

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 ² t	235	A ² s
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 _{θJC}	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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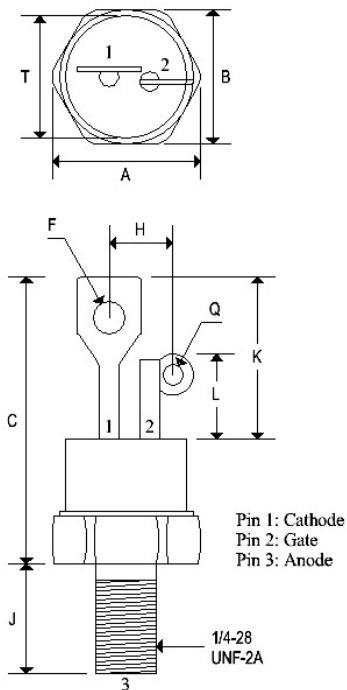
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SILICON CONTROLLED RECTIFIERS

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

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