

# SanRex TRIACS

$I_{T(RMS)}$ [A]	<b>16<sub>amp</sub></b> ( $T_c=96^\circ\text{C}$ ) Harmetic	<b>16<sub>amp</sub></b> ( $T_c=82^\circ\text{C}$ ) Harmetic Isolated	<b>16<sub>amp</sub></b> ( $T_c=83^\circ\text{C}$ ) Mold Isolated	<b>25<sub>amp</sub></b> ( $T_c=88^\circ\text{C}$ ) Harmetic	<b>25<sub>amp</sub></b> ( $T_c=74^\circ\text{C}$ ) Harmetic Isolated	<b>25<sub>amp</sub></b> ( $T_c=74^\circ\text{C}$ ) Mold Isolated	<b>35<sub>amp</sub></b> ( $T_c=84^\circ\text{C}$ ) Harmetic	<b>35<sub>amp</sub></b> ( $T_c=62^\circ\text{C}$ ) Harmetic Isolated	
$V_{DRM}$ [V]	<b>200</b>	SSG16C20	SSG16C20Y	TG16C20	SSG25C20	SSG25C20Y	TG25C20	SSG35C20	SSG35C20Y
	<b>300</b>	SSG16C30	SSG16C30Y	TG16C30	SSG25C30	SSG25C30Y	TG25C30	SSG35C30	SSG35C30Y
	<b>400</b>	SSG16C40	SSG16C40Y	TG16C40	SSG25C40	SSG25C40Y	TG25C40	SSG35C40	SSG35C40Y
	<b>500</b>	SSG16C50	SSG16C50Y	TG16C50	SSG25C50	SSG25C50Y	TG25C50	SSG35C50	SSG35C50Y
	<b>600</b>	SSG16C60	SSG16C60Y	TG16C60	SSG25C60	SSG25C60Y	TG25C60	SSG35C60	SSG35C60Y
	<b>800</b>	SSG16C80	SSG16C80Y		SSG25C80	SSG25C80Y		SSG35C80	
	<b>1,000</b>	SSG16C100	SSG16C100Y		SSG25C100	SSG25C100Y		SSG35C100	
<b>1,200</b>	SSG16C120	SSG16C120Y		SSG25C120	SSG25C120Y		SSG35C120		
$I_{TSM}$ [A]	140/160	140/160	140/160	220/250	220/250	220/250	350/400	300/330	
$I^2t$ [ $\text{A}^2\cdot\text{sec}$ ]	106	106	106	260	260	260	660	450	
$di/dt$ [ $\text{A}/\mu\text{s}$ ]	50	50	50	50	50	50	50	50	
$I_{DRM}$ [mA]	3	3	3	5	5	5	6	5	
$V_{TM}$ [V]	1.7	1.7	1.5	1.6	1.6	1.4	1.6	1.4	
$I_{GT}$ [mA]	50	50	50	70	70	50	70	50	
$V_{GT}$ [V]	3	3	3	3	3	3	3	3	
$V_{GD}$ [V]	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
$(dv/dt)_c$ [ $\text{V}/\mu\text{s}$ ]	6	6	6	20	20	6	20	5	
$T_j$ [ $^\circ\text{C}$ ]	-30~+125	-25~+125	-25~+125	-30~+125	-25~+125	-25~+125	-30~+125	-25~+125	
$R_{th}$ [ $^\circ\text{C}/\text{W}$ ]	1.2	1.8	2.0	1.0	1.4	1.6	0.8	1.4	
$V_{ISO}$ [V]		2,500	2,500		2,500	2,500		2,500	
Package Outline	S1, D1	Y1	T1	S2	Y2	T1	S3	Y2	

# SanRex TRIACS

$I_{T(RMS)}$ [A]	<b>45<sub>amp</sub></b> ( $T_c=82^\circ\text{C}$ ) Harmetic Stud	<b>50<sub>amp</sub></b> ( $T_c=85^\circ\text{C}$ ) Harmetic Stud	<b>70<sub>amp</sub></b> ( $T_c=85^\circ\text{C}$ ) Harmetic Stud	<b>70<sub>amp</sub></b> ( $T_c=85^\circ\text{C}$ ) Low Cost Harmetic Stud	<b>100<sub>amp</sub></b> ( $T_c=83^\circ\text{C}$ ) Harmetic Stud	<b>150<sub>amp</sub></b> ( $T_c=84^\circ\text{C}$ ) Harmetic Stud	<b>300<sub>amp</sub></b> ( $T_c=89^\circ\text{C}$ ) Harmetic Stud	
$V_{DRM}$ [V]	200	SSG45C20	SSG50C20	SSG70C20	SSG70D20	SSG100C20	SSG150C20	SSG300C20
	300	SSG45C30	SSG50C30	SSG70C30	SSG70D30	SSG100C30	SSG150C30	SSG300C30
	400	SSG45C40	SSG50C40	SSG70C40	SSG70D40	SSG100C40	SSG150C40	SSG300C40
	500	SSG45C50	SSG50C50	SSG70C50	SSG70D50	SSG100C50	SSG150C50	SSG300C50
	600	SSG45C60	SSG50C60	SSG70C60	SSG70D60	SSG100C60	SSG150C60	SSG300C60
	800	SSG45C80	SSG50C80	SSG70C80		SSG100C80	SSG150C80	SSG300C80
	1,000	SSG45C100	SSG50C100	SSG70C100		SSG100C100	SSG150C100	SSG300C100
	1,200	SSG45C120	SSG50C120	SSG70C120		SSG100C120	SSG150C120	SSG300C120
$I_{TSM}$ [A]	500/550	720/800	900/1,000	900/1,000	1,080/1,200	1,980/2,200	3,000/3,300	
$I^2t$ [ $\text{A}^2\cdot\text{sec}$ ]	1,260	2,660	4,100	4,100	6,000	20,000	45,000	
$di/dt$ [ $\text{A}/\mu\text{s}$ ]	50	50	50	50	50	50	50	
$I_{DRM}$ [mA]	6	8	10	10	10	15	25	
$V_{TM}$ [V]	1.6	1.5	1.5	1.5	1.55	1.5	1.5	
$I_{GT}$ [mA]	70	150	200	200	200	400	400	
$V_{GT}$ [V]	3	3	3	3	3	3	3	
$V_{GD}$ [V]	0.2	0.2	0.2	0.2	0.2	0.2	0.25	
$(dv/dt)_c$ [ $\text{V}/\mu\text{s}$ ]	20	20	20	20	20	50	100	
$T_j$ [ $^\circ\text{C}$ ]	$-30\sim+125$	$-30\sim+125$	$-30\sim+125$	$-30\sim+125$	$-30\sim+125$	$-30\sim+125$	$-30\sim+125$	
$R_{th}$ [ $^\circ\text{C}/\text{W}$ ]	0.65	0.6	0.4	0.4	0.3	0.2	0.09	
Package Outline	S3	S4	S5	S6	S5	S7	S8	

$I_{T(RMS)}$  RMS On-State Current  
 $V_{DRM}$  Repetitive Peak Off-State Voltage  
 $I_{TSM}$  Surge On-State Current  
 $I^2t$   $I^2t$  for fusing (2~10msec)  
 $di/dt$  Critical Rate of Rise of On-State Current  
 ( $I_c = \frac{1}{3}I_{GT}$ ,  $T_j=25^\circ\text{C}$ ,  
 $V_D = \frac{1}{2}V_{DRM}$   $di_G/dt = 1\text{A}/\mu\text{s}$ )

$I_{DRM}$  Peak Off-State Current, max.(at  $V_{DRM}$  Single phase half wave)  
 $V_{TM}$  Peak On-State Voltage, max.( $I_T \div 1.4I_{T(RMS)}$ ,  $T_j=25^\circ\text{C}$ )  
 $I_{GT}$  Gate Trigger Current, max.( $T_j=25^\circ\text{C}$ ,  $I_T=1\text{A}$ ,  $V_D=6\text{V}$ )  
 $V_{GT}$  Gate Trigger Voltage, max.( $T_j=25^\circ\text{C}$ ,  $I_T=1\text{A}$ ,  $V_D=6\text{V}$ )  
 $V_{GD}$  Non-Trigger Gate Voltage, min.( $T_j=125^\circ\text{C}$ ,  $V_D = \frac{1}{2}V_{DRM}$ )  
 $(dv/dt)_c$  Critical Rate of Rise of Off-State Voltage at Commutation, min.  
 ( $T_j=125^\circ\text{C}$ ,  $V_D = \frac{2}{3}V_{DRM}$   $|di/dt|_c = \frac{1}{2}I_{T(RMS)}\text{A}/\mu\text{s}$ )  
 $R_{th}$  Thermal Impedance, max.  
 $T_j$  Operating Junction Temperature Range  
 $V_{ISO}$  Isolation Breakdown Voltage (RMS, 1min.)

**SanRex SCRs**

$I_{T(AV)}$ [A]		<b>10<sub>amp</sub></b> ( $T_c=104^\circ\text{C}$ ) Harmetic	<b>16<sub>amp</sub></b> ( $T_c=88^\circ\text{C}$ ) Harmetic Stud	<b>20<sub>amp</sub></b> ( $T_c=88^\circ\text{C}$ ) Harmetic Stud	<b>30<sub>amp</sub></b> ( $T_c=81^\circ\text{C}$ ) Harmetic Stud	<b>40<sub>amp</sub></b> ( $T_c=81^\circ\text{C}$ ) Harmetic Stud	<b>70<sub>amp</sub></b> ( $T_c=83^\circ\text{C}$ ) Harmetic Stud	<b>100<sub>amp</sub></b> ( $T_c=93^\circ\text{C}$ ) Harmetic Stud
$V_{RRM}$ $V_{DRM}$ ( $V_{RSM}$ ) [V]	<b>200</b> ( <b>240</b> )	SC10C20	SC16C20	SC20C20	SC30C20	SC40C20	SC70C20	SC100C20
	<b>300</b> ( <b>360</b> )	SC10C30	SC16C30	SC20C30	SC30C30	SC40C30	SC70C30	SC100C30
	<b>400</b> ( <b>480</b> )	SC10C40	SC16C40	SC20C40	SC30C40	SC40C40	SC70C40	SC100C40
	<b>500</b> ( <b>600</b> )	SC10C50	SC16C50	SC20C50	SC30C50	SC40C50	SC70C50	SC100C50
	<b>600</b> ( <b>720</b> )	SC10C60	SC16C60	SC20C60	SC30C60	SC40C60	SC70C60	SC100C60
	<b>800</b> ( <b>960</b> )	SC10C80	SC16C80	SC20C80	SC30C80	SC40C80	SC70C80	SC100C80
	<b>1,000</b> ( <b>1,100</b> )	SC10C100	SC16C100	SC20C100	SC30C100	SC40C100	SC70C100	SC100C100
<b>1,200</b> ( <b>1,300</b> )	SC10C120	SC16C120	SC20C120	SC30C120	SC40C120	SC70C120	SC100C120	
$I_{T(RMS)}$ [A]	15	25	30	47	62	110	160	
$I_{TSM}$ (50/60Hz) [A]	180/200	220/250	360/400	540/600	900/1,000	1,800/2,000	2,000/2,200	
$I^2t$ [ $\text{A}^2 \cdot \text{sec}$ ]	165	260	660	1,500	4,160	16,600	20,100	
$di/dt$ [ $\text{A}/\mu\text{s}$ ]	100	100	100	100	50 ( $V_{DRM}=200\sim 600\text{V}$ )		200 ( $V_{DRM}=$	
$I_{DRM}, I_{RRM}$ [mA]	3	3	5	5	5	10	15	
$V_{TM}$ [V]	1.7	1.9	1.8	1.8	1.8	1.5	1.6	
$I_{GT}$ [mA]	40	40	50	50	70	70	100	
$V_{GT}$ [V]	3	3	3	3	3	3	3	
$V_{GD}$ [V]	0.2	0.2	0.25	0.25	0.25	0.25	0.25	
$dv/dt$ [ $\text{V}/\mu\text{s}$ ]	100 ( $V_{DRM}=200\sim 600\text{V}$ )							200 ( $V_{DRM}=800\sim 1200\text{V}$ )
$T_j$ [ $^\circ\text{C}$ ]	-30~+125	-30~+125	-30~+125	-30~+125	-30~+125	-30~+125	-30~+125	
$R_{th}$ [ $^\circ\text{C}/\text{W}$ ]	1.2	1.2	1.0	0.8	0.6	0.4	0.2	
Package Outline	S1, D1	S2	S3	S3	S4	S5	S7	

# SanRex SCRs for welders

150 <sub>amp</sub> (T <sub>c</sub> =84°C) Harmetic Stud		300 <sub>amp</sub> (T <sub>c</sub> =85°C) Harmetic Stud		I <sub>T(AV)</sub> [A]	60 <sub>amp</sub> (T <sub>c</sub> =115°C) Harmetic Stud	80 <sub>amp</sub> (T <sub>c</sub> =107°C) Harmetic Stud	100 <sub>amp</sub> (T <sub>c</sub> =105°C) Harmetic Stud	120 <sub>amp</sub> (T <sub>c</sub> =115°C) Harmetic Stud	250 <sub>amp</sub> (T <sub>c</sub> =97°C) Harmetic Stud
SC150C20	SC300C20	V <sub>RRM</sub> V <sub>DRM</sub> (V <sub>RSM</sub> ) [V]	200 (240)	AS60C20	AS80C20	AS100C20	AS120C20	AS250C20	
SC150C30	SC300C30		300 (360)	AS60C30	AS80C30	AS100C30	AS120C30	AS250C30	
SC150C40	SC300C40		400 (480)	AS60C40	AS80C40	AS100C40	AS120C40	AS250C40	
SC150C50	SC300C50								
SC150C60	SC300C60			I <sub>T(RMS)</sub> [A]	94	125	157	188	390
SC150C80	SC300C80			I <sub>TSM</sub> (50/60Hz) [A]	1,800/2,000	2,250/2,500	2,700/3,000	3,600/4,000	5,000/5,500
SC150C100	SC300C100			I <sup>2</sup> t [A <sup>2</sup> ·sec]	16,700	26,000	37,500	66,000	126,000
SC150C120	SC300C120			di/dt [A/μs]	50	50	50	50	50
230	470			I <sub>DRM</sub> , I <sub>RRM</sub> [mA]	10	10	15	15	25
2,700/3,000	6,300/7,000			V <sub>TM</sub> [V]	1.47	1.34	1.30	1.22	1.40
37,500	204,000			I <sub>GT</sub> [mA]	70	70	70	70	100
800~1,200V)				V <sub>GT</sub> [V]	2	2	2	2	3
15	25			V <sub>GD</sub> [V]	0.25	0.25	0.25	0.25	0.25
1.6	1.45			dv/dt [V/μs]	5	5	5	5	5
100	100			T <sub>j</sub> [°C]	-30~+150	-30~+150	-30~+150	-30~+150	-30~+150
3	3			R <sub>th</sub> [°C/W]	0.4	0.4	0.35	0.24	0.15
0.25	0.25			Package Outline	S6.1	S6.1	S11	S11	S9
-30~+125	-30~+125								
0.17	0.09								
S9	S8								

I<sub>T(AV)</sub> Average On-State Current  
 V<sub>RRM</sub> Repetitive Peak Reverse Voltage  
 V<sub>DRM</sub> Repetitive Peak Off-State Voltage  
 V<sub>RSM</sub> Non-Repetitive Peak Reverse Voltage  
 I<sub>T(RMS)</sub> RMS On-State Current  
 I<sub>TSM</sub> Surge On-State Current  
 I<sup>2</sup>t I<sup>2</sup>t for fusing (2~10msec)  
 di/dt Critical Rate of Rise of On-State Current  
 (I<sub>G</sub> ≐ 1/3 I<sub>GT</sub>, T<sub>j</sub>=25°C, V<sub>D</sub>=1/2 V<sub>DRM</sub>, di/dt=1A/μs)  
 I<sub>DRM</sub> Repetitive Peak Off-State Current, max.  
 (at V<sub>DRM</sub>, Single phase half wave)  
 I<sub>RRM</sub> Repetitive Peak Reverse Current, max.  
 (at V<sub>RRM</sub>, Single phase half wave)

V<sub>TM</sub> Peak On-State Voltage, max.  
 (I<sub>T</sub> ≐ 1.4 I<sub>T(RMS)</sub>, T<sub>j</sub>=25°C)  
 I<sub>GT</sub> Gate Trigger Current, max.  
 (T<sub>j</sub>=25°C, I<sub>T</sub>=1A, V<sub>D</sub>=6V)  
 V<sub>GT</sub> Gate Trigger Voltage, max.  
 (T<sub>j</sub>=25°C, I<sub>T</sub>=1A, V<sub>D</sub>=6V)  
 V<sub>GD</sub> Non-Trigger Gate Voltage, min.  
 (T<sub>j</sub>=125°C, V<sub>D</sub>=1/2 V<sub>DRM</sub>)  
 dv/dt Critical Rate of Rise of Off-State Voltage, min.  
 (T<sub>j</sub>=125°C, V<sub>D</sub>=2/3 V<sub>DRM</sub> Exponential wave)  
 T<sub>j</sub> Operating Junction Temperature Range  
 R<sub>th</sub> Thermal Impedance, max.

# SanRex THYRISTOR MODULES

$I_{T(AV)}$ [V]		25 <sub>amp</sub> ( $T_c=93^\circ\text{C}$ )	25 <sub>amp</sub> ( $T_c=93^\circ\text{C}$ )	40 <sub>amp</sub> ( $T_c=83^\circ\text{C}$ )	40 <sub>amp</sub> ( $T_c=83^\circ\text{C}$ )	50 <sub>amp</sub> ( $T_c=81^\circ\text{C}$ )	50 <sub>amp</sub> ( $T_c=81^\circ\text{C}$ )	70 <sub>amp</sub> ( $T_c=81^\circ\text{C}$ )	70 <sub>amp</sub> ( $T_c=81^\circ\text{C}$ )
$V_{RRM}$	200 (240)	PK25C20	PD25C20	PK40C20	PD40C20	PK50C20	PD50C20	PK70C20	PD70C20
$V_{DRM}$	400 (480)	PK25C40	PD25C40	PK40C40	PD40C40	PK50C40	PD50C40	PK70C40	PD70C40
$V_{RSM}$	600 (720)	PK25C60	PD25C60	PK40C60	PD40C60	PK50C60	PD50C60	PK70C60	PD70C60
[V]	800 (960)	PK25C80	PD25C80	PK40C80	PD40C80	PK50C80	PD50C80	PK70C80	PD70C80
$I_{T(RMS)}$	[A]	39		62		78		110	
$I_{TSM}$	[A]	450/500		720/800		900/1,000		1,250/1,400	
$I^2t$	[A <sup>2</sup> ·sec]	1,000		2,700		4,150		8,100	
$di/dt$	[A/ $\mu\text{s}$ ]	100		150		150		150	
$I_{DRM}, I_{RRM}$	[mA]	5		8		10		12	
$V_{TM}$	[V]	1.55		1.50		1.45		1.40	
$I_{GT}$	[mA]	50		70		70		70	
$V_{GT}$	[V]	3		3		3		3	
$V_{GD}$	[V]	0.25		0.25		0.25		0.25	
$dv/dt$	[V/ $\mu\text{s}$ ]	500		500		500		500	
$T_j$	[ $^\circ\text{C}$ ]	-30~+125		-30~+125		-30~+125		-30~+125	
$R_{th}$	[ $^\circ\text{C}/\text{W}$ ]	0.8		0.7		0.6		0.45	
$V_{iso}$	[V]	2,500		2,500		2,500		2,500	
$R_{iso}$	[M $\Omega$ ]	1,000		1,000		1,000		1,000	
Package Outline		M1		M1		M1		M1	

$I_{T(AV)}$  Average On-State Current  
 $V_{RRM}$  Repetitive Peak Reverse Voltage  
 $V_{DRM}$  Repetitive Peak Off-State Voltage  
 $V_{RSM}$  Non-Repetitive Peak Reverse Voltage  
 $I_{T(RMS)}$  RMS On-State Current  
 $I_{TSM}$  Surge On-State Current  
 $I^2t$   $I^2t$  for fusing (2~10msec)  
 $di/dt$  Critical Rate of Rise of On-State Current  
 ( $I_G \div \frac{1}{3} I_{GT}$ ,  $T_j=25^\circ\text{C}$ ,  $V_D = \frac{1}{2} V_{DRM}$ ,  $di/dt=1\text{A}/\mu\text{s}$ )  
 $I_{DRM}$  Repetitive Peak Off-State Current, max.  
 (at  $V_{DRM}$ , Single phase half wave)  
 $I_{RRM}$  Repetitive Peak Reverse Current, max.  
 (at  $V_{RRM}$ , Single phase half wave)

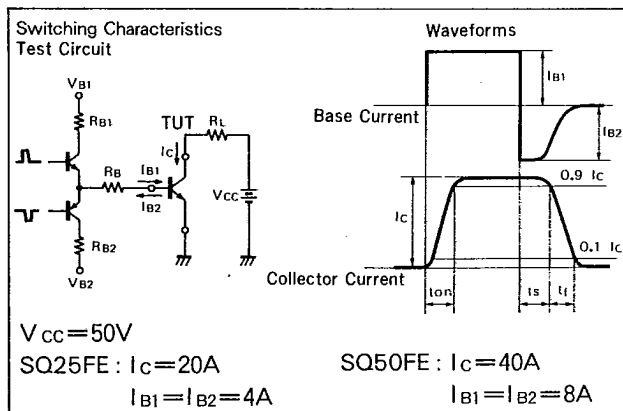
$V_{TM}$  Peak On-State Voltage, max. ( $I_T \div 1.4 I_{T(RMS)}$ ,  $T_j=25^\circ\text{C}$ )  
 $I_{GT}$  Gate Trigger Current, max. ( $T_j=25^\circ\text{C}$ ,  $I_T=1\text{A}$ ,  $V_D=6\text{V}$ )  
 $V_{GT}$  Gate Trigger Voltage, max. ( $T_j=25^\circ\text{C}$ ,  $I_T=1\text{A}$ ,  $V_D=6\text{V}$ )  
 $V_{GD}$  Non-Trigger Gate Voltage, min. ( $T_j=125^\circ\text{C}$ ,  $V_D = \frac{1}{2} V_{DRM}$ )  
 $dv/dt$  Critical Rate of Rise of Off-State Voltage, min.  
 ( $T_j=125^\circ\text{C}$ ,  $V_D = \frac{2}{3} V_{DRM}$ , Exponential wave)  
 $T_j$  Operating Junction Temperature Range  
 $R_{th}$  Thermal Impedance, max.  
 $V_{iso}$  Isolation Breakdown Voltage (RMS, 1min)  
 $R_{iso}$  Isolation Resistance (D.C. 1,000V 5sec)

# Fast Switching Power TRANSISTORS

100 <sub>amp</sub> (T <sub>c</sub> =83°C)		100 <sub>amp</sub> (T <sub>c</sub> =83°C)		I <sub>c</sub> [A]	25 <sub>amp</sub> Harmetic Diamond Base			50 <sub>amp</sub> Harmetic Stud		
					SQ25FE40	SQ25FE60	SQ25FE80	SQ50FE40	SQ50FE60	SQ50FE80
PK100C20	PD100C20	V <sub>CBO</sub> [V]		500	700	900	500	700	900	
PK100C40	PD100C40	V <sub>CEO</sub> [V]		250	450	450	250	450	450	
PK100C60	PD100C60	V <sub>CEX(SUS)</sub> [V]		400	600	800	400	600	800	
PK100C80	PD100C80	V <sub>CER(SUS)</sub> [V]		300	500	500	300	500	500	
160		V <sub>EBO</sub> [V]		10			10			
1,800/2,000		I <sub>c pulse</sub> [A]		50			100			
16,600		I <sub>B</sub> [A]		10 (I <sub>B pulse</sub> 20)			15 (I <sub>B pulse</sub> 30)			
200		P <sub>T</sub> [W]		200			350			
15		I <sub>CBO</sub> [mA]		1.0			1.0			
1.40		I <sub>EBO</sub> [mA]		1.0			1.0			
100		h <sub>FE</sub>		8 (I <sub>c</sub> =15A, V <sub>CE</sub> =2V) 7.5 (I <sub>c</sub> =25A, V <sub>CE</sub> =5V)			9 (I <sub>c</sub> =30A, V <sub>CE</sub> =2V) 9 (I <sub>c</sub> =50A, V <sub>CE</sub> =5V)			
3		V <sub>CE(Sat)</sub> [V]		1.2			1.0			
0.25		V <sub>BE(Sat)</sub> [V]		1.8			1.8			
500		t <sub>on</sub> [μs]		2.0			2.0			
-30~+125		t <sub>s</sub> [μs]		3.0			3.5			
0.3		t <sub>f</sub> [μs]		0.5			0.5			
2,500		T <sub>j</sub> , T <sub>stg</sub> [°C]		-30~+150			-30~+150			
1,000		R <sub>th</sub> [°C/W]		0.63			0.36			
M1		Package Outline		D2			S4.1			

- I<sub>c</sub> Collector Current
- V<sub>CBO</sub> Collector-Base Voltage
- V<sub>CEO</sub> Collector-Emitter Voltage
- V<sub>CEX(SUS)</sub> Collector-Emitter Sustaining Voltage (I<sub>c</sub>=1A, V<sub>EB</sub>=8V)
- V<sub>CER(SUS)</sub> Collector-Emitter Sustaining Voltage (I<sub>c</sub>=1A, R<sub>BE</sub>=50Ω)
- V<sub>EBO</sub> Emitter-Base Voltage
- I<sub>c pulse</sub> Collector Pulse Current
- I<sub>B</sub> Base Current
- P<sub>T</sub> Total Power Dissipation
- I<sub>CBO</sub> Collector Cutoff Current
- I<sub>EBO</sub> Emitter Cutoff Current
- h<sub>FE</sub> DC Current Gain
- V<sub>CE(Sat)</sub> Collector-Emitter Saturation Voltage (I<sub>c</sub>=Rating, I<sub>B</sub>=1/5 I<sub>c</sub>)
- V<sub>BE(Sat)</sub> Base-Emitter Saturation Voltage (I<sub>c</sub>=Rating, I<sub>B</sub>=1/5 I<sub>c</sub>)
- t<sub>on</sub> On Time
- t<sub>s</sub> Storage Time

- t<sub>f</sub> Fall Time
- T<sub>j</sub>, T<sub>stg</sub> Operating Junction, Storage Temperature
- R<sub>th</sub> Thermal Impedance



# SanRex Fast Switching Thyristors

$I_{T(AV)}$ [A]		16amp ( $T_c=77^\circ\text{C}$ ) Fast Switching SCR $t_q \leq 10\mu\text{s}$	20amp ( $T_c=75^\circ\text{C}$ ) Fast Switching SCR $t_q \leq 10\mu\text{s}$	30amp ( $T_c=65^\circ\text{C}$ ) Fast Switching SCR $t_q \leq 10\mu\text{s}$	70amp ( $T_c=74^\circ\text{C}$ ) Fast Switching SCR $t_q \leq 30\mu\text{s}$	150amp ( $T_c=79^\circ\text{C}$ ) Fast Switching SCR $t_q \leq 10\mu\text{s}$	30amp ( $T_c=85^\circ\text{C}$ ) High Freq Switching SCR $t_q \leq 7.5\mu\text{s}$	20amp ( $T_c=90^\circ\text{C}$ ) Reverse Conductive Thyristor
$V_{RRM}^*$ $V_{DRM}$ ( $V_{RSM}^*$ )** [V]	100 (120)	SC16C10J	SC20C10J	SC30C10J	SC70C10L	SC150C10J		
	200 (240)	SC16C20J	SC20C20J	SC30C20J	SC70C20L	SC150C20J		
	300 (360)	SC16C30J	SC20C30J	SC30C30J	SC70C30L	SC150C30J		
	400 (480)	SC16C40J	SC20C40J	SC30C40J	SC70C40L	SC150C40J	SC20C40H	SN20C40
	500 (600)	SC16C50J	SC20C50J	SC30C50J	SC70C50L	SC150C50J	SC20C50H	SN20C50
	600 (720)	SC16C60J	SC20C60J	SC30C60J	SC70C60L		SC20C60H	SN20C60
	700						SC20C70H	SN20C70
	800							SN20C80
	900							SN20C90
$I_{T(RMS)}$ [A]	25	30	47	110	230	47	30( $V_{R(RMS)}=10$ )	
$I_{TSM}$ (50/60Hz) [A]	220/250	300/340	450/500	1,350/1,500	4,000/4,400	450/500	260/300	
$I^2t$ [ $A^2 \cdot \text{sec}$ ]	260	480	1,040	9,370	80,600	1,040	370	
$di/dt$ [ $A/\mu\text{s}$ ]	50	50	50	50	200	200	28 ( $f \leq 28\text{kHz}$ )	
$I_{DRM}, I_{RRM}$ [mA]	6	10	10	10	15	10	5	
$V_{TM}$ [V]	2.5	2.5	2.5	1.8	1.8	2.5	2.2	
$I_{GT}$ [mA]	50	70	70	70	100	150	120	
$V_{GT}$ [V]	3	3	3	3	3	1.55	1.1	
$V_{GD}$ [V]	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
$t_q$ [ $\mu\text{s}$ ]	10	10	10	30	10	7.5	12	
$dv/dt$ [ $V/\mu\text{s}$ ]	100	100	100	100	200	1,100	1,000	
$T_j$ [ $^\circ\text{C}$ ]	-30~+125	-30~+125	-30~+125	-30~+125	-30~+125	-30~+125	-30~+125	
$R_{th}$ [ $^\circ\text{C}/\text{W}$ ]	1.2	1.0	0.8	0.4	0.17	0.55	0.58	
Package Outline	S2	S3	S3	S5	S9	S2	S2.1	

\*Not Applicable for SN20C

\*\*Not Applicable for SC20C-H or SN20C

$I_{T(AV)}$  Average On-State Current  
 $V_{RRM}$  Repetitive Peak Reverse Voltage  
 $V_{DRM}$  Repetitive Peak Off-State Voltage  
 $V_{RSM}$  Non-Repetitive Peak Reverse Voltage  
 $I_{T(RMS)}$  RMS On-State Current  
 $I_{TSM}$  Surge On-State Current  
 $I^2t$   $I^2t$  for fusing (2~10msec)  
 $di/dt$  Critical Rate of Rise of On-State Current  
 ( $I_G \doteq \frac{1}{3}I_{GT}$ ,  $T_j=25^\circ\text{C}$ ,  $V_D = \frac{1}{2}V_{DRM}$ ,  $di_G/dt=1A/\mu\text{s}$ )  
 $I_{DRM}$  Repetitive Peak Off-State Current, max.  
 (at  $V_{DRM}$ , Single phase half wave)  
 $I_{RRM}$  Repetitive Peak Reverse Current, max.  
 (at  $V_{RRM}$ , Single phase half wave)

$V_{TM}$  Peak On-State Voltage, max. ( $I_T \doteq 1.4I_{T(RMS)}$ ,  $T_j=25^\circ\text{C}$ )  
 $I_{GT}$  Gate Trigger Current, max. ( $T_j=25^\circ\text{C}$ ,  $I_T=1A$ ,  $V_D=6V$ )  
 $V_{GT}$  Gate Trigger Voltage, max. ( $T_j=25^\circ\text{C}$ ,  $I_T=1A$ ,  $V_D=6V$ )  
 $V_{GD}$  Non-Trigger Gate Voltage, min. ( $T_j=125^\circ\text{C}$ ,  $V_D = \frac{1}{2}V_{DRM}$ )  
 $t_q$  Turn Off Time, max. ( $T_j=125^\circ\text{C}$ ,  $I_T=I_{T(AV)}$ ,  $V_R=50V$ ,  
 $V_D = \frac{1}{2}V_{DRM}$ ,  $dv/dt=20V/\mu\text{s}$ )  
 $dv/dt$  Critical Rate of Rise of Off-State Voltage, min.  
 ( $T_j=125^\circ\text{C}$ ,  $V_D = \frac{2}{3}V_{DRM}$ , Exponential wave)  
 $T_j$  Operating Junction Temperature Range  
 $R_{th}$  Thermal Impedance, max.

