

DIGITRON SEMICONDUCTORS

2N6342-2N6349

SILICON BIDIRECTIONAL TRIODE THYRISTORS

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 ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Peak repetitive off-state voltage⁽¹⁾ (Gate open, $T_J = -40$ to 110°C , $\frac{1}{2}$ sine wave 50 to 60Hz) 2N6342, 2N6346 2N6343, 2N6347 2N6344, 2N6348 2N6345, 2N6349	V_{DRM}	200 400 600 800	Volts
RMS on-state current Full cycle sine wave 50 to 60Hz $T_C = 80^\circ\text{C}$ $T_C = 90^\circ\text{C}$	$I_{\text{T(RMS)}}$	8 4	Amps
Peak non-repetitive surge current (One full cycle, 60Hz, $T_C = 80^\circ\text{C}$) Preceded and followed by rated current	I_{TSM}	100	Amps
Circuit fusing ($t = 8.3\text{ms}$)	I^2t	40	A^2s
Peak gate power ($T_C = 80^\circ\text{C}$, pulse width = $2\mu\text{s}$)	P_{GM}	20	Watts
Average gate power ($T_C = 80^\circ\text{C}$, $t = 8.3\text{ms}$)	$P_{\text{G(AV)}}$	0.5	Watts
Peak gate current	I_{GM}	2	Amps
Peak gate voltage	V_{GM}	10	Volts
Operating temperature range	T_J	-40 to 125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 to 150	$^\circ\text{C}$

Note 1: V_{DRM} for all types can be applied on a continuous basis. 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	Max	Unit
Thermal resistance, junction to case	$R_{\theta\text{JC}}$	2.2	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ and either polarity of MT2 to MT1 voltage, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak blocking current ($V_D = \text{rated } V_{\text{DRM}}$, gate open) $T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$	I_{DRM}	- -	- -	10 2	μA mA
Peak on-state voltage ($I_{\text{TM}} = 11\text{A}$ peak, pulse width = 1 to 2ms, duty cycle $\leq 2\%$)	V_{TM}	-	1.3	1.55	Volts
Gate trigger current (continuous dc) ($V_D = 12\text{Vdc}$, $R_L = 100\text{ohms}$) (Minimum gate pulse width = $2\mu\text{s}$) MT2+, G+ All types MT2+, G- 2N6346-2N6349 MT2-, G- All types MT2-, G+ 2N6346-2N6349 MT2+, G+:MT2-, G-, $T_C = -40^\circ\text{C}$ All types MT2+, G-:MT2-, G+, $T_C = -40^\circ\text{C}$, 2N6346-2N6349	I_{GT}	- - - - - -	12 12 20 35 -	50 75 50 75 100 125	mA

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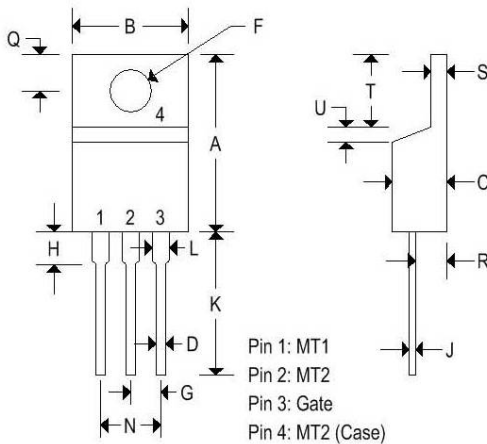
SILICON BIDIRECTIONAL TRIODE THYRISTORS

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ and either polarity of MT2 to MT1 voltage, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Gate trigger voltage (continuous dc) ($V_D = 12\text{Vdc}$, $R_L = 100\text{ohms}$) (Minimum gate pulse width = $2\mu\text{s}$) MT2+, G+ All types MT2+, G- 2N6346-2N6349 MT2-, G- All types MT2-, G+ 2N6346-2N6349 MT2+, G+:MT2-, G-, $T_C = -40^\circ\text{C}$ All types MT2+, G-:MT2-, G+, $T_C = -40^\circ\text{C}$, 2N6346-2N6349 ($V_D = \text{rated } V_{DRM}$, $R_L = 10\text{kohms}$, $T_J = 100^\circ\text{C}$) MT2+, G+; MT2-, G- All types MT2+, G-; MT2-, G-, 2N6346-2N6349	V_{GT}	- - - - - - 0.2 0.2	0.9 0.9 1.1 1.4 - - - -	2.0 2.5 2.0 2.5 2.5 3.0 - -	Volts
Holding current ($V_D = 12\text{Vdc}$, gate open) ($I_T = 200\text{mA}$)	I_H	- -	6 -	40 75	mA
Turn-on time ($V_D = \text{rated } V_{DRM}$, $I_{TM} = 11\text{A}$, $I_{GT} = 120\text{mA}$, rise time = $0.1\mu\text{s}$, pulse width = $2\mu\text{s}$)	t_{gt}	-	1.5	2	μs
Critical rate of rise of commutation voltage ($V_D = \text{rated } V_{DRM}$, $I_{TM} = 11\text{A}$, commutating $di/dt = 4.0\text{A/ms}$, gate unenergized, $T_C = 80^\circ\text{C}$)	dv/dt	-	5	-	$\text{V}/\mu\text{s}$

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 – RMS CURRENT DERATING

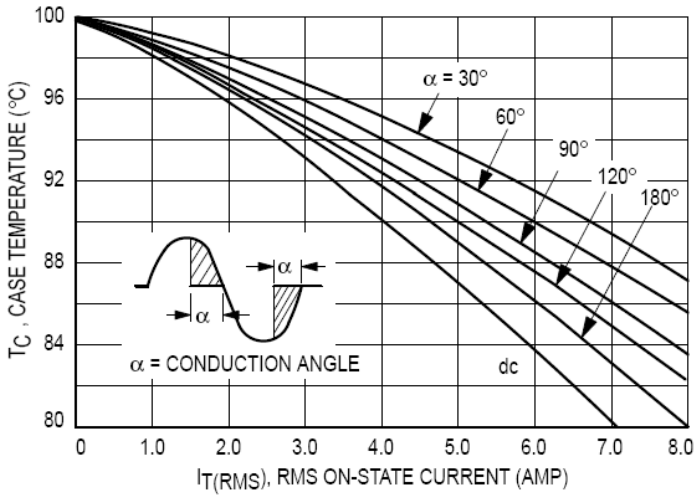


FIGURE 2 – ON-STATE POWER DISSIPATION

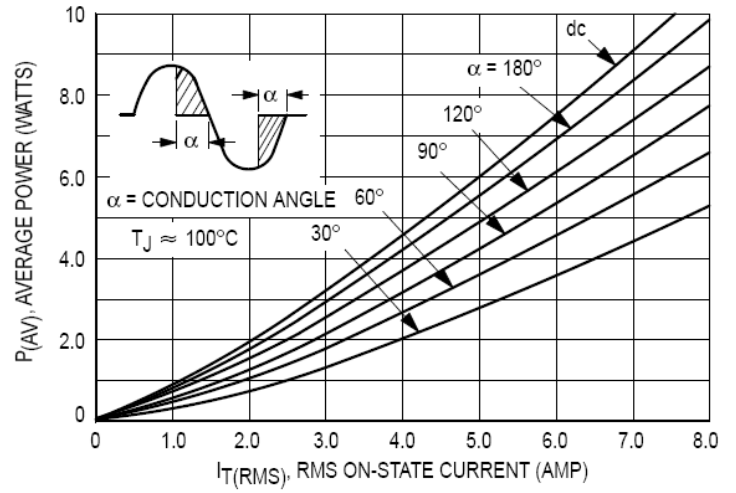


FIGURE 3 – TYPICAL GATE TRIGGER VOLTAGE

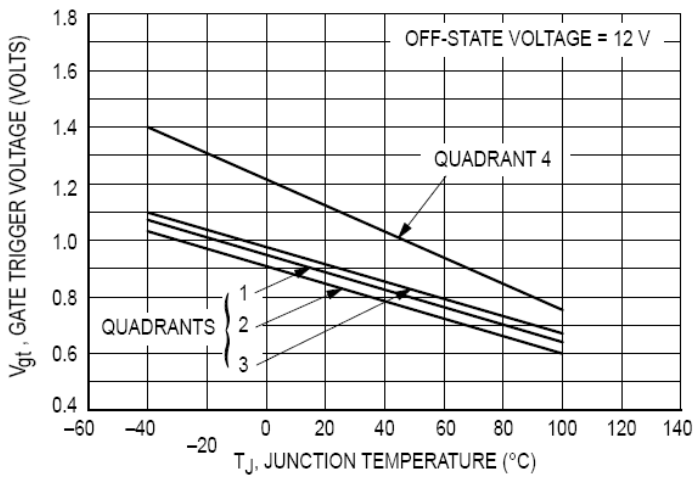
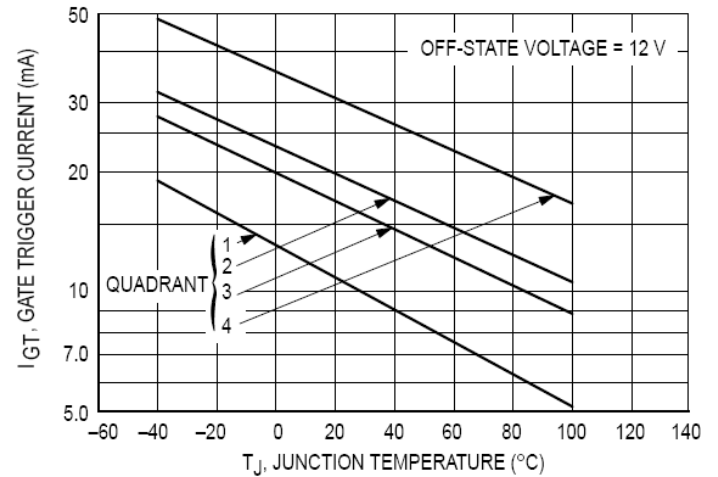


FIGURE 4 – TYPICAL GATE TRIGGER CURRENT



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FIGURE 5 – ON-STATE CHARACTERISTICS

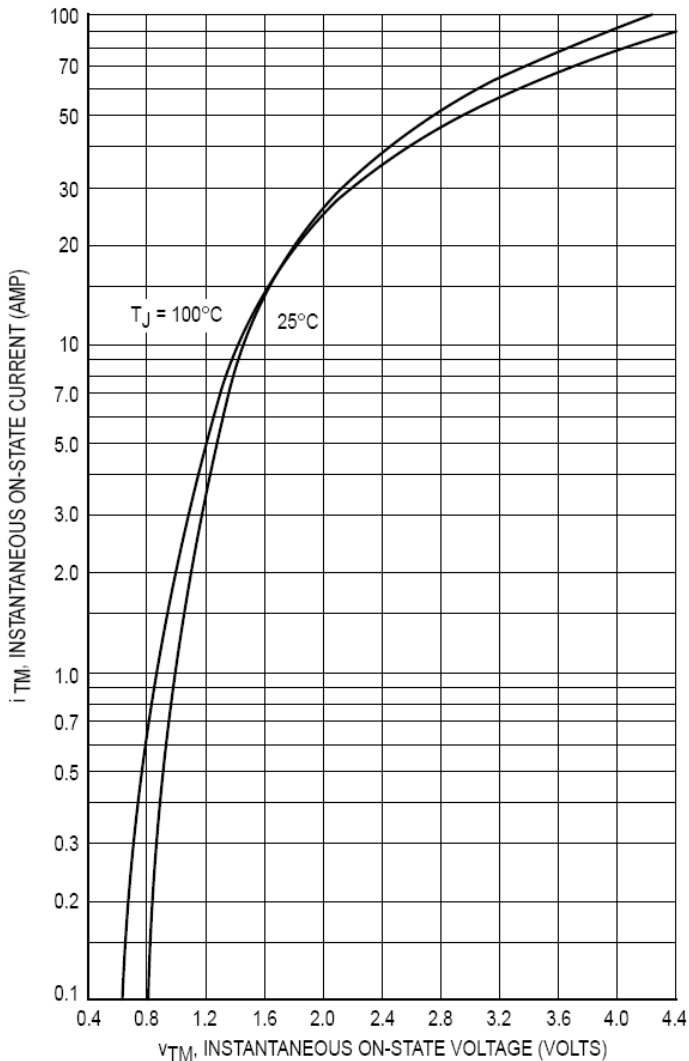


FIGURE 6 – TYPICAL HOLDING CURRENT

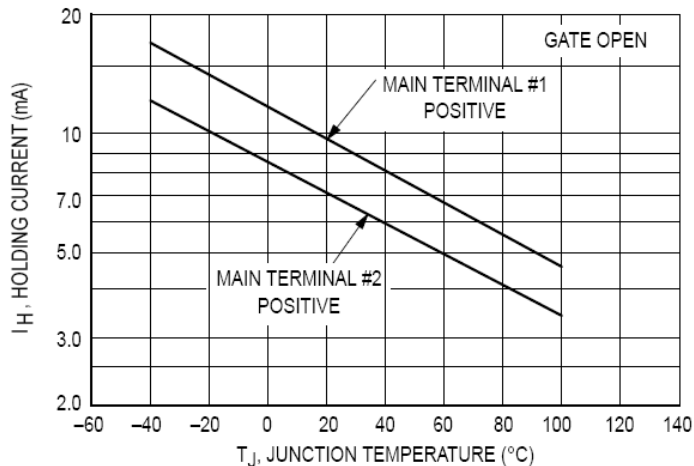


FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT

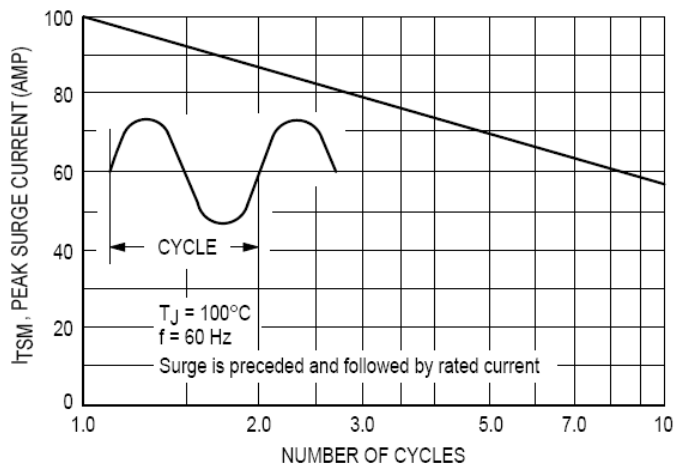


FIGURE 8 – TYPICAL THERMAL RESPONSE

