

DIGITRON SEMICONDUCTORS

2N6068, A, B-2N6075,A, B

SENSITIVE GATE TRIACS

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
Repetitive peak off-state voltage ⁽¹⁾ ($T_J = 110^\circ\text{C}$) 2N6068, A, B 2N6069, A, B 2N6070, A, B 2N6071, A, B 2N6072, A, B 2N6073, A, B 2N6074, A, B 2N6075, A, B	V_{DRM}	25 50 100 200 300 400 500 600	Volts
On-state current RMS ($T_C = 85^\circ\text{C}$)	$I_{\text{T(RMS)}}$	4.0	Amp
Peak surge current (one full cycle, 60Hz, $T_J = -40$ to 110°C)	I_{TSM}	30	Amp
Circuit fusing considerations ($T_J = -40$ to 110°C , $t = 1.0$ to 8.3ms)	I^2t	3.6	A^2s
Peak gate power	P_{GM}	10	Watts
Average gate power	$P_{\text{G(AV)}}$	0.5	Watt
Peak gate voltage	V_{GM}	5.0	Volts
Operating junction temperature	T_J	-40 to 110	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to 150	$^\circ\text{C}$
Mounting torque (6-32) screw ⁽²⁾	-	8.0	In. lb.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal resistance, junction to case	$R_{\theta\text{JC}}$	3.5	$^\circ\text{C/W}$
Thermal resistance, case to ambient	$R_{\theta\text{CA}}$	60	$^\circ\text{C/W}$

NOTE 1: Ratings apply for gate open 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.

NOTE 2: Torque rating applies with use of torque washer. Mounting torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Main terminal 2 and heatsink contact pad are common.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak blocking current (either direction) Rated V_{DRM} @ $T_J = 110^\circ\text{C}$, gate open	I_{DRM}	-	-	2.0	mA
On-state voltage (either direction) $I_{\text{TM}} = 6.0\text{A}$ peak	V_{TM}	-	-	2.0	Volts
Peak gate trigger voltage Main terminal voltage = 12Vdc, $R_L = 100\text{ohms}$, $T_J = -40^\circ\text{C}$ MT2(+), G(+):MT2(-), G(-) All types MT2(+), G(-): MT2(-), G(+) 2N6068A, B thru 2N6075A, B Main terminal voltage = rated V_{DRM}, $R_L = 10\text{k ohms}$, $T_J = 110^\circ\text{C}$ MT2(+), G(+):MT2(-), G(-) All types MT2(+), G(-): MT2(-), G(+) 2N6068A, B thru 2N6075A, B	V_{GTM}	- - 0.2 0.2	1.4 1.4 - -	2.5 2.5 - -	Volts
Holding current (either direction) Main terminal voltage = 12Vdc, gate open, $T_J = -40^\circ\text{C}$ Initiating current = 1.0Adc 2N6068 thru 2N6075 2N6068A, B thru 2N6075A, B Initiating current = 1.0Adc, $T_J = 25^\circ\text{C}$ 2N6068 thru 2N6075 2N6068A, B thru 2N6075A, B	I_{H}	- - - -	- - - -	70 30 30 15	mA

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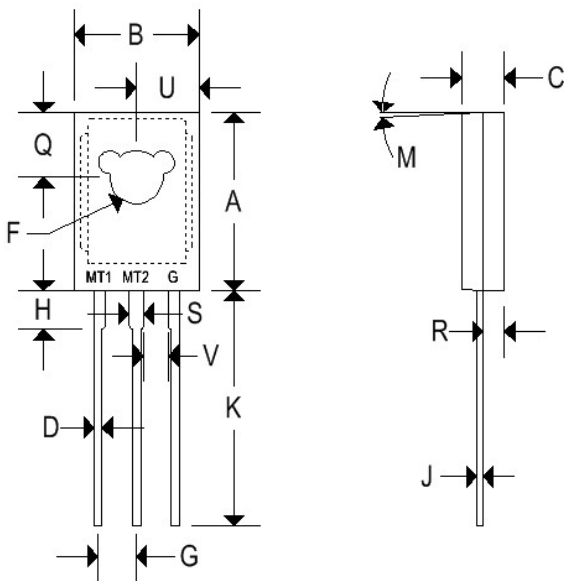
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Turn-on time (either direction) $I_{TM} = 14\text{Adc}$, $I_{GT} = 100\text{mAdc}$	t_{on}	-	1.5	-	μs
Blocking voltage application rate at commutation @ V_{DRM} , $T_J = 85^\circ\text{C}$, gate open	dv/dt	-	5.0	-	$\text{V}/\mu\text{s}$

	Type	I_{GTM} @ T_J	Quadrant			
			I mA	II mA	III mA	IV mA
Peak gate trigger current Main terminal voltage = 12Vdc, $R_L = 100\text{ohms}$ Maximum value	2N6068-2N6075	25°C	30	-	30	-
		-40°C	60	-	60	-
	2N6068A-2N6075A	25°C	5.0	5.0	5.0	10
		-40°C	20	20	20	30
	2N6068B-2N6075B	25°C	3.0	3.0	3.0	5.0
		-40°C	15	15	15	20

MECHANICAL CHARACTERISTICS

Case	TO-126
Marking	Body painted, alpha-numeric
Pin out	See below



	TO-126			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.425	0.435	10.80	11.050
B	0.295	0.305	7.490	7.750
C	0.095	0.105	2.410	2.670
D	0.020	0.026	0.510	0.660
F	0.115	0.125	2.920	3.180
G	0.091	0.097	2.310	2.460
H	0.050	0.095	1.270	2.410
J	0.015	0.025	0.380	0.640
K	0.595	0.655	15.110	16.640
M	3° TYP		3° TYP	
Q	0.148	0.158	3.760	4.010
R	0.045	0.055	1.140	1.400
S	0.025	0.035	0.640	0.890
U	0.145	0.155	3.680	3.940
V	0.040	-	1.020	-

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FIGURE 1 - AVERAGE CURRENT DERATING

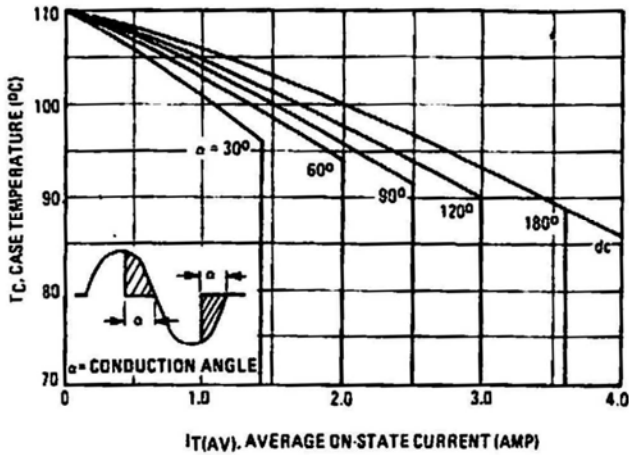


FIGURE 2 - RMS CURRENT DERATING

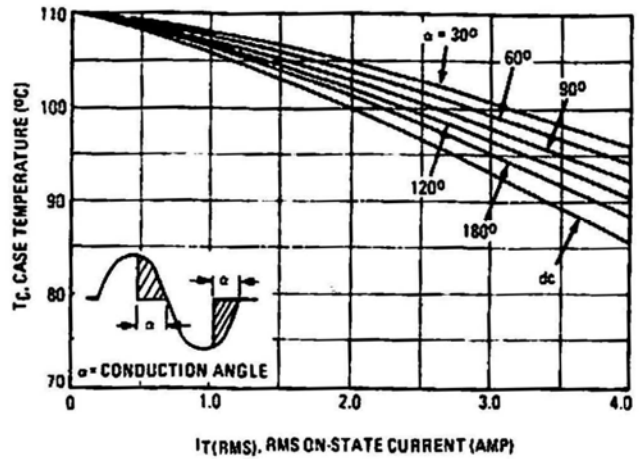


FIGURE 3 - POWER DISSIPATION

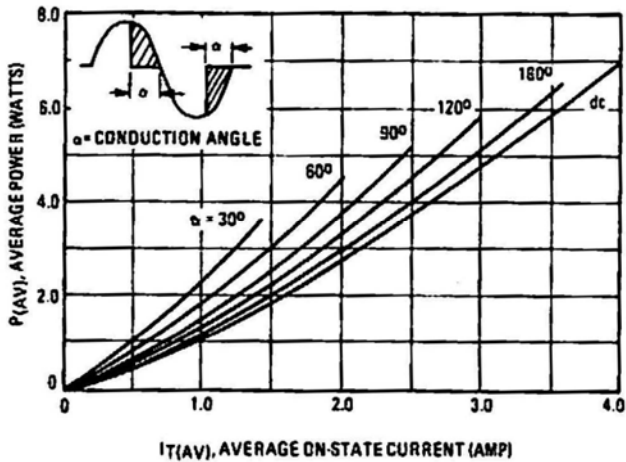


FIGURE 4 - POWER DISSIPATION

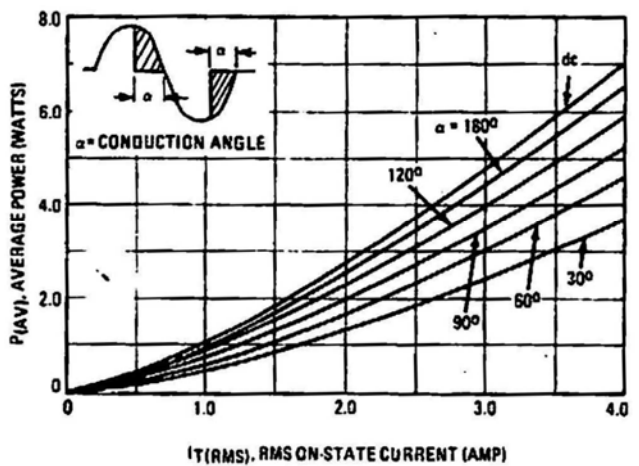


FIGURE 5 - TYPICAL GATE-TRIGGER VOLTAGE

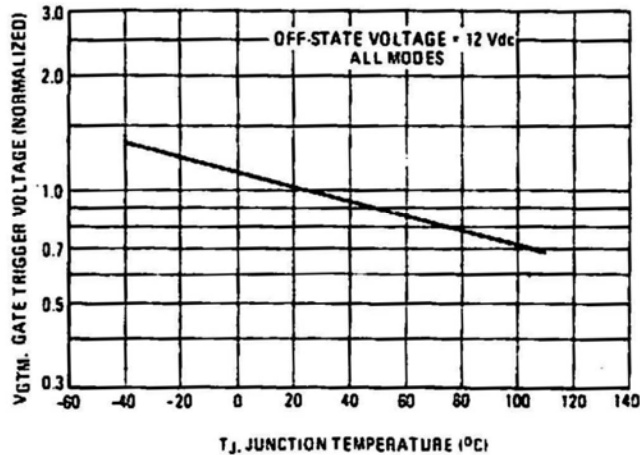
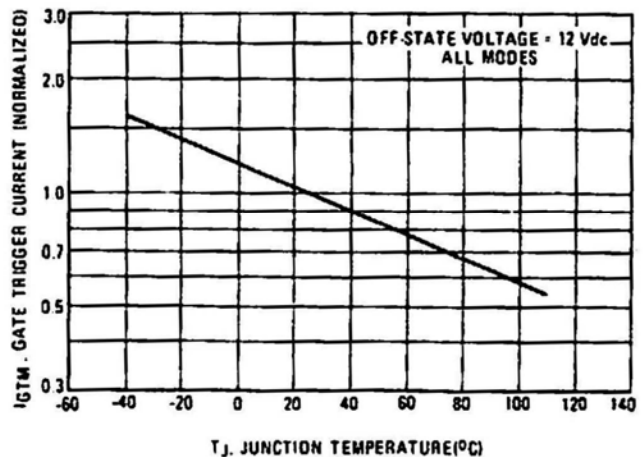


FIGURE 6 - TYPICAL GATE-TRIGGER CURRENT



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FIGURE 7 - MAXIMUM ON-STATE CHARACTERISTICS

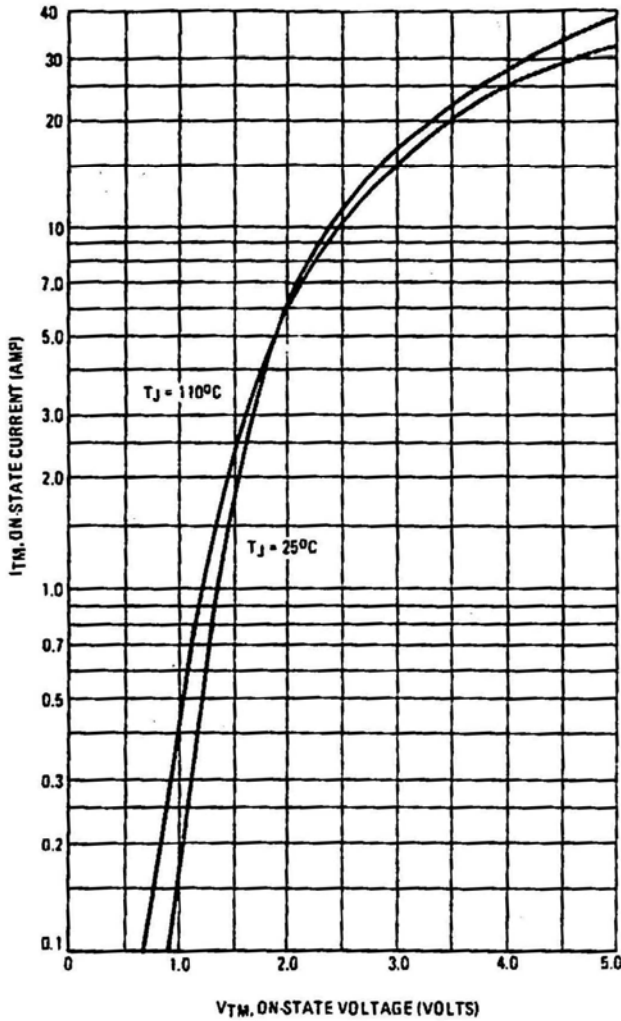


FIGURE 8 - TYPICAL HOLDING CURRENT

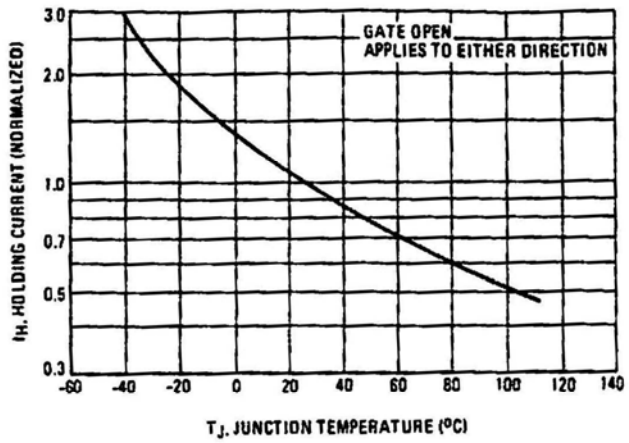


FIGURE 9 - MAXIMUM ALLOWABLE SURGE CURRENT

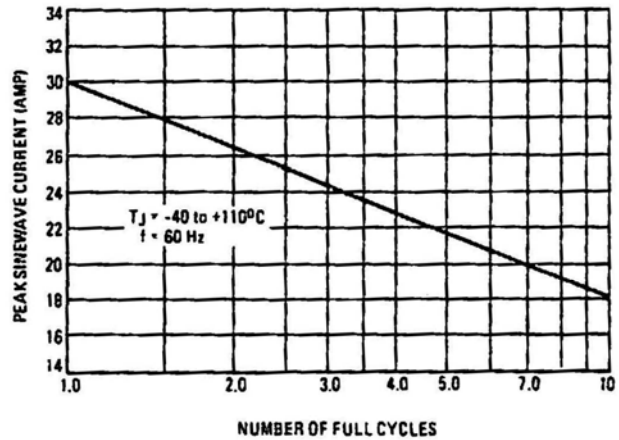


FIGURE 10 THERMAL RESPONSE

