

High Power Semiconductors Product Catalogue 2013

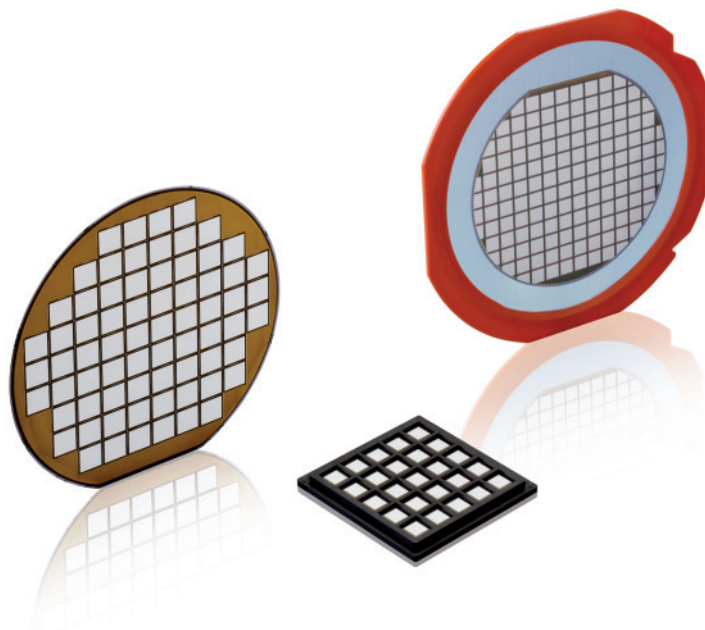
Product Catalogue 2013 Edition



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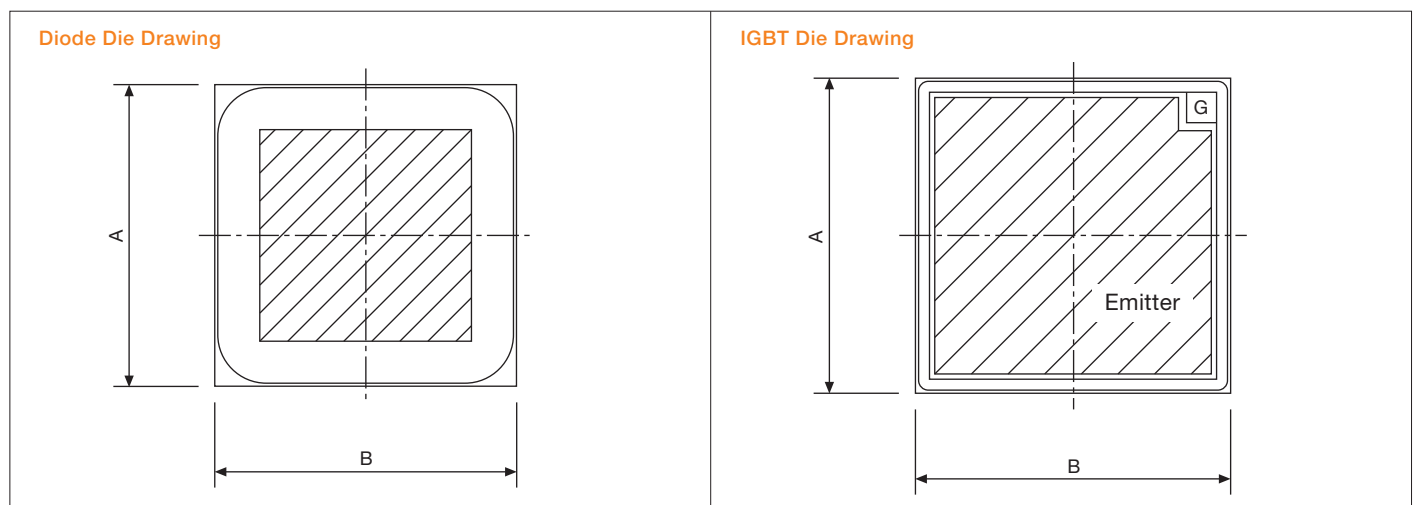
IGBT and Diode Dies



- SPT, covering the SPT and SPT⁺ technology, is a trademark of ABB IGBT and Diode BiMOS platform
- State-of-the-art planar IGBT and matching fast diode dies
- High dynamic ruggedness, low switching losses, low on-state voltage
- Positive temperature coefficient for easy paralleling
- Passivation: Silicon Nitride plus Polyimide

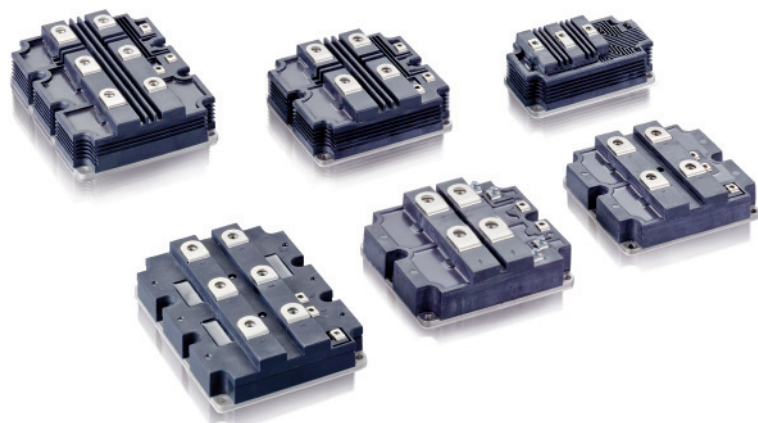
Part number	Type	Size A x B mm	Thickness μm	V_{RRM} (V)	I_{F} (A)	V_{F} (V) typ. 125°C	Max. Dies per Wafer (W) or Tray (T)
Diodes							
1.2 kV							
5SLY 76E1200	SPT ⁺	6.3 x 6.3	350	1200	50	1.85	361 (W)
5SLY 86E1200							
5SLY 76F1200	SPT ⁺	7.4 x 7.4	350	1200	75	1.85	257 (W)
5SLY 86F1200							
5SLY 76G1200	SPT ⁺	8.4 x 8.4	350	1200	100	1.85	198 (W)
5SLY 86G1200							
5SLY 76J1200	SPT ⁺	10.0 x 10.0	350	1200	150	1.85	137 (W)
5SLY 86J1200							
1.7 kV							
5SLY 86E1700	SPT ⁺	6.3 x 6.3	390	1700	50	2.1	326 (W)
5SLY 86F1700	SPT ⁺	7.7 x 7.7	390	1700	75	2.1	237 (W)
5SLY 86G1700	SPT ⁺	8.6 x 8.6	390	1700	100	2.1	188 (W)
5SLY 86J1700	SPT ⁺	10.2 x 10.2	390	1700	150	2.1	131 (W)
5SLY 12J1700							36 (T)
5SLY 86M1700	SPT ⁺	13.6 x 13.6	390	1700	300	2.1	69 (W)
5SLY 12M1700							25 (T)
2.5 kV							
5SLX 12L2515	SPT	12.4 x 12.4	310	2500	100	2.0	36 (T)
3.3 kV							
5SLX 12M3301	SPT	13.6 x 13.6	385	3300	100	2.35	25 (T)
5SLZ 12M3305	SPT ⁺	13.6 x 13.6	385	3300	125	2.25	25 (T)
4.5 kV							
5SLY 12M4500	SPT ⁺	13.6 x 13.6	570	4500	100	3.1	25 (T)
5SLY 12N4500	SPT ⁺	14.3 x 14.3	570	4500	110	3.5	25 (T)
6.5 kV							
5SLX 12M6521	SPT ⁺	13.6 x 13.6	670	6500	50	3.4	25 (T)

Part number	Type	Size A x B mm	Thickness μm	V_{CES} (V)	I_{C} (A)	I_{CM} (A)	V_{CEsat} (V) typ. 125°C	Max. Dies per Wafer (W) or Tray (T)
IGBTs								
1.2 kV								
5SMX 76E1280	SPT	6.5 x 6.6	140	1200	25	50	2.35	332 (W)
5SMX 86E1280								
5SMX 76H1280	SPT	9.1 x 9.0	140	1200	50	100	2.2	166 (W)
5SMX 86H1280								
5SMX 76K1280	SPT	11.0 x 11.0	140	1200	75	150	2.2	112 (W)
5SMX 86K1280								
5SMX 76L1280	SPT	12.6 x 12.6	140	1200	100	200	2.2	82 (W)
5SMX 86L1280								
5SMY 76H1280	SPT ⁺	9.1 x 9.1	140	1200	57	114	2.1	166 (W)
5SMY 86H1280								
5SMY 76J1280	SPT ⁺	10.2 x 10.2	140	1200	75	150	2.1	130 (W)
5SMY 86J1280								
5SMY 76K1280	SPT ⁺	11.2 x 11.9	140	1200	100	200	2.1	98 (W)
5SMY 86K1280								
5SMY 76M1280	SPT ⁺	13.5 x 13.5	140	1200	150	300	2.2	71 (W)
5SMY 86M1280								
1.7 kV								
5SMY 86G1721	SPT ⁺	8.6 x 8.6	209	1700	50	100	3.0	186 (W)
5SMY 86J1721								132 (W)
5SMY 12J1721	SPT ⁺	10.1 x 10.1	209	1700	75	150	3.0	36 (T)
5SMY 86K1721								102 (W)
5SMY 12K1721	SPT ⁺	11.4 x 11.4	209	1700	100	200	3.0	36 (T)
5SMY 86M1721								69 (W)
5SMY 12M1721	SPT ⁺	13.6 x 13.6	209	1700	150	300	3.0	25 (T)
2.5 kV								
5SMX 12L2516	SPT	12.4 x 12.4	310	2500	50	100	2.7	36 (T)
3.3 kV								
5SMX 12M3300	SPT	13.6 x 13.6	385	3300	50	100	3.8	25 (T)
5SMY 12M3310	SPT ⁺	13.6 x 13.6	380	3300	62.5	125	3.1	25 (T)
4.5 kV								
5SMY 12M4500	SPT ⁺	13.6 x 13.6	530	4500	50	100	3.55	25 (T)
5SMY 12N4501	SPT ⁺	14.3 x 14.3	530	4500	55	110	3.50	25 (T)
6.5 kV								
5SMX 12M6501	SPT	13.6 x 13.6	670	6500	25	50	5.4	25 (T)
5SMY 12M6501	SPT ⁺	13.6 x 13.6	670	6500	31	63	4.0	25 (T)



Please refer to page 25 for part numbering structure.

HiPak Modules 1.7kV – 3.3kV



HiPak:

- High power, industry standard package
- Designed for high reliability
- Low inductance, high current terminals
- Aluminium Silicon Carbide base plate for high thermal cycling capabilities
- Aluminium Nitride substrates for low thermal resistance
- Designed for very high SOA (Safe Operating Area)
- Smooth switching characteristics for good EMC
- SPT and SPT⁺ chip technology
- Insulation capabilities above 6 or 10 kV depending on housing type

Part number	Voltage V_{CES} (V)	Current I_C (A)	Configuration / Outline	V_{CEsat} (V) typ. 125°C	V_F (V) typ. 125°C	Housing
Tvj(operational) up to 125°C						
1.7 kV						
5SND 0800M170100	1700	2 x 800	(3) – Dual IGBT / M	2.6	1.7	HiPak1
5SNE 0800M170100	1700	800	(2) – Chopper / M	2.6	1.7	HiPak1
5SNA 1600N170100	1700	1600	(1) – Single IGBT / N	2.6	1.7	HiPak1
5SNA 1800E170100	1700	1800	(1) – Single IGBT / E	2.6	1.7	HiPak2
5SNA 2400E170100	1700	2400	(1) – Single IGBT / E	2.6	1.7	HiPak2
3.3 kV						
5SNE 0800E330100	3300	800	(2) – Chopper / E	3.8	2.35	HiPak2
5SNA 0800N330100	3300	800	(1) – Single IGBT / N	3.8	2.35	HiPak1
5SLD 1200J330100	3300	1200	(4) – Dual Diode / J	-	2.35	HiPak1 HV
5SNA 1200E330100	3300	1200	(1) – Single IGBT / E	3.8	2.35	HiPak2
5SNA 1200G330100	3300	1200	(1) – Single IGBT / G	3.85	2.35	HiPak2 HV
Tvj(operational) up to 150°C						
1.7 kV						
5SLA 2000J170300	1700	2000	(6) – Single Diode / J	-	1.8	HiPak1 HV
5SNA 2000J170300	1700	2000	(1) – Single IGBT / J	2.7	1.8	HiPak1 HV
5SNA 2400E170305	1700	2400	(1) – Single IGBT / E	2.4	1.67	HiPak2
5SNA 3600E170300	1700	3600	(1) – Single IGBT / E	3.0	1.95	HiPak2
5SLA 3600E170300	1700	3600	(6) – Single Diode / E	-	1.95	HiPak2
2.5 kV						
5SNA 1500E250300	2500	1500	(1) – Single IGBT / E	2.5	2.0	HiPak2
3.3 kV						
5SNG 0250P330305	3300	2 x 250	(5) – Half Bridge / P	3.1	2.25	HiPak0 HV
5SLD 1000N330300	3300	2 x 1000	(4) – Dual Diode / N	-	2.25	HiPak1
5SNA 1000N330300	3300	1000	(1) – Single IGBT / N	3.1	2.25	HiPak1
5SNA 1500E330305	3300	1500	(1) – Single IGBT / E	3.1	2.25	HiPak2

Please refer to page 25 for part numbering structure.

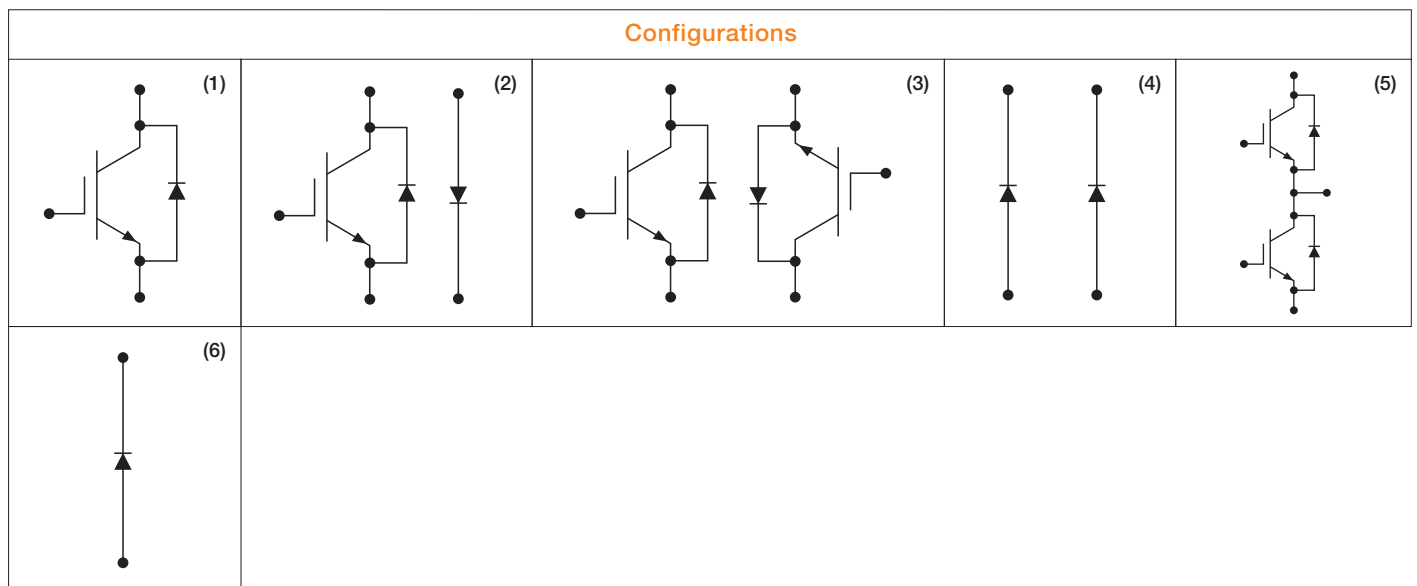
HiPak Modules 4.5kV – 6.5kV



HiPak:

- High power, industry standard package
- Designed for high reliability
- Aluminium Silicon Carbide base plate for high thermal cycling capabilities
- Aluminium Nitride substrates for low thermal resistance
- Designed for very high SOA (Safe Operating Area)
- Smooth switching characteristics for good EMC
- SPT and SPT⁺ chip technology
- Insulation capability up to and above 10 kV

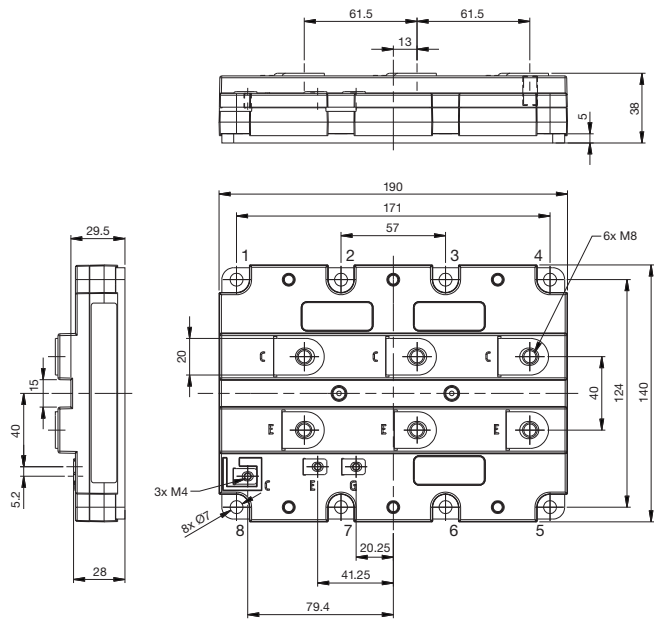
Part number	Voltage V_{CES} (V)	Current I_C (A)	Configuration / Outline	V_{CEsat} (V) typ. 125°C	V_F (V) typ. 125°C	Housing
Tvj(operational) up to 125°C						
4.5 kV						
5SNG 0150P450300	4500	2 x 150	(5) – Half Bridge / P	3.5	3.45	HiPak0 HV
5SLD 0650J450300	4500	2 x 650	(4) – Dual Diode / J	-	3.4	HiPak1 HV
5SNA 0650J450300	4500	650	(1) – Single IGBT / J	3.7	3.4	HiPak1 HV
5SNA 0800J450300	4500	800	(1) – Single IGBT / J	3.55	3.5	HiPak1 HV
5SLD 1200J450350	4500	2 x 1200	(4) – Dual Diode / J	-	3.5	HiPak1 HV
5SNA 1200G450300	4500	1200	(1) – Single IGBT / G	3.55	3.5	HiPak2 HV
5SNA 1200G450350	4500	1200	(1) – Single IGBT / G	3.55	3.5	HiPak2 HV
6.5 kV						
5SNA 0400J650100	6500	400	(1) – Single IGBT / J	5.4	3.4	HiPak1 HV
5SNA 0500J650300	6500	500	(1) – Single IGBT / J	3.9	3.4	HiPak1 HV
5SLD 0600J650100	6500	2 x 600	(4) – Dual Diode / J	-	3.4	HiPak1 HV
5SNA 0600G650100	6500	600	(1) – Single IGBT / G	5.4	3.4	HiPak2 HV
5SNA 0750G650300	6500	750	(1) – Single IGBT / G	3.9	3.4	HiPak2 HV



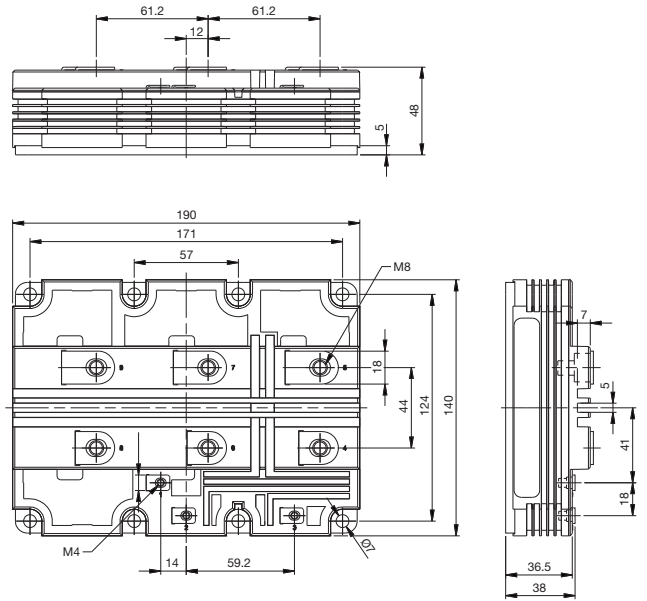
Please refer to page 25 for part numbering structure.

Outline Drawings

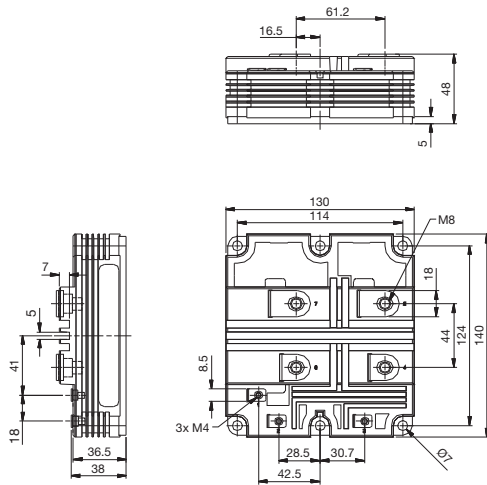
E



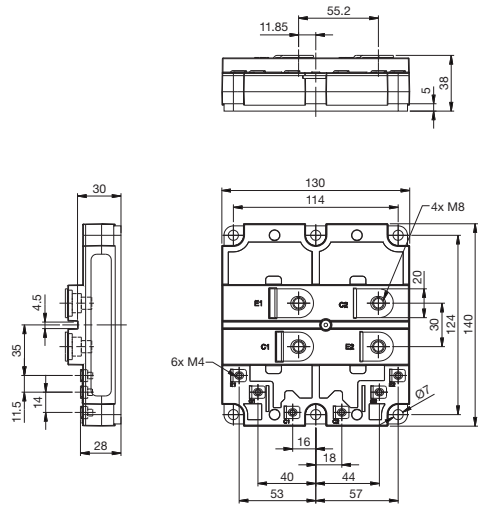
G



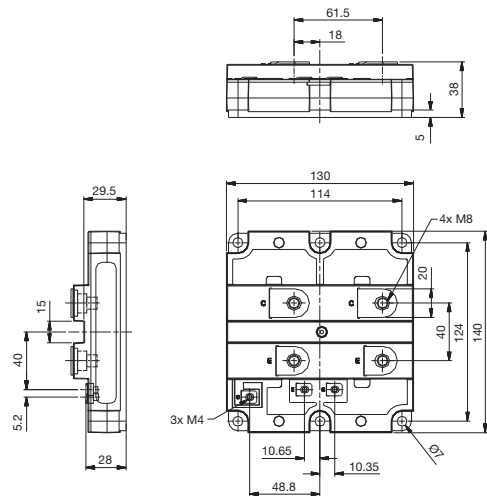
J



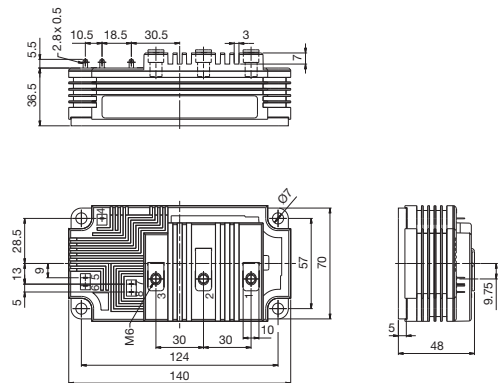
M



N



P



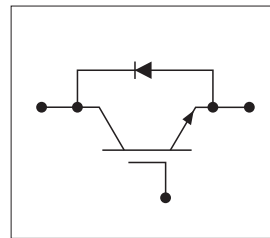
Dimensions in mm

StakPak Modules



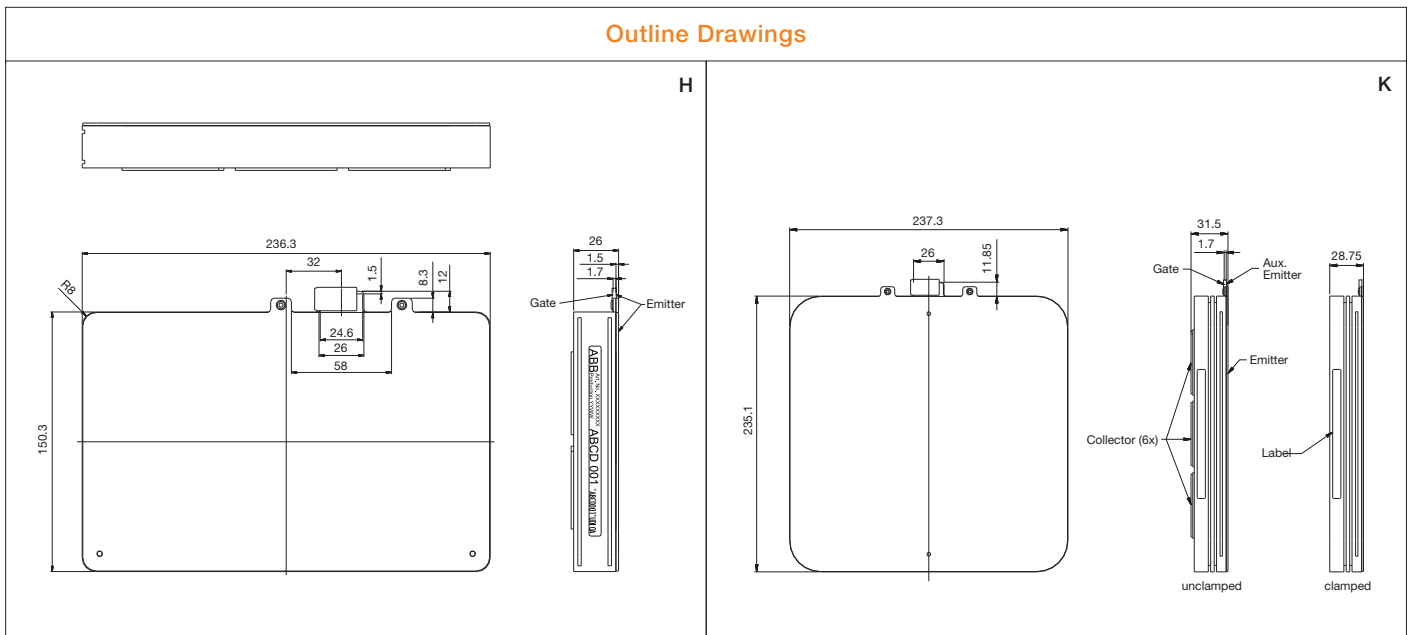
- Press-pack IGBT
- High SOA
- Stable shorted state in case of failure
- High tolerance for uneven mounting pressure
- Designed for series connection
- Explosion resistant package

Configuration

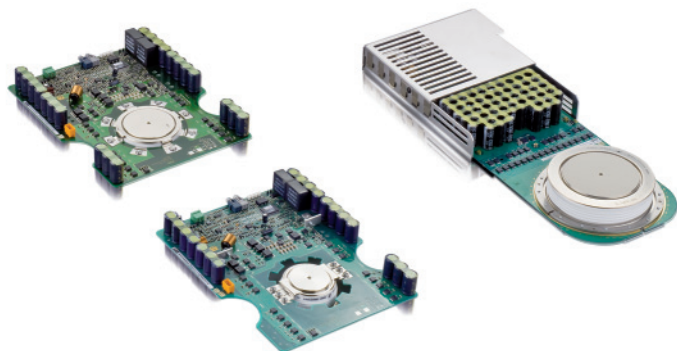


Part number	Voltage V_{CES} (V)	Current I_C (A)	V_{CEsat} (V) typ. 125°C	V_F (V) typ. 125°C	Housings
5SNR 10H2501	2500	1000	2.7	1.9	H
5SNR 13H2501	2500	1300	2.7	1.9	H
5SNR 20H2501	2500	2000	2.7	1.9	H
5SNA 1300K450300	4500	1300	3.4	2.3	K
5SNA 2000K450300	4500	2000	3.4	2.4	K
5SNA 2000K451300	4500	2000	3.5	3.0	K

Outline Drawings



Integrated Gate-Commutated Thyristors



- Patented free-floating silicon technology
- Optical trigger input and status feedback
- Patented low-inductance housing technology
- Fast response and precise timing
- AC square wave or DC supply input
- Cosmic radiation resistance rating

Part number	V_{DRM}	V_{DC}	V_{RRM}	I_{TGQM}	I_{TAVM}		I_{TSM}		V_T	V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	V_{GIN}	Outline		
					$T_C=85^\circ\text{C}$		3ms	10ms										4000A	T_{VJM}
					A	A	T_{VJM}	T_{VJM}										T_{VJM}	
V	V	V	A	A	kA	kA	V	V	m Ω	$^\circ\text{C}$	K/kW	K/kW	kN	V					
Asymmetric IGCTs																			
5SHY 35L4520	4500	2800	17	4000	1700	50	32	2.70	1.40	0.33	125	8.5	3	40	28-40	Fig. 1			
5SHY 35L4521	4500	2800	17	4000	1700	50	32	2.70	1.40	0.33	125	8.5	3	40	28-40	Fig. 1			
5SHY 35L4522	4500	2800	17	4000	2100	56	35	2.00	1.15	0.21	125	8.5	3	40	28-40	Fig. 1			
5SHY 40L4511	4500	2800	17	3600	1430	39	28	3.50	1.70	0.45	125	8.5	3	40	28-40	Fig. 1			
5SHY 55L4500	4500	2800	17	5000	1860	50	33	2.35	1.30	0.26	125	8.5	3	40	28-40	Fig. 1			
5SHY 50L5500	5500	3300	17	3600	1290	40	26	4.10	1.66	0.62	125	8.5	3	40	28-40	Fig. 1			
5SHY 42L6500	6500	4000	17	3800	1290	40	26	4.10	1.88	0.56	125	8.5	3	40	28-40	Fig. 1			

- optimized for snubberless turn-off
- contact factory for series connection

Part number	V_{DRM}	V_{DC}	I_{TGQM}	I_{TAVM} / I_{FAVM}		I_{TSM} / I_{FSM}		V_T / V_F	V_{T0} / V_{F0}	r_T / r_F	di/dt max.	I_{rr}	T_{VJM}	R_{thJC}	F_m	V_{GIN}	Outline	
				$T_C=85^\circ\text{C}$		10ms	I_{TGQM}											T_{VJM}
				A	A	kA	V											
V	V	A	A	kA	V	V	m Ω	A/ μs	A	$^\circ\text{C}$	K/kW	kN	V					
Reverse conducting IGCTs																		
5SHX 08F4510 GCT	4500	2800	630	250	5.0	3.00	1.80	2.00						40				
Diode part				130	6.1	5.70	2.80	4.60	250	400	115	53	16	28-40	Fig. 2			
5SHX 14H4510 GCT	4500	2800	1100	420	8.8	3.00	1.65	1.20						25				
Diode part				160	9.4	6.65	3.15	3.20	425	460	115	42	20	28-40	Fig. 3			
5SHX 26L4520 GCT	4500	2800	2200	1010	17.0	2.95	1.80	0.53						13				
Diode part				390	10.6	5.40	2.70	1.24	650	900	125	26	44	28-40	Fig. 1			
5SHX 06F6010 GCT	5500	3300	520	210	3.5	3.50	2.30	2.30						40				
Diode part				110	2.5	6.30	3.30	5.80	190	320	115	53	16	28-40	Fig. 2			
5SHX 10H6010 GCT	5500	3300	900	350	7.5	3.45	1.65	2.00						25				
Diode part				170	7.6	6.40	2.53	4.30	285	430	115	42	20	28-40	Fig. 3			
5SHX 19L6020 GCT	5500	3300	1800	840	18.0	3.45	1.90	0.90						13				
Diode part				340	7.7	6.40	2.70	2.23	510	780	125	26	44	28-40	Fig. 1			

- monolithic integrated freewheeling diode optimized for snubberless turn-off
- contact factory for symmetrical devices

Please refer to page 26 for part numbering structure.

Gate Turn-off Thyristors



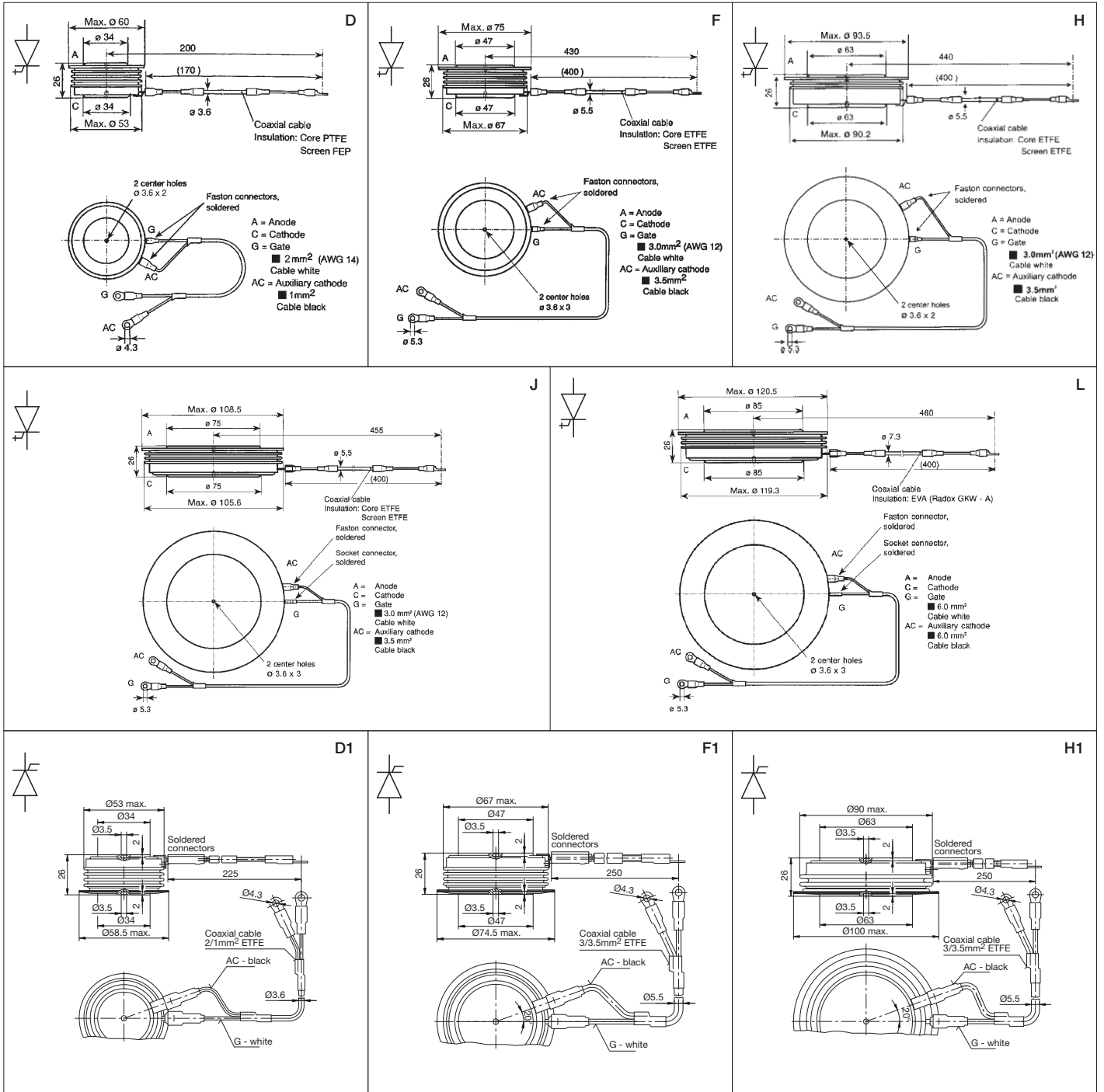
- Excellent trade-off between on-state and switching losses
- Cosmic radiation resistance rating

Part number	V_{DRM}	V_{DC}	V_{RRM}	I_{TGQM} at C_S		I_{TAVM}	I_{TSM}		V_T	V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing		
							$T_C=85^\circ C$										I_{TGQM}	T_{VJM}
							8.3ms	10ms										
V	V	V	A	μF	A	kA	kA	V	V	m Ω	$^\circ C$	K/kW	K/kW	kN				
Asymmetric																		
5SGA 15F2502	2500	1400	17	1500	3	570	10.6	10.0	2.80	1.45	0.90	125	27	8	15	F		
5SGA 20H2501	2500	1400	17	2000	4	830	17.0	16.0	2.80	1.66	0.57	125	17	5	20	H		
5SGA 25H2501	2500	1400	17	2500	6	830	17.0	16.0	3.10	1.66	0.57	125	17	5	20	H		
5SGA 30J2501	2500	1400	17	3000	5	1300	31.0	30.0	2.50	1.50	0.33	125	12	3	40	J		
Asymmetric with Buffer Layer																		
Fine Pattern Type																		
5SGF 30J4502	4500	3000	17	3000	3	960	25.0	24.0	3.90	1.80	0.70	125	12	3	33	J		
5SGF 40L4502	4500	2800	17	4000	6	1180	26.0	25.0	3.80	1.20	0.65	125	11	3	40	L		

Part number	V_{DRM}, V_{RRM}		I_{TGQM} at C_S		I_{TAVM}	I_{TSM}		V_T	V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing		
						$T_C=70^\circ C$										I_{TGQM}	T_{VJM}
						8.3ms	10ms										
V	V	A	μF	A	kA	kA	V	V	m Ω	$^\circ C$	K/kW	K/kW	kN				
Symmetric																	
5SGS 08D2500	2500		800	2	395	4.80	4.5	3.20	1.63	1.90	125	40.0	12.0	5	D1		
5SGS 12F2500	2500		1200	3	630	10.68	10.0	3.20	1.49	1.38	125	24.0	8.0	10	F1		
5SGS 16H2500	2500		1600	4	760	15.00	14.0	3.78	1.81	1.18	125	18.0	6.0	15	H1		
5SGS 08D4500	4500		800	2	285	4.27	4.0	4.33	1.77	3.10	115	40.0	12.0	5	D1		
5SGS 12F4500	4500		1200	3	442	8.10	7.6	4.50	2.28	1.79	115	24.0	8.0	10	F1		
5SGS 16H4500	4500		1600	4	600	12.80	12.0	4.45	2.30	1.30	115	18.0	6.0	15	H1		

** = $V_{DRM}/100V$

Please refer to page 26 for part numbering structure.



Dimensions in mm

Fast Recovery Diode Recommendation

For all GTO types, ABB offers matching freewheeling and snubber diodes.

The actual choice of the diode depends on the specific application. Please see application note 5SYA 2064-01.

Fast Recovery Diodes



- Optimized for fast and soft turn-off
- Small reverse recovery charge
- High di/dt capability at turn-off
- Range optimally suited for GTO and IGCT applications
- Cosmic radiation resistance rating

Part number	V_{RRM}	V_{DC}	I_{FAVM} $T_C=85^\circ C$	I_{FSM}		V_{F0}	r_F	I_{rr}	Q_{rr}	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
				1ms	10ms	T_{VJM}		$di/dt=300 A/\mu s$						
	V	V	A	kA	kA	V	m Ω	A	μC	$^\circ C$	K/kW	K/kW	kN	
GTO Freewheeling Diodes														
5SDF 13H4501	4500	2800	1200	60	25.0	1.30	0.48	800	3000	125	12	3	40	H
5SDF 10H6004	6000	3800	1100	44	18.0	1.50	0.60	1000	6000	125	12	3	40	H

Part number ** = $V_{RRM} / 100V$	V_{RRM}	I_{FAVM} $T_C=85^\circ C$	I_{FSM}		V_{F0}	r_F	I_{rr}	Q_{rr}	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
			8.3ms	10ms	T_{VJM}		$di/dt=80 A/\mu s$						
	V	A	kA	kA	V	m Ω	A	μC	$^\circ C$	K/kW	K/kW	kN	
5SDF 06D2504	2500	615	10.7	10.0	1.20	0.46	200	400	125	32	8	10	D
5SDF 06T2504	2500	615	10.7	10.0	1.20	0.46	200	400	125	32	8	10	T1
5SDF 12F2505	2500	1256	20.3	19.0	1.20	0.24	230	700	125	15	4	22	F
5SDF 12T2505	2500	1256	20.3	19.0	1.20	0.24	230	700	125	15	4	22	T2
5SDF 04D4504	4500	361	6.4	6.0	1.86	1.54	200	400	125	32	8	10	D
5SDF 04T4504	4500	361	6.4	6.0	1.86	1.54	200	400	125	32	8	10	T1
5SDF 08F4505	4500	767	16.0	15.0	1.81	0.73	230	700	125	15	4	22	F
5SDF 08T4505	4500	767	16.0	15.0	1.81	0.73	230	700	125	15	4	22	T2

Please refer to page 27 for part numbering structure.

Part number	V _{RRM}	V _{DC}	I _{FAVM}		I _{FSM}		V _{F0}	r _F	I _{rr}	Q _{rr}	T _{VJM}	R _{thJC}	R _{thCH}	F _m	Housing		
			T _C =85°C		1ms	10ms										T _{VJM}	di/dt=100 A/μs
			A	kA	kA	T _{VJM}											
V	V	A	kA	kA	V	mΩ	A	μC	°C	K/kW	K/kW	kN					
Snubber Diodes																	
5SDF 05D2501	2500	1100	490	27	8.5	1.40	0.50	250	900	125	40	8	11	D			
5SDF 03D4501	4500	2400	320	12	5.0	2.00	1.50	200	1000	125	40	8	11	D			
5SDF 07H4501	4500	2400	900	40	16.0	1.80	0.90	260	1700	125	12	3	40	H			
5SDF 02D6002	6000	3000	250	11.4	3.6	2.50	2.50	260	2000	125	40	8	11	D			

Part number	V _{RRM}	V _{DC}	I _{FAVM}		I _{FSM}		V _{F0}	r _F	I _{rr}	di/dt max.	T _{VJM}	R _{thJC}	R _{thCH}	F _m	Housing	
			T _C =70°C		1ms	10ms										T _{VJM}
			A	kA	kA	T _{VJM}										
V	V	A	kA	kA	V	mΩ	A	A/μs	°C	K/kW	K/kW	kN				
IGCT Diodes																
5SDF 03D4502	4500	2800	275	10	5.0	2.15	2.80	355	300	115	40	8	16	D		
5SDF 05F4502	4500	2800	435	32	16.0	2.42	2.10	610	430	115	17	5	20	F		
5SDF 10H4503	4500	2800	1100	47	20.0	1.75	0.88	1520	600	125	12	3	40	H		
5SDF 11H4505	4500	2800	1576	58	23.0	2.43	0.65	1250	1000	140	8	2.5	40	H1		
5SDF 20L4520	4500	2800	2010	70	30.0	1.86	0.71	2400	1200	140	6.5	3	40	L2		
5SDF 28L4520	4500	2800	2750	70	40.0	1.35	0.38	2800	1000	140	6.5	3	40	L2		
5SDF 02D6004	5500	3300	175	8	3.0	3.35	7.20	300	220	115	40	8	16	D		
5SDF 04F6004	5500	3300	380	22	10.0	2.70	2.80	600	340	115	22	5	20	F		
5SDF 08H6005	5500	3300	585	40	18.0	4.50	1.30	900	440	115	12	3	40	H		

ABB Semiconductors has a long history of producing high power fast recovery diodes for applications such as Voltage Source Converters (VSC), Current Source Converters (CSC) and DC Snubbers. The diodes are typically used in combination with IGCTs and GTOs as free-wheeling diodes, snubber diodes and clamp diodes. Fast Recovery Diode recommendations for various applications can be found in the ABB application note 5SYA 2064-01.

Standard Recovery Diodes



- Optimised for line frequency
- Low on-state losses
- High current handling capabilities

Part number ** = $V_{RRM} / 100V$	V_{RSM}	V_{RRM}	I_{FAVM}	I_{FSM}		V_{TO}	R_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
			$T_C=85^\circ C$	8.3ms	10ms	T_{VJM}						
	V	V	A	kA	kA	V	m Ω	$^\circ C$	K/kW	K/kW	kN	
5SDD 10T1800	1800	1800	1013	14.4	13.5	0.934	0.257	150	38.0	12.0	9	T1
5SDD 38F2000	2000	2000	3730	36.0	34.0	0.915	0.088	190	15.0	4.0	22	F
5SDD 51L2800	2800	2000	5380	70.0	65.0	0.770	0.082	175	8.0	3.0	70	L1
5SDD 60N2800	2800	2000	6830	95.0	87.0	0.800	0.050	160	5.7	1.0	90	N
5SDD 60Q2800	2800	2000	7385	95.0	87.0	0.800	0.050	160	5.0	1.0	90	Q
5SDD 70H2000	2000	2000	7030	69.0	65.0	0.861	0.046	190	8.0	2.5	50	H
5SDD 65H2400	2400	2400	6520	63.0	59.0	0.870	0.057	190	8.0	2.5	50	H
5SDD 11D2800	3000	2800	1285	16.0	15.0	0.933	0.242	160	32.0	8.0	10	D
5SDD 11T2800	2800	2800	1285	16.0	15.0	0.933	0.242	160	32.0	8.0	10	T1
5SDD 24F2800	3000	2800	2600	32.0	30.0	0.906	0.135	160	15.0	4.0	22	F
5SDD 48H3200	3200	3200	4710	65.1	61.0	0.992	0.067	160	8.0	2.5	50	H
5SDD 54N4000	4000	3600	5200	90.0	85.0	0.800	0.086	150	5.7	1.0	90	N
5SDD 39K4000	4000	4000	3941	49.0	46.0	0.905	0.109	160	9.2	2.5	50	K
5SDD 40H4000	4000	4000	3847	49.0	46.0	0.900	0.133	160	8.0	2.5	50	H
5SDD 08D5000	5000	5000	1028	12.8	12.0	0.894	0.487	160	32.0	8.0	10	D
5SDD 08T5000	5000	5000	1028	12.8	12.0	0.894	0.487	160	32.0	8.0	10	T1
5SDD 20F5000	5000	5000	1978	25.6	24.0	0.940	0.284	160	15.0	4.0	22	F
5SDD 33L5500	5500	5000	3480	49.2	46.0	0.940	0.147	150	7.0	1.5	70	L1
5SDD 38H5000	5000	5000	3814	48.1	45.0	0.903	0.136	160	8.0	2.5	50	H
5SDD 36K5000	5000	5000	3638	48.1	45.0	0.903	0.136	160	9.2	2.5	50	K
5SDD 50N5500	5500	5000	4570	80.0	73.0	0.800	0.107	150	5.7	1.0	90	N
5SDD 06D6000	6000	6000	662	11.2	10.5	1.066	0.778	150	42.0	8.0	11	D
5SDD 09D6000	6000	6000	845	11.7	11.0	0.893	0.647	150	32.0	8.0	10	D
5SDD 10F6000	6000	6000	1363	18.7	17.5	1.015	0.407	150	20.0	5.0	22	F
5SDD 14F6000	6000	6000	1363	18.7	17.5	1.015	0.407	150	20.0	5.0	22	F
5SDD 17F6000	6000	6000	1704	20.3	19.0	0.894	0.344	150	15.0	4.0	22	F
5SDD 31H6000	6000	6000	3246	42.7	40.0	0.894	0.166	150	8.0	2.5	50	H
5SDD 31K6000	6000	6000	3097	42.7	40.0	0.894	0.166	150	9.2	2.5	50	K

Please refer to page 27 for part numbering structure.

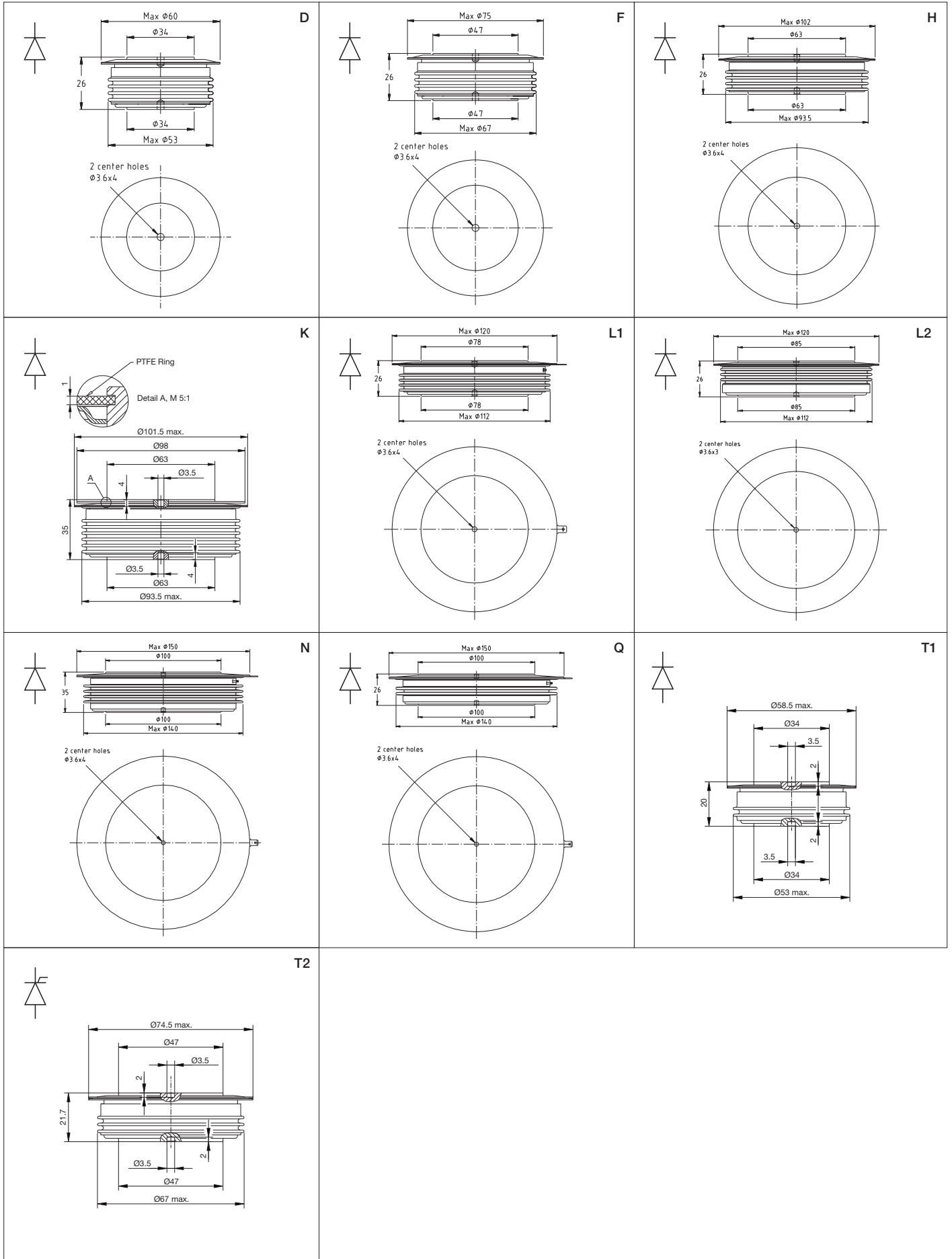
Avalanche Diodes



- Self protected against transient over-voltages
- Guaranteed maximum avalanche power dissipation

Part number ** = $V_{RRM} / 100V$	V_{RRM}	I_{FAVM} $T_C=85^\circ C$	I_{FSM}		V_{F0} T_{VJM}	r_F	P_{RSM} 20 μs T_{VJM}	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
			8.3ms T_{VJM}	10ms T_{VJM}								
	V	A	kA	kA	V	m Ω	kW	$^\circ C$	K/kW	K/kW	kN	
5SDA 11D1702	1700	1310	16.0	15.0	0.74	0.25	50	160	40	10	11	D
5SDA 27F2002	2000	2700	33.1	31.0	0.79	0.09	100	160	20	5	22	F
5SDA 10D2303	2300	1140	14.4	13.5	0.83	0.30	50	160	40	10	11	D
5SDA 24F2303	2300	2350	31.0	29.0	0.84	0.13	75	160	20	5	22	F
5SDA 09D2604	2600	1020	12.3	11.5	0.87	0.39	50	160	40	10	11	D
5SDA 08D3205	3200	910	9.8	9.2	0.93	0.52	50	160	40	10	11	D
5SDA 21F3204	3200	2110	27.8	26.0	0.89	0.17	75	160	20	5	22	F
5SDA 07D3806	3800	790	8.1	7.6	1.01	0.72	50	160	40	10	11	D
5SDA 16F3806	3800	1620	21.9	20.5	1.03	0.32	50	160	20	5	22	F
5SDA 06D5007	5000	690	7.5	7.0	1.10	1.01	50	160	40	10	11	D
5SDA 14F5007	5000	1410	18.7	17.5	1.13	0.44	50	160	20	5	22	F

Please refer to page 27 for part numbering structure.



Dimensions in mm

Welding Diodes



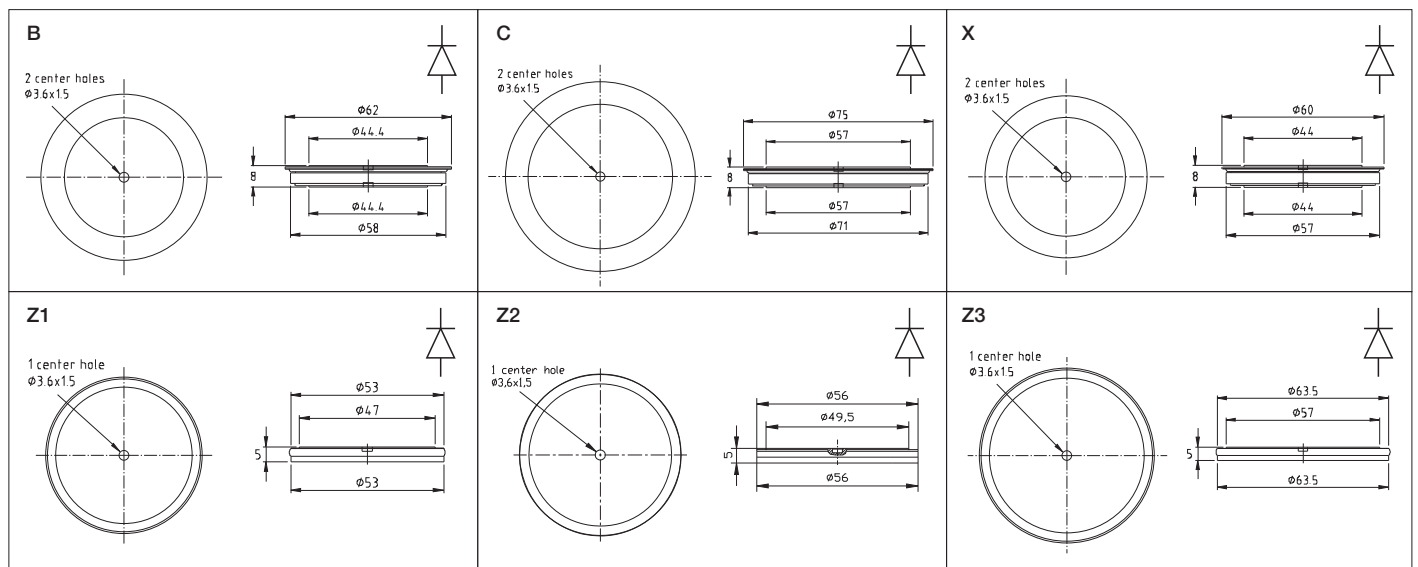
- Designed for medium and high frequency welding equipment and optimized for high current rectifiers
- Proven high reliability in welding applications with very low on-state voltage and very low thermal resistance

Part number	V_{RRM}	V_{Fmin}	V_{Fmax}	I_{FAVM}	I_{FSM}		V_{F0}	r_F	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
		$T_j=25^\circ C, I_F=5000 A$		$T_C=85^\circ C$	8.3ms	10ms	T_{VJM}	T_{VJM}					
	V	V	V	A	kA	kA	V	m Ω	$^\circ C$	K/kW	K/kW	kN	
Standard													
5SDD 71X0200	200	-	1.05	7110	60	55	0.74	0.026	170	10.0	5.0	22	X
5SDD 71B0200	200	-	1.05	7110	60	55	0.74	0.026	170	10.0	5.0	22	B
5SDD 71X0400	400	0.97	1.02	7110	60	55	0.74	0.026	170	10.0	5.0	22	X
5SDD 71B0400	400	-	1.05	7110	60	55	0.74	0.026	170	10.0	5.0	22	B
5SDD 0120C0200	200	-	0.92*	11000	92	85	0.75	0.020	170	6.0	3.0	36	C
5SDD 0120C0400	400	0.83*	0.88*	11350	92	85	0.74	0.018	170	6.0	3.0	36	C
5SDD 92Z0400	400	-	1.03*	9250	64	60	0.78	0.031	180	5.6	3.6	22	Z1
5SDD 0105Z0400	400	-	1.01*	10502	75	70	0.812	0.026	180	5.0	2.5	30	Z2
5SDD 0135Z0400	400	-	0.92*	13500	91	85	0.758	0.021	180	3.9	2.6	35	Z3

* at 8000 A, T_{VJM}

Part number	V_{RRM}	V_{Fmax}	I_{FAVM}	I_{FSM}		V_{F0}	r_F	Q_{rr}	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
		T_{VJM}	$T_C=85^\circ C$	8.3ms	10ms	T_{VJM}	T_{VJM}	T_{VJM}					
	V	V	A	kA	kA	V	m Ω	μC	$^\circ C$	K/kW	K/kW	kN	
High Frequency													
5SDF 63B0400	400	1.14	6266	47	44	0.96	0.036	180	190	10.0	5.0	22	B
5SDF 63X0400	400	1.14	6266	47	44	0.96	0.036	180	190	10.0	5.0	22	X
5SDF 90Z0400	400	1.13	9041	51	48	0.98	0.032	200	190	5.6	3.6	22	Z1
5SDF 0102C0400	400	1.14*	10159	75	70	0.98	0.022	300	190	6.0	3.0	35	C
5SDF 0103Z0400	400	1.20*	10266	58	54	1.00	0.027	230	190	5.0	2.5	30	Z2
5SDF 0131Z0400	400	1.14*	13058	75	70	0.98	0.022	300	190	3.9	2.6	35	Z3

* at 8000 A



Dimensions in mm

Please refer to page 27 for part numbering structure.

Phase Control Power Thyristors

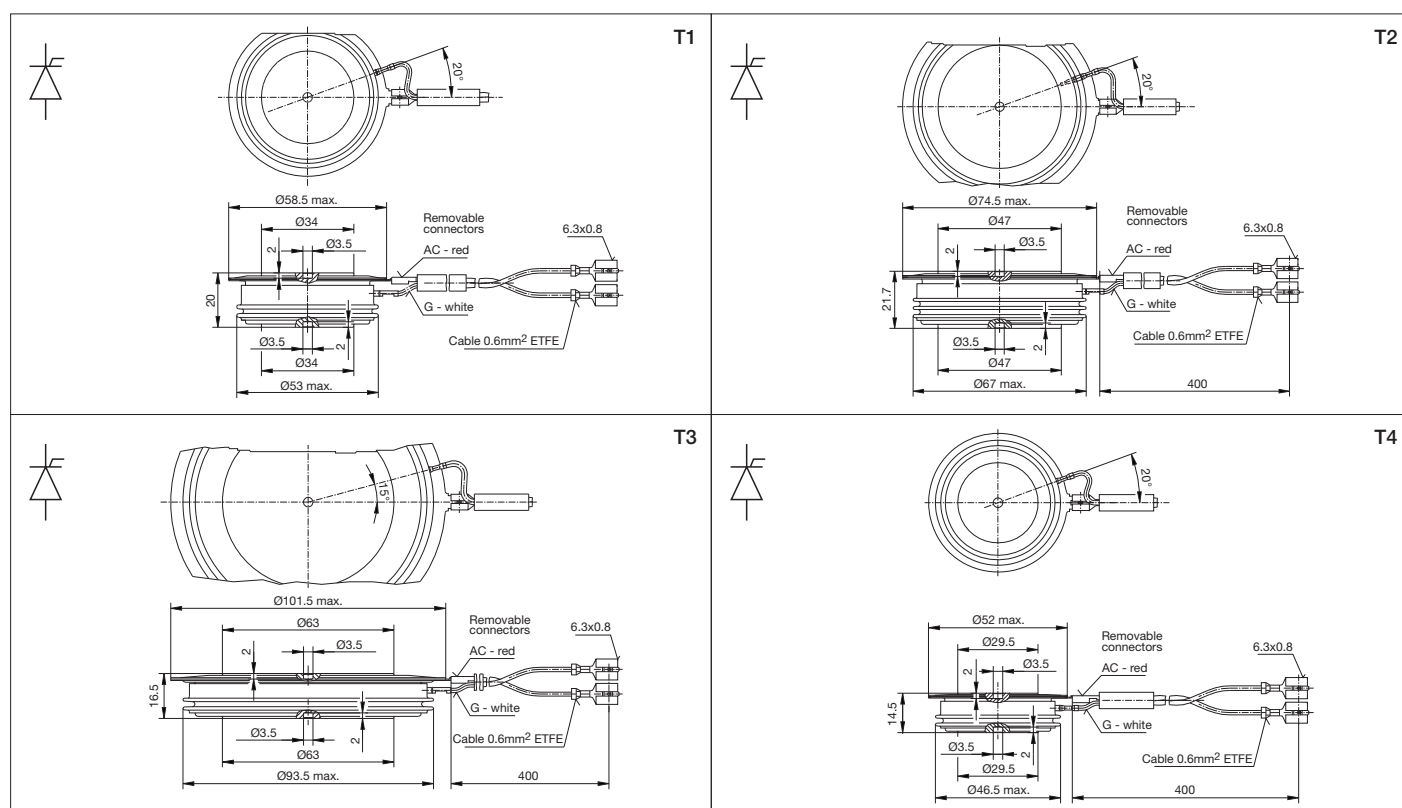


- Designed for high power industrial and power transmission applications
- Optimized for low on-state voltage drop
- Matched Q_{rr} and V_T values available for series and/or parallel connections

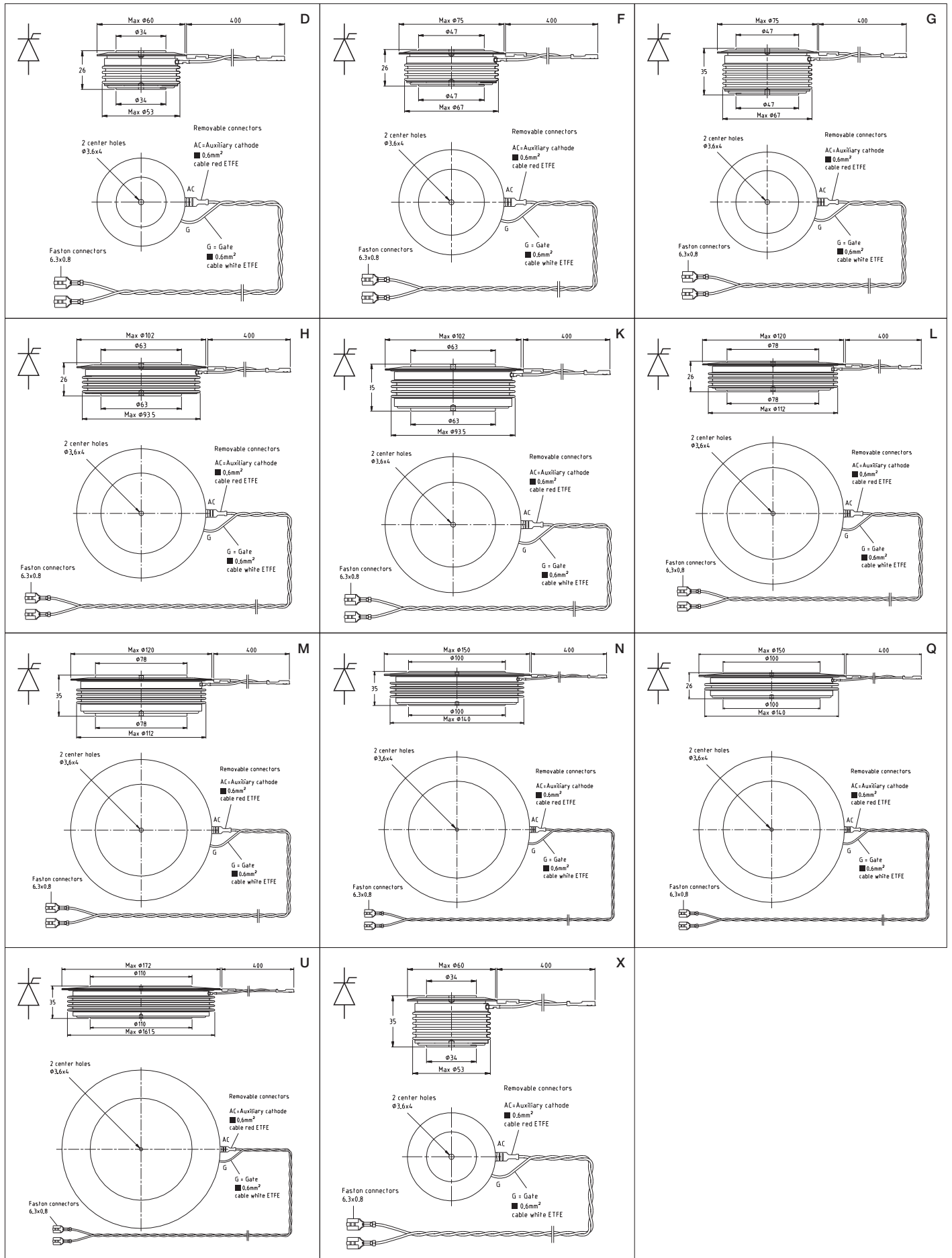
Part number ** = $V_{RRM} / 100V$	V_{DRM}, V_{RRM}	I_{TAVM}	I_{TSM}		V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
	T_{VJM}	$T_C=70^\circ C$	8.3ms	10ms	T_{VJM}						
	V	A	kA	kA	V	m Ω	$^\circ C$	K/kW	K/kW	kN	
5STP 06T1600	1600	641	10.6	9.9	0.99	0.503	125	44.0	12.0	9	T4
5STP 10D1601	1600	969	16.0	15.0	0.93	0.302	125	32.0	10.0	10	D
5STP 10T1600	1600	969	16.0	15.0	0.93	0.302	125	32.0	10.0	10	T1
5STP 20F1601	1600	1901	29.2	27.3	0.95	0.152	125	16.0	4.0	22	F
5STP 20T1600	1600	1956	29.2	27.3	0.95	0.152	125	15.5	4.0	22	T2
5STP 34H1601	1600	3370	52.3	49.0	0.94	0.066	125	10.0	3.0	50	H
5STP 34T1600	1600	3370	52.3	49.0	0.94	0.066	125	10.0	3.0	50	T3
5STP 07D1800	1800	730	9.5	9.0	0.80	0.540	125	36.0	7.5	10	D
5STP 09D1801	1800	932	14.6	13.7	0.94	0.341	125	32.0	10.0	10	D
5STP 18F1801	1800	1825	28.0	26.2	0.97	0.170	125	16.0	4.0	22	F
5STP 18T1800	1800	1870	28.0	26.2	0.97	0.170	125	15.5	4.0	22	T2
5STP 30H1801	1800	3108	50.2	47.0	0.98	0.081	125	10.0	3.0	50	H
5STP 30T1800	1800	3108	50.2	47.0	0.98	0.081	125	10.0	3.0	50	T3
5STP 50Q1800	1800	6100	100.0	94.0	0.90	0.050	125	5.0	1.0	90	Q
5STP 09D2201	2200	863	12.8	12.0	0.98	0.414	125	32.0	10.0	10	D
5STP 17F2201	2200	1702	27.2	25.5	0.99	0.206	125	16.0	4.0	22	F
5STP 17T2200	2200	1743	27.2	25.5	0.99	0.206	125	15.5	4.0	22	T2
5STP 29H2201	2200	2855	48.1	45.0	1.00	0.107	125	10.0	3.0	50	H
5STP 29T2200	2200	2855	48.1	45.0	1.00	0.107	125	10.0	3.0	50	T3
5STP 06D2800	2800	620	8.5	8.0	0.92	0.780	125	36.0	7.5	10	D
5STP 08D2801	2800	792	11.3	10.6	1.06	0.492	125	32.0	10.0	10	D
5STP 08T2800	2800	792	11.3	10.6	1.06	0.492	125	32.0	10.0	10	T1
5STP 15T2800	2800	1589	25.2	23.6	1.02	0.265	125	15.5	4.0	22	T2
5STP 16F2801	2800	1554	25.2	23.6	1.02	0.265	125	16.0	4.0	22	F
5STP 27H2801	2800	2670	45.9	43.0	1.04	0.127	125	10.0	3.0	50	H
5STP 27T2800	2800	2670	45.9	43.0	1.04	0.127	125	10.0	3.0	50	T3
5STP 33L2800	2800	3740	65.0	60.0	0.95	0.100	125	7.0	1.5	70	L

Please refer to page 26 for part numbering structure.

Part number ** = $V_{RRM} / 100V$	V_{DRM}, V_{RRM}	I_{TAVM}	I_{TSM}		V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
	T_{VJM}	$T_C=70^\circ C$	8.3ms	10ms	T_{VJM}	T_{VJM}					
			T_{VJM}	T_{VJM}							
V	A	kA	kA	V	m Ω	$^\circ C$	K/kW	K/kW	kN		
5STP 45N2800	2800	5080	79.0	75.0	0.86	0.070	125	5.7	1.0	90	N
5STP 45Q2800	2800	5490	79.0	75.0	0.86	0.070	125	5.0	1.0	90	Q
5STP 04D4200	4200	470	7.0	6.4	1.00	1.500	125	36.0	7.5	10	D
5STP 12F4200	4200	1150	16.0	15.0	0.95	0.575	125	17.0	4.0	22	F
5STP 21H4200	4200	2192	34.2	32.0	1.25	0.191	125	10.0	3.0	50	H
5STP 28L4200	4200	3170	55.6	52.0	0.97	0.158	125	7.0	1.5	70	L
5STP 38N4200	4200	3960	65.0	60.0	0.95	0.130	125	5.7	1.0	90	N
5STP 38Q4200	4200	4275	65.0	60.0	0.95	0.130	125	5.0	1.0	90	Q
5STP 04D5200	5200	440	5.4	5.0	1.20	1.600	125	36.0	7.5	10	D
5STP 17H5200	5200	1975	31.0	29.0	1.02	0.320	125	10.0	2.0	50	H
5STP 25L5200	5200	2760	-	55.0	1.00	0.225	125	7.0	1.5	70	L
5STP 25M5200	5200	2540	-	55.0	1.00	0.225	125	9.0	1.5	70	M
5STP 34N5200	5200	3600	60.0	55.0	1.03	0.160	125	5.7	1.0	90	N
5STP 34Q5200	5200	3875	60.0	55.0	1.03	0.160	125	5.0	1.0	90	Q
5STP 52U5200	5200	5120	90.3	85.2	1.04	0.115	125	4.0	0.8	135	U
5STP 03D6500	6500	380	4.8	4.5	1.20	2.300	125	36.0	7.5	10	D
5STP 03X6500	6500	350	4.8	4.5	1.20	2.300	125	45.0	7.5	10	X
5STP 08F6500	6500	830	12.8	11.8	1.24	1.015	125	17.0	4.0	22	F
5STP 08G6500	6500	720	12.8	11.8	1.24	1.015	125	22.0	4.0	22	G
5STP 12K6500	6500	1370	23.4	21.9	1.18	0.632	125	11.0	2.0	50	K
5STP 18M6500	6500	1800	35.0	32.0	1.20	0.430	125	9.0	1.5	70	M
5STP 26N6500	6500	2810	-	65.0	1.12	0.290	125	5.7	1.0	90	N
5STP 42U6500	6500	4250	76.1	71.4	1.24	0.162	125	4.0	0.8	135	U
5STP 20N8500	8000	2000	38.0	35.0	1.25	0.480	115	5.7	1.0	90	N
5STP 20Q8500	8000	2150	38.0	35.0	1.25	0.480	115	5.0	1.0	90	Q



Dimensions in mm. Please refer to page 26 for part numbering structure.



Dimensions in mm

Bi-Directionally Controlled Thyristors



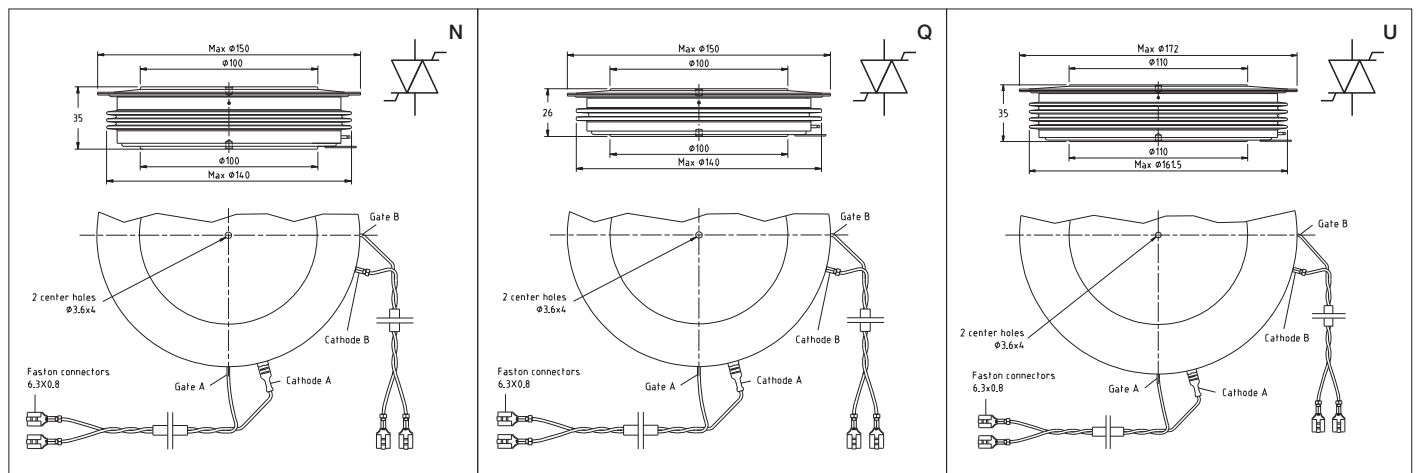
- Two anti-parallel thyristors on one Si-wafer
- Patented free-floating silicon technology
- Designed for high power industrial and energy management applications
- Matched Q_{rr} values available for series connection

Table of replacement of PCTs by BCTs

5STB 24Q2800	replaces two	5STP 24H2800
5STB 24N2800	replaces two	5STP 24H2800
5STB 18N4200	replaces two	5STP 18H4200
5STB 17N5200	replaces two	5STP 17H5200
5STB 13N6500	replaces two	5STP 12K6500
5STB 25U5200	replaces two	5STP 25L5200
5STB 18U6500	replaces two	5STP 18M6500

Part number	V_{RM}	I_{RMS}^*	I_{TAVM}	I_{TSM}		V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
	T_{VJM}	$T_C=70^\circ C$	$T_C=70^\circ C$	8.3ms	10ms	T_{VJM}						
	V	A	A	kA	kA	V	m Ω					
5STB 24N2800	2800	5400	2430	46.0	43.0	0.85	0.160	125	11.4	2.0	90	N
5STB 24Q2800	2800	5840	2630	46.0	43.0	0.85	0.160	125	10.0	2.0	90	Q
5STB 18N4200	4200	4260	1920	35.0	32.0	0.96	0.285	125	11.4	2.0	90	N
5STB 17N5200	5200	4000	1800	31.0	29.0	1.02	0.320	125	11.4	2.0	90	N
5STB 25U5200	5200	4400	1980	45.0	42.0	1.06	0.219	110	8.5	1.6	135	U
5STB 13N6500	6500	3120	1405	24.0	22.0	1.20	0.600	125	11.4	2.0	90	N
5STB 18U6500	6500	3510	1580	31.8	29.7	1.20	0.458	110	8.5	1.6	135	U

* AC full-wave



Dimensions in mm

Please refer to page 26 for part numbering structure.

Fast Switching Thyristors



- Low switching losses
- Short turn-off time
- Fast turn-on and increased di/dt capability
- High operating frequency, up to 10kHz
- Suitable for power switching applications and induction heating

Part number	V_{DRM}, V_{RRM}	I_{TAVM}	I_{TSM}		V_{T0}	r_T	Q_{rr}	t_q	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
	T_{VJM}	$T_{C=70^\circ C}$	8.3ms	10ms	T_{VJM}		1)	2)					
	V	A	kA	kA	V	m Ω	μ As	μ s	$^\circ$ C	K/kW	K/kW	kN	
Standard													
5STF 13F1220	1200	1252	22.4	21.0	1.772	0.248	-	20.0	125	16.0	4.0	22	F
5STF 15F1232	1200	1532	22.4	21.0	1.283	0.209	-	32.0	125	16.0	4.0	22	F
5STF 07D1413	1400	710	12.8	12.0	1.652	0.347	190	12.5	125	32.0	10.0	10	D
5STF 07T1413	1400	710	12.8	12.0	1.652	0.347	190	12.5	125	32.0	10.0	10	T1
5STF 09D1420	1400	847	13.9	13.0	1.231	0.317	380	20.0	125	32.0	10.0	10	D
5STF 09T1420	1400	847	13.9	13.0	1.231	0.317	380	20.0	125	32.0	10.0	10	T1
5STF 12F2040	2000	1202	18.2	17.0	1.999	0.218	550	40.0	125	16.0	4.0	22	F
5STF 14F2063	2000	1440	18.2	17.0	1.602	0.170	-	63.0	125	16.0	4.0	22	F
5STF 10F3080	3000	1003	13.9	13.0	2.562	0.246	1000	80.0	125	16.0	4.0	22	F
5STF 11F3010	3000	1112	15.0	14.0	2.149	0.258	1600	100.0	125	16.0	4.0	22	F
Medium Frequency													
5STF 18F1210	1200	1779	23.5	22.0	1.374	0.094	380	10.0	125	16.0	4.0	22	F
5STF 06D1408	1400	568	11.8	11.0	2.311	0.365	80	8.0	125	32.0	10.0	10	D
5STF 06T1408	1400	568	11.8	11.0	2.311	0.365	80	8.0	125	32.0	10.0	10	T1
5STF 07D1414	1400	736	12.8	12.0	1.683	0.274	160	12.5	125	32.0	10.0	10	D
5STF 07T1414	1400	736	12.8	12.0	1.683	0.274	160	12.5	125	32.0	10.0	10	T1
5STF 16F1413	1400	1526	22.4	21.0	1.628	0.121	300	12.5	125	16.0	4.0	22	F
5STF 17F1420	1400	1693	22.4	21.0	1.403	0.114	670	20.0	125	16.0	4.0	22	F
5STF 06D2020	2000	557	8.6	8.0	2.348	0.386	240	20.0	125	32.0	10.0	10	D
5STF 06T2020	2000	557	8.6	8.0	2.348	0.386	240	20.0	125	32.0	10.0	10	T1
5STF 07D2032	2000	679	9.6	9.0	1.849	0.306	440	32.0	125	32.0	10.0	10	D
5STF 07T2032	2000	679	9.6	9.0	1.849	0.306	440	32.0	125	32.0	10.0	10	T1
5STF 12F2025	2000	1191	18.2	17.0	2.125	0.185	410	25.0	125	16.0	4.0	22	F
5STF 15F2040	2000	1489	18.2	17.0	1.605	0.144	1000	40.0	125	16.0	4.0	22	F
5STF 05D2425	2400	517	7.5	7.0	2.551	0.430	260	25.0	125	32.0	10.0	10	D
5STF 05T2425	2400	517	7.5	7.0	2.551	0.430	260	25.0	125	32.0	10.0	10	T1
5STF 06D2440	2400	617	8.6	8.0	2.045	0.365	450	40.0	125	32.0	10.0	10	D
5STF 06T2440	2400	617	8.6	8.0	2.045	0.365	450	40.0	125	32.0	10.0	10	T1

1) at $I_T = 500(1000)$ A, $di_T/dt = -50A/\mu s$, $V_R = 100$ V

2) at $I_T = 500(1000)$ A, $di_T/dt = -50A/\mu s$, $V_R = 100$ V, $V_D = 2/3 V_{DRM}$, $dV_D/dt = 50V/\mu s$

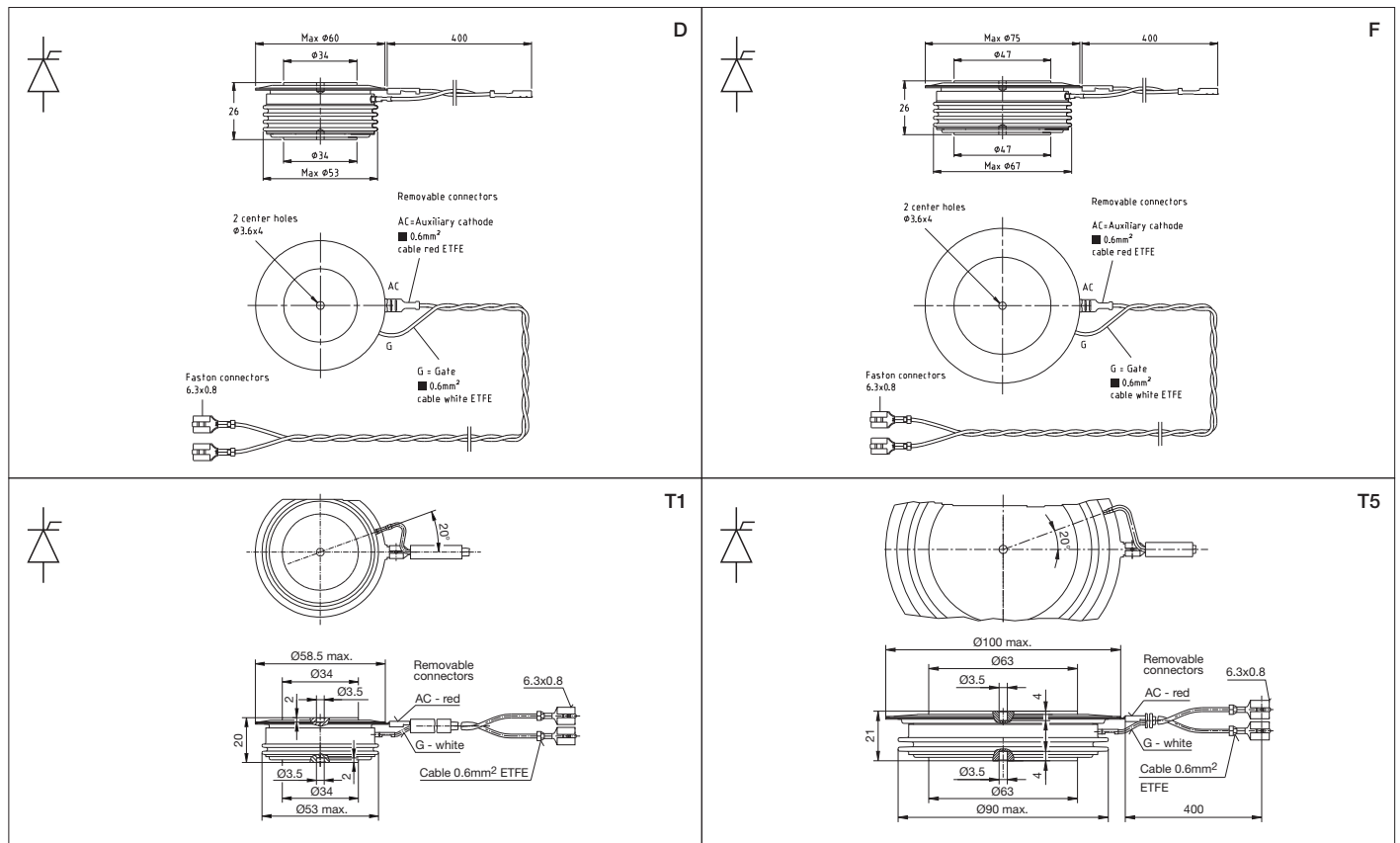
Please refer to page 26 for part numbering structure.

Reverse Conducting Thyristors



- Monolithic integrated freewheeling diode
- Optimized for low dynamic losses

Part number ** = $V_{RRM} / 100V$	V_{DRM}, V_{RRM}	I_{TAVM} / I_{FAVM}		I_{TSM} / I_{FSM}		V_{T0} / V_{F0}	r_T / r_F	t_q	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Housing
		$T_C = 70^\circ C$		T_{VJM}	T_{VJM}								
		V	A	kA	kA	V	m Ω	μs	$^\circ C$	K/kW	K/kW	kN	
5STR 03T2040	FST	2000	360	5.3	5.0	1.55	1.010	40.0	125	55	10	10	T1
	Diode part	2000	223	3.8	3.5	1.34	2.100	4.0	125	88	-	-	
5STR 07F2541	FST	2500	760	15.0	14.0	1.39	0.336	40.0	125	30	6	22	F
	Diode part	2500	202	4.3	4.0	1.35	1.330	5.6	125	100	-	-	
5STR 10T2520	FST	2500	857	15.0	14.0	2.04	0.321	20.0	125	20	3	30	T5
	Diode part	2500	388	6.4	6.0	1.49	1.066	4.0	125	50	-	-	



Please refer to page 26 for part numbering structure.

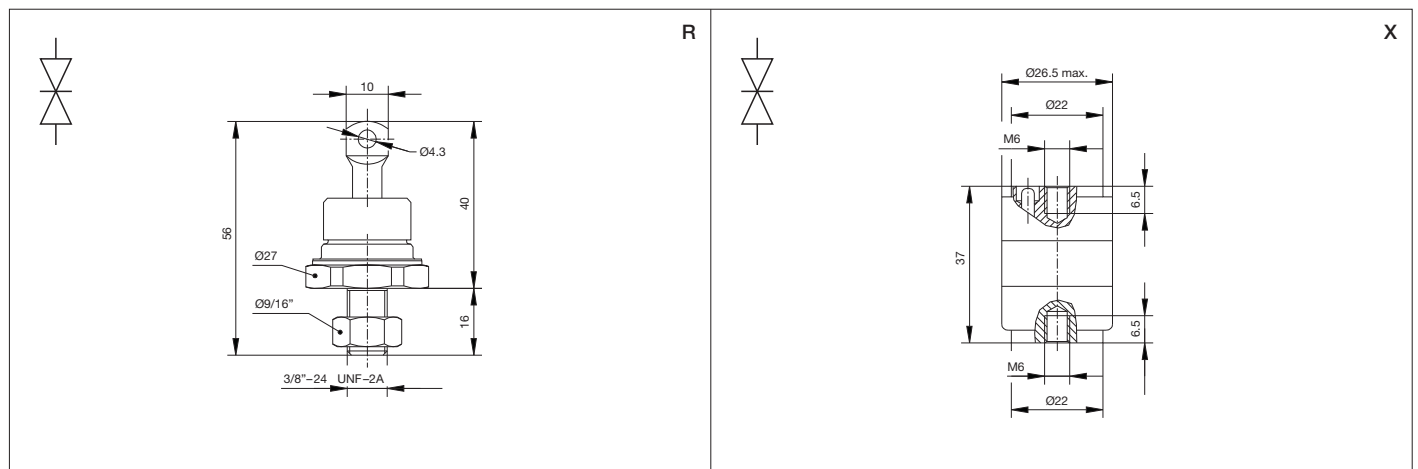
Silicon Surge Voltage Suppressors



- Symmetric blocking characteristics with avalanche breakdown capability
- Effective protection against repetitive and non-repetitive over-voltages

Part number ** = $V_R / 100V$	V_R	Tolerance $T_{VJ} = 60^\circ C$	I_{RM} for base width				T_{VJM} °C	R_{thJH} K/kW	Housing
	$T_{VJ} = 60^\circ C$		10µs	100µs	1ms	10ms			
	V	V	A	A	A	A			
5SSA 50R**00	500, 600	±60	500	135	33	7.5	125	600	R
5SSA 38R**00	700, 800	±60	380	100	25	4.5	125	600	R
5SSA 30R**00	900, 1000	±60	300	80	21	4.0	125	600	R
5SSA 26R**00	1100, 1200	±60	260	67	18	3.6	125	600	R
5SSA 23R**00	1300, 1400	±60	230	58	15	3.4	125	600	R
5SSA 20R**00	1500, 1600	±60	200	50	13	3.0	125	600	R
5SSB 50X**00	450, 550	±50	500	135	33	7.5	125	500	X
5SSB 38X**00	650, 750	±50	380	100	25	4.5	125	500	X
5SSB 30X**00	850, 950	±50	300	80	21	4.0	125	500	X
5SSB 26X**00	1050, 1150	±50	260	67	18	3.6	125	500	X
5SSB 23X**00	1250, 1350	±50	230	58	15	3.4	125	500	X
5SSB 20X**00	1450, 1550	±50	200	50	13	3.0	125	500	X
5SSB 30X**00	1650, 1750, 1850, 1950	±50	300	80	21	4.0	125	250	X
5SSB 26X**00	2050, 2150, 2250, 2350	±50	260	67	18	3.6	125	250	X
5SSB 23X**00	2450, 2550, 2650, 2750	±50	230	58	15	3.4	125	250	X
5SSB 20X**00	2850, 2950	±50	200	50	13	3.0	125	250	X

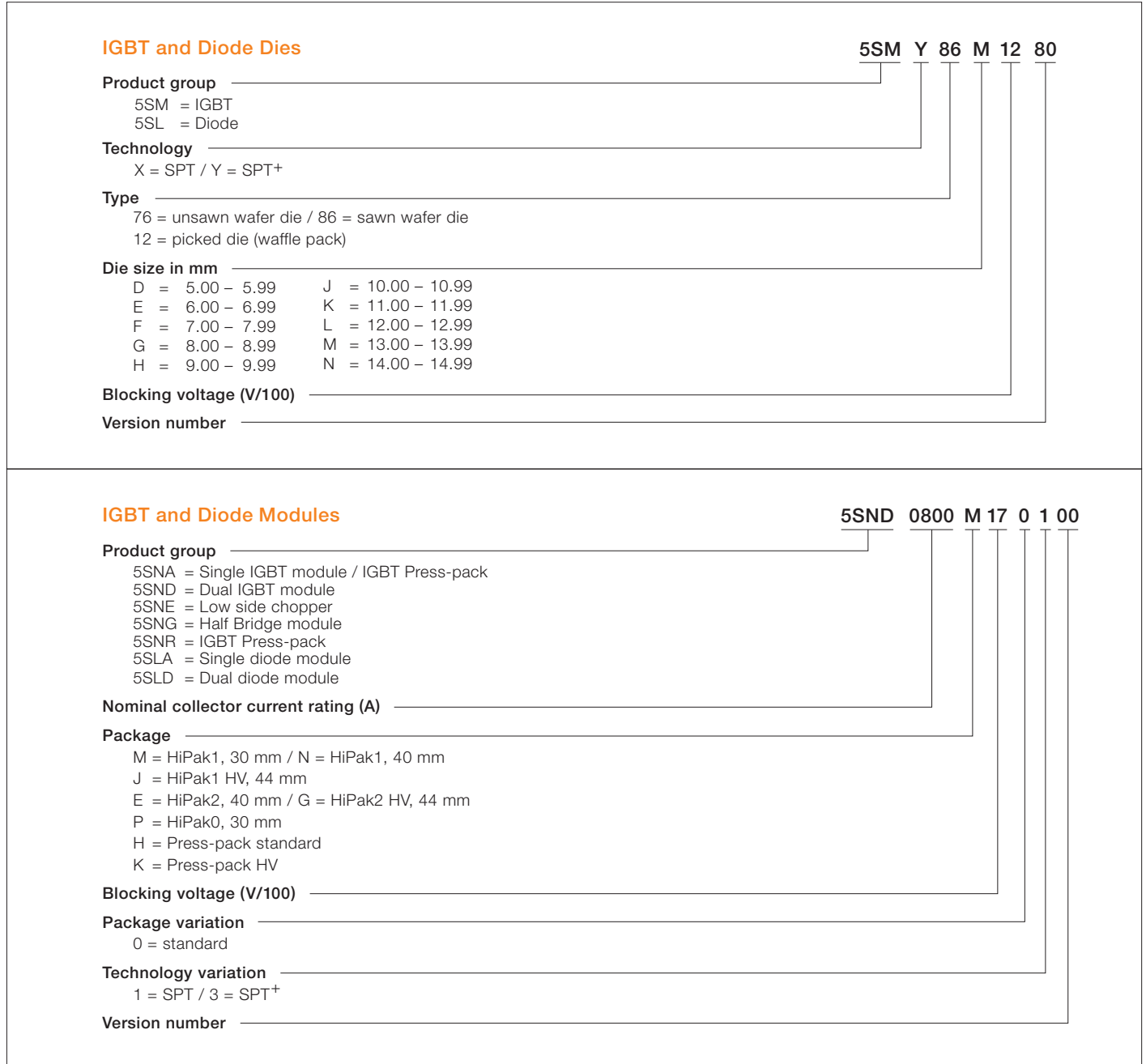
** = $V_R / 100V$



Please refer to page 27 for part numbering structure.

Part Numbering Structure

BiMOS Products



Part Numbering Structure

Bipolar Products

IGCT

Product group

- 5SHX = Reverse Conducting IGCT
- 5SHY = Asymmetric IGCT

Max. turn-off current (I/100)

Housing

Blocking voltage (V/100)

Version number

5SHY 35 L 45 20

GTO

Product group

- 5SGA = Asymmetric GTO
- 5SGF = Fine pattern GTO
- 5SGS = Symmetric GTO

Max. turn-off current (I/100)

Housing

Blocking voltage (V/100)

Version number

5SGA 20 H 25 01

Phase Control Thyristors

Product group

- 5STP = Phase control thyristor
- 5STB = Bi-directionally controlled thyristor

Average on-state current (I/100)

Housing

Blocking voltage (V/100)

Version number

5STP 26 N 65 00

Fast/Reverse Conducting Thyristors

Product group

- 5STF = Fast Switching
- 5STR = Reverse Conducting

Average on-state current (I/100)

Housing

Blocking voltage (V/100)

Version number or tq

5STF 10 F 30 80

Diodes

5SDA 14 F 50 07

Product group

5SDA = Avalanche rectifier diode

5SDD = Rectifier diode

5SDF = Fast Recovery diode

Average on-state current (I/100)

Housing

Blocking voltage (V/100)

Version number

Surge Voltage Suppressors

5SSA 50 R 06 00

Product group

5SSA = Standard

5SSB = Presspack

Pulsed current (I/10)

Housing

Blocking voltage (V/100)

Version number

ABB – Polovodice Products Cross Reference List

Polovodice Part No.	ABB Part No.	Polovodice Part No.	ABB Part No.	Polovodice Part No.	ABB Part No.
DS 808D-7110-02	5SDD 71B0200	DV 818-3800-20	5SDD 38F2000	S 830-500-05	5SSB 50X0500
DS 808X-7110-02	5SDD 71X0200	DV 827-1100-28	5SDD 11D2800	S 833-200-15	5SSA 20R1500
DS 808X-7110-04	5SDD 71X0400	DV 827-800-50	5SDD 08D5000	S 833-200-16	5SSA 20R1600
DS 879D-12000-02	5SDD 0120C0200	DV 827-850-60	5SDD 09D6000	S 833-230-13	5SSA 23R1300
DS 879D-12000-04	5SDD 0120C0400	DV 827C-1100-28	5SDD 11T2800	S 833-230-14	5SSA 23R1400
-	5SDD 0105Z0400	DV 827C-800-50	5SDD 08T5000	S 833-260-11	5SSA 26R1100
D 806C-1010-18	5SDD 10T1800	DV 889-3300-60	5SDD 31H6000	S 833-260-12	5SSA 26R1200
DA 807-1110-17	5SDA 11D1702	DV 889-3800-50	5SDD 38H5000	S 833-300-09	5SSA 30R0900
DA 807-590-50	5SDA 06D5007	DV 889-4000-40	5SDD 40H4000	S 833-300-10	5SSA 30R1000
DA 807-680-38	5SDA 07D3806	DV 889-4650-32	5SDD 48H3200	S 833-380-07	5SSA 38R0700
DA 807-780-32	5SDA 08D3205	DV 889-6500-24	5SDD 65H2400	S 833-380-08	5SSA 38R0800
DA 807-880-23	5SDA 09D2304	DV 889-7000-20	5SDD 70H2000	S 833-500-05	5SSA 50R0500
DA 807-880-26	5SDA 09D2604	DV 889B-3100-60	5SDD 31K6000	S 833-500-06	5SSA 50R0600
DA 807-970-23	5SDA 10D2303	DV 889B-3600-50	5SDD 36K5000	T 906C-640-16-NKO	5STP 06T1600
DA 808-1410-44	5SDA 14F4407	DV 889B-3900-40	5SDD 39K4000	T 907-1000-16-NKO	5STP 10D1601
DA 808-1410-50	5SDA 14F5007	S 830-200-14	5SSB 20X1400	T 907-880-18-NKO	5STP 09D1801
DA 808-1620-38	5SDA 16F3806	S 830-200-15	5SSB 20X1500	T 907C-1000-16-NKO	5STP 10T1600
DA 808-2110-32	5SDA 21F3204	S 830-200-28	5SSB 20X2800	T 918-1770-18-NKO	5STP 18F1801
DA 808-2350-23	5SDA 24F2303	S 830-200-29	5SSB 20X2900	T 918-2010-16-NKO	5STP 20F1601
DA 808-2700-20	5SDA 27F2002	S 830-200-30	5SSB 20X3000	T 918C-1770-18-NKO	5STP 18T1800
DC 889-1100-45 P	5SDF 11H4505	S 830-200-31	5SSB 20X3100	T 918C-2010-16-NKO	5STP 20T1600
DM 818-1200-25 P	5SDF 12F2505	S 830-230-12	5SSB 23X1200	T 989-3030-18 NKO	5STP 30H1801
DM 818-1200-30 P	5SDF 12F3005	S 830-230-13	5SSB 23X1300	T 989-3430-16 NKO	5STP 34H1601
DM 818-800-45 P	5SDF 08F4505	S 830-230-24	5SSB 23X2400	T 989C-3030-18 NKO	5STP 30T1800
DM 818C-1200-25 P	5SDF 12T2505	S 830-230-25	5SSB 23X2500	T 989C-3430-16 NKO	5STP 34T1600
DM 818C-1200-30 P	5SDF 12T3005	S 830-230-26	5SSB 23X2600	TG 907-800-25	5SGS 08D2500
DM 818C-800-45 P	5SDF 08T4505	S 830-230-27	5SSB 23X2700	TG 907-800-45	5SGS 08D4500
DM 827-360-45 N	5SDF 04D4504	S 830-260-10	5SSB 26X1000	TG 908-1200-25	5SGS 12F2500
DM 827-620-25 N	5SDF 06D2504	S 830-260-11	5SSB 26X1100	TG 918-1200-45	5SGS 12F4500
DM 827C-360-45 N	5SDF 04T4504	S 830-260-20	5SSB 26X2000	TG 919-1600-25	5SGS 16H2500
DM 827C-620-25 N	5SDF 06T2504	S 830-260-21	5SSB 26X2100	TG 919-1600-45	5SGS 16H4500
DS 808D-7110-04	5SDD 71B0400	S 830-260-22	5SSB 26X2200	TP 918F-675-25-NMI	5STR 07F2541
DS 818HL-9200-02	5SDD 92Z0200	S 830-260-23	5SSB 26X2300	TP 919FC-1000-25-NMF	5STR 10T2520
DS 818HL-9200-04	5SDD 92Z0400	S 830-300-08	5SSB 30X0800	TR 907-700-12 NSD	5STF 07D1213
DS 819HL-13500-02	5SDD 0135Z0200	S 830-300-09	5SSB 30X0900	TR 907-700-12 NSE	5STF 07D1216
DS 819HL-13500-04	5SDD 0135Z0400	S 830-300-16	5SSB 30X1600	TR 907-700-14 NSD	5STF 07D1413
DV 808-1000-60	5SDD 10F6000	S 830-300-17	5SSB 30X1700	TR 907-700-14 NSE	5STF 07D1416
DV 808-1360-60	5SDD 14F6000	S 830-300-18	5SSB 30X1800	TR 907-850-12 NSF	5STF 09D1220
DV 817-630-60	5SDD 06D6000	S 830-300-19	5SSB 30X1900	TR 907-850-12 NSG	5STF 09D1225
DV 818-1700-60	5SDD 17F6000	S 830-380-06	5SSB 38X0600	TR 907-850-14 NSF	5STF 09D1420
DV 818-2000-50	5SDD 20F5000	S 830-380-07	5SSB 38X0700	TR 907-850-14 NSG	5STF 09D1425
DV 818-2480-28	5SDD 24F2800	S 830-500-04	5SSB 50X0400	TR 907C-700-12 NSD	5STF 07T1213

Polovodice Part No.	ABB Part No.	Polovodice Part No.	ABB Part No.	Polovodice Part No.	ABB Part No.
TR 907C-700-12 NSE	5STF 07T1216	TR 907FC-570-14 NSC	5STF 06T1410	TR 918F-1490-18 NSL	5STF 15F1850
TR 907C-700-14 NSD	5STF 07T1413	TR 907FC-620-22 NSI	5STF 06T2240	TR 918F-1490-20 NSI	5STF 15F2040
TR 907C-700-14 NSE	5STF 07T1416	TR 907FC-620-22 NSL	5STF 06T2250	TR 918F-1490-20 NSL	5STF 15F2050
TR 907C-850-12 NSF	5STF 09T1220	TR 907FC-620-24 NSI	5STF 06T2440	TR 918F-1590-12 NSD	5STF 16F1213
TR 907C-850-12 NSG	5STF 09T1225	TR 907FC-620-24 NSL	5STF 06T2450	TR 918F-1590-12 NSE	5STF 16F1216
TR 907C-850-14 NSF	5STF 09T1420	TR 907FC-680-18 NSH	5STF 07T1832	TR 918F-1590-14 NSD	5STF 16F1413
TR 907C-850-14 NSG	5STF 09T1425	TR 907FC-680-18 NSI	5STF 07T1840	TR 918F-1590-14 NSE	5STF 16F1416
TR 907F-530-22 NSG	5STF 05D2225	TR 907FC-680-20 NSH	5STF 07T2032	TR 918F-1690-12 NSF	5STF 17F1220
TR 907F-530-22 NSH	5STF 05D2232	TR 907FC-680-20 NSI	5STF 07T2040	TR 918F-1690-12 NSG	5STF 17F1225
TR 907F-530-24 NSG	5STF 05D2425	TR 907FC-740-12 NSD	5STF 07T1214	TR 918F-1690-14 NSF	5STF 17F1420
TR 907F-530-24 NSH	5STF 05D2432	TR 907FC-740-12 NSE	5STF 07T1217	TR 918F-1690-14 NSG	5STF 17F1425
TR 907F-560-18 NSF	5STF 06D1820	TR 907FC-740-14 NSD	5STF 07T1414	TR 918F-1790-10 NSC	5STF 18F1010
TR 907F-560-18 NSG	5STF 06D1825	TR 907FC-740-14 NSE	5STF 07T1417	TR 918F-1790-10 NSD	5STF 18F1013
TR 907F-560-20 NSF	5STF 06D2020	TR 918-1010-28-NSQ	5STF 10F2880	TR 918F-1790-12 NSC	5STF 18F1210
TR 907F-560-20 NSG	5STF 06D2025	TR 918-1010-28-NSR	5STF 10F2810	TR 918F-1790-12 NSD	5STF 18F1213
TR 907F-570-12 NSB	5STF 06D1208	TR 918-1010-30-NSQ	5STF 10F3080	TV 907-600-42 NIO	5STP 06D4200
TR 907F-570-12 NSC	5STF 06D1210	TR 918-1010-30-NSR	5STF 10F3010	TV 907-800-28 NKO	5STP 08D2801
TR 907F-570-14 NSB	5STF 06D1408	TR 918-1110-28-NSR	5STF 11F2810	TV 907-860-22 NKO	5STP 09D2201
TR 907F-570-14 NSC	5STF 06D1410	TR 918-1110-28-NSS	5STF 11F2812	TV 907C-600-42 NIO	5STP 06T4200
TR 907F-620-22 NSI	5STF 06D2240	TR 918-1110-30-NSR	5STF 11F3010	TV 907C-800-28 NKO	5STP 08T2800
TR 907F-620-22 NSL	5STF 06D2250	TR 918-1110-30-NSS	5STF 11F3012	TV 918-1200-42 NIO	5STP 12F4201
TR 907F-620-24 NSI	5STF 06D2440	TR 918-1210-18 NSI	5STF 12F1840	TV 918-1201-42 NIW	5STP 12F4240
TR 907F-620-24 NSL	5STF 06D2450	TR 918-1210-18 NSL	5STF 12F1850	TV 918-1500-28 NKO	5STP 16F2801
TR 907F-680-18 NSH	5STF 07D1832	TR 918-1210-20 NSI	5STF 12F2040	TV 918-1670-22 NKO	5STP 17F2201
TR 907F-680-18 NSI	5STF 07D1840	TR 918-1210-20 NSL	5STF 12F2050	TV 918C-1500-28 NKO	5STP 15T2800
TR 907F-680-20 NSH	5STF 07D2032	TR 918-1250-10-NSF	5STF 13F1020	TV 918C-1670-22 NKO	5STP 17T2200
TR 907F-680-20 NSI	5STF 07D2040	TR 918-1250-10-NSG	5STF 13F1025	TV 989-2100-36 NIO	5STP 21H3600
TR 907F-740-12 NSD	5STF 07D1214	TR 918-1250-12-NSF	5STF 13F1220	TV 989-2100-42 NIO	5STP 21H4200
TR 907F-740-12 NSE	5STF 07D1217	TR 918-1250-12-NSG	5STF 13F1225	TV 989-2101-36 NIW	5STP 21H3640
TR 907F-740-14 NSD	5STF 07D1414	TR 918-1410-18 NSN	5STF 14F1863	TV 989-2101-42 NIW	5STP 21H4240
TR 907F-740-14 NSE	5STF 07D1417	TR 918-1410-18 NSQ	5STF 14F1880	TV 989-2700-26 NKO	5STP 27H2601
TR 907FC-530-22 NSG	5STF 05T2225	TR 918-1410-20 NSN	5STF 14F2063	TV 989-2700-28 NKO	5STP 27H2801
TR 907FC-530-22 NSH	5STF 05T2232	TR 918-1410-20 NSQ	5STF 14F2080	TV 989-2860-22-NKO	5STP 29H2201
TR 907FC-530-24 NSG	5STF 05T2425	TR 918-1530-10-NSH	5STF 15F1032	TV 989C-2700-26 NKO	5STP 27T2600
TR 907FC-530-24 NSH	5STF 05T2432	TR 918-1530-10-NSI	5STF 15F1040	TV 989C-2700-28 NKO	5STP 27T2800
TR 907FC-560-18 NSF	5STF 06T1820	TR 918-1530-12-NSH	5STF 15F1232	TV 989C-2860-22 NKO	5STP 29T2200
TR 907FC-560-18 NSG	5STF 06T1825	TR 918-1530-12-NSI	5STF 15F1240	TP 907FC-320-20-NMI	5STR 03T2040
TR 907FC-560-20 NSF	5STF 06T2020	TR 918F-1190-18 NSG	5STF 12F1825	-	5SDF 63X0400
TR 907FC-560-20 NSG	5STF 06T2025	TR 918F-1190-18 NSH	5STF 12F1832	-	5SDF 63B0400
TR 907FC-570-12 NSB	5STF 06T1208	TR 918F-1190-20 NSG	5STF 12F2025	-	5SDF 0102C0400
TR 907FC-570-12 NSC	5STF 06T1210	TR 918F-1190-20 NSH	5STF 12F2032	-	5SDF 90Z0400
TR 907FC-570-14 NSB	5STF 06T1408	TR 918F-1490-18 NSI	5STF 15F1840	-	5SDF 0103Z0400
				-	5SDF 0131Z0400

Symbols

Symbol	Description
C_s	Snubber capacitance
di/dt_{\max}	Maximum rate of rise or decline of on-state current
F_m	Mounting force
I_c	DC collector current
I_{CM}	Peak collector current
I_F	Diode nominal mean forward current
I_{FAVM}	Max. average forward current (180° sine wave)
I_{FSM}	Max. surge peak forward current for a 180° sine wave; no voltage reapplied after surge
I_{RM}	Max. peak avalanche current for a single 180° sine wave pulse
I_{RMS}	Max. rms on-state current (AC full wave)
I_{rr}	Max. (typ. for IGBT diode) reverse recovery current
I_{TAVM}	Max. average on-state current (180° sine wave)
I_{TGQM}	Max. turn-off current
I_{TSM}	Max. surge peak on-state current for a 180° sine wave; no voltage reapplied after surge
M_m	Mounting torque
P_{RSM}	Max. surge avalanche power dissipation (single pulse)
Q_{rr}	Max. reverse recovery charge
r_F	Slope resistance
r_T	Slope resistance
R_{thCH}	Thermal resistance case to heatsink
R_{thJC}	Thermal resistance junction to case
R_{thJH}	Thermal resistance junction to heatsink
T_c	Case temperature
t_Q	Turn-off time
T_{vj}	Junction temperature
T_{vJM}	Max. junction temperature

Symbol	Description
V_{CES}	IGBT collector emitter voltage
V_{CEsat}	Collector-emitter saturation voltage
V_{DC}	Max. DC voltage rating for 100 FIT, 100% duty
V_{DRM}	Max. repetitive peak forward blocking voltage
V_F	Forward voltage drop
V_{F0}	Threshold voltage
V_{Fmax}	Max. forward voltage drop
V_{Fmin}	Min. forward voltage drop
V_{GIN}	Input voltage of IGCT gate drive
V_R	Symmetrical peak avalanche voltage at a sinusoidal current pulse with 20 A peak, 10 μ s pulse width and 60°C junction temperature
V_{RM}	Max. repetitive peak blocking voltage
V_{RRM}	Max. repetitive peak reverse blocking voltage
V_{RSM}	Max. surge peak reverse blocking voltage
V_T	On-state voltage drop
V_{T0}	Threshold voltage

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