

DIGITRON SEMICONDUCTORS

S6200 SERIES
S6210 SERIES
S6220 SERIES

SILICON CONTROLLED RECTIFIER

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
 Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak repetitive forward and reverse blocking voltage⁽¹⁾ S6200A, S6210A, S6220A S6200B, S6210B, S6220B S6200D, S6210D, S6220D S6200M, S6210M, S6220M	V_{RRM}, V_{DRM}	100 200 400 600	Volts
Peak non-repetitive forward and non-repetitive reverse blocking voltage⁽¹⁾ S6200A, S6210A, S6220A S6200B, S6210B, S6220B S6200D, S6210D, S6220D S6200M, S6210M, S6220M	V_{DSM}, V_{RSM}	150 250 500 700	Volts
Forward on-state current RMS ($T_C = 75^\circ\text{C}$)	$I_{T(RMS)}$	20	Amps
Peak non-repetitive surge current (one cycle, 60Hz, preceded and followed by rated current, $T_C = 75^\circ\text{C}$)	I_{TSM}	200	Amps
Circuit fusing considerations ($T_J = -65$ to $+100^\circ\text{C}$, $t = 8.3\text{ms}$)	I^2t	170	A^2s
Peak gate power (10 μs max.)	P_{GM}	40	Watts
Average gate power	$P_{G(AV)}$	0.5	Watts
Operating junction temperature range	T_J	-65 to +100	$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 to +150	$^\circ\text{C}$
Mounting torque		30	In. lb.

Note 1: Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case S6200 SERIES S6210 SERIES, S6220 SERIES	$R_{\theta JC}$	1.2 1.4	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Instantaneous forward breakover voltage (gate open, $T_C = 100^\circ\text{C}$) S6200A, S6210A, S6220A S6200B, S6210B, S6220B S6200D, S6210D, S6220D S6200M, S6210M, S6220M	$V_{(BO)O}$	100 200 400 600	- - - -	- - - -	Volts
Peak blocking current (Rated V_{DRM} @ $T_C = 100^\circ\text{C}$) $T_C = 25^\circ\text{C}$	I_{RRM} I_{DRM}	- -	- -	10 2	μA mA
Peak on-state voltage ($I_T = 100\text{A}$ peak)	V_T	-	-	2.4	Volts
Gate trigger current (continuous dc) (Main terminal voltage = 12V, $R_L = 30\Omega$)	I_{GT}	-	-	15	mA
Gate trigger voltage (continuous dc) (Main terminal voltage = 12V, $R_L = 30\Omega$)	V_{GT}	-	-	2	Volts

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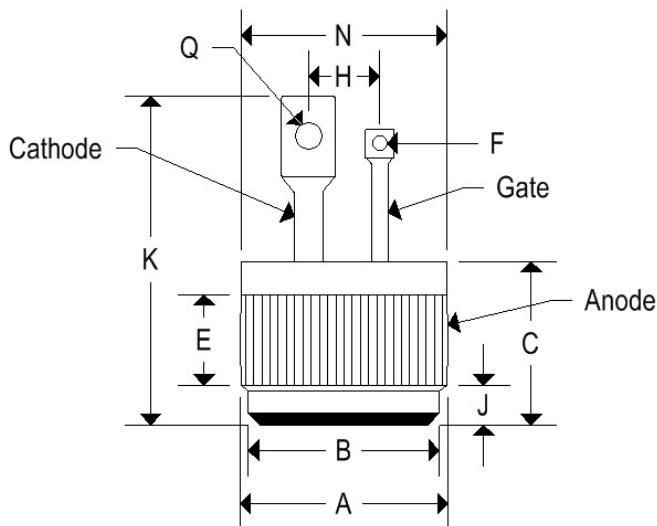
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Characteristic	Symbol	Min.	Typ.	Max.	Unit
Holding current (either direction) (Main terminal voltage = 12V, gate open)	I_H	-	-	20	mA
Gate controlled turn-on time ($V_D = V_{(BO)O}$, $I_T = 30A$ peak, $I_{GT} = 200mA$, rise time = 0.1 μs)	t_{gt}	-	2	-	μs
Critical rate of rise of off-state voltage ($V_D = V_{(BO)O}$, exponential rise, gate open, $T_C = 100^\circ C$) S6200A,D, S6210A,D, S6220A,D S6200B, S6210B, S6220B S6200D, S6210D, S6220D	dv/dt	10 10 10	100 150 75	- - -	V/ μs

MECHANICAL CHARACTERISTICS

Case	Digi PF1 (S6200 SERIES)
Marking	Body painted, alpha-numeric



	DIGI PF1			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.501	0.505	12.730	12.830
F	-	0.160	-	4.060
G	0.085	0.095	2.160	2.410
H	0.060	0.070	1.520	1.780
J	0.300	0.350	7.620	8.890
K	-	1.050	-	26.670
L	-	0.670	-	17.020
Q	0.055	0.085	1.400	2.160

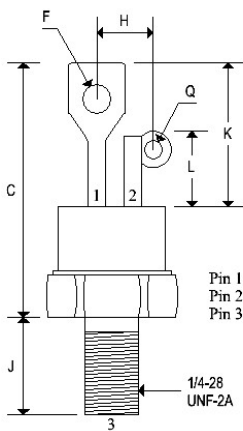
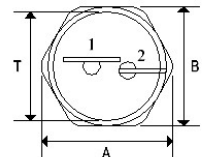
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MECHANICAL CHARACTERISTICS

Case	TO-48 (S6210 SERIES)
Marking	Body painted, alpha-numeric
Polarity	Cathode is stud



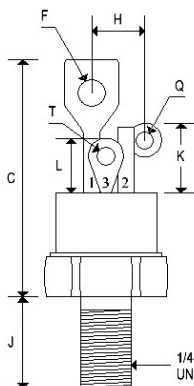
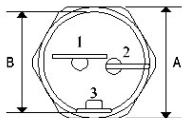
Pin 1: Cathode
 Pin 2: Gate
 Pin 3: Anode

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 UNF-2A

	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.604	0.614	15.340	15.600
B	0.551	0.559	14.000	14.200
C	1.050	1.190	2.670	30.230
F	0.135	0.160	3.430	4.060
H	-	0.265	-	6.730
J	0.420	0.455	10.670	11.560
K	0.620	0.670	15.750	17.020
L	0.300	0.350	7.620	8.890
Q	0.055	0.085	1.400	2.160
T	0.501	0.505	12.730	12.830

MECHANICAL CHARACTERISTICS

Case	TO-48 ISO (S6220 SERIES)
Marking	Body painted, alpha-numeric
Polarity	Cathode is stud



Pin 1: Cathode
 Pin 2: Gate
 Pin 3: Anode

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 UNF-2A

	TO-48 ISO			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.551	0.559	14.000	14.200
B	0.501	0.505	12.730	12.830
C	-	1.280	-	32.510
F	-	0.160	-	4.060
H	-	0.265	-	6.730
J	0.420	0.455	10.670	11.560
K	0.300	0.350	7.620	8.890
L	0.255	0.275	6.480	6.990
Q	0.055	0.085	1.400	2.160
T	0.135	0.150	3.430	3.810