

螺旋式半导体器件

Stud Version Semiconductor

普通整流二极管(螺旋式) STANDARD RECOVERY DIODE (Stud Version) 3

快恢复整流二极管(螺旋式) FAST RECOVERY DIODE (Stud Version) 4

普通可控硅(螺旋式) PHASE CONTROL THYRISTOR (Stud Version) 5

双向可控硅(螺旋式) TRIAC THYRISTOR (Stud Version) 6

快速可控硅(螺旋式) FAST THYRISTOR (Stud Version) 6

俄罗斯型二极管(螺旋式) RUSSIA TYPE DIODE (Stud Version) 7-8

俄罗斯型可控硅(螺旋式) RUSSIA TYPE THYRISTOR (Stud Version) 9-10

西门康型半导体器件(螺旋式) SEMIKRON TYPE SEMICONDCTOR (Stud Version) 11-12

国标半导体器件(螺旋式) CHINESE TYPE SEMICONDUCTOR (Stud Version) 13-14

STANDARD RECOVERY DIODE (Stud Version)｜普通整流二极管(螺旋式)

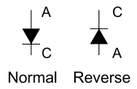
Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Metric device version available

Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welder
- Motor controls

Polarity



Ordering Information Table

Device Code FR ① 70 ② HF ③ R ④ 120 ⑤ M ⑥ L ⑦

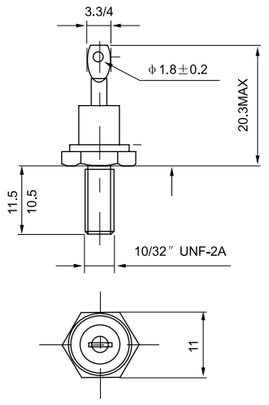
1 -None=Standard recovery diodes; FR=Fast recovery diodes
2 -Current code=$IF_{(AV)}$
3 -Outline code: F=DO-4 case 6A~25A; HF=DO-5 case 30A~85A U=DO-8,DO-9 case 100A~300A
4 -None=Stud Normal Polarity (cathode to stud) R=Stud Reverse Polarity (anode to stud)
5 -Voltage code=code x 10=V_{RRM}
6 -None=Standard inch Device; M=Metric Device
7 -Bigger size

Type	$IF_{(AV)}$	V_{FM}/I_{FM}		$IF_{(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	T_j	M^2	Wt	Outline
	T_{HS}55℃	25℃									
	A	V	A	A	V	mA	℃/W	℃	N/m	kg	
6F(R)	6	1.1	18	9.0	200-1200	≤6	≤2.0	-40℃ ~ +150℃	≤1.0	0.008	DO-4
12F(R)	12	1.25	36	19.0	200-1200	≤6	≤1.2		≤1.0	0.008	
16F(R)	16	1.25	48	25.0	200-1200	≤12	≤1.2		≤1.0	0.008	
25F(R)	25	1.1	75	40.0	200-1200	≤12	≤1.2		≤1.0	0.008	
30HF(R)	30	1.3	90	48.0	200-1200	≤10	≤0.8		≤2.0	0.020	DO-5
40HF(R)	40	1.3	120	64.0	200-1200	≤10	≤0.8		≤2.0	0.020	
50HF(R)	50	1.4	150	80.0	200-1200	≤10	≤0.8		≤2.0	0.020	
60HF(R)	60	1.4	180	96.0	200-1200	≤12	≤0.6		≤2.0	0.020	
70HF(R)	70	1.45	210	112.0	200-1600	≤12	≤0.5		≤2.0	0.020	
85HF(R)	85	1.45	255	136.0	200-1600	≤12	≤0.4		≤2.0	0.020	
100U(R)	100	1.8	300	160.0	200-1600	≤15	≤0.3		≤12	0.120	DO-8
150U(R)	150	1.5	450	240.0	200-1600	≤15	≤0.3		≤12	0.120	
100U(R)L	100	1.8	300	160.0	200-1600	≤15	≤0.3		≤12	0.140	DO-30
150U(R)L	150	1.5	450	240.0	200-1600	≤15	≤0.3		≤12	0.140	
200U(R)	200	1.3	600	320.0	200-1800	≤20	≤0.2		≤12	0.250	DO-9
250U(R)	250	1.35	750	400.0	200-1800	≤20	≤0.15		≤25	0.250	
300U(R)	300	1.35	900	480.0	200-1800	≤20	≤0.15		≤25	0.250	
SD400N(R)	400	1.6	1200	640.0	200-2400	≤40	≤0.07		≤25	0.580	B-8
SD500N(R)	500	1.6	1500	800.0	200-2400	≤40	≤0.065		≤25	0.580	
SD600N(R)	600	1.5	1800	960.0	200-2400	≤40	≤0.065		≤30	0.580	

FAST RECOVERY DIODE (Stud Version) | 快恢复整流二极管(螺旋式)

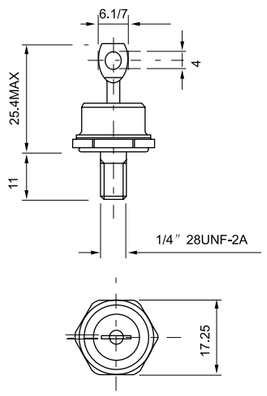
Type	$IF_{(AV)}$	V_{FM}/I_{FM}		$IF_{(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	T_{rr}	T_j	M^2	Wt	Outline
	T_{HS}55℃	25℃										
	A	V	A	A	V	mA	℃/W	μs	℃	N/m	kg	
FR10F(R)	10	1.5	30	16.0	200-800	⩽6	⩽2.0	⩽0.5	-40℃ ~ +150℃	⩽1.0	0.008	DO-4
FR15F(R)	15	1.55	45	24.0	200-800	⩽12	⩽1.2	⩽0.5		⩽1.0	0.008	
FR20F(R)	20	1.70	60	32.0	200-800	⩽12	⩽1.2	⩽0.5		⩽1.0	0.008	
FR40HF(R)	40	1.95	120	64.0	200-1200	⩽10	⩽1.2	⩽0.7		⩽2.0	0.020	DO-5
FR50HF(R)	50	1.90	150	80.0	200-1200	⩽10	⩽1.2	⩽0.7		⩽2.0	0.020	
FR70HF(R)	70	1.85	210	112.0	200-1200	⩽12	⩽0.8	⩽1.0		⩽2.0	0.020	
FR80HF(R)	85	1.85	255	136.0	200-1200	⩽12	⩽0.8	⩽1.0		⩽2.0	0.020	
FR100U(R)	100	2.05	300	160.0	200-1200	⩽15	⩽0.3	⩽1.5		⩽12	0.120	DO-8
FR100U(R)L	100	2.05	300	160.0	200-1200	⩽15	⩽0.3	⩽1.5		⩽12	0.140	DO-30
FR150U(R)	150	2.00	450	240.0	200-1200	⩽20	⩽0.2	⩽2.0		⩽25	0.250	DO-9
FR200U(R)	200	2.05	600	320.0	200-1200	⩽20	⩽0.2	⩽2.5		⩽25	0.250	

Diode Stud Version Outline 螺旋式二极管外型



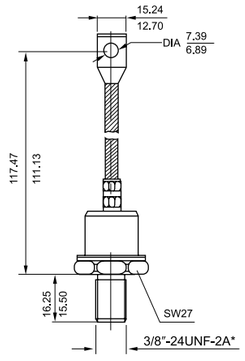
For metric devices:M5×0.8

DO-4



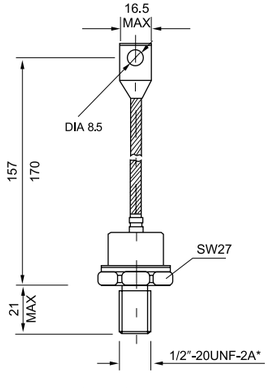
For metric devices:M6×1

DO-5



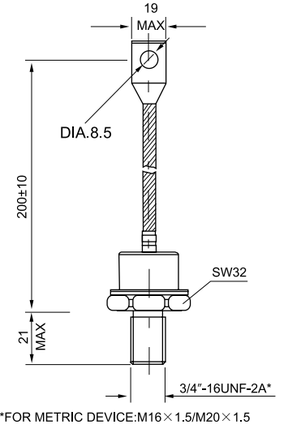
For metric device:M12X1.75

DO-8



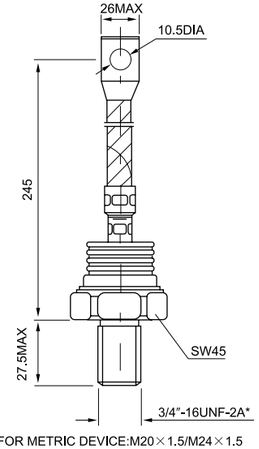
*FOR METRIC DEVICE:M12×1.75

DO-30



*FOR METRIC DEVICE:M16×1.5/M20×1.5

DO-9



*FOR METRIC DEVICE:M20×1.5/M24×1.5

B-8

PHASE CONTROL THYRISTOR (Stud Version) | 普通可控硅(螺旋式)

Features

- High current rating
- Excellent dynamic characteristics
- Superior surge capabilities
- Standard package
- Metric Device version available

Typical Applications

- Phase control applications in converters
- Lighting circuits
- Battery charges
- Regulated power supplies and temperature and speed control circuit
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements
- Power supplier & motor controls

Polarity



Standard thyristor Fast thyristor　　Triac thyristor

Ordering Information Table

Device Code S ① 50 ② RIA ③ 120 ④ M ⑤

1 -None=Standard thyristor
S=Triac thyristor
K=Fast thyristor
2 -Current code=$IT_{(AV)}$
3 -Essential part number
4 -Voltage code: code x 10=V_{RRM}
5 -None=standard inch device
M=metric device

Device Code ST ① 300 ② S ③ 16 ④ M ⑤ V ⑥

1 -ST=Standard thyristor
SST=Triac thyristor
KST=Fast thyristor
2 -Current code=$IT_{(AV)}$
3 -S=Stud version device
4 -Voltage code: code x 100=V_{RRM}
5 -None=standard inch device
M=metric device
6 -None=ceramtic seal
V=glass-metal seal



TO-48



TO-65



TO-94



TO-93 (ceramic)



TO-118

Type	$IT_{(AV)}$	V_{TM}/I_{TM}		$IT_{(RMS)}$	V_{RRM}	I_{RRM}	I_{GT}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	T_{HS}55℃	25℃															
	A	V	A	A	V	mA	mA	V	mA	mA	mA	mA	℃	℃/W	N/m	kg	
10RIA	10	1.75	30	16	200-1200	⩽10	10~100	⩽2.5	⩽150	⩽200	⩾500	⩾100	-40℃ ~ +125℃	⩽1.8	⩽2.0	0.016	TO-48
16RIA	16	1.75	48	25	200-1200	⩽10	10~100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.5	⩽2.0	0.016	
25RIA	25	1.70	75	40	200-1200	⩽10	10~100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.0	⩽2.0	0.016	
40RIA	40	1.95	120	64	200-1200	⩽12	50~200	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.0	⩽2.0	0.022	TO-65
50RIA	50	1.90	150	80	200-1200	⩽12	50~200	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽0.8	⩽2.0	0.022	
ST80S	80	1.6	240	128	200-1600	⩽15	50~200	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.6	⩽12	0.160	TO-94
ST100S	100	1.6	300	160	200-1600	⩽15	50~200	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.6	⩽12	0.160	
ST130S	130	1.55	390	208	200-1600	⩽15	50~200	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.55	⩽12	0.160	
ST150S	150	1.6	450	240	200-1600	⩽20	50~200	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.5	⩽12	0.160	
ST180S	200	1.75	600	320	200-1800	⩽20	50~200	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.4	⩽25	0.280	TO-93
ST230S	250	1.75	750	400	200-1800	⩽20	50~200	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.2	⩽25	0.280	
ST280S	280	1.70	840	450	200-1800	⩽25	50~200	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.15	⩽25	0.280	
ST300S	300	1.5	900	480	200-2400	⩽40	50~200	⩽2.5	⩽600	⩽1000	⩾800	⩾100		⩽0.10	⩽30	0.580	TO-118
ST330S	330	1.55	990	530	200-2400	⩽40	50~200	⩽2.5	⩽600	⩽1000	⩾800	⩾100		⩽0.07	⩽30	0.580	
ST350S	350	1.6	1050	560	200-2400	⩽40	50~200	⩽2.5	⩽600	⩽1000	⩾800	⩾100		⩽0.06	⩽30	0.580	

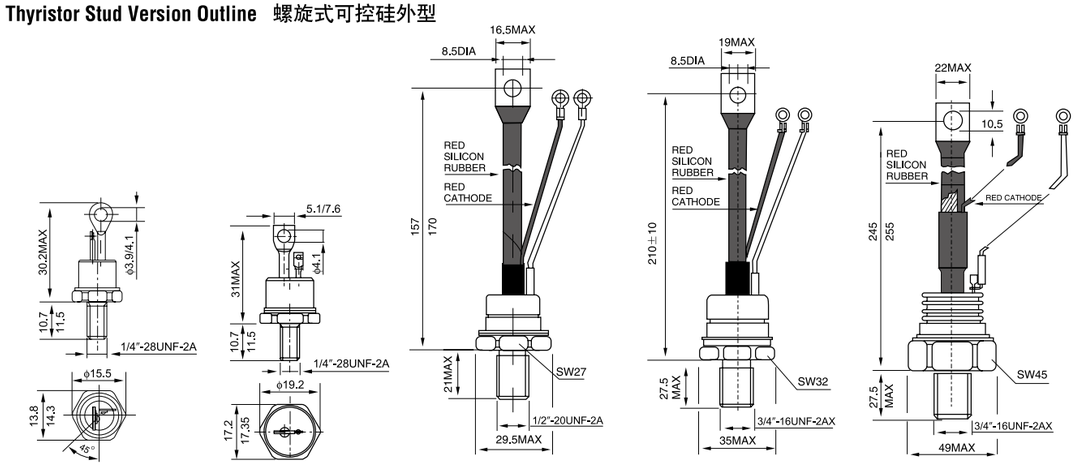
TRIAC THYRISTOR (Stud Version) | 双向可控硅(螺旋式)

Type	$I_{T(AV)}$	V_{TM}/I_{TM}		V_{RRM}	I_{RRM}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	T_{HS}55℃	25℃													
	A	V	A	V	mA	V	mA	mA	v/us	A/us	℃	℃/W	N/m	kg	
S10RIA	10	2.10	30	200-1200	≤15	≤350	≤200	≤250	≥500	≥10	-40℃ ~ +125℃	≤0.12	≤2.0	0.016	TO-48
S16RIA	16	2.15	48	200-1200	≤15	≤350	≤200	≤250	≥500	≥10		≤0.12	≤2.0	0.016	
S25RIA	25	2.35	75	200-1200	≤25	≤350	≤250	≤300	≥500	≥10		≤0.11	≤2.0	0.022	TO-65
S40RIA	40	2.30	120	200-1200	≤25	≤350	≤250	≤300	≥500	≥10		≤0.11	≤2.0	0.022	
S50RIA	50	2.25	150	200-1200	≤25	≤350	≤250	≤300	≥500	≥10		≤0.11	≤2.0	0.022	
SST80S	80	2.05	240	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.10	≤12	0.160	TO-94
SST100S	100	2.10	300	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.10	≤12	0.160	
SST150S	150	2.25	450	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.09	≤25	0.280	TO-93
SST180S	200	2.40	540	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.09	≤25	0.280	
SST250S	250	2.40	750	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.08	≤30	0.580	TO-118
SST300S	300	2.45	900	200-1600	≤30	≤350	≤250	≤300	≥500	≥10		≤0.08	≤30	0.580	

FAST THYRISTOR (Stud Version) | 快速可控硅(螺旋式)

Type	$I_{T(AV)}$	V_{TM}/I_{TM}		$I_{T(RMS)}$	V_{RRM}	I_{RRM}	T_q	I_{GT}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	T_{HS}55℃	25℃																
	A	V	A	A	V	mA	us	mA	V	mA	mA	mA	mA	℃	℃/W	N/m	kg	
K10RIA	10	2.35	30	16	200-1200	≤10	10~20	10~100	≤2.5	≤150	≤200	≥500	≥100	-40℃ ~ +125℃	≤1.8	≤2.0	0.016	TO-48
K16RIA	16	2.35	48	25	200-1200	≤10	10~20	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.5	≤2.0	0.016	
K25RIA	25	2.50	75	40	200-1200	≤12	10~20	50~100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.022	TO-65
K40RIA	40	2.55	120	64	200-1200	≤12	10~20	50~100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	0.022	
K50RIA	50	2.50	150	80	200-1200	≤12	10~20	50~100	≤2.5	≤150	≤200	≥500	≥100		≤0.8	≤2.0	0.022	
KST80S	80	2.30	240	128	200-1600	≤15	15~25	50~100	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤12	0.160	TO-94
KST100S	100	2.25	300	160	200-1600	≤15	15~25	50~100	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤12	0.160	
KST150S	150	2.35	450	240	200-1800	≤20	15~30	50~100	≤2.5	≤200	≤400	≥800	≥100		≤0.5	≤25	0.280	TO-93
KST180S	200	2.40	600	320	200-1800	≤20	15~30	50~100	≤2.5	≤400	≤600	≥800	≥100		≤0.45	≤25	0.280	
KST230S	250	2.45	700	400	200-1800	≤25	15~30	50~100	≤2.5	≤400	≤600	≥800	≥100		≤0.3	≤30	0.580	TO-118
KST300S	300	2.50	900	480	200-1800	≤40	15~30	50~100	≤2.5	≤400	≤600	≥800	≥100		≤0.25	≤30	0.580	

Thyristor Stud Version Outline 螺旋式可控硅外型

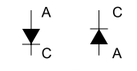


RUSSIA TYPE DIODE (Stud Version) | 俄罗斯型二极管(螺旋式)

Features
- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Inch device version available

Typical Applications
- Batter y charges
- Converters
- Power supplies
- Machine tool controls
- Welder ■ Motor controls
- Lighting circuits

Polarity



Ordering Information Table

Device Code D ① 1 ② 61 ③ - 200 ④ X ⑤ - 16 ⑥

1 -D=Standard recovery diode DF=Fast recovery diode
DL=Avalance rectifier diode
2 -1=Ceramic device
2=Glass-Metal device
3 -Device outline code
4 -Current code=$IF_{(AV)}$
5 -None=Stud Reverse Polarity (anode to stud)
X=Stud Normal Polarity (cathode to stud)
6 -Voltage code=Code × 100=V_{RRM}

Russia Type Standard Recovery Diode (Stud Verstion) 俄罗斯型普通整流二极管(螺旋式)

Type	V_{RRM}	I_{RRM}	$IF_{(AV)}$	$IF_{(RSM)}$	$IF_{(SM)}$	V_{FM}/I_{FM}	T_j	R_{jc}	M^2	Wt	Outline
			T_c55℃		10ms	25℃					
	V	mA	A	A	kA	V/A	℃	℃/W	N/m	kg	
D212-10(X)	100-1200	3	10	15	0.25	1.35/31	-40℃ ~ +150℃	2.700	0.9-1.1	0.006	RSD1
D212-16(X)	100-1200	3	16	25	0.27	1.35/50		2.000	0.9-1.1	0.006	
D212-25(X)	100-1200	3	25	39	0.34	1.35/78		1.250	0.9-1.1	0.006	
D222-32(X)	100-1200	5	32	50	0.46	1.35/100		1.000	1.4-1.8	0.015	RSD2
D222-40(X)	100-1200	5	40	62	0.55	1.35/12 5		0.800	1.4-1.8	0.015	
D232-50(X)	100-1600	6	50	76	1.20	1.35/157		0.600	5.0-6.2	0.027	RSD3
D232-63(X)	100-1600	6	63	96	1.40	1.35/198		0.500	5.0-6.2	0.027	
D232-80(X)	100-1600	5	80	125	1.50	1.35/250		0.400	5.0-6.2	0.027	
D141-100(X)	100-1600	20	100	180	2.20	1.35/314		0.400	6-10	0.090	RSD4
D151-125(X)	100-1600	20	125	195	3.00	1.35/392		0.300	10-20	0.165	RSD5
D151-160(X)	100-1600	20	160	300	4.50	1.35/502		0.240	10-20	0.165	
D161-200(X)	100-1800	40	200	400	5.50	1.35/602		0.150	20-30	0.250	RSD6
D161-250(X)	100-1800	40	250	480	6.40	1.35/785		0.140	20-30	0.250	
D161-320(X)	100-1800	40	320	520	7.50	1.35/1005		0.130	20-30	0.250	
D171-400(X)	100-2400	50	400	725	14.25	1.40/1256		0.085	20-30	0.465	RSD7
D171-500(X)	100-2400	50	500	760	14.0	1.45/1500		0.080	25-35	0.465	

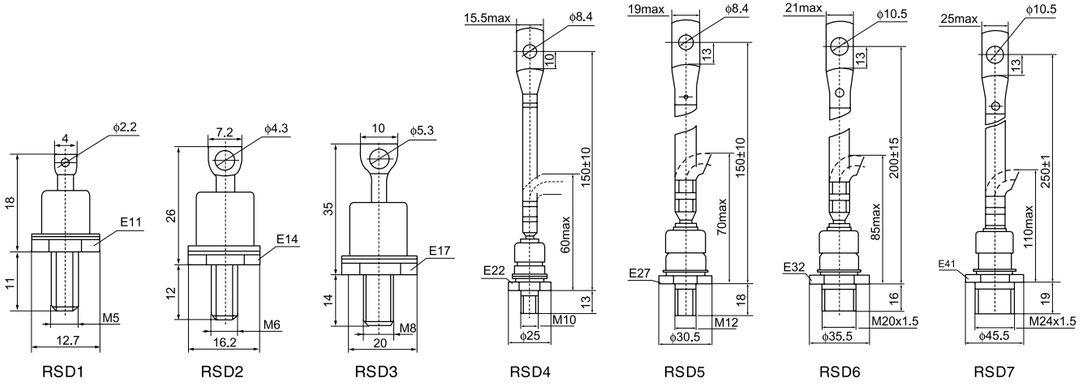
Russia Type Fast Recovery Diode (Stud Version) 俄罗斯型快恢复二极管(螺旋式)

Type	V_{RRM}	I_{RRM}	$IF_{(AV)}$	$IF_{(RSM)}$	$IF_{(SM)}$	$IF_{(SM)}$	T_{rr}	T_j	R_{jc}	M^2	Wt	Outline
			Tc55℃		10ms	10ms						
	V	mA	A	A	kA	kA	μs	℃	℃/W	N/m	kg	
DF212-10	400-1400	10	10	16	0.18	2.30/31	0.5	-40℃ ~ +150℃	2.50	0.9-1.1	0.006	RSD1
DF212-16	400-1400	10	16	25	0.25	2.30/50	0.5		1.60	0.9-1.1	0.006	
DF212-20	400-1400	10	20	31	0.31	2.30/62	0.5		1.20	0.9-1.1	0.006	
DF222-25	400-1400	15	25	39	0.40	2.30/78	0.5		1.00	1.4-1.8	0.015	RSD2
DF222-32	400-1400	15	32	50	0.50	2.30/98	0.5		0.80	1.4-1.8	0.015	
DF232-40	400-1400	20	40	62	0.60	2.30/125	0.7		0.60	5.0-6.2	0.027	RSD3
DF232-50	400-1400	20	50	78	0.75	2.30/157	0.7		0.50	5.0-6.2	0.027	
DF232-63	400-1400	20	63	98	0.95	2.30/198	0.7		0.40	5.0-6.2	0.027	
DF141-63	400-1400	50	63	100	2.0	2.23/198	1.0, 2.0		0.45	6-10	0.090	RSD4
DF141-60	400-1400	30	80	125	2.5	1.58/250	4.8		0.45	6-10	0.090	
DF151-125	400-1400	30	125	200	4.0	2.04/390	2.0		0.25	10-20	0.165	RSD5
DF161-160	400-1400	20	160	250	3.5	2.45/500	3.2, 4.0		0.25	20-30	0.250	RSD6
DF161-200	400-1400	20	200	300	4.3	1.85/528	3.2, 4.0		0.25	20-30	0.250	
DF161-250	400-1400	30	250	390	4.5	2.71/785	3.2, 4.0		0.15	20-30	0.250	
DF171-320	400-1400	30	320	500	5.3	2.13/1000	5.0, 6.5		0.15	25-35	0.465	RSD7

Avalanche Rerctifier Diode (Stud Version) 俄罗斯型雪崩二极管(螺旋式)

Type	V_{RRM}	I_{RRM}	$IF_{(AV)}$	$IF_{(RSM)}$	IF_{SM}	i^2t	V_{FM}/I_{FM}	T_{TO}	PRSM	r_T	T_{jmax}	$R_{th(j-c)}$	M^2	Wt	Outline
			T_C,℃		10ms				100mks						
	V	mA	A	A	kA	A^2S10^3	V/A	V	kW	mΩ	℃	℃/W	Nm	kg	
DL212-10	400-1600	6	10	15	0.25	0.31	1.35/31	0.90	2.5	17.5	-40℃ ~ +150℃	2.70	0.9-1.1	0.006	RSD1
DL212-16	400-1600	6	16	25	0.27	0.36	1.35/50	0.90	2.5	10.5		1.75	0.9-1.1	0.006	
DL212-25	400-1600	6	25	39	0.34	0.58	1.35/78	0.90	2.5	6.10		1.10	0.9-1.1	0.006	
DL222-32	400-1600	8	32	50	0.46	1.06	1.35/100	0.85	3.0	5.00		0.95	1.4-1.8	0.012	RSD2
DL222-40	400-1600	8	40	62	0.55	1.51	1.35/125	0.85	3.0	4.00		0.80	1.4-1.8	0.012	
DL232-50	400-1600	10	50	78	12	72	1.35/157	0.83	5.0	3.10		0.60	5.0-6.2	0.027	RSD3
DL232-63	400-1600	10	63	98	14	98	1.35/198	0.83	5.0	2.80		0.50	5.0-6.2	0.027	
DL232-80	400-1600	10	80	125	15	11.25	1.35/250	0.83	5.0	2.10		0.40	5.0-6.2	0.027	
DL141-100	400-1600	15	100	150	2.2	24	1.35/314	0.95	25	1.60		0.40	6-10	0.090	RSD4
DL151-160	400-1600	15	150	220	4.5	45	1.35/392	0.95	25	1.30		0.30	10-20	0.165	RSD5
DL161-200	400-1600	25	200	300	5.5	100	1.35/600	0.90	16	0.85		0.25	20-30	0.265	RSD6
DL161-250	400-1600	25	250	375	6.4	150	1.35/750	0.90	16	0.75		0.15	20-30	0.265	
DL171-320	400-1600	25	320	450	7.5	200	1.35/900	0.90	16	0.65		0.13	20-35	0.460	RSD7
DL171-400	400-1600	25	400	600	9.25	280	1.35/1200	0.90	16	0.55		0.095	20-35	0.460	

Russia Type Diode Stud Version Outline 俄罗斯型二极管外型



RUSSIA TYPE THYRISTOR (Stud Version) | 俄罗斯型可控硅(螺旋式)

Features
- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Inch device version available

Typical Applications
- Batter y charges
- Converters
- Power supplies
- Machine tool controls
- Welder ■ Motor controls
- Lighting circuits

Polarity



Standard thyristor Fast thyristor　　Triac thyristor

Ordering information Table

Device Code TC 1 61 - 200 - 16
① ② ③ ④ ⑤

1 T=Phase control thyristor
TB=Fast thyristor　　TC=Triac thyristor
2 -1=Ceramic device
2=Glass-Metal device
3 -Device outline code
4 -Current code=$IT_{(AV)}$
5 -Voltage code=Code × 100=V_{RRM}

Russia Type Phase Control Thyristor (Stud Version) 俄罗斯型普通可控硅(螺旋式)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(RSM)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	d_i/d_t	d_v/d_t	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	T_q	M^2	Wt	Outline
			Tc55℃		10ms	25℃											
	V	mA	A	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	μs	N/m	kg	
T212-10	100-1300	3	10	15.7	0.15	1.93/31	125	50-500	3.0	40	5-50	-40℃ ~ +125℃	1.80	63	0.9-1.1	0.006	RST1
T212-16	100-1300	3	15	25.2	0.24	1.80/50	125	50-500	3.0	40	5-50		1.50	63	0.9-1.1	0.006	
T222-20	100-1300	3.5	20	31.4	0.30	1.75/63	125	50-500	3.0	60	5-50		0.90	63	1.4-1.8	0.015	RST2
T222-25	100-1300	3.5	25	39.2	0.35	1.75/78	125	50-500	3.0	60	5-50		0.80	63	1.4-1.8	0.015	
T232-25	1200-1600	9	25	30.2	0.33	2.20/78	125	50-500	3.5	100	5-100		0.80	160	5.0-6.2	0.023	RST3
T232-40	100-1300	5	40	62.8	0.75	1.75/125	125	50-500	4.0	100	5-100		0.62	63	5.0-6.2	0.023	
T232-50	100-1300	5	50	70.5	0.80	1.75/157	125	50-500	4.0	100	5-100		0.50	63	5.0-6.2	0.023	
T242-50	1200-1600	15	50	78.5	0.85	2.10/157	125	50-500	3.5	120	5-100		0.40	160	9.0-11	0.050	RST4
T242-63	100-1300	7	63	90.9	1.30	1.65/108	125	50-500	4.0	150	5-100		0.40	63	9.0-11	0.050	
T242-80	100-1300	7	80	125.8	1.50	1.63/250	125	50-500	4.0	150	5-100		0.30	63	9.0-11	0.050	
T151-100	300-1600	15	100	160	2.0	1.80/314	160	200-1000	3.5	200	5-200		0.30	160	10-20	0.165	RST5
T151-125	300-1600	15	125	200	2.5	1.75/392	125	200-1000	3.5	200	5-200		0.15	160	20-30	0.165	
T161-160	300-1800	15	160	260	4.0	1.70/502	125	200-1000	3.5	200	5-200		0.15	160	20-30	0.250	RST6
T161-200	300-1800	15	200	315	5.0	1.80/628	160	200-1000	3.5	200	5-200		0.13	250	20-30	0.250	
T161-250	300-1600	30	250	390	5.0	1.85/780	125	200-1000	3.5	200	5-200		0.10	160	20-30	0.250	
T171-250	300-1800	30	250	393	6.0	1.75/785	125	200-1000	3.5	200	5-200		0.10	160	25-35	0.440	RST7
T171-320	300-1800	30	320	500	8.5	1.60/100S	320	200-1000	3.5	200	5-200		0.85	160	25-35	0.440	

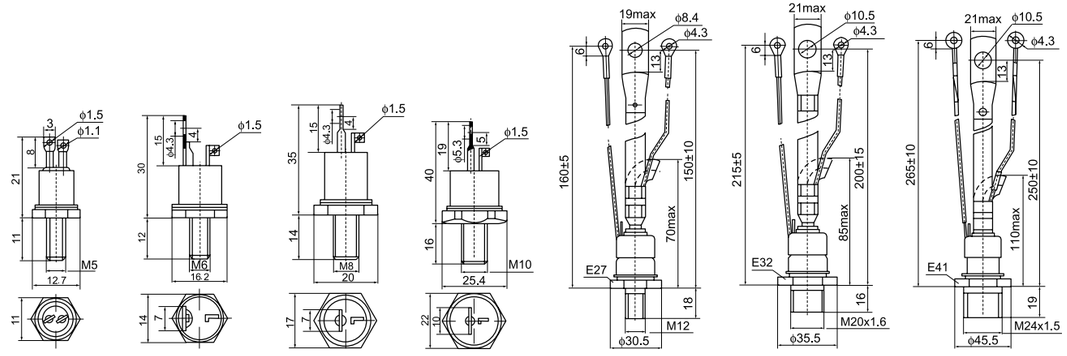
Russia Type Fast Thyristor (Stud Version) 俄罗斯型快速可控硅(螺旋式)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(RSM)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	d_i/d_t	d_v/d_t	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	T_q	M^2	Wt	Outline
			T_c55℃		10ms	25℃											
	V	mA	A	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	μs	N/m	kg	
TB212-10	400-1400	10	10	16	0.15	2.2/31	200	100-1000	2.0	100	5-50	-40℃ ~ +125℃	1.50	12.5, 20, 25, 32	0.9-11	0.006	RST1
TB222-16	400-1400	12	16	25	0.30	2.2/50	200	100-1000	2.0	120	5-50		0.90	12.5, 20, 25, 32	1.5-1.7	0.015	RST2
TB222-20	400-1400	12	20	31	0.35	2.2/62	200	100-1000	2.0	120	5-50		0.80	12.5, 20, 25, 32	1.5-1.7	0.015	
TB232-25	400-1400	15	25	39	0.50	2.2/78	200	100-1000	2.5	170	5-100		0.82	12.5, 20, 25, 32	5.0-8.2	0.023	RST3
TB232-32	400-1400	15	32	50	0.60	2.2/99	200	100-1000	2.5	170	5-100		0.62	12.5, 20, 25, 32	5.0-6.2	0.023	
TB232-40	400-1400	15	40	62	0.75	2.2/125	200	100-1000	2.5	170	5-100		0.50	12.5, 20, 25, 32	5.0-6.2	0.023	
TB242-50	400-1400	20	50	78	1.00	2.2/157	200	100-1000	3.0	200	5-100		0.40	12.5, 20, 25, 32	9.0-1.1	0.050	RST4
TB242-63	400-1400	20	63	98	1.10	2.2/198	200	100-1000	3.0	200	5-100		0.30	12.5, 20, 25, 32	9.0-1.1	0.050	
TB151-80	500-1600	20	80	126	1.6	2.2/250	500	500-1000	3.0	250	5-200		0.25	20, 25, 32, 40	10-20	0.165	RST5
TB151-100	500-1600	20	100	157	2.0	1.8/314	500	500-1000	2.5	250	5-200		0.25	20, 25, 32, 40	10-20	0.165	
TB161-125	500-1600	25	125	198	3.5	2.2/390	500	500-1000	2.5	250	5-200		0.15	20, 25, 32, 40	20-30	0.250	RST6
TB161-160	500-1600	25	160	250	4.0	1.8/500	500	500-1000	2.5	250	5-200		0.15	20, 25, 32, 40	20-30	0.250	
TB171-200	500-1600	35	200	314	6.0	2.2/630	500	500-1000	3.5	250	5-200		0.10	20, 25, 32, 40	25-35	0.440	RST7
TB171-250	500-1600	35	250	302	7.0	1.8/785	500	500-1000	3.5	250	5-200		0.10	20, 25, 32, 40	25-35	0.440	
TB171-320	500-1600	35	320	390	8.0	2.2/900	500	500-1000	3.5	250	5-200		0.10	20, 25, 32, 40	25-35	0.440	

Russia Type Triac Thyristor (Stud Version) 俄罗斯型双向可控硅(螺旋式)

Type	V_{RRM}	I_{RRM}	$IT_{(AV)}$	$IT_{(SM)}$	V_{TM}/I_{TM}	d_i/d_t	d_v/d_t	V_{GT}	I_{GT}	I_H	T_j	R_{jc}	M^2	Wt	Outline
			T_c55℃	10ms	25℃										
	V	mA	A	kA	V/A	A/μS	V/μS	V	mA	mA	℃	℃/W	N/m	kg	
TC212-10	200-1200	3.0	10	0.07	1.85/14	5.0	2.2-25	2.0	3.0	5~50	-40℃ ~ +125℃	2.50	0.9-1.1	0.006	RST1
TC212-16	200-1200	3.0	16	0.10	1.85/22	5.0	2.5-25	2.0	3.0	5~50		1.55	0.9-1.1	0.006	
TC222-20	200-1200	3.5	20	0.12	1.85/29	5.0	2.5-50	2.5	3.5	5~50		1.30	1.5-1.7	0.015	RST2
TC222-25	200-1200	3.5	25	0.20	1.80/35	5.0	2.5-50	2.5	3.5	5~50		0.90	1.5-1.7	0.015	
TC232-40	200-1200	5.0	40	0.25	1.85/58	6.3	6.3-100	3.0	4.0	50~100		0.65	5.0-6.2	0.023	RST3
TC232-50	200-1200	5.0	50	0.45	1.80/70	6.3	6.3-100	3.0	4.0	50~100		0.52	5.0-6.2	0.023	
TC242-63	200-1200	7.0	63	0.40	1.80/89	6.3	6.3-100	3.0	5.0	50~100		0.44	9.0-11	0.050	RST4
TC242-80	200-1200	7.0	80	0.50	1.80/113	6.3	6.3-100	3.0	5.0	50~100		0.34	9.0-11	0.050	
TC151-100	200-1200	10	100	1.0	1.65/140	6.3	6.3-100	3.0	300	50~100		0.22	10-20	0.165	RST5
TC151-125	200-1200	10	125	1.2	1.74/180	6.3	6.3-100	3.0	300	50~100		0.22	10-20	0.165	
TC161-160	200-1600	15	160	1.8	1.75/225	6.3	6.3-100	3.0	300	50~200		0.14	20-30	0.250	RST6
TC161-200	200-1600	15	200	2.0	1.60/290	6.3	6.3-100	3.5	300	50~200		0.14	20-30	0.250	
TC171-250	200-1600	25	250	3.0	1.70/350	25	6.3-100	3.5	300	50~200		0.10	25-35	0.440	RST7
TC171-320	200-1600	25	320	3.3	1.50/450	25	6.3-100	3.5	300	50~200		0.10	25-35	0.440	

Russia Type Thyristor Stud Version Outline 俄罗斯型螺旋式可控硅外型



SEMIKRON TYPE SEMICONDCTOR (Stud Version) | 西门康型半导体器件(螺旋式)

Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Inch device version available

Typical Applications

- Machine tool controls
- Battey charges
- Conver ters
- Motor controls
- Welder
- Phase control applications in conver ters
- Lighting circuits

Ordering information Table

Device Code SK ① N ② 240 ③ / 12 ④

1 - SEMIKRON Type Semiconductor
2 -N=anode to stud (stud reverse polarity)
R=cathode to stud (stud normal polarity)
T=phase control thyristor
3 -Current code=$IT_{(AV)}$ or $IF_{(AV)}$
4 -Voltage code=code × 100=V_{RRM}



Polarity

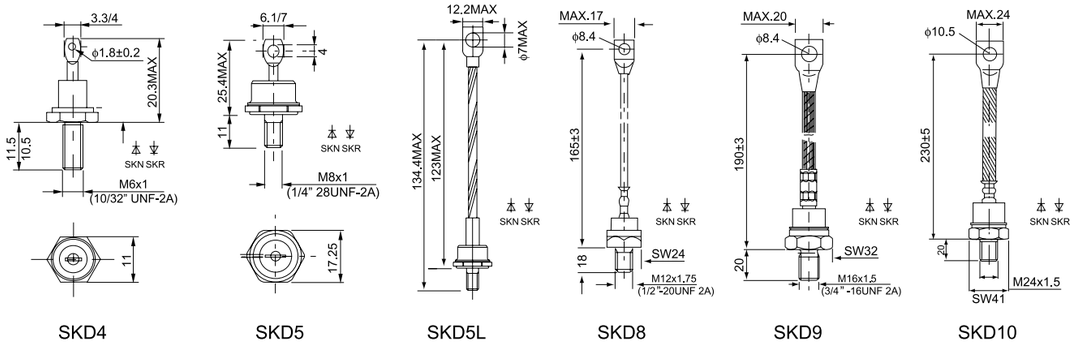
SEMIKRON Type Standard Recovery Diode (Stud Version) 西门康型普通整流二极管(螺旋式)

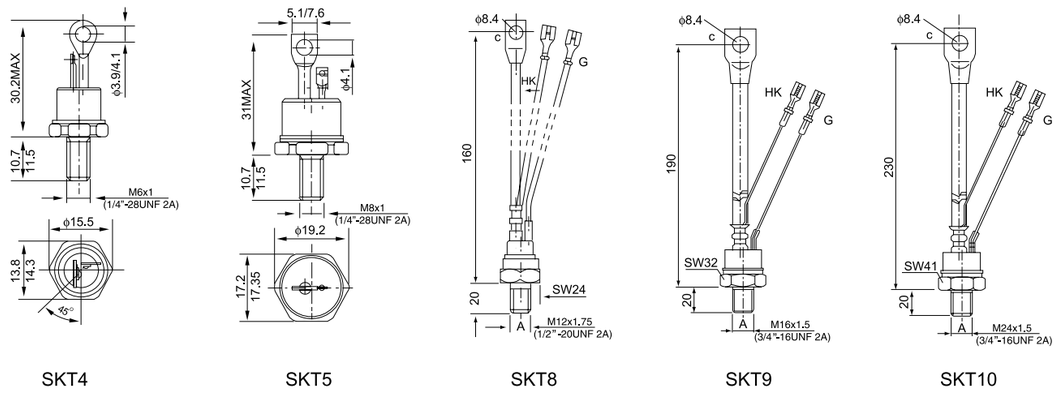
Type	$IF_{(AV)}$	V_{FM}/I_{FM}		$IF_{(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	T_j	M^2	Wt	Outline
	T_{HS}55℃	25℃									
	A	V	A	A	V	mA	℃/W	℃	N/m	kg	
SKN26	25	1.25	75	40	200-1200	≤12	≤1.2	-40℃ ~ +125℃	≤1.0	0.010	SKD4
SKR26	25	1.25	75	40	200-1200	≤12	≤1.2		≤1.0	0.010	
SKN46	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.025	SKD5
SKR46	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.025	
SKN71	70	1.45	210	115	200-1600	≤12	≤0.8		≤2.0	0.025	
SKR71	70	1.45	210	115	200-1600	≤12	≤0.8		≤2.0	0.025	
SKN45	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.050	SKD5L
SKR45	45	1.4	135	75	200-1600	≤10	≤1.0		≤2.0	0.050	
SKN70	70	1.45	210	115	200-1600	≤12	≤0.8		≤2.0	0.050	
SKR70	70	1.45	210	115	200-1600	≤12	≤0.8		≤2.0	0.050	
SKN100	100	1.6	300	160	200-1600	≤15	≤0.5		≤12	0.120	SKD8
SKR100	100	1.6	300	160	200-1600	≤15	≤0.5		≤12	0.120	
SKN130	130	1.5	390	210	200-1600	≤15	≤0.4		≤12	0.120	
SKR130	130	1.5	390	210	200-1600	≤15	≤0.4		≤12	0.120	
SKN240	240	1.35	720	400	200-1800	≤15	≤0.2		≤25	0.240	SKD9
SKR240	240	1.35	720	400	200-1800	≤15	≤0.2		≤25	0.240	
SKN320	320	1.5	960	210	200-1800	≤20	≤0.1		≤30	0.450	SKD10
SKR320	320	1.5	960	210	200-1800	≤20	≤0.1		≤30	0.450	
SKN400	400	1.6	1200	640	200-2400	≤20	≤0.1		≤30	0.450	
SKR400	400	1.6	1200	640	200-2400	≤20	≤0.1		≤30	0.450	

SEMIKRON Type Phase Control Thyristor (Stud Version) 西门康型普通可控硅(螺旋式)

Type	$I_{T(AV)}$	V_{TM}/I_{TM}		$I_{T(RMS)}$	V_{RRM}	I_{RRM}	I_{GT}	V_{GT}	I_H	I_L	d_v/d_t	d_i/d_t	T_j	R_{jc}	M^2	Wt	Outline
	T_{HS}55℃	25℃															
	A	V	A	A	V	mA	mA	V	mA	mA	mA	mA	℃	℃/W	N/m	kg	
SKT10	10	1.75	30	16	200-1200	⩽10	10-100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.8	⩽2.0	0.016	
SKT16	16	1.75	48	25	200-1200	⩽10	10-100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.5	⩽2.0	0.016	SKT4
SKT24	25	1.7	75	40	200-1200	⩽10	10-100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.5	⩽2.0	0.016	
SKT40	40	1.95	120	64	200-1200	⩽12	10-100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.0	⩽2.0	0.025	SKT5
SKT50	50	1.90	150	80	200-1200	⩽12	10-100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.0	⩽2.0	0.025	
SKT55	55	1.6	180	90	200-1600	⩽15	50-100	⩽2.5	⩽200	⩽400	⩾800	⩾100	-40℃	⩽0.8	⩽12	0.120	
SKT80	80	1.6	240	128	200-1600	⩽15	50-100	⩽2.5	⩽200	⩽400	⩾800	⩾100	~	⩽0.8	⩽12	0.120	SKT8
SKT100	100	1.6	300	160	200-1600	⩽15	50-100	⩽2.5	⩽200	⩽400	⩾800	⩾100	+125℃	⩽0.8	⩽12	0.120	
SKT130	130	1.55	390	208	200-1800	⩽20	50-100	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.6	⩽25	0.240	
SKT160	160	1.75	500	250	200-1800	⩽20	50-100	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.6	⩽25	0.240	SKT9
SKT200	200	1.75	600	320	200-1800	⩽20	50-100	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.6	⩽25	0.240	
SKT250	250	1.55	750	450	200-2400	⩽30	50-100	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.4	⩽30	0.450	SKT10
SKT300	300	1.50	900	500	200-2400	⩽30	50-100	⩽2.5	20-200	⩽400	⩾800	⩾100		⩽0.4	⩽30	0.450	

SEMIKRON Type Stud Version Outline 西门康型螺旋式外型





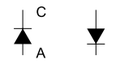
CHINESE TYPE SEMICONDUCTOR (Stud Version) | 国标半导体器件(螺旋式)

CHINESE TYPE STANDARD RECOVERY DIODE (Stud Version) 国标普通整流管(螺旋式)

Features
- High surge current capability
- Stud cathode and stud anode version
- Wide current range

Typical Applications
- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welder
- Motor controls

Polarity





Type	$I_{F(AV)}$	I_{FRMS}	V_{FM}	V_{RRM}	I_{RRM}	R_{jc}	T_j	Wt	Outline	Heatsink
	T_{HS}55℃		25℃							
	A	A	V	V	mA	℃/W	℃	kg		
ZP5A	5	7.9	⩽1.6	200-2000	⩽2	⩽4.0		0.010	A1	SZ13
ZP10A	10	16	⩽1.6	200-2000	⩽2	⩽2.5		0.025	A2	SZ14
ZP20A	20	31	⩽1.6	200-2000	⩽6	⩽1.4		0.027	A3/C1	SZ15
ZP30A	30	47	⩽1.6	200-2000	⩽6	⩽1.0	-40℃	0.110	C2	SZ16
ZP50A	50	79	⩽1.6	200-2000	⩽12	⩽0.6	~	0.140	C3	SZ16
ZP100A	100	160	⩽1.8	200-2000	⩽12	⩽0.3	+150℃	0.205	C4	SL17
ZP200A	200	310	⩽1.8	200-3000	⩽12	⩽0.2		0.325	C5	SL18
ZP300A	300	470	⩽1.8	200-3000	⩽15	⩽0.11		0.470	C6	SL19
ZP400A	400	550	⩽1.8	200-5000	⩽15	⩽0.075		0.750	C7	SL20
ZP500A	500	630	⩽1.8	200-5000	⩽15	⩽0.068		0.925	C7/C8	SL20

CHINESE TYPE PHASE CONTROL THYRISTOR (Stud Version) 国标普通晶闸管(螺旋式)

Features
- High current rating
- Excellent dynamic characteristics
- Superior surge capabilities
- Standard package

Typical Applications
- Phase control applications in converters
- Lighting circuits
- Battery charges
- Regulated power supplies and temperature and speed control circuit
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements
- Power supplier & motor controls

Polarity





Type	$I_{T(AV)}$	I_{FRMS}	V_{TM}	V_{RRM}	I_{DRM}	I_{GT}	V_{GT}	I_H	d_v/d_t	d_i/d_t	T_j	R_{jc}	Wt	Outline	Heatsink
	T_{HS}55℃		25℃												
	A	A	V	V	mA	mA	V	mA	V/μs	A/μs	℃	℃/W	kg		
KP5A	5	8	⩽2.2	200-2000	⩽8	5-45	⩽2.5	5-45	⩾500	/		⩽3.0	0.012	B1	SZ13
KP10A	10	16	⩽2.2	200-2000	⩽8	5-45	⩽2.5	5-45	⩾500	/		⩽2.5	0.027	B2	SZ14
KP20A	20	32	⩽2.2	200-2000	⩽8	5-45	⩽2.5	5-45	⩾500	/		⩽1.0	0.029	B3/D1	SZ15
KP30A	30	48	⩽2.2	200-2000	⩽10	5-50	⩽2.5	5-50	⩾800	100	-40℃	⩽0.5	0.112	D2	SZ16
KP50A	50	80	⩽2.4	200-2000	⩽10	5-150	⩽2.5	5-150	⩾800	100	~	⩽0.14	0.142	D3	SZ16
KP100A	100	160	⩽2.4	200-2000	⩽10	5-200	⩽2.5	5-200	⩾800	100	+125℃	⩽0.11	0.207	D4	SL17
KP200A	200	320	⩽2.6	200-2000	⩽10	5-200	⩽2.5	5-200	⩾800	100		⩽0.11	0.327	D5	SL18
KP300A	300	480	⩽2.6	200-2000	⩽30	5-200	⩽2.5	5-200	⩾800	100		⩽0.08	0.472	D6	SL19
KP400A	400	550	⩽2.6	200-3000	⩽30	5-200	⩽2.5	5-200	⩾800	100		⩽0.05	0.750	D7	SL20
KP500A	500	800	⩽2.6	200-3000	⩽30	5-200	⩽2.5	5-200	⩾800	100		⩽0.04	0.927	D7/D8	SL20

CHINESE TYPE TRIAC THYRISTOR (Stud Version) 国标双向晶闸管(螺旋式)

Features

- High current rating
- Excellent dynamic characteristics
- Superior surge capabilities
- Standard package

Polarity



KS

Typical Applications

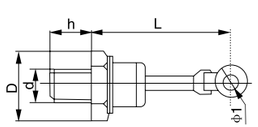
- Phase control applications in converters
- Lighting circuits
- Battery charges
- Regulated power supplies and temperature and speed control circuit
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements
- Power supplier & motor controls



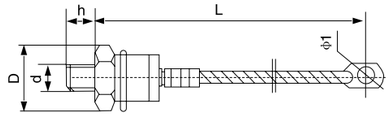
Type	$IT_{(RMS)}$	V_{TM}	V_{RRM}	I_{RRM}	I_{GT}	I_H	V_{GT}	dV/dt	di/dt	T_j	R_{jc}	Wt	Outline	Heatsink
	T_{HS}55℃	25℃												
	A	V	V	mA	mA	mA	V	V/μs	A/μs	℃	℃/W	kg		
KS5A	5	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10	-40℃ ~ +125℃	0.11	0.010	B1	SZ13
KS10A	10	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10		0.11	0.025	B2	SZ14
KS20A	20	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10		0.11	0.027	B3	SZ15
KS30A	30	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10		0.11	0.110	D2	SZ16
KS50A	50	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10		0.11	0.130	D3	SZ16
KS100A	100	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10		0.11	0.165	D4	SL17
KS200A	200	≤2.6	200-2000	≤30	≤350	≤250	3.5	≥500	≥10		0.11	0.335	D5	SL18

CHINESE TYPE STUD VERSION OUTLINE LIST 国标螺旋式外型尺寸对照表

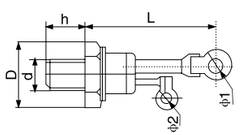
Type	Outline No.	Dimension (mm)					
		d	D	L	h	ϕ1	ϕ2
50A	A1 B1	6	16	29	10	3	2
10A	A2 B2	8	22	39	13	4	2
20A	A3 B3	10	22	39	13	4	2
20A(L)	C1 D1	10	27	180	13	6	2
30A	C2 D2	12	32	170	15	6.5	5
50A	C3 D3	12	36	175	15	6.5	5
100A	C4 D4	16	36	200	16	8	5
200A	C5 D5	20	43	225	20	9	5
300A	C6 D6	20	49	240	20	9	5
400A/500A	C7 D7	30	57	300	26	15	5
500A	C8 D8	30	74	390	30	15	5



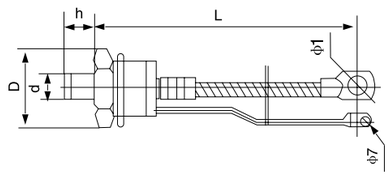
A



C



B



D