

**SUB MINI****S1210BS –
S1210MS SCR'S****12 A 200–600 V 10–25 mA**

The S1210 series silicon controlled rectifiers are high performance glass passivated PNP devices. These parts are intended for hybrid applications.

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Part Nr.	Symbol	Min.	Max.	Unit	Test Conditions
Repetitive Peak Off State Voltage	S1210BS S1210DS S1210MS	V_{DRM} V_{RRM}	200 400 600		V	$T_j = -40^\circ\text{C}$ to 125°C $R_{GK} = 1\text{K}\Omega$
On-State Current		$I_{T(RMS)}$	12		A	All Conduction Angles $T_C = 85^\circ\text{C}$
Average On-State Current		$I_{T(AV)}$	7.6		A	Half Cycle, $\Theta = 180^\circ$, $T_C = 85^\circ\text{C}$
Nonrept. On-State Current		I_{TSM}	132		A	Half Cycle, 60 Hz
Nonrept. On-State Current		I_{TSM}	120		A	Half Cycle, 50 Hz
Fusing Current		I^2t	72		A^2s	$t = 10\text{ ms}$, Half Cycle
Peak Gate Current		I_{GM}	4		A	$10\mu\text{s}$ max.
Peak Gate Dissipation		P_{GM}	10		W	$10\mu\text{s}$ max.
Gate Dissipation		$P_{G(AV)}$	1		W	20 ms max.
Operating Temperature		T_j	-40	125	$^\circ\text{C}$	
Storage Temperature		T_{stg}	-40	150	$^\circ\text{C}$	
Case Temperature		T_C			$^\circ\text{C}$	Temperature measured on the substrate immediately adjacent to the Chip

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Min.	Max.	Unit	Test Conditions
Off-State Leakage Current	I_{DRM}/I_{RRM}		1.5	mA	@ $V_{DRM} + V_{RRM}$, $R_{GK} = 1\text{K}\Omega$, $T_j = 125^\circ\text{C}$
Off-State Leakage Current	I_{DRM}/I_{RRM}		5.0	μA	@ $V_{DRM} + V_{RRM}$, $R_{GK} = 1\text{K}\Omega$, $T_j = 25^\circ\text{C}$
On-State Voltage	V_T		1.80	V	at $I_T = 24\text{ A}$, $T_j = 25^\circ\text{C}$
On-State Threshold Voltage	$V_{T(TO)}$		1.0	V	$T_j = 125^\circ\text{C}$
On-State Slope Resistance	r_T		36	$\text{m}\Omega$	$T_j = 125^\circ\text{C}$
Gate Trigger Current	I_{GT}	10	25	mA	$V_D = 7\text{ V}$
Gate Trigger Voltage	V_{GT}		2.0	V	$V_D = 7\text{ V}$
Holding Current	I_H		38	mA	$R_{GK} = 1\text{K}\Omega$
Latching Current	I_L		75	mA	$R_{GK} = 1\text{K}\Omega$
Critical Rate of Voltage Rise	dv/dt	200		$\text{V}/\mu\text{s}$	$V_D = .67 \times V_{DRM}$, $R_{GK} = 1\text{K}\Omega$, $T_j = 125^\circ\text{C}$
Critical Rate of Current Rise	di/dt	100		$\text{A}/\mu\text{s}$	$I_G = 125\text{ mA}$, $di_G/dt = 1.25\text{ A}/\mu\text{s}$, $T_j = 125^\circ\text{C}$
Gate Controlled Delay Time	t_{gd}		500	ns	$I_G = 125\text{ mA}$, $di_G/dt = 1.25\text{ A}/\mu\text{s}$
Commutated Turn-Off Time	t_q		50	μs	$T_C = 85^\circ\text{C}$, $V_D = .67 \times V_{DRM}$, $V_R = 35\text{ V}$, $I_T = I_{T(AV)}$
Thermal Resistance junc. to case	$R_{\theta jc}$		1.2	K/W	50 micron solder on backside of Chip

Parts are 100% tested in Chip form with visual inspection after assembly.

Per MIL-STD-105-D, parts will pass AQL 4.0 income inspection.

Typical Characteristics S12 - Chips

