



Asymmetric GTO Thyristors

ABB Semiconductors AG

- Patented free-floating silicon technology.
- All GTOs are turn-off tested under maximum ratings.
- Excellent trade-off between on-state and switching losses.
- Guaranteed reverse avalanche rating.

- Patentierter freier Druckkontakt.
- Alle GTOs werden unter Ausschalt-Grenzwerten getestet.
- Ausgezeichnete Optimierung zwischen Durchlass- und Schaltverlusten.
- Garantierte Rückwärts-Avalanche-Belastbarkeit.

- ・フリーフロート方式シリコンチップ (特許技術)
- ・全数最大定格でスイッチング 検査
- ・高速ターン オン 高di/dt対応の放射 状拡散ゲート
- ・逆方向アバランシェ定格に対する保証

Type and ordering number	V_{DRM}	V_{RRM}	I_{TQOM} at C_s		I_{TAVM}	I_{TSM}		V_T	V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Fig.
	V	V			A	μF	A	kA	kA	V					
			$T_C=85^\circ C$	8.3 ms							10 ms	I_{TGOM}	T_{VJM}		
				T_{VJM}							T_{VJM}	T_{VJM}			
Standard types, 2.5 kV Blocking.															
5SSGA 15F2502	2500	17	1500	3	600	10.6	10	2.5	1.45	0.7	125	27	8	15	1
5SSGA 20H2501	2500	17	2000	4	830	17.0	16	2.8	1.66	0.57	125	17	5	20	2
5SSGA 25H2501	2500	17	2500	6	830	17.0	16	3.1	1.66	0.57	125	17	5	20	2
5SSGA 30L2501	2500	17	3000	5	960	31.0	30	3.0	1.92	0.36	125	15	3	40	3
Standard types, 4.5 kV Blocking.															
New improved reliability versions															
5SSGA 20H4502	4500	17	2000	4	715	14.0	13	3.5	1.8	0.85	125	17	5	20	2
5SSGA 30L4502	4500	17	3000	6	790	25.0	24	4.0	2.2	0.6	125	15	3	40	3

Reverse Conducting GTO Thyristors

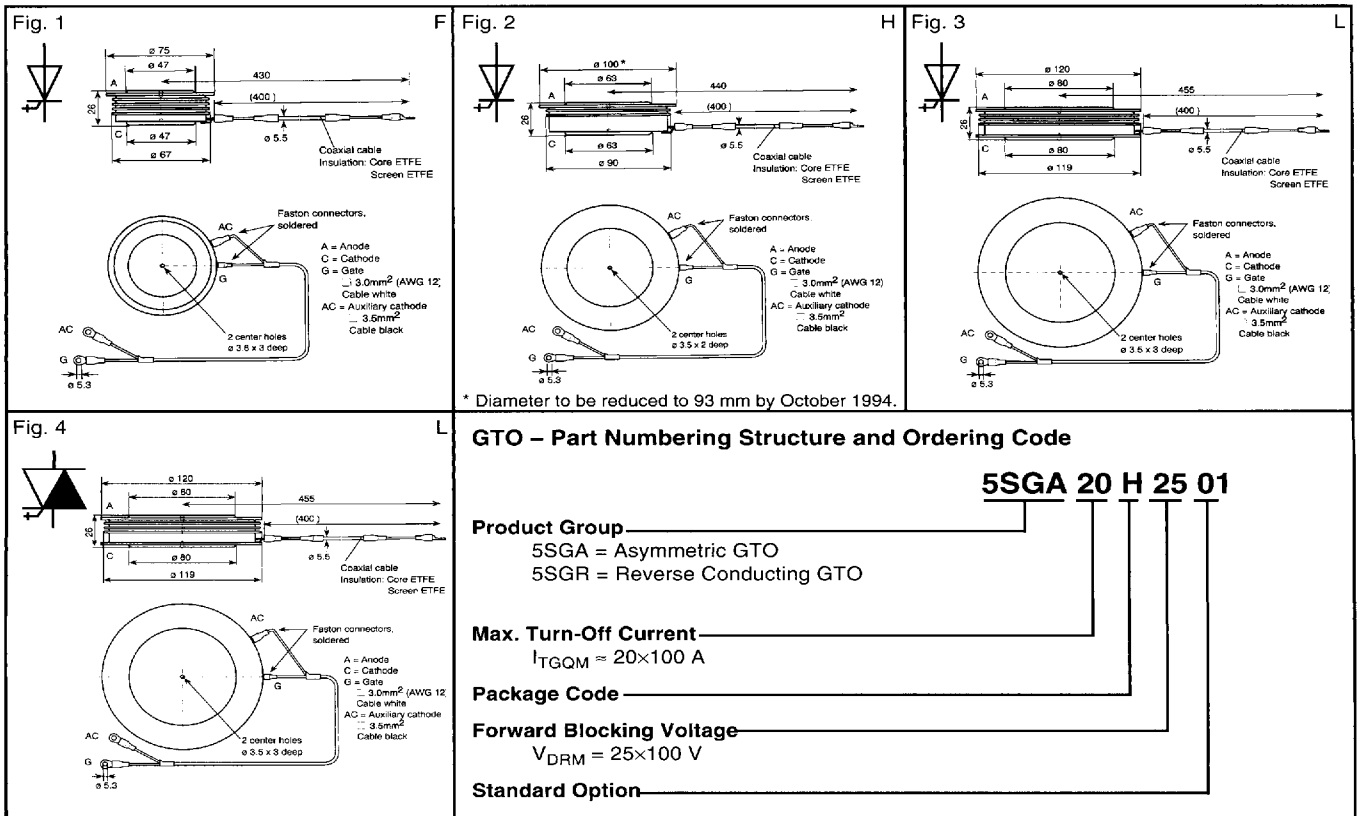
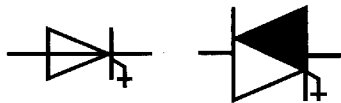
- Integration of asymmetric GTO and matched freewheeling diode.
- Device optimized for low switching losses.
- No stray inductance between GTO and diode.
- Can be driven by conventional gate drive unit.

- Asymmetrischer GTO und angepasste Freilaufdiode auf einer Siliziumscheibe.
- Optimierung für niedrige Schaltverluste.
- Keine Streuinduktivität zwischen GTO und Diode.
- Kann mit konventioneller Gate-Ansteuerung eingesetzt werden.

- ・一方向性GTOとマッチングしたフリーホイール ダイオードの一体化チップの採用
- ・低スイッチング ロス特性
- ・GTO/ダイオード間に浮遊インダクタンスが発生しない
- ・通常のゲート・ユニットで駆動可

Type and ordering number		V_{DRM}	I_{TGOM} at C_s		I_{TAVM}	I_{TSM}		V_T	V_{T0}	r_T	T_{VJM}	R_{thJC}	R_{thCH}	F_m	Fig.
					I_{FAVM}	I_{FSM}		V_F	V_{F0}	r_F					
					$T_C=85^{\circ}C$	$8.3\ ms$	$10\ ms$	I_{TGOM}	T_{VJM}						
						T_{VJM}	T_{VJM}	T_{VJM}							
		V	A	μF	A	KA	KA	V	V	m Ω	$^{\circ}C$	K/KW	K/KW	kN	
5SGR 20L2501	GTO part	2500	2000	3	790	17	16	3	1.8	0.6	125	17	3	40	4
	Diode part				645	17	16	2.5	1.5	0.5					
5SGR 20L4501	GTO part	4500	2000	3	715	13	12	3.5	2.05	0.7	125	17	3	40	4
	Diode part				525	11	10	3.5	1.65	0.9					

For previous part numbers, please refer to cross reference list, page 20.



Fast Recovery Diode Recommendations for GTOs

For all GTO types ABB also offers optimized freewheeling and snubber diodes. Actual choice of diode depends on specific application. For technical data on the diodes please refer to the pages 6–7.

GTO type	Recommended freewheeling diodes		Recommended snubber diodes	
5SGA 15F2502	5SDF 05D2500	5SDF 01R2501	5SDF 01R2501	
5SGA 20H2501	5SDF 05D2500	5SDF 11F2500	5SDF 01R2501	
5SGA 25H2501	5SDF 05D2500	5SDF 11F2500	5SDF 01R2501	
5SGA 20H4502	5SDF 04D4500	5SDF 08F4500	2 x 5SDF 01R2501	5SDF 04D4500
5SGA 30L2501		5SDF 11F2500	5SDF 01R2501	5SDF 05D2500
5SGA 30L4502	5SDF 08F4500	5SDF 13H4500	2 x 5SDF 01R2501	5SDF 04D4500
5SGR 20L2501	incl.	incl.	5SDF 01R2501	
5SGR 20L4501	incl.	incl.	2 x 5SDF 01R2501	5SDF 04D4500

Dimensions in mm.