Not for new design

◆ New type

* Highest voltage on request

¹⁾ Case rapture current 38 kA (sinusoidal half wave 50 Hz)

²⁾ Case rapture current 32 kA

Phase Control Thyristors

up to 3000 V														
Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ 50 V	I_{TRMSM} A	$\int i^2 dt$ A ² s · 10 ³ 10 ms $T_{vj\ max}$	I_{TSM} kA 10 ms $T_{vj\ max}$	V_T/I_T V/kA $T_{vj\ max}$	I_{TAVM} A 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\ max}$ °C	Outline / page
■ T 271 N	2000 ... 2500	650	245	7,0	2,35/1,2	270	1,070	0,870	60	300	C = 500 F = 1000	0,0910	125	TSW41/78
T 308 N	2000 ... 2600*	550	101	4,5	2,88/1,1	308	1,100	1,600	60	350	C = 500 F = 1000	0,0560	125	T50.14/79
T 458 N	2000 ... 2600	1000	405	9,0	2,75/2,0	459	1,000	0,840	120	300	C = 500 F = 1000	0,0455	125	T60.14/79
T 459 N											F = 1000			T57.26/79
T 639 N	1800 ... 2200	1250	562	10,6	1,88/1,8	640	0,850	0,510	120	400	F = 1000	0,0377	125	T57.26/79
T 658 N	2200 ... 2600	1500	660	11,5	2,53/2,85	659	1,000	0,500	150	300	F = 1000	0,0330	125	T60.14/79
T 659 N	2200 ... 2600	1500	660	11,5	2,53/2,85	659	1,000	0,500	150	300	F = 1000	0,0330	125	T57.26/79
T 699 N	1800 ... 2200	1500	744	12,2	2,32/2,85	699	0,950	0,450	200	300	F = 1000	0,0320	125	T57.26/79
T 708 N	1800 ... 2200	1500	744	12,2	2,32/2,85	699	0,950	0,450	200	300	F = 1000	0,0320	125	T60.14/79
T 709 N	2000 ... 2600	1500	845	13,0	2,84/3,0	700	1,050	0,530	50	300	C = 500 F = 1000	0,0290	125	T75.26/79
T 829 N	2000 ... 2600	1800	1201	15,5	1,78/1,8	829	0,950	0,425	50	350	F = 1000	0,0265	125	T75.26/79
T 1039 N	1800 ... 2200	2200	1711	18,5	1,53/2	1039	0,90	0,300	200	300	F = 1000	0,0231	125	T75.26/79
T 1218 N	2000 ... 2800	2625	2531	22,5	1,52/1,0	1220	1,11	0,41	150	350	F = 1000	0,014	125	T75.14/79
T 1219 N	2000 ... 2800	2625	2531	22,5	1,38/1,0	1220	1,000	0,275	150	350	F = 1000	0,0184	125	T75.26/79
T 1329 N	1800 ... 2200	2600	2645	23,0	1,13/1,0	1329	0,900	0,234	200	300	F = 1000	0,0184	125	T75.26/79
T 1589 N	2000 ... 2800*	3200	3920	28,0	2,45/5,0	1589	1,100	0,237	150	400	C = 500	0,0124	125	T100.26/79
T 1218 N	2000 ... 2800*	2625	2531	22,5	1,52/1,0	1220	1,11	0,410	150	350	F = 1000	0,0140	125	T75.14/79
T 1866 N	1800 ... 2200	4100	6125	35,0	2,2/8,0	1869	0,900	0,155	200	300	F = 1000	0,0133	125	T100.35/79
T 1869 N	1800 ... 2200	4100	6125	35,0	2,2/8,0	1869	0,900	0,155	200	300	F = 1000	0,0133	125	T100.26/79
■ T 2101 N	2000 ... 2600	5000	10100	45,0	1,2/2,0	2200	0,920	0,139	150	250	F = 1000	0,0107	125	T120.35K/81
T 2156 N	2000 ... 2800	4600	8000	40,0 ¹⁾	2,65/8,8	2159	1,050	0,154	150	400	C = 500	0,0099	125	T110.35/80
T 2159 N	2000 ... 2800	4600	8000	40,0 ¹⁾	2,65/8,8	2159	1,050	0,154	150	400	F = 1000	0,0099	125	T110.26/80
T 2160 N	2200 ... 2800	4600	8000	40,0	2,65/8,8	2159	1,050	0,154	150		F = 1000 C = 500	0,0099	125	T120.26K/81
T 2476 N	2200 ... 2800	5100	9460	43,5 ¹⁾	1,43/3,0	2480	0,950	0,154	200	400	F = 1000	0,0085	125	T110.35/80
T 2479 N	2200 ... 2800	5100	9460	43,5 ¹⁾	1,43/3,0	2480	0,950	0,154	200	400	F = 1000	0,0085	125	T110.26/80
T 2480 N	2200 ... 2800	5100	9460	43,5	1,43/3,0	2480	0,950	0,154	200	400	F = 1000	0,0085	125	T120.26K/81
T 2709 N	1600 ... 2200	5800	12500	50,0 ¹⁾	2,35/11	2709	0,900	0,125	200	300	F = 1000	0,0085	125	T110.26/80
T 2710 N	1600 ... 2200	5800	12500	50,0	2,35/11	2709	0,900	0,125	200	300	F = 1000	0,0085	125	T120.26K/81
T 4301 N	2200 ... 2900	8760	40500	90,0	1,20/4	4120	0,800	0,100	300	250	F = 1000	0,0053	125	T150.35K/81
T 4771 N	2200 ... 2900	9350	40500	90,0	1,20/4	4400	0,800	0,100	300	250	F = 1000	0,0048	125	T150.26K/81

■ Not for new design

* Highest voltage on request

¹⁾ Case rapture current 38 kA (sinusoidal half wave 50 Hz)

Phase Control Thyristors

up to 4500 V														
Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	$\int i^2 dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{TSM} kA 10 ms $T_{vj\ max}$	V_T/I_T V/kA $T_{vj\ max}$	I_{TAVM} A 180 ° el sin $T_c = 85$ °C	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\ max}$ °C	Outline / page
T 379 N	3600 ... 4200	800	205	6,4	3,26/1,2	422	1,20	1,600	100	500	F = 1000 C = 500	0,033	125	T57.26/79
T 380 N	3200 ... 3800	750	211	6,5	2,8/1,2	380	1,20	1,200	100	350	F = 1000	0,045	125	T57.26K/80
T 869 N	3000 ... 3600	2000	1445	17,0	3,18/3,8	860	1,08	0,500	80	400	F = 1000	0,0210	125	T75.26/79
T 901 N	2800 ... 3600	2090	1445	17,0	1,70/1,2	970	1,14	0,475	150	350	F = 1000	0,0180	125	T76.26K/80
T 909 N														T75.26/79
T 929 N	3000 ... 3600	2200	1530	17,5	2,7/3,6	930	1,00	0,430	80	500	C = 500 F = 1000	0,0215	125	T75.26/79
T 1601 N	2800 ... 3600	4050	7400	38,5	1,5/2,0	1900	1,00	0,250	300	350	F = 1000	0,0097	125	T120.35K.2/81
T 1929 N	3000 ... 3800	4200	6850	37,0	2,9/8,0	1930	1,08	0,200	150	450	C = 500 F = 1000	0,0099	125	T110.26/80
T 2001 N	2800 ... 3600	4350	7400	38,5	1,5/2,0	2050	1,00	0,250	300	350	F = 1000	0,0087	125	T120.26K/81
T 2009 N														T110.26/80
T 3401 N	3100 ... 3600	7500	28000	75,0	1,4/4	3550	0,82	0,145	300	350	F = 1000	0,0054	125	T150.35K/81
T3801 N	3100 ... 3600	8000	28000	75	1,4/4	3810	0,82	0,145	300	350	F = 1000	0,0048	125	T150.26K/81
T 729 N	3600 ... 4200	1840	1250	15,8	3,4/3,5	730	1,20	0,570	80	400	F = 1000	0,0215	120	T75.26/79
T 730 N	3600 ... 4200	1840	1250	15,8	3,4/3,5	730	1,20	0,570	80	400	F = 1000	0,0215	120	T75.26K/80
T 731 N	3600 ... 4400	1980	1280	16,0	1,75/1,2	925	1,10	0,542	300	450	H = 2000	0,0185	125	T76.26K/80
T 739 N														T75.26/79
T 1401 N	3600 ... 4400	3450	5100	32,0	1,95/2,0	1600	1,29	0,330	300	450	H = 2000	0,0096	125	T120.35K/81
T 1971 N	3600 ... 4400	3700	5100	32,0	1,95/2,0	1730	1,29	0,330	300	450	H = 2000	0,0086	125	T120.26K/81
♦ T 3101 N	4000 ... 4400	6500	21000	65,0	1,75/4	3080	1,01	0,185	300	500	H = 2000	0,0054	125	T150.35K/81

■ Not for new design

¹⁾ Case rupture current 38 kA (sinusoidal half wave 50 Hz)

IGBT

SCR/Diode Modules

Presspacks

Stacks

Outlines

Accessories

Explanations

Phase Control Thyristors

up to 5500 V

Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	$\int i^2 dt$ $A^2 s \cdot 10^3$ 10 ms $T_{vj max}$	I_{TSM} kA 10 ms $T_{vj max}$	V_T/I_T V/kA $T_{vj max}$	I_{TAVM} A 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj max}$	r_T mΩ $T_{vj} = T_{vj max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj max}$ °C	Outline / page
T 1451 N	4800 ... 5200	3550	9250	43,0	1,70/2,0	1690	0,92	0,370	300	550	H = 2000	0,0097	125	T120.35K/81
T 1551 N	4800 ... 5200	3800	9250	43,0	1,70/2,0	1810	0,92	0,370	300	550	H = 2000	0,0086	125	T120.26K.1/81
◆ T 2161 N	4800 ... 5200	4700	14600	54,0	1,85/3,0	2160	0,81	0,360	300	550	H = 2000	0,0075	125	T120.35K/81
◆ T 2351 N	4800 ... 5200	5000	14600	54,0	1,85/3,0	2350	0,81	0,360	300	550	H = 2000	0,0064	125	T120.26K/81
T 2401 N	4800 ... 5200	5600	12500	50,0	2,10/4,0	2670	1,02	0,270	300	350	H = 2000	0,0054	125	T150.35K/81
T 2851 N	4800 ... 5200	6660	21000	65,0	1,70/4,0	3150	0,98	0,180	300	600	H = 2000	0,0054	125	T150.35K/81
◆ T 4021 N	4800 ... 5350	8500	50000	100,0	1,80/6,0	4020	0,92	0,142	150	550	H = 2000	0,00425	125	T172.35K/82

up to 10000 V

Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	$\int i^2 dt$ $A^2 s \cdot 10^3$ 10 ms $T_{vj max}$	I_{TSM} kA 10 ms $T_{vj max}$	V_T/I_T V/kA $T_{vj max}$	I_{TAVM} A 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj max}$	r_T mΩ $T_{vj} = T_{vj max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj max}$ °C	Outline / page
T 201 N	6000 ... 7000	510	88,2	4,2	3,40/0,5	245	1,29	4,180	300	650	H = 2000	0,0430	125	T58.26K/80
T 501 N	6000 ... 7000	1350	845	13,0	2,65/1,0	640	1,30	1,350	300	650	H = 2000	0,0185	125	T76.26K/80
T 551 N	6000 ... 7000	1260	845	13,0	2,65/1,0	600	1,30	1,350	300	650	H = 2000	0,0200	125	T76.35K/80
T 1081 N	6000 ... 7000	2700	5780	34,0	2,7/2,0	1300	1,18	0,759	300	650	H = 2000	0,0086	125	T120.26K.1/81
T 1201 N	6000 ... 7000	2520	5780	34,0	2,7/2,0	1200	1,18	0,759	300	650	H = 2000	0,0096	125	T120.35K/81
◆ T 1651 N	6000 ... 7000	3500	11500	48,0	2,65/3	1650	1,22	0,490	300	650	H = 2000	0,0075	125	T120.35K/81
T 1851 N	6000 ... 7000	4000	11500	48,0	2,65/3	1850	1,22	0,490	300	650	H = 2000	0,0064	125	T120.26K/81
T 1901 N	7000 ... 8000	4400	8000	40,0	3,0/4,0	2100	1,24	0,440	300	550	H = 2000	0,0054	125	T150.35K/81
◆ T 2871 N	7500 ... 8000	6060	15700	56,0	2,95/6,0	2870	1,28	0,278	300	550	H = 2000	0,00425	125	T172.35K/82

■ Not for new design

◆ New type

Phase Control Thyristors

Light Triggered Thyristors															
Type	V_{BO} V	V_{RRM} V	I_{TRMSM} A	$\int i^2 dt$ A ² s · 10 ³ 10 ms $T_{vj\ max}$	I_{TSM} kA 10 ms $T_{vj\ max}$	V_T/I_T V/kA $T_{vj\ max}$	I_{TAVM} A 180 ° el sin $T_c = 85 °C$	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\ max}$ °C	Outline / page
T 553 N	6500	7000	1200	684	11,7	2,65/1,0	550	1,30	1,35	300	650	H = 2000	0,0200	120	T76.35L/82
T 1503 N	7500	7500 ... 8000	3800	8000	40,0	3,0/4,0	1760	1,24	0,44	300	550	H = 2000	0,0063	120	T150.40L/82
T 2563 N	7500	7500 ... 8000	5600	15700	56,0	2,95/6,0	2560	1,28	0,278	300	550	H = 2000	0,0046	120	T172.40L/82
T 4003 N	5200	5200	8130	50000	100,0	1,8/6,0	3845	0,92	0,142	300	550	H = 2000	0,0046	120	T172.40L/82

Fast Thyristors

up to 600 V															
Type	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50 V$ V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\ max}$	V_T/I_T V/kA $T_{vj\ max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	$(di/dt)_{cr}$ A/μs DIN IEC 747 - 6	t_q μs typ.	$(dv/dt)_{cr}$ V/μs DIN IEC 747 - 6	V_{GT} V $T_{vj} = 25 °C$	I_{GT} mA $T_{vj} = 25 °C$	R_{thJC} °C/W 180 ° el sin	$T_{vj\ max}$ °C	Outline / page	
■ T 72 F	400 ... 600	200	2,05	2,1/0,4	1,25	1,8	200	S ≤ 18 D ≤ 15	B = 50 C = 500 L = 500 M = 1000	2,0	150	0,350	125	TSW27/78	
■ T 102 F	200 ... 600	220	2,75	1,95/0,5	1,20	1,4	200	D ≤ 15	B = 50 C = 500 L = 500 M = 1000	2,0	150	0,260	125	TSW27/78	
T 178 F	200 ... 600	300	1,90	1,85/0,5	1,02	1,55	300	E ≤ 20 D ≤ 15	B = 50 C = 500	2,0	200	0,180	140	T41.14/79	
T 308 F	200 ... 600	600	4,00	1,9/1,0	1	0,7	300	E ≤ 20 D ≤ 15 ²⁾	C = 500 M = 1000	2,0	200	0,108	140	T41.14/79	

■ Not for new design

¹⁾ At $V_{RRM} < 800 V + 50 V$ ²⁾ Only in connection with $(dv/dt)_{cr} = B$ or C

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Fast Thyristors

up to 600 V														
Type	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50 \text{ V}$	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj \max}$	V_T/I_T V/kA $T_{vj \max}$	$V_{(TO)}$ V $T_{vj} = T_{vj \max}$	r_T m Ω $T_{vj} = T_{vj \max}$	$(di/dt)_{cr}$ A/ μ s DIN IEC 747 - 6	t_q μ s typ.	$(dv/dt)_{cr}$ V/ μ s DIN IEC 747 - 6	V_{GT} V $T_{vj} = 25 \text{ }^\circ\text{C}$	I_{GT} mA $T_{vj} = 25 \text{ }^\circ\text{C}$	R_{thJC} $^\circ\text{C/W}$ 180 ° el sin	$T_{vj \max}$ $^\circ\text{C}$	Outline / page
T 698 F	200 ... 600	1100	11,00	1,65/2,0	1,02	0,32	300	E ≤ 20 D ≤ 15	C = 500 M = 1000	2,0	200	0,0500	140	T50.14/79
T 1078 F	200 ... 400	2000	14,50	1,81/3,5	1,02	0,2	200	S ≤ 18 D ≤ 15	C = 500 M = 1000	2,0	250	0,0330	140	T50.14/79

up to 1400 V														
Type	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50 \text{ V}$	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj \max}$	V_T/I_T V/kA $T_{vj \max}$	$V_{(TO)}$ V $T_{vj} = T_{vj \max}$	r_T m Ω $T_{vj} = T_{vj \max}$	$(di/dt)_{cr}$ A/ μ s DIN IEC 747 - 6	t_q μ s typ.	$(dv/dt)_{cr}$ V/ μ s DIN IEC 747 - 6	V_{GT} V $T_{vj} = 25 \text{ }^\circ\text{C}$	I_{GT} mA $T_{vj} = 25 \text{ }^\circ\text{C}$	R_{thJC} $^\circ\text{C/W}$ 180 ° el sin	$T_{vj \max}$ $^\circ\text{C}$	Outline / page
■ T 80 F	1200 ... 1300*	200	2,45	2,4/0,4	1,30	2,40	160	F ≤ 25 E ≤ 20 S ≤ 18	B = 50 C = 500 L = 500 M = 1000	2,0	150	0,280	125	TSW27/78
■ T 120 F	1200 ... 1300*	240	2,90	2,2/0,5	1,20	1,60	160	F ≤ 25 E ≤ 20 S ≤ 18 ²⁾	B = 50 C = 500 L = 500 M = 1000	2,0	150	0,200	125	TSW27/78
T 128 F	1200 ... 1300*	300	2,45	2,6/0,6	1,28	2,15	160	F ≤ 25 E ≤ 20 S ≤ 18 ²⁾	B = 50 C = 500 L = 500 M = 1000	2,0	150	0,163	125	T41.14/79
T 188 F	1000 ... 1300*	400	2,90	2,44/0,8	1,20	1,35	160	F ≤ 25 E ≤ 20 S ≤ 18 ²⁾	B = 50 C = 500 L = 500 M = 1000	2,0	150	0,117	125	T41.14/79

■ Not for new design

* Highest voltage on request

²⁾ Only in connection with $(dv/dt)_{cr} = B$ or C

Fast Thyristors

up to 1400 V														
Type	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50 \text{ V}$	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj \text{ max}}$	V_T/I_T V/kA $T_{vj \text{ max}}$	$V_{(TO)}$ V $T_{vj} = T_{vj \text{ max}}$	r_T m Ω $T_{vj} = T_{vj \text{ max}}$	$(di/dt)_{cr}$ A/ μ s DIN IEC 747 - 6	t_q μ s typ.	$(dv/dt)_{cr}$ V/ μ s DIN IEC 747 - 6	V_{GT} V $T_{vj} = 25^\circ\text{C}$	I_{GT} mA $T_{vj} = 25^\circ\text{C}$	R_{thJC} $^\circ\text{C/W}$ 180° el sin	$T_{vj \text{ max}}$ $^\circ\text{C}$	Outline / page
■ T 290 F	1000 ... 1300	550	6,40	2,1/1,0	1,20	0,75	200	F ≤ 25 E ≤ 20 S ≤ 18 ²⁾	C = 500 M = 1000	2,2	250	0,080	125	TFL54/78
T 318 F	1000 ... 1200*	700	6,00	2,25/1,2	1,30	0,70	200	F ≤ 25 E ≤ 20 S ≤ 18 ²⁾	B = 50 C = 500 L = 500 M = 1000	2,2	250	0,068	125	T50.14/79
■ T 320 F	1000 ... 1300*	600	9,15	1,95/1,2	1,15	0,42	200	F ≤ 25 G ≤ 30	B = 50 C = 500 L = 500 M = 1000	2,2	250	0,085	125	TSW41/78
T 340 F	1000 ... 1400	600	6,40	1,65/1,0	0,90	0,70	200	N ≤ 60	C = 500 L = 500 M = 1000	2,2	250	0,080	125	TFL54/78
T 408 F	1000 ... 1200*	750	6,40	2,20/1,4	1,20	0,63	200	F ≤ 25 E ≤ 20 S ≤ 18 ²⁾	C = 500 L = 500 M = 1000	2,2	250	0,0530	125	T50.14/79
■ T 599 F	1200 ... 1300*	1500	10,00	1,66/1,0	1,15	0,42	200	G ≤ 30	B = 50 C = 500 M = 1000	2,2	250	0,0380	125	T57.26/79
■ T 600 F	1200 ... 1300*	1500	10,00	1,66/1,0	1,15	0,42	200	F ≤ 25 E ≤ 20 ²⁾	L = 500 M = 1000	2,2	250	0,0380	125	T57.26K/80
■ T 1052 S	1000 ... 1200	2200	20,00	2,70/4,0	1,45	0,3	400	F ≤ 25 E ≤ 20 D ≤ 15	B = 50 C = 500 L = 500 M = 1000	2,2	300	0,0180	125	T75.26K/80

■ Not for new design
¹⁾ At $V_{RRM} < 800 \text{ V} + 50 \text{ V}$

* Highest voltage on request
²⁾ Only in connection with $(dv/dt)_{cr} = B$ or C

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Fast Thyristors

up to 2000 V														
Type	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\ max}$	V_T/I_T V/kA $T_{vj\ max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T m Ω $T_{vj} = T_{vj\ max}$	$(di/dt)_{cr}$ A/ μ s DIN IEC 747 - 6	t_q μ s typ.	$(dv/dt)_{cr}$ V/ μ s DIN IEC 747 - 6	V_{GT} V $T_{vj} = 25\ ^\circ$ C	I_{GT} mA $T_{vj} = 25\ ^\circ$ C	R_{thJC} $^\circ$ C/W 180 $^\circ$ el sin	$T_{vj\ max}$ $^\circ$ C	Outline / page
T 930 S	1600 ... 2000*	2000	18,00	2,70/3,5	1,35	0,33	250	N \leq 60 M \leq 50 L \leq 45 K \leq 40 ¹⁾	B = 50 C = 500 L = 500 M = 1000	2,2	250	0,0210	125	T75.26K/80

* Highest voltage on request

¹⁾ Only in connection with $(dv/dt)_{cr} = B$ or C

Fast Asymmetric Thyristors



Type	V_{DRM} V $V_{DSM} = V_{DRM}$	V_{RRM} V ($V_{RRM(C)}$) tp = 1 μ s	I_{TRMSM} A	I_{TSM} kA 10 ms $T_{vj\ max}$	V_T/I_T V/kA $T_{vj\ max}$	$V_{(TO)}/r_T$ V/m Ω $T_{vj} = T_{vj\ max}$	$(di/dt)_{cr}$ A/ μ s DIN IEC 747 - 6	t_q ¹⁾ μ s typ.	$(dv/dt)_{cr}$ V/ μ s DIN IEC 747 - 6	V_{GT} V $T_{vj} = 25\ ^\circ$ C	I_{GT} mA $T_{vj} = 25\ ^\circ$ C	R_{thJC} $^\circ$ C/W 180 $^\circ$ el sin	$T_{vj\ max}$ $^\circ$ C	Outline / page
A 158 S	1000 ... 1300*	15 (50)	400	2,45	2,60/0,6	1,3/2	400	D \leq 15 C \leq 12 B \leq 10 A \leq 8 ²⁾	C = 500 F = 1000	2,7	300	0,117	125	T41.14/79
A 198 S	1000 ... 1300*	15 (50)	400	2,70	2,0/0,25	1,1/1,3	400	E \leq 20 D \leq 15	C = 500 F = 1000	2,7	300	0,117	125	T41.14/79
A 358 S	1000 ... 1300*	15 (50)	800	5,00	2,75/1,5	1,3/0,9	500	D \leq 15 C \leq 12 B \leq 10 A \leq 8 ²⁾	C = 500 F = 1000	2,7	300	0,053	125	T50.14/79
A 438 S	1000 ... 1300*	15 (50)	900	5,50	2,1/1,5	1,1/0,6	500	F \leq 25 E \leq 20 D \leq 15	C = 500 F = 1000	2,7	300	0,053	125	T50.14/79

* Highest voltage on request

¹⁾ $V_{DRM} \leq 1000$ V

Overview Rectifier in Disc Housings

V_{RRM} – Concept

9000 V				D471N					D2601NH D2601N		
6500 V				D711N			D1481N		D3001N		
5800 V											
4800 V	1500 V_{RMS}	 Ceramic Disc		D749N	D1069N		D1800N	D2201N	D3501N		
4600 V							D1809N				
4500 V											
4400 V			 Epoxy Disc			D849N					
4000 V											
3600 V	1000 V_{RMS}			D269N				High Power-Discs			
3400 V											
3200 V											
2800 V				D748N			D2209N		D4709N		
2600 V					D1029N		D2200N				
2400 V							D1709N				
2200 V	690 V_{RMS}						D2659N		D4201N		
2000 V			D428N								
1800 V					D798N	D1049N					
1600 V											
1400 V		500 V_{RMS}									
1200 V											
800 V											
400 V											
Pellet \varnothing	17 mm	21 mm	30 mm	30 mm	38 mm	46 mm	56 mm	65 mm	75/80 mm		
Case \varnothing		41 mm		50 mm	57/60 mm	75 mm		100 mm	120 mm		

IGBT

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
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Rectifier Diodes

up to 800 V										
Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(T0)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 255 N	200 ... 800*	400	4,6	105,8	255/110	0,65	0,850	0,2300	180	DSW27/83
■ D 255 K	200 ... 800*	400	4,0	80,0	255/75	0,65	0,850	0,3450	180	DSW27/83
D 448 N	200 ... 800*	710	5,1	130,0	450/122	0,70	0,510	0,1020	180	D41.14/84
D 758 N	400 ... 800*	1195	8,8	387,2	760/115	0,70	0,310	0,0670	180	D41.14/84
D 2228 N	200 ... 800*	4000	28,5	4061,0	2230/110	0,70	0,0975	0,0254	180	D60.14/84
D 4457 N	400 ... 600	7000	52,0	13500,0	4460/111	0,70	0,047	0,0128	180	D60.8/84
D 5807 N	400 ... 600	9100	70,0	24500,0	5800/108	0,70	0,040	0,0098	180	D73.8/84
D 5809 N	400 ... 600	9100	70,0	24500,0	5800/58	0,70	0,040	0,0166	180	D75.26/84
D 8019 N	200 ... 600	13300	95,0	45000,0	8020/56	0,70	0,027	0,0125	180	D100.26/85


up to 1800 V										
Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(T0)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 798 N	1200 ... 1800	1650	11,8	696,0	800/130	0,81	0,28	0,046	180	D50.14/84
D 1049 N	1200 ... 1800	2590	18,5	1710,0	1050/130	0,81	0,17	0,038	180	D57.26/84
D 452 N	1200 ... 1800	710	10,8	583,2	450/130	0,77	0,48	0,0855	180	DFL54/83
D 452 K										DFL54/83

■ Not for new design

* At $V_{RRM} < 800$ V + 50 V

* Highest voltage on request

Rectifier Diodes

up to 3000 V										
Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(T0)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 121 N	1200 ... 2000	360	2,60	33,8	120/130	0,72	1,90	0,324	180	DSW27/83
D 121 K	1200 ... 2000	330	2,40	28,8	120/130	0,72	1,90	0,434	180	DSW27/83
D 251 N	1200 ... 2000	400	5,30	140,5	250/130	0,80	0,85	0,151	180	DSW27/83
D 251 K	1200 ... 2000	400	4,70	110,5	250/102	0,80	0,85	0,236	180	DFL36/83 DSW27/83
D 400 N	1600 ... 2200	710	9,80	480,2	400/130	0,70	0,62	0,095	180	DSW41/83
■ D 400 K	1600 ... 2200	710	9,80	480,2	400/130	0,70	0,62	0,095	180	DSW41/83
D 428 N	1200 ... 2000	840	6,00	180	430/139	0,81	0,54	0,069	180	D41.14/84
D 660 N	1200 ... 2200	1435	10,25	525	660/130	0,70	0,50	0,050	180	D41.14K/85
D 748 N	2000 ... 2800	1260	9,00	405	750/100	0,83	0,52	0,045	160	D50.14/84
D 1029 N	1800 ... 2600	2040	14,50	1051	1030/100	0,82	0,28	0,038	160	D57.26/84
D 1030 N	1800 ... 2600	2040	14,50	1051	1030/100	0,82	0,28	0,038	160	D57.26K/85
D 1709 N	2000 ... 2400	2700	18,00	1620	1700/90	0,83	0,20	0,0245	160	D75.26/84
D 2209 N	2000 ... 2800	4900	35,00	6125	2200/100	0,83	0,145	0,017	160	D75.26/84
D 2200 N	2000 ... 2800	4900	35,00	6125	2200/100	0,83	0,145	0,017	160	D75.26K/85
D 2650 N	2000 ... 2400	4710	33,50	5611	2650/100	0,82	0,148	0,0169	180	D75.26K/85
D 2659 N	2000 ... 2400	4710	33,50	5611	2650/100	0,82	0,148	0,0169	180	D75.26/84
D 4201 N	1600 ... 2200	10350	73,50	27000	4650/100	0,70	0,075	0,009	160	D120.35K/86
D 4709 N	2000 ... 2800	8400	60,00	18000	4700/100	0,83	0,07	0,008	160	D110.26/85

■ Not for new design

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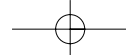
Rectifier Diodes

up to 5000 V										
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
■ D 269 N	3200 ... 3600	550	4,0	80	270/100	0,86	1,540	0,098	150	D57.26/84
D 475 N	3200 ... 4000	745	10,9	594	475/100	0,765	0,612	0,085	160	DSW41.1/83
■ D 475 K	3200 ... 4000	745	10,9	594	475/100	0,765	0,612	0,085	160	DSW41.1/83
D 749 N	3600 ... 4800*	1540	11,0	605	750/100	0,85	0,650	0,039	160	D57.26/84
D 849 N	2800 ... 4000*	1790	12,8	819	850/100	0,84	0,485	0,038	160	D57.26/84
D 850 N	2800 ... 4000*	1790	12,8	819	850/100	0,84	0,485	0,038	160	D57.26K/85
■ D 1069 N	3600 ... 4400	2200	15,5	1201	1070/100	0,85	0,460	0,027	160	D75.26/84
D 1809 N	3200 ... 4800	3850	27,5	3781	1800/100	0,85	0,253	0,0169	160	D75.26/84
D 1800 N	3200 ... 4800	3850	27,5	3781	1800/100	0,85	0,253	0,0169	160	D75.26K/85
D 3501 N	3200 ... 4200	8300	56	15680	3700/100	0,76	0,128	0,009	160	D120.26K/86

up to 10000 V										
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 711 N	5800 ... 6800	1680	10,5	550	790/100	0,84	0,87	0,030	160	D58.26K/85
D 1481 N	5800 ... 6800	3460	24,5	3000	1640/100	0,750	0,42	0,015	160	D76.26K/85
D 3001 N	5800 ... 6800	6000	53,0	14040	2820/100	0,840	0,216	0,009	160	D120.35K/86
D 471 N	8000 ... 9000	1200	10,0	570	565/100	1,040	1,78	0,030	160	D58.26K/85
D 2601 N	8500 ... 9000	4720	50,0	12500	2240/100	0,977	0,427	0,008	160	D120.26K/86

■ Not for new design

* Highest voltage on request



GCT – Freewheeling Diodes

Type	$V_{(DRM)}$ V	$V_{(DI)}$ *) kV Tc = 25 typ.	$I_{(FSM)}$ kA sin, 10 ms $T_{vj\ max}$	$\int i^2 dt$ $A^2s \cdot 10^3$ sin, 10 ms $T_{vj\ max}$	$V_{(F)}/I_{(FM)}$ V/2,5 kA $T_{vj} = T_{vj\ max}$ sin	$I_{(RM)}$ A di/dt = 1000 A/ μ s $I_{(FM)} = 2,5\ kA$ $T_{vj} = T_{vj\ max}$	$Q_{(rr)}$ mAs di/dt = 1000 A/ μ s $I_{(FM)} = 2,5\ kA$ $T_{vj} = T_{vj\ max}$	R_{thJC} $^{\circ}C/W$ DC	$T_{vj\ max}$ $^{\circ}C$	Outline / page
D 911 SH	4500	2,8	17	1445	6,0	1200**)	2,8**)	0,0100	140	D100.26K/86
D 1031 SH	4500	2,8	26	3380	4,1	1500**)	3,5**)	0,0100	140	D100.26K/86
D 1331 SH	4500	2,8	28	3920	4,2	1500**)	3,5**)	0,0075	140	D120.26K.1/86
D 931 SH	6500	3,2	16	1280	5,6	1300**)	3,5**)	0,0100	140	D100.26K/86
D 1131 SH	6500	3,2	22	2400	5,6	1300**)	3,5**)	0,0075	140	D120.26K/86
D 1951 SH	6500	3,2	44	9680	4,0	1500**)	4,3**)	0,0045	140	D150.26K/86

*) Estimate failure rate $\lambda \sim 100\ fit$

***) Clamp circuit $L = 0,25\ \mu H$

GTO – Freewheeling Diodes

Type	$V_{(DRM)}$ V	$V_{(DI)}$ *) kV Tc = 25 typ.	$I_{(FSM)}$ kA sin, 10 ms $T_{vj\ max}$	$\int i^2 dt$ $A^2s \cdot 10^3$ sin, 10 ms $T_{vj\ max}$	$V_{(F)}/I_{(FM)}$ V/2,5 kA $T_{vj} = T_{vj\ max}$ sin	$I_{(RM)**}$ A di/dt = 250 A/ μ s $I_{(FM)} = 1\ kA$ $T_{vj} = T_{vj\ max}$	$Q_{(rr)**}$ mAs di/dt = 250 A/ μ s $I_{(FM)} = 1\ kA$ $T_{vj} = T_{vj\ max}$	$(-di/dt)_{com}$ a/ μ s	R_{thJC} $^{\circ}C/W$ DC	$T_{vj\ max}$ $^{\circ}C$	Outline / page
D 1170 S	2000, 2500	1,25	24,0	2880	2,62/6,4	580	1,7		0,0184	120	D75.26K/85
D 721 S	3500 ... 4500	2,00	15,0	1130	3,5/2,5	600	1,7	500	0,0180	125	D76.26K/86
D 1461 S	3500 ... 4500	2,00	32,0	5120	2,5/2,5	840	2,8	500	0,0125	140	D100.26K/86
D 1251 S	4500	2,5	18,0	1620	2,5/2,5	800	3,0	500	0,0100	140	D76.14K/86
D 921 S	4500	2,5	32,0	5120	2,6/2,5	700	2,8	500	0,0125	140	D100.26K/86
D 1381 S	4500	3,00	32,0	5120	2,6/2,5	700	2,8	500	0,0125	140	D100.26K/86

*) Estimate failure rate $\lambda \sim 100\ fit$

GTO-Snubber **) $V_{(R)} = 0,5\ V_{(RRM)}$, $V_{(RM)} = 0,8\ V_{(RRM)}$



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GTO Snubber Diodes and general use

Type 	$V_{(RRM)}$ V	$V_{R(cr)}$ V ¹⁾	$I_{(FSM)}$ kA sin, 10 ms $T_{vj} = T_{vj,max}$	$V_{(F)}/I_{(FM)}$ V/kA sin, 10 ms $T_{vj} = T_{vj,max}$	V_{FRM} typ. V di/dt = 1000 A/ μ s $T_{vj} = T_{vj,max}$	$R_{(th)JC}$ $^{\circ}$ C/W DC	$T_{vj,max}$ $^{\circ}$ C	Outline / page
D 170 S	2500	1500	3,70	2,3/0,8		0,1800	140	DSW27.1/83
D 170 U	2500	1500	3,15	2,15/0,65		0,2500	140	DSW27.1/83
D 228 S	2500	1500	3,20	2,12/0,5		0,0750	125	D60.14/84
D 56 S	4500	3000	1,35	4,5/0,32	145	0,2450	125	DSW27.2/83
D 56 U	4500	3000	1,20	4,15/0,28	75	0,3250	125	DSW27.2/83
D 291 S	3500 ... 4500	3200	4,50	4,15/1,2	145	0,0400	125	D58.26K/85
D 841 S	4500	3200	15,00	3,5/2,5	75	0,0100	125	D76.14K/86
snubberless:								
D 371 S	4500	3200	6,00	3,9/1,2	150	0,0350	125	D58.26K/85
D 801 S	4500	3200	14,00	3,7/2,5	85	0,0100	125	D76.14K/86
D 901 S	3500 ... 4500	2500	21,50	3,5/2,5	70	0,0125	125	D100.26K/86

¹⁾ Maximum permissible link voltage, GTO snubber diode

Fast Rectifier Diodes

up to 1000 V											
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	I_{RM} A $T_{vj\ max}$ $i_F = I_{FAVM}$ $di_F/dt = 50$ A/ μs	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 138 S	900 ... 1000	230	1,60	12,80	138/85	1,32	2,20	47 ¹⁾	0,140	125	D41.14/84
■ D 358 S	600 ... 1000	730	5,20	135,20	358/100	1,05	0,80	70	0,079	150	D41.14/84
D 648 S	800 ... 1000	1400	10,10	510,05	648/100	1,05	0,43	82	0,044	150	D50.14/84
D 649 S	800 ... 1000	1400	10,10	510,05	650/96	1,05	0,43	82	0,048	150	D57.26/84

¹⁾ $i_{FM} = 225$ A, $-di_F/dt = 100$ A/ μs

up to 1400 V											
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	I_{RM} A $T_{vj\ max}$ $i_F = I_{FAVM}$ $di_F/dt = 50$ A/ μs	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 188 S	1000 ... 1400	290	1,90	18,05	185/100	1,00	1,80	80	0,150	150	D41.14/84
■ D 211 S	1000 ... 1400	400	4,30	92,45	211/100	1,00	1,00	100	0,155	150	DSW27/83
■ D 211 U	1000 ... 1400	400	3,90	76,05	150/100	1,00	1,00	100	0,245	150	DSW27/83
D 238 S	1200	455	3,20	51,20	238/85	1,45	1,10	45	0,080	125	D41.14/84
D 368 S	1000 ... 1400	730	5,20	135,20	368/100	1,00	0,80	102	0,080	150	D41.14/84
D 658 S	1000 ... 1400	1400	10,10	510,05	658/100	1,00	0,45	122	0,044	150	D50.14/84
D 659 S	1000 ... 1400	1400	10,10	510,05	660/95	1,00	0,45	122	0,048	150	D57.26/84

■ Not for new design

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Fast Rectifier Diodes

up to 2600 V											
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(T0)}$ V $T_{vj} = T_{vj\ max}$	r_T m Ω $T_{vj} = T_{vj\ max}$	I_{RM} A $T_{vj\ max}$ $i_F = I_{FAVM}$, $di_F/dt = 50$ A/ μ s	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 170 S	2500	400	3,70	68,45	170/85	1,10	1,400	340 ²⁾	0,190	140	DSW27.1/83
D 170 U	2500	330	3,15	49,60	170/64	1,10	1,500	340 ²⁾	0,260	140	DSW27.1/83
D 228 S	2200, 2500	450	3,20	51,20	228/85	1,18	1,800	280	0,080	125	D41.14/84
D 348 S	1600 ... 2000	645	4,60	105,80	348/100	1,00	0,900	160	0,080	150	D41.14/84
D 438 S	1600 ... 2000	740	5,30	140,50	440/100	1,14	0,725	770 ³⁾	0,059	150	D41.14/84
D 440 S	1600 ... 2000	740	5,30	140,50	440/100	1,14	0,725	770 ³⁾	0,059	150	D57.26K/85
■ D 509 S	2400 ... 2600	1050	7,50	281,25	509/100	1,00	0,800	205	0,049	150	D57.26/84
D 675 S	2000, 2500	1200	8,50	361,00	675/85	1,25	0,500	860 ⁴⁾	0,039	140	D57.26K/85
D 689 S	2000 ... 2600	1600	11,50	661,25	690/100	1,00	0,500	230	0,039	150	D57.26/84
D 690 S											D57.26K/85
D 1169 S	2000, 2500	3360	24,00	2880,00	1170/85	1,16	0,210	580 ⁵⁾	0,0194	125	D75.26/84
D 1170 S	2000, 2500	3360	24,00	2880,00	1170/85	1,16	0,210	580 ⁵⁾	0,0194	125	D75.26K/85
D 1408 S	2000, 2500	3360	24,00	2880,00	1410/85	1,16	0,210	580 ⁵⁾	0,0150	125	D75.14/84

up to 6000 V											
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(T0)}$ V $T_{vj} = T_{vj\ max}$	r_T m Ω $T_{vj} = T_{vj\ max}$	I_{RM} A $T_{vj\ max}$ $i_F = I_{FAVM}$, $di_F/dt = 50$ A/ μ s	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 56 S	4000, 4500	160	1,35	9,1	56/85	1,64	8,00	230 ¹⁾	0,2600	125	DSW27.2/83
D 56 U	4000, 4500	140	1,20	7,2	56/73	1,64	8,00	230 ¹⁾	0,3400	125	DSW27.2/83

¹⁾ $i_{FM} = 150$ A, - $di_F/dt = 200$ A/ μ s²⁾ $i_{FM} = 500$ A, - $di_F/dt = 200$ A/ μ s³⁾ $i_{FM} = 500$ A, - $di_F/dt = 250$ A/ μ s⁴⁾ $i_{FM} = 1600$ A, - $di_F/dt = 600$ A/ μ s⁵⁾ $i_{FM} = 1000$ A, - $di_F/dt = 250$ A/ μ s

■ Not for new design

Avalanche Rectifier Diodes

Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms, $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	$V_{(BR)}$ A min.	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page
D 126 A 45	4500	315	2,30	26,45	126/100 200/35	0,86	3,2	4800	0,257	160	DSW27.2/83
D 126 B 45	4500	300	2,10	22,00	126/80 190/9	0,86	3,2	4800	0,337	160	DSW27.2/83
DD 126 A 45 K-B9*	4500	220	2,30	26,45	128/100	0,86	3,2	4800	0,060	160	DP30.1/77

* Non isolated module

Welding Diodes

up to 600 V											
Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V (50 V) ¹⁾	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2 dt$ $A^2 \cdot s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c $A/^\circ C$ 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T $m\Omega$ $T_{vj} = T_{vj\ max}$	R_{thJC} $^\circ C/W$ 180° el sin	$T_{vj\ max}$ $^\circ C$	Outline / page	
25 DN 06	600	1800	12,75	813	1145/155	0,7	0,188	0,0174	180	25DN06/87	
38 DN 06	600	4520	32,30	5200	2880/141	0,66	0,060	0,011	160	38DN06/87	
46 DN 06	600	8000	52,00	13500	5100/118	0,7	0,047	0,00935	180	46DN06/87	
56 DN 06	600	10050	70,00	24500	6400/116	0,7	0,040	0,0062	180	56DN06/87	
65 DN 06	600	13300	95,00	45000	8470/98	0,7	0,027	0,0047	180	65DN06/87	

Insulated Cells

Type	V_M V	V_{RMS} V_{DC}	CTI - Value	Iso-Class	$T_c(max)$ $^\circ C$	R_{thCK} $^\circ C/W$	$R_{thC-C(typ)}$ $^\circ C/W$	at clamp. force $V_W = 4$ l/min	F_{max} kN	Weight g	Outline / page
ISO 57/26	6400	2520	250	III a	150	0,010	0,088	at 12kN	30	260	157.26/88
ISO 72/8	2250	700	250	III a	150	0,005	0,028	at 20kN	45	130	173.8/88
ISO 75/14	3500	1250	250	III a	150	0,005	0,0435	at 20kN	45	245	175.14/88
ISO 75/26	5900	2250	250	III a	150	0,005	0,048	at 20kN	45	460	175.26/88
ISO 65/35	10600	4180	250	III a	150	0,010	0,136	at 12kN	30	350	165.35/88
ISO 120/35	11700	4400	250	III a	150	0,002	0,0275	at 30kN	70	1650	1120.35/88

* On request

Insulating disc with water cooling

Insulating material: Al N

¹⁾ Water cooling with $V_W = 4$ l/min