

# 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
<b>Repetitive peak off-state voltage</b> <sup>(1)</sup> (T <sub>J</sub> = 110°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 <sub>DRM</sub>	25 50 100 200 300 400 500 600	Volts
<b>On-state current RMS</b> (T <sub>C</sub> = 85°C)	I <sub>T(RMS)</sub>	4.0	Amp
<b>Peak surge current</b> (one full cycle, 60Hz, T <sub>J</sub> = -40 to 110°C)	I <sub>TSM</sub>	30	Amp
<b>Circuit fusing considerations</b> (T <sub>J</sub> = -40 to 110°C, t = 1.0 to 8.3ms)	I <sup>2</sup> t	3.6	A <sup>2</sup> s
<b>Peak gate power</b>	P <sub>GM</sub>	10	Watts
<b>Average gate power</b>	P <sub>G(AV)</sub>	0.5	Watt
<b>Peak gate voltage</b>	V <sub>GM</sub>	5.0	Volts
<b>Operating junction temperature</b>	T <sub>J</sub>	-40 to 110	°C
<b>Storage temperature</b>	T <sub>stg</sub>	-40 to 150	°C
<b>Mounting torque (6-32) screw</b> <sup>(2)</sup>	-	8.0	In. lb.

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
<b>Thermal resistance, junction to case</b>	R <sub>θJC</sub>	3.5	°C/W
<b>Thermal resistance, case to ambient</b>	R <sub>θCA</sub>	60	°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<sub>C</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>Peak blocking current</b> (either direction) Rated V <sub>DRM</sub> @ T <sub>J</sub> = 110°C, gate open	I <sub>DRM</sub>	-	-	2.0	mA
<b>On-state voltage</b> (either direction) I <sub>TM</sub> = 6.0A peak	V <sub>TM</sub>	-	-	2.0	Volts
<b>Peak gate trigger voltage</b> <b>Main terminal voltage = 12Vdc, R<sub>L</sub> = 100ohms, T<sub>J</sub> = -40°C</b> MT2(+), G(+):MT2(-), G(-) All types MT2(+), G(-): MT2(-), G(+) 2N6068A, B thru 2N6075A, B <b>Main terminal voltage = rated V<sub>DRM</sub>, R<sub>L</sub> = 10k ohms, T<sub>J</sub> = 110°C</b> MT2(+), G(+):MT2(-), G(-) All types MT2(+), G(-): MT2(-), G(+) 2N6068A, B thru 2N6075A, B	V <sub>GTM</sub>	- - 0.2 0.2	1.4 1.4 - -	2.5 2.5 - -	Volts
<b>Holding current</b> (either direction) <b>Main terminal voltage = 12Vdc, gate open, T<sub>J</sub> = -40°C</b> <b>Initiating current = 1.0Adc</b> 2N6068 thru 2N6075 2N6068A, B thru 2N6075A, B <b>Initiating current = 1.0Adc, T<sub>J</sub> = 25°C</b> 2N6068 thru 2N6075 2N6068A, B thru 2N6075A, B	I <sub>H</sub>	- - - -	- - - -	70 30 30 15	mA

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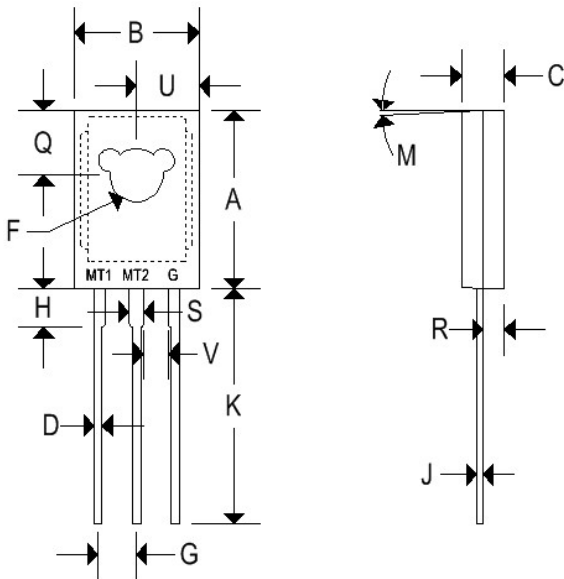
## ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

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	-	$\mu\text{s}$
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
<b>Peak gate trigger current</b> 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

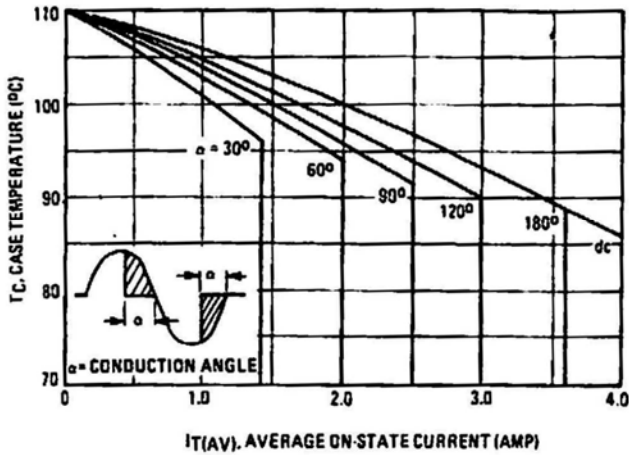


FIGURE 2 - RMS CURRENT DERATING

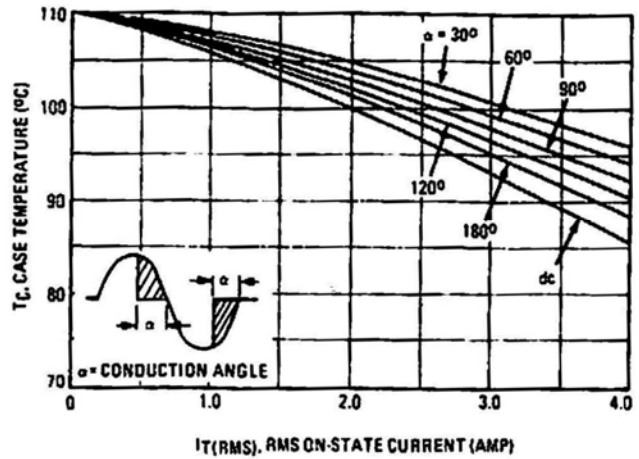


FIGURE 3 - POWER DISSIPATION

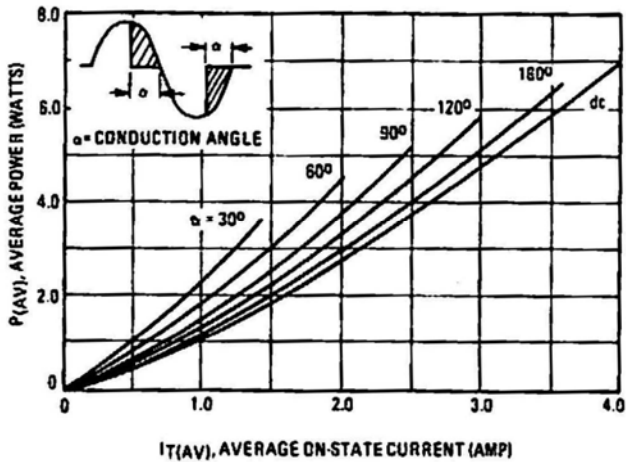


FIGURE 4 - POWER DISSIPATION

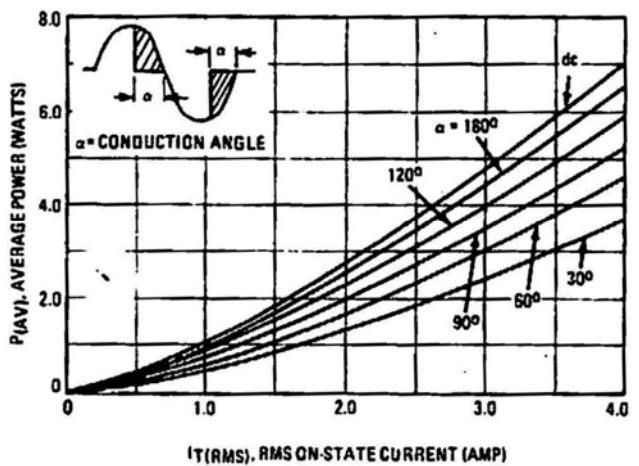


FIGURE 5 - TYPICAL GATE-TRIGGER VOLTAGE

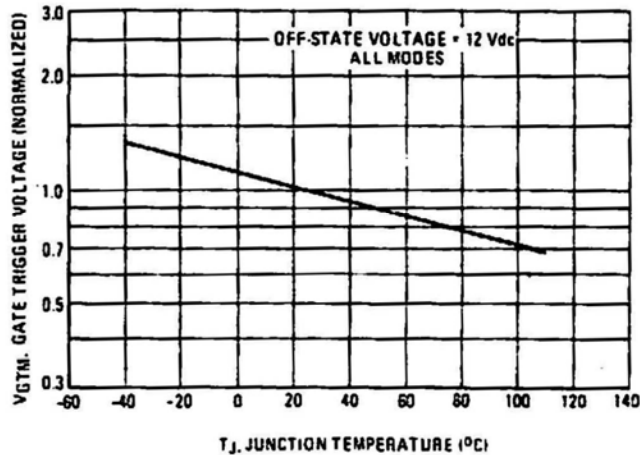
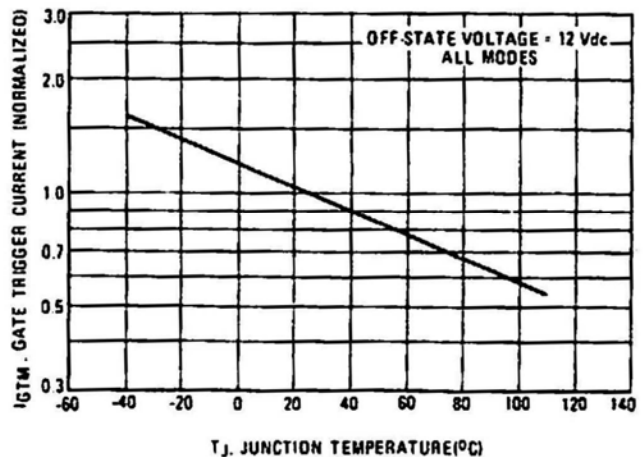


FIGURE 6 - TYPICAL GATE-TRIGGER CURRENT



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FIGURE 7 - MAXIMUM ON-STATE CHARACTERISTICS

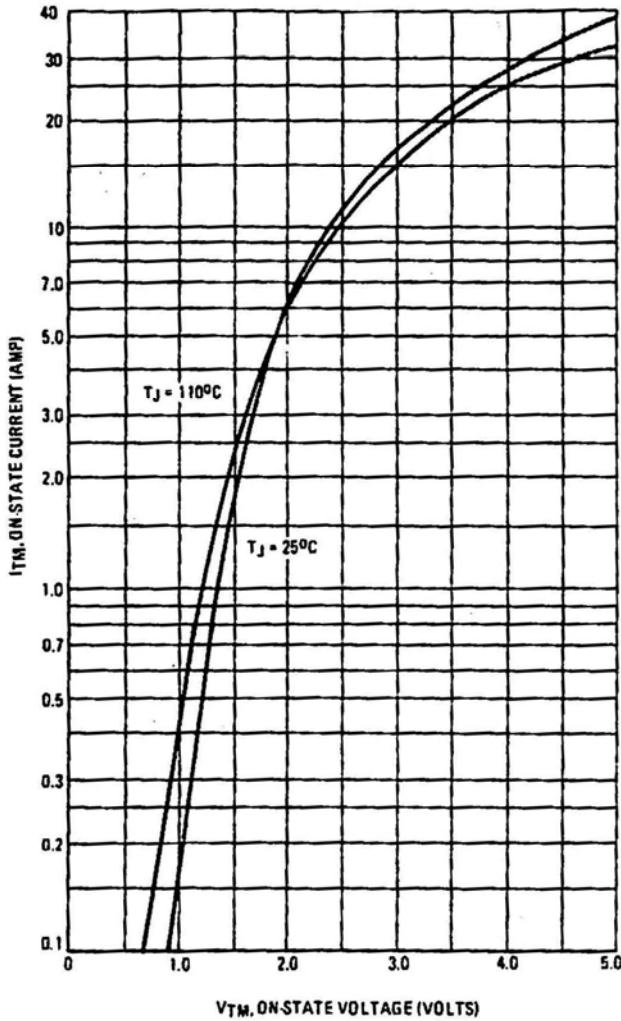


FIGURE 8 - TYPICAL HOLDING CURRENT

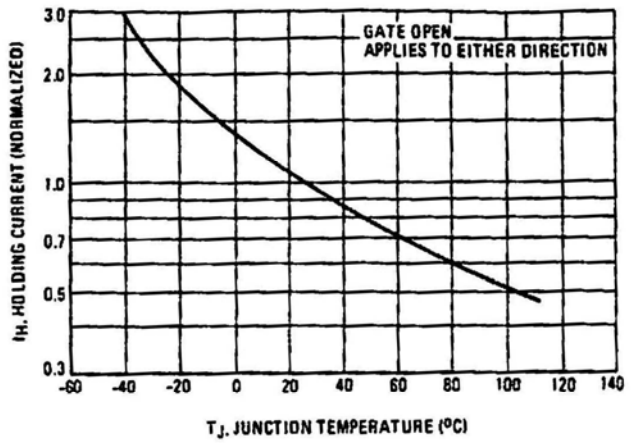


FIGURE 9 - MAXIMUM ALLOWABLE SURGE CURRENT

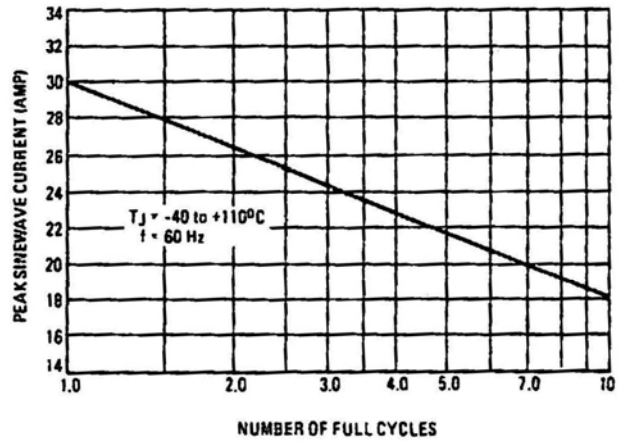


FIGURE 10 THERMAL RESPONSE

