Power Semiconductor Modules

Features

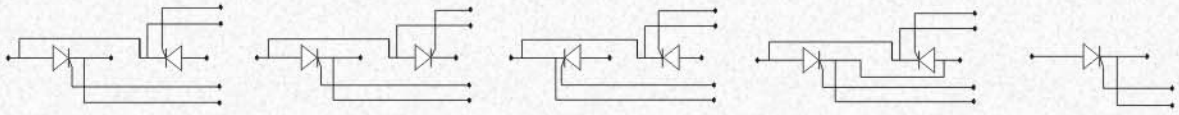
- Isolated mounting base
- International standard package
- Pressure contact technology with increased power cycling capability
- Space and weight saving
- Low forward voltage drop
- High surge current

Applications

- AC/DC motor drivers
- Various rectifiers
- Heater control
- Lighting control
- Contactless switches
- Soft-start AC motor control
- Welding power supplies
- DC supply for PWM inverter
- UPS and inverter welder
- Battery DC chargers or dischargers

Thyristor Modules

Type	$I_{T(AV)}$ A	$I_{T(AV)}$ @T_C ℃	V_{DRM} V_{RRM} V	I_{TSM} 10^3A	I_{DRM} I_{RRM} mA	di/dt A/μs	dv/dt V/μs	I_{GT} mA	V_{GT} V	I_H mA	V_{TO} V	r_T mΩ	$R_{th(j-c)}$ ℃/W	T_{vj} ℃	Fig
MTx25	25	85	600-1800	0.55	10	>50	>800	<50	<2	<50	0.90	9.80	0.95	125	SA
MTx40	40			1.00	10	>50		<150	<2	<150	0.86	5.60	0.68		
MTx55	55			1.25	10	>50		<150	<2	<150	0.87	3.70	0.54		
MTx70	70			1.60	15	>50		<150	<2	<150	0.90	2.65	0.42		
MTx90	90			2.00	15	>100		<150	<2	<150	0.90	2.84	0.30		SA
MTx110	110			2.40	20	>100		<150	<2	<150	0.80	2.34	0.26		SB
MTx130	130			3.60	30	>100		<150	<3	<150	0.90	2.12	0.20		SC
MTx160	160			5.40	30	>100		<150	<3	<150	0.90	1.53	0.17		
MTx200	200			7.20	30	>100		<200	<3	<200	0.85	1.34	0.13		SG
MTx250	250			8.50	30	>100		<200	<3	<200	0.85	0.90	0.12		
MTx300	300			9.30	40	>100		<200	<3	<200	0.85	0.75	0.10		SH
MTx350	350			11.0	40	>100		<200	<3	<200	0.90	0.50	0.09		SM
MTx400	400			12.0	80	>100		<200	<3	<200	0.85	0.49	0.08		SI
MTx500	500			14.5	80	>100		<200	<3	<200	0.85	0.40	0.06		
*MTx400	400	55		9.5	40	>100		<200	<3	<200	0.85	0.75	0.11		SD
*MTx500	500			12.0	80	>100		<200	<3	<200	0.85	0.65	0.08		SE
*MTx600	600			13.0	80	>100		<200	<3	<200	0.85	0.55	0.07		
*MTx800	800			16.0	80	>100		<200	<3	<200	0.85	0.45	0.05		SF
*MTx1000	1000			20.0	80	>100		<200	<3	<200	0.85	0.35	0.05		

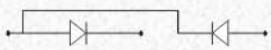


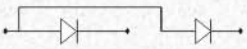
MTC MTA MTK MTX MT

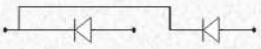
Notes : 1) If V_{DRM}/V_{RRM} =1800V, V_{ISO} (AC)>3000V, otherwise >2500V. For module with V_{DRM}/V_{RRM} from 1800 to 3000V, please contact us 2) * Water cooling

Diode Modules

Type	$I_{F(AV)}$ A	@T_C ℃	V_{RRM} V	I_{FSM} 10^3A	I_{RRM} mA	V_{FO} V	r_F mΩ	$R_{th(j-c)}$ ℃/W	V_{ISO} V	T_{vj} ℃	Fig
MDx25	25	100	600-1800	0.65	10	0.80	10.9	1.25	2500	150	SA
MDx40	40			1.00	10	0.80	6.00	0.90			
MDx55	55			1.30	10	0.80	3.80	0.70			
MDx70	70			1.8	15	0.76	2.70	0.56			
MDx90	90			2.30	15	0.77	2.20	0.45			SA
MDx110	110			2.60	20	0.80	1.75	0.35			SB
MDx130	130			3.90	30	0.80	1.45	0.30			SC
MDx160	160			6.00	30	0.79	1.35	0.23			
MDx200	200			8.00	30	0.76	0.90	0.20			
MDx250	250			11.0	30	0.78	0.88	0.14			SG
MDx300	300			12.5	40	0.80	0.65	0.13			
MDx350	350			15.0	40	0.80	0.61	0.11			SH
MDx400	400			17.0	80	0.78	0.50	0.10			SN
MDx500	500			19.0	80	0.75	0.32	0.09			SI
* MDx400	400	55		10.0	40	0.75	0.65	0.16			SD
* MDx500	500			12.0	40	0.75	0.40	0.16			
* MDx600	600			15.0	80	0.80	0.40	0.11			SE
* MDx800	800			18.0	80	0.80	0.30	0.09			SF
* MDx1000	1000			18.0	80	0.75	0.20	0.08			


MDC


MDA

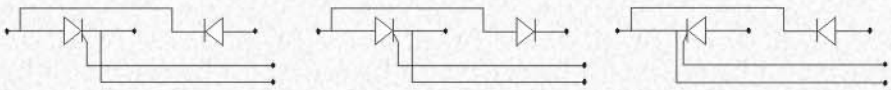

MDK


MD

Notes : 1) If V_{DRM}/V_{RRM} =1800V, V_{ISO} (AC)>3000V, otherwise >2500V. For module with V_{DRM}/V_{RRM} from 1800 to 3000V, please contact us 2) * Water cooling

Thyristor / Diode Modules

Type	$I_{T(AV)}$ A	@T_C ℃	V_{DRM} V_{RRM} V	I_{TSM} I_{FSM} 10^3A	I_{DRM} I_{RRM} mA	di/dt A/μs	dv/dt V/μs	I_{GT} mA	V_{GT} V	I_H mA	V_{TO} V	r_T mΩ	$R_{th(j-c)}$ ℃/W	T_{vj} ℃	Fig
MFx25	25	85	600-1800	0.55	10	>50	>800	<50	<2	<50	0.90	9.80	0.95	125	SA
MFx40	40			1.00	10	>50		<150	<2	<150	0.86	5.60	0.68		
MFx55	55			1.25	10	>50		<150	<2	<150	0.87	3.70	0.54		
MFx70	70			1.60	15	>50		<150	<2	<150	0.90	2.65	0.42		
MFx90	90			2.00	15	>100		<150	<2	<150	0.90	2.84	0.30		SA
MFx110	110			2.40	20	>100		<150	<2	<150	0.80	2.34	0.26		SB
MFx130	130			3.60	30	>100		<150	<3	<150	0.90	2.12	0.20		SC
MFx160	160			5.40	30	>100		<150	<3	<150	0.90	1.53	0.17		
MFx200	200			7.20	30	>100		<200	<3	<200	0.85	1.34	0.13		SG
MFx250	250			8.50	30	>100		<200	<3	<200	0.85	0.90	0.12		
MFx300	300			9.30	40	>100		<200	<3	<200	0.85	0.75	0.10		SH
MFx350	350			11.0	40	>100		<200	<3	<200	0.90	0.50	0.09		
MFx400	400			12.0	80	>100		<200	<3	<200	0.85	0.49	0.08		SI
MFx500	500			14.5	80	>100		<200	<3	<200	0.85	0.40	0.06		
*MFx400	400	55		9.5	40	>100		<200	<3	<200	0.85	0.75	0.11		SD
*MFx500	500			12.0	80	>100		<200	<3	<200	0.85	0.65	0.08		SE
*MFx600	600			13.0	80	>100		<200	<3	<200	0.85	0.55	0.07		
*MFx800	800			16.0	80	>100		<200	<3	<200	0.85	0.45	0.05		SF



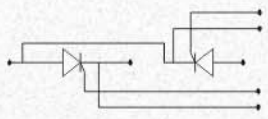
MFC MFA MFK

Notes : 1) If V_{DRM}/V_{RRM} =1800V, V_{ISO} (AC)>3000V, otherwise >2500V. For module with V_{DRM}/V_{RRM} from 1800 to 3000V, please contact us 2) * Water cooling

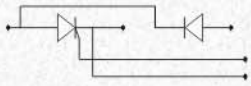
Fast Turn-off Thyristor / Fast Recovery Diode Modules

Type		$I_{T(AV)}$ A	$I_{T(AV)}$ @T_C ℃	V_{DRM} V_{RRM} V	I_{TSM} 10^3A	I_{DRM} I_{RRM} mA	di/dt A/μs	dv/dt V/μs	I_{GT} mA	V_{GT} V	I_H mA	V_{TO} V	r_T mΩ	$R_{th(j-c)}$ ℃/W	tq μs	T_{vj} ℃	Fig
MKC MHC	160	160	85	600-1600	4.3	30	>200	>800	<150	<3	<150	0.86	1.66	0.14	15-35	115	SG
	200	200			5.6	30	>200		<200	<3	<200	0.90	1.17	0.10			SH
	300	300			7.8	40	>200		<200	<3	<200	0.88	0.80	0.07			SI
	*300	300	55		6.0	50	>200		<200	<3	<300	0.90	1.17	0.11	15-35		SE
	*400	400			8.0	70	>200		<200	<3	<300	0.90	0.80	0.08			SF

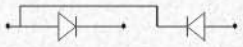
Type	$I_{T(AV)}$ A	$I_{T(AV)}$ @T_C ℃	V_{RRM} V	I_{FSM} 10^3A	I_{RRM} mA	V_{FO} V	r_F mΩ	$R_{th(j-c)}$ ℃/W	trr μs	T_{vj} ℃	Fig
MZC160	160	100	600-1600	4.5	30	0.85	1.40	0.18	2.0	140	SG
MZC200	200			6.0	30	0.88	0.95	0.14	3.0		SH
MZC300	300			8.3	40	0.86	0.60	0.10	3.0		SI
MZC*300	300	60		6.5	50	0.85	1.08	0.16	3.0		SE
MZC*400	400			8.5	60	0.85	0.70	0.13	3.0		SF



MKC



MHC

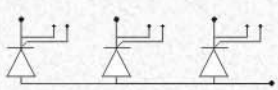


MZC

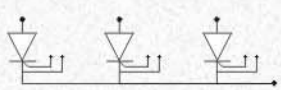
Note: 1) V_{ISO}(AC)>2500V 2) * Water cooling

Thyristor Modules (Non-isolated type)

Type	$I_{T(AV)}$ A	$I_{T(AV)}$ @T_C ℃	V_{DRM} V_{RRM} V	I_{TSM} 10^3A	I_{DRM} I_{RRM} mA	di/dt A/μs	dv/dt V/μs	I_{GT} mA	V_{GT} V	I_H mA	V_{TO} V	r_T mΩ	$R_{th(j-c)}$ ℃/W	T_{vj} ℃	Fig
MTx60	60	90	600-1600	1.8	10	>100	>800	<50	<2	<50	0.85	5.40	0.42	125	SO
MTx80	80			2.6	10	>100		<150	<2	<150	0.86	2.70	0.25		
MTx130	130			4.4	15	>100		<150	<2	<150	0.85	1.74	0.18		SO
MTx160	160			5.0	15	>100		<150	<2	<150	0.85	1.54	0.15		
MTx200	200			6.8	20	>100		<150	<2	<150	0.85	1.15	0.10		SP
MTx300	300			9.3	20	>100		<150	<2	<150	0.85	0.72	0.09		



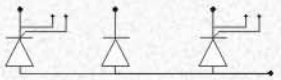
MTG



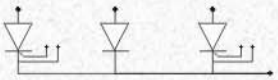
MTY

Thyristor / Diode Modules (Non-isolated type)

Type	$I_{T(AV)}$ A	@T_C ℃	V_{DRM} V_{RRM} V	I_{TSM} 10^3A	I_{DRM} I_{RRM} mA	di/dt A/μs	dv/dt V/μs	I_{GT} mA	V_{GT} V	I_H mA	V_{TO} V	r_T mΩ	$R_{th(j-c)}$ ℃/W	T_{vj} ℃	Fig
MFx60	60	90	600-1600	1.8	10	>100	>800	<50	<2	<50	0.85	5.40	0.42	125	SO
MFx80	80			2.6	10	>100		<150	<2	<150	0.86	2.70	0.25		
MFx130	130			4.4	15	>100		<150	<2	<150	0.85	1.74	0.18		SS
MFx160	160			5.0	15	>100		<150	<2	<150	0.85	1.54	0.15		
MFx200	200			6.8	20	>100		<150	<2	<150	0.85	1.15	0.10		SP
MFx300	300			9.3	20	>100		<150	<2	<150	0.85	0.72	0.09		



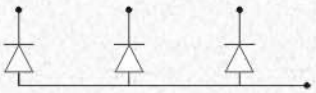
MFG



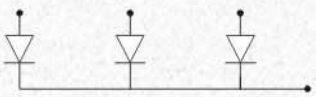
MFY

Diode Modules (Non-isolated type)

Type	$I_{F(AV)}$ A	@T_C ℃	V_{RRM} V	I_{FSM} 10^3A	I_{RRM} mA	V_{FO} V	r_F mΩ	$R_{th(j-c)}$ ℃/ W	T_{vj} ℃	Fig
MDx60	60	100	600-1800	2.0	8	0.80	4.70	0.60	150	SO
MDx80	80			3.6	8	0.80	2.70	0.50		
MDx130	130			5.0	12	0.80	2.00	0.26		SS
MDx160	160			5.8	12	0.80	1.70	0.22		
MDx200	200			8.0	15	0.77	0.96	0.18		SP
MDx300	300			11.0	15	0.80	0.65	0.13		



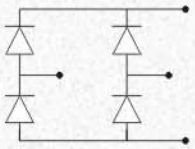
MDG



MDY

Single Phase Rectification Bridge Modules

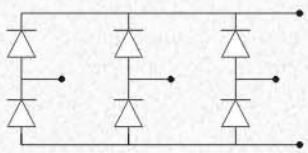
Type	I_O A	I_O @T_C ℃	V_{RRM} V	I_{FSM} 10^3A	I_{RRM} mA	V_{FO} V	r_F mΩ	$R_{th(j-c)}$ ℃/W	V_{ISO} V	T_{vj} ℃	Fig
MDQ50	50	100	600-1800	0.55	5	0.80	8	1.45	2500	150	WM13
MDQ75	75			0.75	5	0.80	5	1.20			
MDQ100	100			1.20	5	0.80	5	1.10			
MDQ160	160			1.80	5	0.80	3	0.65			WM14
MDQ200	200			2.20	8	0.80	3	0.45			



MDQ

Three Phases Rectification Bridge Modules

Type	I_O A	I_O @T_C ℃	V_{RRM} V	I_{FSM} 10^3A	I_{RRM} mA	V_{FO} V	r_F mΩ	$R_{th(j-c)}$ ℃/W	V_{ISO} V	T_{vj} ℃	Fig
MDS75	75	100	600-1800	1.0	10	0.80	4.70	0.36	2500	150	SQ
MDS100	100			1.5	10	0.80	4.33	0.29			
MDS160	160			2.6	10	0.80	1.80	0.18			SR
MDS200	200			3.2	15	0.80	1.60	0.15			



MDS

IGBT (Insulated Gate Bipolar Transistor)

Features:

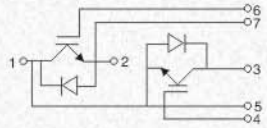
- SPT chip (Soft-punch-through technology)
- MOS input control
- Ultra thin IGBT chip, great current, low loss, low tail current
- Low $V_{CE(SAT)}$ with positive temperature coefficient
- High switch frequency, low switch loss
- High SC resistive ability
- Optimum EMC property
- Long creepage distance
- DBC insulated voltage =2,500V RMS
- 'Vacuum +H_2' process gas atmosphere, nearly voidless soldering results
- Ultrasonic scan technique, assure soldering quality

Applications:

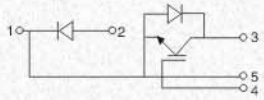
- AC and DC electric motor control
- Frequency transformer
- UPS
- Industrial power supply
- Electric welding machine

Series SGG50/75/100/150/200/300

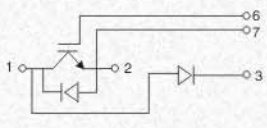
Type	IGBT						Diode				Outline
	I_C @T_C= 80℃ A	V_{CES} V	V_{GES} V	$V_{GE(TH)}$ V	V_{ISO} V	T_{vj} ℃	I_F @T_C= 80℃ A	I_{FRM} @T_C= 80℃ A	I_{FSM} @T_C= 125℃ A	trr ns	
SGG50-12CS1	50	1200	±20	4.5-7.5	2500	150	50	100	500	400	WI-1
SGG50-12RS1											
SGG50-12LS1											
SGG75-12CS1	75	1200	±20	4.5-7.5	2500	150	75	150	700	200	WI-1
SGG75-12RS1											
SGG75-12LS1											
SGG100-12CS1	100	1200	±20	4.5-7.5	2500	150	95	190	1000	200	WI-1
SGG100-12RS1											
SGG100-12LS1											
SGG150-12CS2	150	1200	±20	4.5-7.5	2500	150	150	300	1400	200	WI-2
SGG150-12RS2											
SGG150-12LS2											
SGG200-12CS2	200	1200	±20	4.5-7.5	2500	150	200	400	1800	200	WI-2
SGG200-12RS2											
SGG200-12LS2											
SGG300-12CS2	300	1200	±20	4.5-7.5	2500	150	300	600	2200	220	W I-2
SGG300-12RS2											
SGG300-12LS2											



SGG50/75/100-12CS1
SGG150/200/300-12CS2



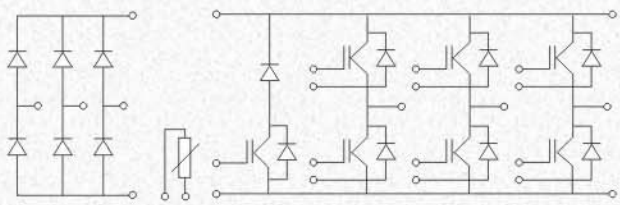
SGG50/75/100-12RS1
SGG150/200/300-12RS2



SGG50/75/100-12LS1
SGG150/200/300-12LS2

Series SGG25

Type	IGBT						Bridge		Diode				Outline
	I_C @T_C= 80℃ A	V_{CES} V	V_{GES} V	$V_{GE(TH)}$ V	V_{ISO} V	T_{vj} ℃	I_O @T_C= 80℃ A	V_{RRM} V	I_F @T_C= 80℃ A	I_{FRM} @T_C= 80℃ A	I_{FSM} @T_C= 125℃ A	trr ns	
SGG25-129S3	25	1200	±20	4.5-7.5	2500	125	30	1600	25	50	200	150	WI-3



SGG25-129S3

FRD (Fast Recovery Diode)

Features:

- 'Vacuum +H_2' process gas atmosphere, nearly voidless soldering results
- Ultrasonic scan technique, assure soldering quality

Applications:

- AC and DC electric motor control
- Frequency transformer
- UPS
- Industrial power supply
- Electric welding machine

Type	$I_{F(AV)}$ @T_C= 85℃ A	V_{RRM} V	I_{RRM} @T_C= 125℃ mA	V_{FM} V	trr ns	V_{ISO} V	T_{vj} ℃	Outline
MZC100	100	1200	40	2.1	200	2500	150	WI-1
MZC200	200	1200	40	2.1	200	2500	150	WI-2
MZC300	300	1200	40	2.1	220	2500	150	
MZKB200	200	400	3	1.3	75		150	FRD-3
MZAB200	200	400	3	1.3	75		150	

MZC MZKB MZAB

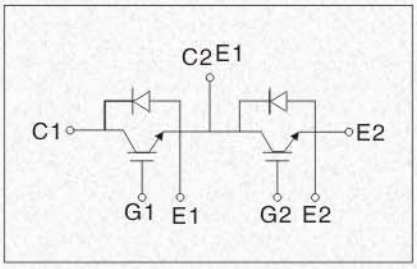
Half-bridge IGBT Module

Features:

- Smarted trench gate technology design
- 10μs short circuit capability
- Low turn-off losses
- Short tail current for over 18kHz, 20kHz
- Positive $V_{CE(ON)}$ temperature coefficient

Applications:

- AC & DC motor controls
- Electrolysis machine
- VVVF inverters
- High frequency SMPS
- Optimized for high frequency inverter type welding machines
- Servo control
- UPS, EPS
- Robotics



Series SIM75D12SV1 / SIM100D12SV1 / SIM150D12SV3 / SIM200D12SV3

Absolute Maximum Ratings @T_c=25℃ (per leg, for reference only)

Type	I_C @T_C= 80℃ A	V_{CES} @V_{GE}=0V V	I_C mA	V_{GES} V	I_{CM} A	T_C ℃	I_F (diode) A	T_C ℃	I_{FM} (diode) A	t_{SC} μs	V_{ISO} @AC 1min V	T_j ℃	T_{stg} ℃	Outline
SIM75D12SV1	75	1200	0.5	±20	150	80	75	80	150	10	2750	-40～150	-40～125	HV1
SIM100D12SV1	100				200	25	100	80	200		2500			
							140	25						
SIM150D12SV3	150	1280	1.0	±20	300	80	150	80	300	10	2500	-40～150	-40～125	HV3
SIM200D12SV3	200	1200			400	25	200	80	400					
							260	25						

Electrical Characteristics @Tj=25℃ (for reference only)

Type	$V_{(BR)CES}$ @V_{GE}=0V V	I_C mA	$V_{CE(ON)}$ @V_{GE}=15V V	I_C A	$V_{GE(th)}$ @V_{CE}=V_{GE} V	I_C μA	I_{CES} @V_{GE}=0V V_{CE}=1200V μA	I_{GES} @V_{CE}=0V V_{GE}=±20V μA	V_{FM} (diode) V	I_C A	C_{ies} pF	$t_{d(on)}$ ns	t_r ns	t_{rr} (diode) ns
SIM75D12SV1	1400	0.2	1.7	75	6.0	500	300	±0.4	1.6	75	6000	100	40	160
SIM100D12SV1	1374		2.1	100	6.5	250	500	±0.1	2.1	100	8653	342	45	100
SIM150D12SV3	1400	1.0	1.8	150	6.0	500	300	±0.5	1.4	150	9000	150	60	165
SIM200D12SV3	1200		2.15	200	6.5	500	1000	±0.2	2.15	200	17306	300	108	250

SIM400D06AV3

Absolute Maximum Ratings @T_C=25℃ (per leg, for reference only)

Type	I_C @T_C= 80℃ A	V_{CES} V	V_{GES} V	I_{CP} A	I_F (diode) @T_C=80℃ A	I_{FM} (diode) A	t_p μs	t_p T_C ℃	V_{ISO} @AC 1min V	T_j ℃	T_{stg} ℃	Outline
SIM400D06AV3	400	600	±20	800	400	800	6	150	2500	-40～150	-40～125	HV3
							8	25				

Static Characteristics @T_j=25℃ (for reference only)

Type	$V_{CE(ON)}$ @ I_C=400A V_{GE}=15V V	$V_{GE(th)}$ @ V_{CE}= V_{GE} I_C=8mA V	I_{CES} @ V_{GE}=0V V_{CE}=600V mA	I_{GES} @V_{CE}=0V V_{GE}=20V μA	V_{FM} (diode) @ I_F=400A V	R_{GINT} Ω	C_{ies} pF	$t_{d(on)}$ ns	t_r ns	t_{rr} (diode) ns	Q_{rr} (diode) μC
SIM400D06AV3	1.95	6.5	5.0	0.4	2.0	1	24670	145	60	125	20.3

IGBT Modules—1200V

Part number	V_{DRM} V	I_C A	T_C ℃	$I_{C(PK)}$ A	V_F V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT modules—Bi-directional switch										
DIM200WBS12-A	±1200	200	80	400	4.3	67	87	W	107×62	Cu

Part number	I_C A	T_C ℃	$I_{C(PK)}$ A	$V_{CE(SAT)}$ @T_C=25℃ V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT modules—Chopper									
DIM200WKS12-A	200	80	400	2.2	67	90	W	107×62	Cu
DIM200WLS12-A	200	80	400	2.2	67	90	W	107×62	Cu
DIM400WKS12-A	400	80	800	2.2	120	45	W	107×62	Cu
DIM400WLS12-A	400	80	800	2.2	120	45	W	107×62	Cu
DIM800DCS12-A	800	85	1600	2.2	280	18	D	140×130	Cu
DIM800DCM12-A	800	80	1600	2.2	280	18	D	140×130	AlSiC
IGBT modules—Dual switch									
DIM400DDM12-A	400	85	800	2.2	120	36	D	140×130	AlSiC
DIM400DDS12-A	400	85	800	2.2	120	36	D	140×130	Cu
DIM600DDS12-A	600	85	1200	2.2	200	24	D	140×130	Cu
DIM800DDM12-A	800	85	1600	2.2	280	18	D	140×130	AlSiC
DIM800DDS12-A	800	85	1600	2.2	280	18	D	140×130	Cu
IGBT modules—Half bridge									
DIM200WHS12-A	200	80	400	2.2	67	90	W	107×62	Cu
DIM300WHS12-A	300	80	600	2.2	90	67	W	107×62	Cu
DIM400WHS12-A	400	80	800	2.2	120	45	W	107×62	Cu
IGBT modules—Single switch									
DIM400BSS12-A	400	70	800	1.7	120	45	B	107×62	Cu
DIM600BSS12-A	600	80	1200	2.2	180	30	B	107×62	Cu
DIM800FSM12-A	800	85	1600	2.2	280	18	F	140×130	AlSiC
DIM800FSS12-A	800	85	1600	2.2	280	18	F	140×130	Cu
DIM1200FSM12-A	1200	85	2400	2.2	400	12	F	140×130	AlSiC
DIM1200FSS12-A	1200	85	2400	2.2	400	14	F	140×130	Cu
DIM1600FSM12-A	1600	85	3200	2.2	500	9	F	140×130	AlSiC
DIM1600FSS12-A	1600	85	3200	2.2	500	9	F	140×130	Cu
DIM1800ESM12-A	1800	85	3600	2.2	570	8	E	190×140	AlSiC
DIM1800ESS12-A	1800	85	3600	2.2	570	8	E	190×140	Cu
DIM2400ESM12-A	2400	85	4800	2.2	800	6	E	190×140	AlSiC
DIM2400ESS12-A	2400	85	4800	2.2	800	6	E	190×140	Cu

IGBT Modules—1700V

Part number	V_{DRM} V	I_C A	T_C ℃	$I_{C(PK)}$ A	V_F V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT Modules—Bi-directional switch										
DIM400PBM17-A	±1700	400	75	800	4.9	350	36	P	140×73	AlSiC

Part number	I_C A	T_C ℃	$I_{C(PK)}$ A	$V_{CE(SAT)}$ @T_C=25℃ V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT Modules—Chopper									
DIM200WKS17-A (upper arm control)	200	65	400	2.7	140	90	W	107×62	Cu
DIM200WLS17-A (upper arm control)	200	65	400	2.7	140	90	W	107×62	Cu
DIM400DCM17-A	400	75	800	2.7	270	36	D	140×130	AlSiC
DIM600DCM17-A	600	70	1200	2.7	620	24	D	140×130	AlSiC
DIM800DCM17-A	800	75	1600	2.7	785	18	D	140×130	AlSiC
IGBT Modules—Dual switch									
DIM400DDM17-A	400	75	800	2.7	350	36	D	140×130	AlSiC
DIM600DDM17-A	600	75	1200	2.7	620	27	D	140×130	AlSiC
DIM800DDM17-A	800	75	1600	2.7	700	18	D	140×130	AlSiC
IGBT Modules—Half bridge									
DIM200WHS17-A	200	65	400	2.7	140	90	W	107×62	Cu
DIM300WHS17-A	300	65	600	2.7	260	67	W	107×62	Cu
DIM400PHM17-A	400	75	800	2.7	350	36	P	140×73	AlSiC
DIM400WHS17-A	400	65	800	2.7	350	45	W	107×62	Cu
IGBT Modules—Single switch									
DIM400BSS17-A	400	65	600	2.7	250	45	B	107×62	Cu
DIM600BSS17-A	600	65	1200	2.7	530	30	B	107×62	Cu
DIM800FSM17-A	800	75	1600	2.7	700	18	F	140×130	AlSiC
DIM1200FSM17-A	1200	85	2400	2.7	1000	12	F	140×130	AlSiC
DIM1600FSM17-A	1600	75	3200	2.7	1250	9	F	140×130	AlSiC
DIM2400ESM17-A	2400	75	4800	2.7	1950	6	E	190×140	AlSiC

IGBT Modules—3300V

Part number	I_C A	T_C ℃	$I_{C(PK)}$ A	$V_{CE(SAT)}$ @T_C=25℃ V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT Modules—Chopper									
DIM200PKM33-F	200	90	400	2.8	655	48	P	140×73	AlSiC
DIM200PLM33-F	200	90	400	2.8	655	48	P	140×73	AlSiC
DIM400GCM33-F	400	90	800	2.8	1470	24	G	140×130	AlSiC
DIM800ECM33-F	800	90	1600	2.8	2950	12	E	190×140	AlSiC
IGBT Modules—Dual switch									
DIM400GDM33-F	400	90	800	2.8	1470	24	G	140×130	AlSiC
IGBT modules—Half bridge									
DIM100PHM33-F	100	90	200	2.8	335	96	P	140×73	AlSiC
DIM200PHM33-F	200	90	400	2.8	655	48	P	140×73	AlSiC
IGBT Modules—Single switch									
DIM800NSM33-F	800	90	1600	2.8	2950	12	N	140×130	AlSiC
DIM800XSM33-F	800	90	1600	2.8	2980	12	X	140×130	AlSiC
DIM1200ESM33-F	1200	90	2400	2.8	4400	8	E	190×140	AlSiC

IGBT Modules—4500V

Part number	I_C A	T_C ℃	$I_{C(PK)}$ A	$V_{CE(SAT)}$ @T_C=25℃ V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT Modules—Chopper									
DIM300XCM45-F	300	1000	600	2.9	2200	24	X	140×130	AlSiC
IGBT Modules—Single switch									
DIM600NSM45-F	600	90	1200	2.9	4400	12	N	140×130	AlSiC
DIM600XSM45-F	600	90	1200	2.9	4400	12	X	140×130	AlSiC
DIM900ESM45-F	900	90	1800	2.9	6500	8	E	190×140	AlSiC

IGBT Modules—6500V

Part number	I_C A	T_C ℃	$I_{C(PK)}$ A	$V_{CE(SAT)}$ @T_C=25℃ V	Total E_{sw} @T_C=125℃ mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Baseplate dims mm	Baseplate material
IGBT Modules—Single switch									
DIM400XSM65-K	400	90	800	4	5250	15	X	140×130	AlSiC

FRD Modules (for use with IGBT modules)

1200V Diodes

Part number	I_F A	T_C ℃	I_F as single diode (with external connection) A	I_{FM} A	V_F @ T_j=25℃ V	I^2t kA²	Q_{rr} @ T_{vj} μC	E_{rec} @ T_{vj} mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Base plate dims mm	Base plate material
Fast Recovery Diode Modules—Dual diode												
DFM600FXM12-A	600	75	1200	1200	1.9	100	150	70	40	F	140×130	AlSiC
DFM600FXS12-A	600	75	1200	1200	1.9	100	150	70	40	F	140×130	Cu
DFM900FXM12-A	900	75	1800	1800	1.9	150	225	105	27	F	140×130	AlSiC
DFM900FXS12-A	900	75	1800	1800	1.9	150	225	105	27	F	140×130	Cu
DFM1200FXM12-A	1200	75	2400	2400	1.9	200	300	140	20	F	140×130	AlSiC
DFM1200FXS12-A	1200	75	2400	2400	1.9	200	300	140	20	F	140×130	Cu
Fast Recovery Diode Modules—Series pair												
DFM300WXS12-A	300	70	NA	600	2.0	25	85	32	100	W	107×62	Cu
DFM300WXS12-A	300	65	NA	600	2.0	30	170	100	100	W	107×62	Cu
Fast Recovery Diode Modules—Single diode												
DFM300BXS12-A	300	70	NA	600	2.0	25	85	32	100	B	107×62	Cu
DFM600BXS12-A	600	70	NA	1200	2.0	56	170	65	50	B	107×62	Cu
Fast Recovery Diode Modules—Triple diode												
DFM1200EXM12-A	1200	75	3600	2400	1.9	200	300	140	20	E	190×140	AlSiC
DFM1200EXS12-A	1200	75	3600	2400	1.9	200	300	140	20	E	190×140	Cu

1700V Diodes

Part number	I_F A	T_C ℃	I_{FM} A	V_F @ T_j=25℃ V	I^2t kA²	Q_{rr} @ T_{vj} μC	E_{rec} @ T_{vj} mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Base plate dims mm	Base plate material
Fast Recovery Diode Modules—Series pair											
DFM300WXS17-A	300	65	600	2.0	30	170	100	100	W	107×62	Cu
Fast Recovery Diode Modules—Single diode											
DFM300BXS17-A	300	65	600	2.0	30	170	100	100	B	107×62	Cu
DFM600BXS17-A	600	65	1200	2.0	67.5	255	150	50	B	107×62	Cu

1800V Diodes

Part number	I_F A	T_C ℃	I_F as single diode (with external connection) A	I_{FM} A	V_F @ T_j= 25℃ V	I^2t kA^2	Q_{rr} @T_{vj} μC	E_{rec} @T_{vj} mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Base plate dims mm	Base plate material
Fast Recovery Diode Modules—Dual diode												
DFM600FXM18-A	600	75	1200	1200	2.0	120	160	120	40	F	140×130	AlSiC
DFM900FXS18-A	900	75	1800	1800	2.0	270	410	270	27	F	140×130	AlSiC
DFM1200FXM18-A	1200	75	2400	2400	2.0	480	540	360	20	F	140×130	AlSiC
Fast Recovery Diode Modules—Triple diode												
DFM1200EXM18-A	1200	75	3600	2400	2.0	480	540	360	20	E	190×140	AlSiC

3300V Diodes

Part number	I_F A	T_C ℃	I_F as single diode (with external connection) A	I_{FM} A	V_F @ T_j= 25℃ V	I^2t kA^2	Q_{rr} @T_{vj} μC	E_{rec} @T_{vj} mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Base plate dims mm	Base plate material
Fast Recovery Diode Modules—Dual diode												
DFM400NXM33-A	400	70	800	800	2.5	80	450	550	52	N	140×130	AlSiC
DFM400NXM33-F	400	68	800	800	2.9	80	300	300	48	N	140×130	AlSiC
DFM800NXM33-A	800	70	1600	1600	2.5	320	670	850	26	N	140×130	AlSiC
DFM800NXM33-F	800	68	1600	1600	2.9	320	600	600	24	N	140×130	AlSiC
DFM1200NXM33-A	1200	75	2400	2400	2.5	720	1000	1250	17	N	140×130	AlSiC
DFM1200NXM33-F	1200	68	2400	2400	2.9	720	900	900	16	N	140×130	AlSiC
Fast Recovery Diode Modules—Series diode pair												
DFM100PXM33-A	100	70	NA	200	2.5	10	95	110	216	P	140×73	AlSiC
DFM100PXM33-F	100	68	NA	200	2.9	5	65	65	192	P	140×73	AlSiC
DFM200PXM33-A	200	70	NA	400	2.5	20	190	220	108	P	140×73	AlSiC
DFM200PXM33-F	200	68	NA	400	2.9	20	125	130	96	P	140×73	AlSiC
DFM400PXM33-A	400	70	NA	800	2.5	80	450	550	54	P	140×73	AlSiC
DFM400PXM33-F	400	68	NA	800	2.9	80	300	300	48	P	140×73	AlSiC

4500V and 6500V Diodes

Part number	I_F A	T_C ℃	I_F as single diode (with external connection) A	I_{FM} A	V_F @ T_j= 25℃ V	I^2t kA^2	Q_{rr} @T_{vj} μC	E_{rec} @T_{vj} mJ	$R_{th(j-c)}$ per arm ℃/kW	Outline code	Base plate dims mm	Base plate material
Fast Recovery Diode Modules—Dual diode												
DFM450NXM45-F	450	80	900	900	3.0	TBA	650	800	32	N	140×130	AlSiC
DFM600NXM45-F	600	80	1200	1200	3.0	TBA	850	1050	24	N	140×130	AlSiC
DFM600XXM45-F	600	80	1200	1200	3.0	TBA	850	1050	24	X	140×130	AlSiC
DFM900NXM45-F	900	80	1800	1800	3.0	TBA	1300	1600	16	N	140×130	AlSiC
Fast Recovery Diode Modules—Dual diode												
DFM400XXM65-K	400	75	800	800	3.6	97	1000	2000	30	X	140×130	AlSiC
DFM600XXM65-K	600	75	1200	600	3.6	218	1500	3000	20	X	140×130	AlSiC

Intelligent Power Modules

Intelligent Three-phase Motor Soft-start Module

Applications

- Drag AC motor soft-start

Features

- Subminiature SCM intelligent control, LED display, tiny keyboard data input
- Adjust soft-start mode by load demand, slope voltage start
- Sudden jump+slope voltage start, step start, limit current start
- The value of starting voltage, current and time is adjustable, assure the least start torque of motor
- Free shut down and soft shut down, the time of soft shut down is adjustable

Model	Current/Voltage	Motor power	Outline
SGIPDMTA2-150	3×150A/450V	＜17kW	WM16
SGIPDMTA2-200	3×200A/450V	17－22kW	
SGIPDMTA2-300	3×300A/450V	22－37kW	
SGIPDMTA2-350	3×350A/450V	37－45kW	
SGIPDMTA2-440	3×440A/450V	45－55kW	
SGIPDMTA2-500	3×500A/450V	55－75kW	

Intelligent Single-phase AC Module (single-phase AC voltage-regulation, various protections)

Introduction

The product is a multi functional power-integrated module which is encapsulated together by thyristor power circuit, phase-shift trigger control circuit, signal-check circuit, PI modulation circuit, feedback circuit and protection circuit etc. It can realize voltage-regulation.

Features

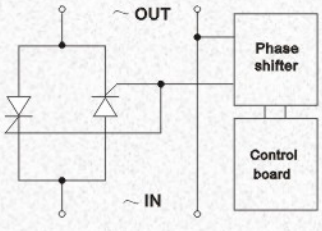
- Protection function for over current, over heat and lack phase
- Steady voltage and current circuit with linear control
- German glass passivation chips
- 'ZKH' vacuum welding technology, high quality and long life
- Hand, meter adjustment and computer control
- Special IC, SMT circuit board, high frequency trigger transformer, RTV seal, super stability and reliability
- German DCB ceramic plate, V_{ISO}=2500V, small thermal resistance and super thermal conductivity
- Particular 'KCF' structure design, small size, light weight, easy to install

Applications

- Excitation power supply
- Various power supplies
- Battery charge and discharge
- DC motor
- Temperature adjustment and control
- AC steady voltage, constant current system

Model	Max. output Current A_{RMS}	Operating voltage V_{AC}	Control voltage V_{DC}	Control current mA_{DC}	Bottom temp. ℃	Outline
SGIDA1-50	50	280, 480	±12	≤200	≤80	WM18
SGIDA1-70	70					
SGIDA1-120	120					
SGIDA1-150	150					
SGIDA1-200	200	280, 480	±12	≤300	≤80	WM20
SGIDA1-250	250					
SGIDA1-350	350					
SGIDA1-500	500					

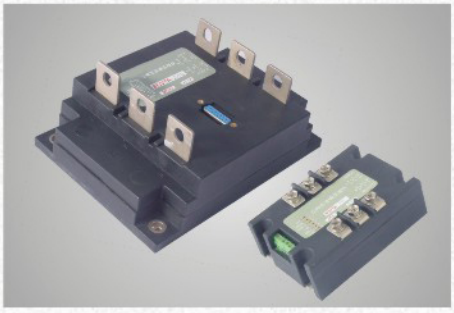
Circuit Configuration



Intelligent Three-phase AC Module (three-phase AC voltage-regulation, various protections)

Introduction

The product is a multi functional power-integrated module which is encapsulated together by thyristor power circuit, phase-shift trigger control circuit, signal-check circuit, PI modulation circuit, feedback circuit and protection circuit etc. It has realized miniaturization, modularization and intellectuaization of three-phase voltage regulation equipment.



Features

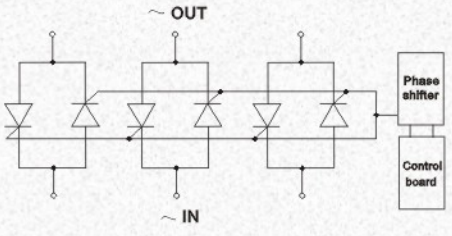
- Non-phase ordered demand
- Protection function for over current, over heat and lack phase
- Steady voltage and current circuit with linear control
- German glass passivation chips
- 'ZKH' vacuum welding technology, high quality and long life
- Hand, meter adjustment and computer control
- Special IC, SMT circuit board, high frequency trigger transformer, RTV seal, super stability and reliability
- German DCB ceramic plate, V_{ISO}=2500V, small thermal resistance and super thermal conductivity
- Particular 'KCF' structure design, small size, light weight, easy to install

Applications

- Excitation power supply
- Various power supplies
- Battery charge and discharge
- AC / DC motor
- Temperature adjustment and control
- AC steady voltage, constant current system

Model	Max. output Current A_{RMS}	Operating voltage V_{AC}	Control voltage V_{DC}	Control current mA_{DC}	Bottom temp. ℃	Outline
SGITA1-50	3×50	480	±12	⩽400	⩽80	WM19
SGITA1-70	3×70					
SGITA1-120	3×120					
SGITA1-150	3×150					
SGITA1-200	3×200	480	±12	⩽400	⩽80	WM21
SGITA1-250	3×250					
SGITA1-350	3×350					
SGITA1-500	3×500					

Circuit configuration



Intelligent Single-phase Rectifier Module (single-phase rectifier voltage-regulation, various protections)

Introduction

The product is a multi functional power-integrated module which is encapsulated together by thyristor power circuit, phase-shift trigger control circuit, signal-check circuit, PI modulation circuit, feedback circuit and protection circuit etc. It has realized miniaturization, modularization and intellectuaization of single-phase voltage regulation equipment.

Features

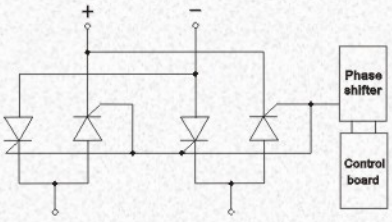
- Protection function for over current, over heat and lack phase
- Steady voltage and current circuit with linear control
- German glass passivation chips
- 'ZKH' vacuum welding technology, high quality and long life
- Hand, meter adjustment and computer control
- Special IC, SMT circuit board, high frequency trigger transformer, RTV seal, super stability and reliability
- German DCB ceramic plate, V_{ISO}=2500V, small thermal resistance and super thermal conductivity
- Particular 'KCF' structure design, small size, light weight, easy to install

Applications

- Excitation power supply
- Various power supplies
- Battery charge and discharge
- DC motor
- Temperature adjustment and control
- Steady voltage and constant current system

Model	Max. output Current A_{RMS}	Operating voltage V_{AC}	Control voltage V_{DC}	Control current mA_{DC}	Bottom temp. ℃	Outline
SGIDR1-50	50	280, 480	±12	≤200	≤80	WM18
SGIDR1-75	75					
SGIDR1-100	100					
SGIDR1-180	180			≤300		
SGIDR1-250	250	280, 480	±12		≤80	WM20
SGIDR1-300	300					
SGIDR1-550	550					
SGIDR1-800	800					

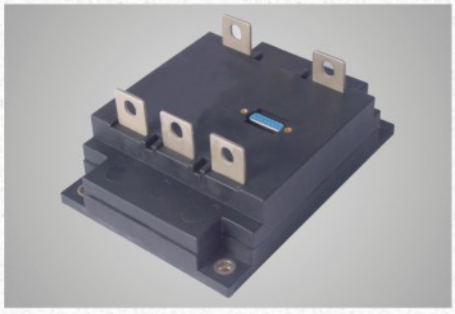
Circuit Configuration



Intelligent Three-phase Rectifier Module (three-phase rectifier voltage-regulation, various protections)

Introduction

The product is a multi functional power-integrated module which is encapsulated together by thyristor power circuit, phase-shift trigger control circuit, signal-check circuit, PI modulation circuit, feedback circuit and protection circuit etc. It has realized miniaturization, modularization and intellectuaization of three-phase voltage regulation equipment.



Features

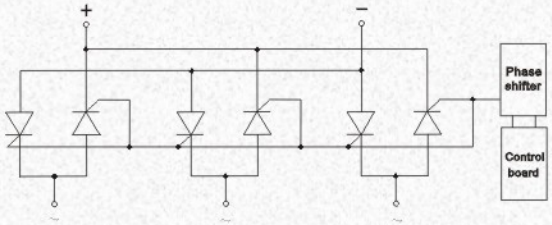
- Non-phase ordered demand
- Protection function for over current, over heat and lack phase
- Steady voltage and current circuit with linear control
- German glass passivation chips
- 'ZKH' vacuum welding technology, high quality and long life
- Hand, meter adjustment and computer control
- Special IC, SMT circuit board, high frequency trigger transformer, RTV seal, super stability and reliability
- German DCB ceramic plate, V_{ISO}=2500V, small thermal resistance and super thermal conductivity
- Particular 'KCF' structure design, small size, light weight, easy to install

Applications

- Excitation power supply
- Various power supplies
- Battery charge and discharge
- AC / DC motor
- Temperature adjustment and control
- Steady voltage, constant current system

Model	Max. output Current A_{RMS}	Operating voltage V_{AC}	Control voltage V_{DC}	Control current mA_{DC}	Bottom temp. ℃	Outline
SGITR1-50	3×50	480	±12	≤400	≤80	WM22
SGITR1-75	3×75					
SGITR1-100	3×100					
SGITR1-180	3×180					
SGITR1-250	3×250	480	±12	≤400	≤80	WM23
SGITR1-300	3×300					
SGITR1-550	3×550					
SGITR1-800	3×800					

Circuit Configuration



Intelligent Frequency Conversion Module

Features

- The module adopts TMS320LF2401A of TI company and IGBT module, strong function, high reliability
- It adopts space voltage vector measure, low harmonic of the output
- Perfect protection function, intelligent control, easy to operate
- Software upgrade online is available

Applications

- Drag AC motor soft-start and frequency conversion energy saving run, mainly used in weave, plastic machine, printing fields and so on

Parameters	Unit	Specification					
Rated capacitance	kW	0.4	0.75	1.0	1.5	2.5	3.7
Input power supper		Sing-phase 220V(−25～+10%), 50～60Hz					
Frequency adjust range	Hz	0-400					
Voltage/frequency pattern		Software itself enactment curve manner					
Torque advance		0～30% enactment arbitrarily					
Accelerated, decelerated time		1～600s enactment arbitrarily					
On and off frequency		1～15kHZ enactment arbitrarily					
Frequency enactment		Panel figure enactment, terminal simulation enactment(DC:0～5V), asynchronism communication enactment					
Run control		Positive rotate, negative rotate, start controlled, terminal 7 segment speed control, asynchronous communication control					
Over loading power		150% rated current, 1 min					
Protection function		Over voltage protection, lack voltage protection, over current protection, over heat protection, short circuit protection, reverse time limit over load protection					
Show function		Frequency show					
		Fault code show					

Solid State Relays

Single-phase AC Solid State Relays

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGS (1～5A)	• Small size • Low power • TRIAC output • PCB mounting	1.5, 2	120, 240	4～16, 3～32	WG24 WG26
		1, 2, 3	240, 440	4～16, 3～32	WG25 /27 /28
		5			WG29
Series SGD (10～40A)	• Middle power • SCR output • Both 'zero voltage'& phase controllable 'random switching' versions	10, 15, 25, 40	240, 440	4～16, 3～32	WG30 WG31
Series SGDH (10～120A)		10, 15, 25, 40, 60, 80, 100,120	280, 480	4～16, 3～32, 90～250V_{AC}	WG30 WG31
Series SGDH (10～150A)		10, 25, 40, 60, 80, 100,120, 150	280, 480	4～16, 3～32	WG32
Series SGDH (200～350A)	• High power • SCR output • Both 'zero voltage'& phase controllable 'random switching' versions	200, 250, 300, 350	280, 480	4～16, 3～32, 90～250V_{AC}	WG33
Series SGDH (400～550A)		400, 450, 500, 550	280, 480	4～16, 3～32, 90～250V_{AC}	WG8 WG9
Series SGDH (600～1000A)		600, 800，1000	440	4～32	

Three-phase AC Solid State Relays

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGT (10～40A)	• Middle power • TRIAC output •Switched mode: zero voltage	3×10A, 3×15A, 3×25A, 3×40A	440	4～16, 3～32, 90～250V_{AC}	WG35
Series SGTH (25～150A)	• Middle power • SCR output • Both 'zero voltage'& phase controllable 'random switching' versions	3×25A, 3×40A, 3×60A, 3×80A 3×100A, 3×120A 3×150A	480, 530	4～16, 3～32, 90～250V_{AC}	WG35
Series SGTH (200～500A)	• High power • SCR output • Both 'zero voltage'& phase controllable 'random switching' versions	3×200A, 3×300A, 3×400A, 3×500A	480, 530	3～32, 90～250V_{AC}	WG21

DC Solid State Relays

Type	features	Operational current A	Operational voltage V_{DC}	Control voltage V_{DC}	Outline
Series SGZ (1～3A)	• Small size • Low power • Transistor output • PCB mounting	1	50, 250	4～16, 3～32	WG25
		3			WG28

Dual AC Solid State Relays

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGM / Series SGMT (10～40A)	• Dual AC • Triac output (SGM)or SCR output (SGMT) • Both 'zero voltage'& phase controllable 'random switching' versions	2×10A, 2×15A, 2×25A, 2×40A	240，440	4～16	WG34

Power Line AC Solid State Relays

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGDH (10～120A)	• AC single phase • High voltage (1200V_{PK}) versions for 480V_{RMS} service • Dual SCR power hybrid technology • Both 'zero voltage'& phase controllable 'random switching' versions	10, 15, 25, 40, 60, 80, 100, 120	280, 480	4～16, 3～32, 90～250V_{AC}	WG30 WG31
Series SGDH (10～150A)		10, 25, 40, 60, 80, 100, 120，150	280, 480	4～16, 3～32,	WG32
Series SGDH (200～350A)	• AC single phase • Triac output • Both 'zero voltage'& phase controllable 'random switching' versions	200, 250, 300，350	280, 480	4～16, 3～32, 90～250V_{AC}	WG33
Series SGDH (400～550A)	• AC single phase • High voltage (1200V_{PK}) versions for 480V_{RMS} service • Dual SCR power hybrid technology • Both 'zero voltage'& phase controllable 'random switching' versions	400，450，500，550	280，480	4～16, 3～32, 90～250V_{AC}	WG8
Series SGDH (600～1000A)	• AC single phase • High voltage (1200V_{PK}) versions for 440V_{RMS} service • Dual SCR power hybrid technology • Both 'zero voltage'& phase controllable 'random switching' versions	600，800，1000	440	4～32	WG8

Special Purpose High Voltage Solid State Relays for Power Capacitor Turning on/off, Motor Switching on/off

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGDH (40～150A)	• AC single phase • SCR output	40,60, 80, 100, 120,150	530, 600	4～16	WG30 WG32
Series SGDH (200～350A)	• AC single phase • SCR output	200, 250, 300， 350	530, 600	4～16	WG33
Series SGTH (40～80A)	• AC three phase • SCR output	3×40A, 3×60A, 3×80A	530, 600	4～16	WG35 WG36

Special Purpose Compound Solid State Relays for Power Capacitor Turning on/off

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGDF (60～80A)	• AC single phase • Bar structure • Dual SCR power hybrid technology • High voltage (1400V_{PK}) versions for 530V_{RMS} service • Switch type: zero voltage turn on, zero current turn off	60, 80	480, 530, 600	12	WG37
Series SGDF (120～250A)		120, 180, 250	480, 530, 600	12	WG38

Special Purpose Solid State Relays for Reversing Motor

Type	features	Load power kW	Operational voltage V_{AC}	Control voltage	Outline
Series SGR (1～7kW)	• Used for 3-phase motor • Built-in interlock function • AC or DC control voltage • Dual SCR power hybrid technology • Switched phases: 2-leg or 3-leg models	1, 3, 5, 7	480， 530	10～30V_{DC} 115 V_{AC}	WG36

Special Purpose Integrated Phase Control Module for Regulation of Voltage

Type	features	Operational current A	Operational voltage V_{AC}	Control mode	Outline
Series SGRV (10～40A)	• Integrated phase control • Control mode: manual • TRIAC output	10, 15， 25， 40	240	330kΩ potentionmeter	WG30
Series SGV (10～120A)	• Integrated phase control • Control mode: automatism or manual • TRIAC output or SCR output	10, 15， 25， 40 (for TRIAC ,SCR) 60, 80, 100,120 (for SCR)	240,440 (for TRIAC) 280,480 (for SCR)	0～5 V_{DC} or 4～20mA (for automatism) 10kΩ potentionmeter (for manual)	WG39

Special Purpose Solid State Relays for Regulation of Light

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGDH (40～80A)	• AC single phase • Anti electromagnetic interference • Photoelectric couple input • Double SCR reverse-parallel output • 'Vacuum +N_2 protection' soldering technology • SMT mounting	40, 60, 80	240	3～8 4～16 3～32	WG30 WG40

Special Purpose Solid State Relays for Oiler

Type	features	Operational current A	Operational voltage V_{AC}	Control voltage V_{DC}	Outline
Series SGS (1～3A)	• AC single phase (SGS); AC three phase (SGT) • Anti electromagnetic interference • Photoelectric couple input • TRIAC output	1, 2, 3	240, 440	3～8 4～16	WG25
Series SGT (10～40A)		3×10A, 3×15A, 3×25A, 3×40A	440	3～8 4～16	WG35