DIGITRON SEMICONDUCTORS

2N6167-2N6170 SILICON CONTROLLED RECTIFIERS

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 forward and reverse blocking voltage (1) (T_J = -40 to 100°C) 2N6167 2N6168 2N6169 2N6170	V_{DRM} V_{RRM}	 100 200 400 600	Volts
Peak non-repetitive reverse blocking voltage (t ≤ 5ms) 2N6167 2N6168 2N6169 2N6170	V_{RSM}	 150 250 450 650	Volts
Average forward current (T_C = -40 to +65°C) (85°C)	$I_{T(AV)}$	 13 6.5	Amps
Peak surge current (1 cycle, 60Hz, T_C = 65°C) (1.5ms pulse @ T_J = 100°C) Preceded and followed by no current or voltage	I_{TSM}	 240 560	Amps
Circuit fusing (T_J = -40 to +100°C, t = 8.3ms)	I^2t	235	A^2s
Peak gate power	P_{GM}	5	Watts
Average gate power	$P_{G(AV)}$	0.5	Watts
Forward peak gate current	I_{GM}	2	Amps
Operating junction temperature range	T_J	-40 to 100	°C
Storage temperature range	T_{stg}	-40 to 150	°C
Stud torque		30	In. lb.

Note 1: Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode. Devices should not be tested with a constant source for forward or reverse blocking capability such that the voltage applied exceeds the rated blocking voltage.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal resistance, junction to case	$R_{\theta JC}$	1.5	°C/W

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Peak repetitive forward or reverse blocking current (Rated V_{DRM} or V_{RRM}, gate open, T_C = 100°C) 2N6167 2N6168 2N6169 2N6170 (Rated V_{DRM} or V_{RRM}, gate open, T_C = 25°C) All devices	I_{DRM}, I_{RRM}	 - - - - -	 1 1 1 1 -	 2.0 2.5 3.0 4.0 10	 mA mA mA mA µA
Peak forward on-state voltage (I_{TM} = 41A peak)	V_{TM}	-	1.5	1.7	Volts

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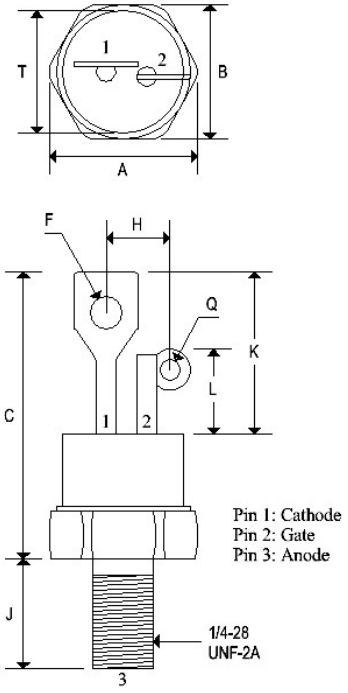
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Characteristic	Symbol	Min	Typ	Max	Unit
Gate trigger current (continuous dc) (V_D = 12Vdc, R_L = 24Ω) T_C = -40°C T_C = 25°C	I_{GT}	- -	- 2.1	75 40	mA
Gate trigger voltage (continuous dc) (V_D = 12Vdc, R_L = 24Ω) T_C = -40°C T_C = 25°C	V_{GT}	- -	0.8 0.63	2.5 1.6	Volts
Holding current (V_D = 12Vdc, gate open, I_T = 200mA) T_C = -40°C T_C = 25°C	I_H	- -	- 3.5	90 50	mA
Turn-on time (I_{TM} = 41A, V_D = rated V_{DRM}, I_{GT} = 200mA, rise time ≤ 0.05µs, pulse width = 10µs)	t_{on}	-	-	1	µs
Turn-off time (I_{TM} = 10A, I_R = 10A) (I_{TM} = 10A, I_R = 10A, T_J = 100°C)	t_{off}	- -	25 40	- -	µs
Forward voltage application rate (T_J = 100°C, V_D = Rated V_{DRM})	dv/dt	-	50	-	V/µs

MECHANICAL CHARACTERISTICS

Case	TO-48
Marking	Alpha-numeric
Pin out	See below



	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

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