



MICRO MINI

S1210BM – S1210MM 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	S1210BM	$\begin{bmatrix} V_{DRM} \\ V_{RRM} \end{bmatrix}$	200		V	$T_J = -40^\circ\text{C to } 125^\circ\text{C}$ $R_{GK} = 1\text{K}\Omega$
	S1210DM		400		V	
	S1210MM		600		V	
On-State Current		$I_T(\text{RMS})$	12		A	All Conduction Angles $T_C = 85^\circ\text{C}$
Average On-State Current		$I_T(\text{AV})$	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 μs max.
Peak Gate Dissipation		P_{GM}	10		W	10 μs max.
Gate Dissipation		$P_{G(\text{AV})}$	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		$V_{T(\text{TO})}$		1.0	V	$T_J = 125^\circ\text{C}$
On-State Slope Resistance		r_T		36	m Ω	$T_J = 125^\circ\text{C}$
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		V/ μs	$V_D = .67 \times V_{DRM}$, $R_{GK} = 1\text{K}\Omega$, $T_J = 125^\circ\text{C}$
Critical Rate of Current Rise		di/dt	100		A/ μs	$I_G = 125\text{ mA}$, $di_G/dt = 1.25\text{ A}/\mu\text{s}$, $T_J = 125^\circ\text{C}$
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	$T_C = 85^\circ\text{C}$, $V_D = .67 \times V_{DRM}$, $V_R = 35\text{ V}$, $I_T = I_T(\text{AV})$
Thermal Resistance junc. to case		$R_{\theta jc}$		1	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**