

Diodes and thyristors in stud cases

From ABB s.r.o., Semiconductors, Czech Republic

ABB offer most frequently used types of diodes and thyristors in stud cases for spare parts

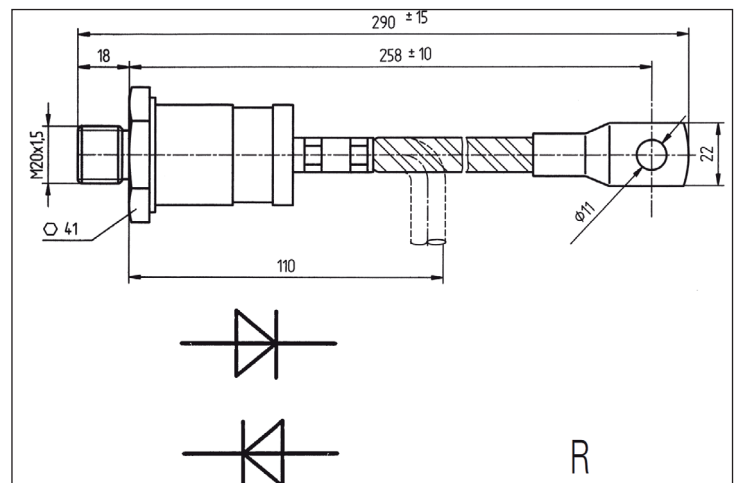


Main features:

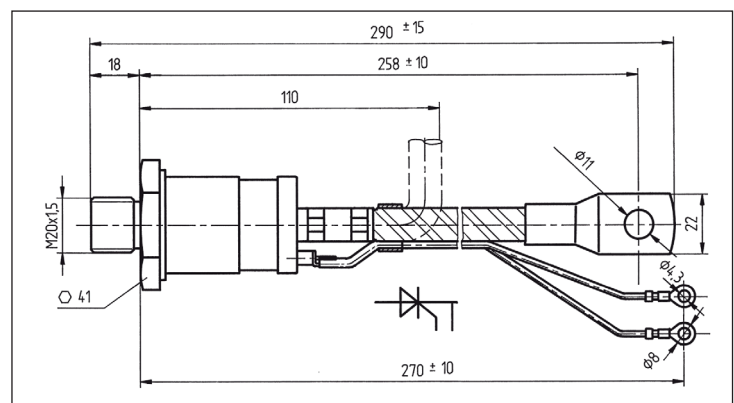
- stud packages
- reverse / blocking voltage up to 3 000 V
- average forward current up to 400 A
- optimized on-state parameters
- optimized reverse recovery or turn-off parameters
- high operating temperature up to 190°C

Applications:

Rectifiers, Controlled rectifiers, AC drives, Traction, Inverters, Power switching applications,...



Diodes



Thyristors

Rectifier Diodes

		V_{RFM}	I_{FAVn}	I_{FSM}	V_{TO}	r_T	V_{FM}/I_{FM}		R_{thjc}	M_m
			$T_c=85^\circ\text{C}$	T_{jmax} 10 ms	T_{jmax}	T_{jmax}	$T_j=25^\circ\text{C}$	T_{jmax}		
ABB part no.	old part no.	[V]	[A]	[kA]	[V]	[mΩ]	[V/A]	[°C]	[K/kW]	[Nm]
5SDD 03T1230	D 855-320-12	1200	401	5.5	0.875	1.176	1.55/1005	190	120	50
5SDD 03T1240	D 855-320R-12	1200	401	5.5	0.875	1.176	1.55/1005	190	120	50
5SDD 03T3030	DV 855-250-30	3000	302	4.5	0.84	1.532	1.55/1005	160	120	50
5SDD 03T3040	DV 855-250R-30	3000	302	4.5	0.84	1.532	1.55/1005	160	120	50

Fast recovery Diodes

		V_{RFM}	I_{FAVn}	I_{FSM}	V_{TO}	r_T	V_{FM}/I_{FM}	Q_{rr}	t_{rr}		R_{thjc}	M_m
			$T_c=85^\circ\text{C}$	T_{jmax} 10 ms	T_{jmax}	T_{jmax}	$T_j=25^\circ\text{C}$	T_{jmax}^*	T_{jmax}			
ABB part no.	old part no.	[V]	[A]	[kA]	[V]	[mΩ]	[V/A]	[μC]	[μs]	[°C]	[K/kW]	[Nm]
5SDF 03T2034	DR 855-250-20N	2000	276	5.5	0.982	0.875	1.80/785	375	4	140	120	50
5SDF 03T2044	DR 855-250R-20N	2000	276	5.5	0.982	0.875	1.80/785	375	4	140	120	50
5SDF 03T2035	DR 855-250-20P	2000	276	5.5	0.982	0.875	1.80/785	375	5	140	120	50
5SDF 03T2045	DR 855-250R-20P	2000	276	5.5	0.982	0.875	1.80/785	375	5	140	120	50

* $I_{FM} = 250 \text{ A}$, $di/dt = -50 \text{ A}/\mu\text{s}$, $V_R = 100 \text{ V}$

Phase control Thyristors

		V_{RFM} V_{DRM}	I_{TAVn}	I_{TSM}	V_{TO}	r_T	V_{TM}/I_{TM}	V_{GT}/I_{GT}	$(dv_G/dt)_{cr}$	$(di_T/dt)_{cr}$	t_q		R_{thjc}	M_m
			$T_c=70^\circ\text{C}$	T_{jmax} 10 ms	T_{jmax}	T_{jmax}	$T_j=25^\circ\text{C}$	$T_j=25^\circ\text{C}$	T_{jmax} 50Hz	T_{jmax} 50Hz	T_{jmax}^*	T_{jmax}		
ABB part no.	old part no.	[V]	[A]	[kA]	[V]	[mΩ]	[V/A]	[V/mA]	[V/μs]	[A/μs]	[μs]	[°C]	[K/kW]	[Nm]
5STP 03T1200	T 955-250-12NKO	1200	320	4.6	1.05	0.61	1.51/785	3/300	1000	200	200	125	100	50
5STP 02T1800	TV 955-200-18NHO	1800	290	3.7	1.04	1.06	1.59/630	3/300	1000	100	250	125	100	50
5STP 02T2000	TV 955-200-20NHO	2000	290	3.7	1.04	1.06	1.59/630	3/300	1000	100	250	125	100	50

* $I_{TM} = 250 \text{ A}$, $di/dt = -12.5 \text{ A}/\mu\text{s}$, $V_R = 100 \text{ V}$, $dv_G/dt = 50 \text{ V}/\mu\text{s}$, $V_D = 2/3 V_{DRM}$

Fast Thyristor

		V_{RFM} V_{DRM}	I_{TAVn}	I_{TSM}	V_{TO}	r_T	V_{TM}/I_{TM}	V_{GT}/I_{GT}	$(dv_G/dt)_{cr}$	$(di_T/dt)_{cr}$	t_q		R_{thjc}	M_m
			$T_c=70^\circ\text{C}$	T_{jmax} 10 ms	T_{jmax}	T_{jmax}	$T_j=25^\circ\text{C}$	$T_j=25^\circ\text{C}$	T_{jmax} 50Hz	T_{jmax} 50Hz	T_{jmax}^*	T_{jmax}		
ABB part no.	old part no.	[V]	[A]	[kA]	[V]	[mΩ]	[V/A]	[V/mA]	[V/μs]	[A/μs]	[μs]	[°C]	[K/kW]	[Nm]
5STF 0312T0050	TR 955-250-12 NKL A0301	1200	288	5.5	0.99	1.10	1.85/785	3/400	1000	200	50	125	100	50

* $I_{TM} = 250 \text{ A}$, $di/dt = -12.5 \text{ A}/\mu\text{s}$, $V_R = 100 \text{ V}$, $dv_G/dt = 50 \text{ V}/\mu\text{s}$, $V_D = 2/3 V_{DRM}$

Table 1 - Product range

Document Title	Document Number
Design of RC-snubbers for phase control applications	5SYA2020
Gate drive recommendations for phase control thyristors	5SYA2034
Field measurements on high power press pack semiconductors	5SYA2048
Voltage ratings of high power semiconductors	5SYA2051

Table 2 – Principal applications documents

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