

DIGITRON SEMICONDUCTORS

S2800 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⁾ (T _J = 25 to 100°C, gate open)	V _{RRM} , V _{DRM}	50 100 200 400 600 800	Volts
S2800F			
S2800A			
S2800B			
S2800D			
S2800M			
S2800N			
Peak non-repetitive reverse voltage and non-repetitive off-state voltage⁽¹⁾ (T _J = 25 to 100°C, gate open)	V _{RSM} , V _{DSM}	75 125 250 500 700 900	Volts
S2800F			
S2800A			
S2800B			
S2800D			
S2800M			
S2800N			
Forward on-state current RMS (all conduction angles), T _C = 75°C	I _{T(RMS)}	10	Amps
Peak forward surge current (one cycle, sine wave, 60Hz, T _C = 80°C)	I _{TSM}	100	Amps
Circuit fusing considerations (t = 8.3ms)	I ² t	40	A ² s
Forward peak gate power (t ≤ 10μs)	P _{GM}	16	Watts
Forward average gate power	P _{G(AV)}	0.5	Watts
Operating junction temperature range	T _J	-40 to +100	°C
Storage temperature range	T _{stg}	-40 to +150	°C

Note 1: V_{DRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	R _{θJC}	2	°C/W

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Peak forward or reverse blocking current (V _{AK} = V _{DRM} or V _{RRM} , gate open) T _C = 25°C T _C = 100°C	I _{DRM}	-	-	10	μA
		-	-	2	mA
Instantaneous on-state voltage (I _{TM} = 30A peak, pulse width ≤ 1ms, duty cycle ≤ 2%)	V _T	-	1.7	2	Volts
Gate trigger current (continuous dc) (V _D = 12V, R _L = 30Ω)	I _{GT}	-	8	15	mA
Gate trigger voltage (continuous dc) (V _D = 12V, R _L = 30Ω)	V _{GT}	-	0.9	1.5	Volts
Holding current (V _D = 12V, gate open, I _T = 150mA)	I _H	-	10	20	mA
Gate controlled turn-on time (V _D = rated V _{DRM} , I _{TM} = 2A, I _{GR} = 80mA)	t _{gt}	-	1.6	-	μs

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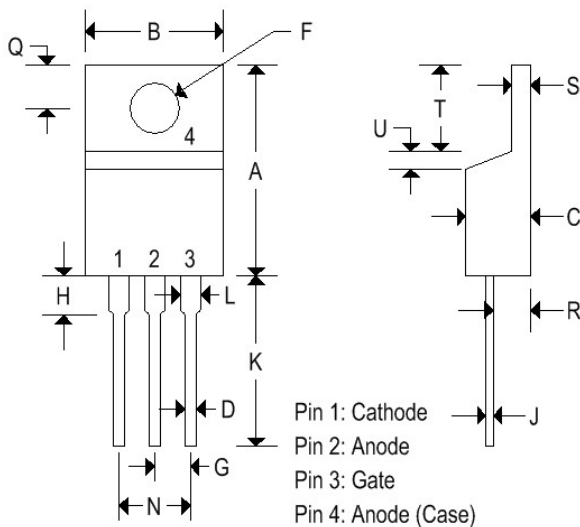
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Characteristic	Symbol	Min.	Typ.	Max.	Unit
Circuit commutated turn-off time ($V_D = V_{DRM}$, $I_{TM} = 2A$, pulse width $\leq 50\mu s$, $dv/dt = 200V/\mu s$, $di/dt = 10A/\mu s$, $T_C = 75^\circ C$)	t_q	-	25	-	μs
Critical rate of rise of off-state voltage ($V_D = \text{Rated } V_{DRM}$, exponential rise, $T_C = 100^\circ C$)	dv/dt	-	100	-	$V/\mu s$

MECHANICAL CHARACTERISTICS

Case	TO-220AB
Marking	Body painted, alpha-numeric
Pin out	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

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FIGURE 1 – CURRENT DERATING

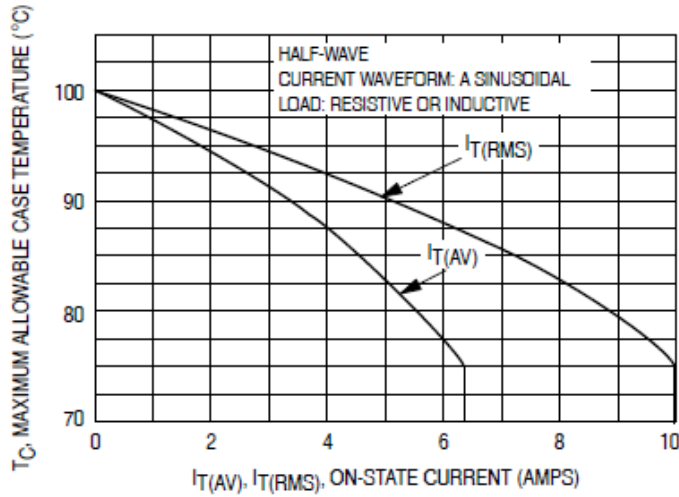


FIGURE 2 – POWER DISSIPATION

