DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

S6200, S6210, S6220 SERIES

SILICON CONTROLLED RECTIFIER

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak repetitive forward and reverse blocking voltage(1)			
S6200A, S6210A, S6220A	V_{RRM}, V_{DRM}	100	Volts
S6200B, S6210B, S6220B		200	
S6200D, S6210D, S6220D		400	
S6200M, S6210M, S6220M		600	
Peak non-repetitive forward and non-repetitive reverse blocking voltage(1)			
S6200A, S6210A, S6220A	V_{DSM}, V_{RSM}	150	Volts
S6200B, S6210B, S6220B		250	
S6200D, S6210D, S6220D		500	
S6200M, S6210M, S6220M		700	
Forward on-state current RMS (T_C = 75°C)	$I_{T(RMS)}$	20	Amps
Peak non-repetitive surge current (one cycle, 60Hz, preceded and followed by rated current, T_C = 75°C)	I_{TSM}	200	Amps
Circuit fusing considerations (T_J = -65 to +100°C, t = 8.3ms)	I^2t	170	A^2s
Peak gate power (10µs max.)	P_{GM}	40	Watts
Average gate power	$P_{G(AV)}$	0.5	Watts
Operating junction temperature range	T_J	-65 to +100	°C
Storage temperature range	T_{stg}	-65 to +150	°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	$R_{\Theta JC}$	1.2	°C/W
S6210 SERIES, S6220 SERIES		1.4	

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Instantaneous forward breakover voltage (gate open, T_C = 100°C)					
S6200A, S6210A, S6220A	$V_{(BO)O}$	100	-	-	Volts
S6200B, S6210B, S6220B		200	-	-	
S6200D, S6210D, S6220D		400	-	-	
S6200M, S6210M, S6220M		600	-	-	
Peak blocking current					
(Rated V_{DRM} @ T_C = 100°C)	I_{RRM}	-	-	10	µA
T_C = 25°C	I_{DRM}	-	-	2	mA
Peak on-state voltage (I_T = 100A peak)	V_T	-	-	2.4	Volts
Gate trigger current (continuous dc) (Main terminal voltage = 12V, R_L = 30Ω)	I_{GT}	-	-	15	mA
Gate trigger voltage (continuous dc) (Main terminal voltage = 12V, R_L = 30Ω)	V_{GT}	-	-	2	Volts
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 = 0.1µs)	t_{gt}	-	2	-	µs
Critical rate of off-state voltage (V_D = $V_{(BO)O}$, exponential rise, gate open, T_C = 100°C)	dv/dt				V/µs
S6200A,D, S6210A,D, S6220A,D		10	100	-	
S6200B, S6210B, S6220B		10	150	-	
S6200D, S6210D, S6220D		10	75	-	

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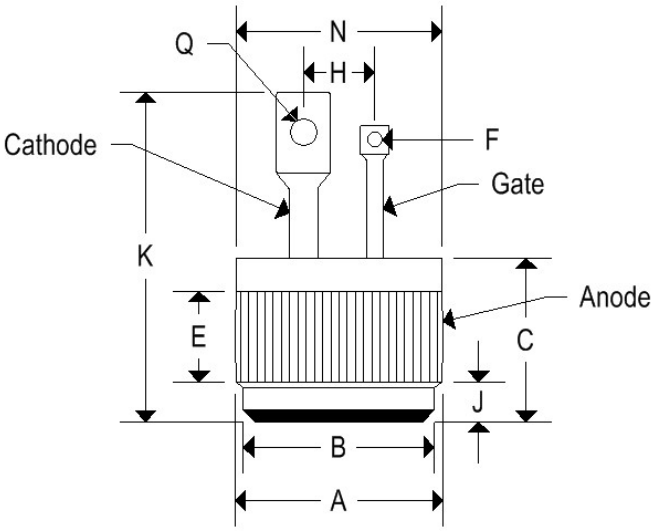
MECHANICAL CHARACTERISTICS

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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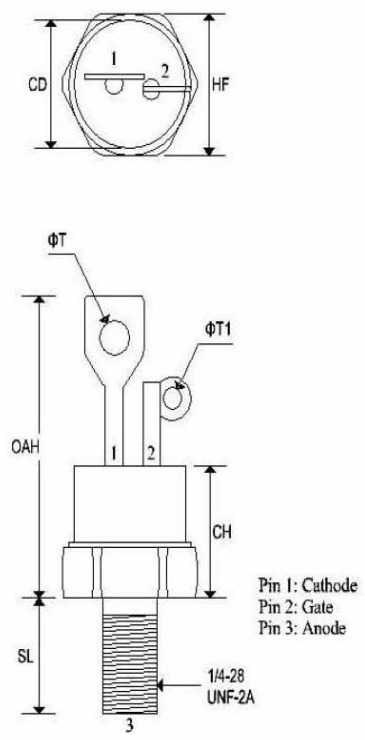
MECHANICAL CHARACTERISTICS

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



	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.543	-	13.793
CH	-	0.550	-	13.970
HF	0.544	0.563	13.817	14.301
OAH	-	1.193	-	30.303
SL	0.422	0.453	10.718	11.507
ΦT	0.125	0.165	3.175	4.191
ΦT_1	0.060	0.075	1.524	1.905

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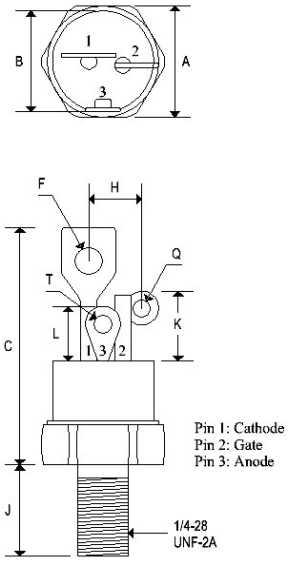
MECHANICAL CHARACTERISTICS

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



	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