

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

2N6342A (SILICON)
thru

2N6349A

TELEPHONE: (201) 376-2922
(212) 227-6005
FAX: (201) 376-8960

SILICON BIDIRECTIONAL THYRISTORS

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
*Repetitive Peak Off-State Voltage, Note 1 ($T_J = -40$ to $+110^\circ\text{C}$) 1/2 Sine Wave 50 to 60 Hz, Gate Open	V_{DRM}		Volts
2N6342A, 2N6346A		200	
2N6343A, 2N6347A		400	
2N6344A, 2N6348A		600	
2N6345A, 2N6349A		800	
*Peak Gate Voltage	V_{GM}	10	Volts
*On-State Current RMS ($T_C = +80^\circ\text{C}$) Full Cycle Sine Wave 50 to 60 Hz ($T_C = +95^\circ\text{C}$)	$I_T(\text{RMS})$	12 6.0	Amp
*Peak Surge Current (One Full Cycle, 60 Hz, $T_C = +80^\circ\text{C}$) preceded and followed by rated current	I_{TSM}	120	Amp
Circuit Fusing Considerations ($T_J = -40$ to $+110^\circ\text{C}$, $t = 1.0$ to 8.3 ms)	I^2t	40	A^2s
*Peak Gate Power ($T_C = +80^\circ\text{C}$, Pulse Width = $2.0 \mu\text{s}$)	P_{GM}	20	Watts
*Average Gate Power ($T_C = +80^\circ\text{C}$, $t = 8.3$ ms)	$P_{G(AV)}$	0.5	Watt
*Peak Gate Current	I_{GM}	2.0	Amp
*Operating Junction Temperature Range	T_J	-40 to $+110$	$^\circ\text{C}$
*Storage Temperature Range	T_{stg}	-40 to $+150$	$^\circ\text{C}$

THERMAL CHARACTERISTIC

Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0	$^\circ\text{C/W}$

*Indicates JEDEC Registered Data.

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ$ 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
*Peak On-State Voltage (Either Direction) $I_{TM} = 17$ A Peak; Pulse Width = 1.0 to 2.0 ms, Duty Cycle $\leq 2.0\%$	V_{TM}	—	1.3	1.75	Volts
Peak Gate Trigger Current Main Terminal Voltage = 12 Vdc, $R_L = 100$ Ohms Minimum Gate Pulse Width = $2.0 \mu\text{s}$	I_{GTM}				mA
MT2 (+), G(+) All Types		—	6.0	50	
MT2 (+), G(-) 2N6346A thru 2N6349A		—	6.0	75	
MT2 (-), G(-) All Types		—	10	50	
MT2 (-), G(+) 2N6346A thru 2N6349A		—	25	75	
*MT2 (+), G(+); MT2 (-), G(-) $T_C = -40^\circ\text{C}$ All Types		—	—	100	
*MT2 (+), G(-); MT2 (-), G(+) $T_C = -40^\circ\text{C}$ 2N6346A thru 2N6349A		—	—	125	
Peak Gate Trigger Voltage Main Terminal Voltage = 12 Vdc, $R_L = 100$ Ohms Minimum Gate Pulse Width = $2.0 \mu\text{s}$	V_{GTM}				Volts
MT2 (+), G(+) All Types		—	0.9	2.0	
MT2 (+), G(-) 2N6346A thru 2N6349A		—	0.9	2.5	
MT2 (-), G(-) All Types		—	1.1	2.0	
MT2 (-), G(+) 2N6346A thru 2N6349A		—	1.4	2.5	
*MT2 (+), G(+); MT2 (-), G(-) $T_C = -40^\circ\text{C}$ All Types		—	—	2.5	
*MT2 (+), G(-); MT2 (-), G(+) $T_C = -40^\circ\text{C}$ 2N6346A thru 2N6349A		—	—	3.0	
Main Terminal Voltage = Rated V_{DRM} , $R_L = 10$ k ohms, $T_J = 110^\circ\text{C}$					
*MT2 (+), G(+); MT2 (-), G(-) All Types		0.2	—	—	
*MT2 (+), G(-); MT2 (-), G(+) 2N6346A thru 2N6349A		0.2	—	—	
Holding Current (Either Direction) Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current = 200 mA	I_H	—	6.0	40	mA
		—	—	75*	
*Turn-On Time Rated V_{DRM} , $I_{TM} = 17$ A $I_{GT} = 120$ mA, Rise Time = $0.1 \mu\text{s}$, Pulse Width = $2.0 \mu\text{s}$	t_{gt}	—	1.5	2.0	μs
Critical Rate of Rise of Commutation Voltage Rated V_{DRM} , $I_{TM} = 17$ A, Commutating $di/dt = 6.5$ A/ms, Gate Unenergized $T_C = 80^\circ\text{C}$	dv/dt	—	5.0	—	V/ μs

*Indicates JEDEC Registered Data

NOTES:

1. Ratings apply for open gate 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.

