ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE314
Silicon Controlled Rectifier (SCR)
Power Regulator Switch

Description:

The NTE314 is a silicon controlled rectifier (SCR) in a TO3 type package designed for 12.5 Ampere RMS, 400 Volt power supply and computer control applications to +100°C maximum junction.

Features:

- Low Forward “ON” Voltage
- All Diffused Junctions for Greater Parameter Uniformity
- Glass Passivated for Greater Stability

Absolute Maximum Ratings:

Peak Repetitive Forward and Reverse Blocking Voltage (Note 1), V_{DRM}, V_{RRM} 400V
RMS Forward Current (T_C = +80°C, All Conduction Angles), $I_{T(RMS)}$ 12.5A
Peak Forward Surge Current (1/2 Cycle Sine Wave, 60Hz, T_J = –40° to +100°C), I_{TSM} 200A
Fusing Current (T_J = –40° to +100°C, t = 1 to 8.3ms), I^2t . . . . . $170A^2s$
Forward Peak Gate Power, P_{GM} 5W
Forward Average Gate Power, $P_{G(AV)}$ 0.5W
Forward Peak Gate Current, I_{GM} 2A
Peak Forward Gate Voltage, V_{GF} 19V
Peak Reverse Gate Voltage, V_{GR} 5V
Operating Junction Temperature Range, T_J . . . . . –40° to +100°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.7°C/W

Note 1. V_{DRM} and V_{RRM} can be applied on a continuous DC basis without incurrent damage. Ratings apply for zero or negative gate voltage. Devices should not be tested for blocking capability in a manner such that the voltage supplied exceeds the rated blocking voltage.

Electrical Characteristics: (V_D = 400V, T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Forward Blocking Current	I_{DRM}	T_J = +100°C	–	–	3	mA
		T_J = +25°C	–	–	10	μA
Peak Reverse Blocking Current	I_{RRM}	T_J = +100°C	–	–	1.5	mA
		T_J = +25°C	–	–	10	μA

Electrical Characteristics (Cont'd): (V_D = 400V, T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward "ON" Voltage	V_{TM}	I_{TM} = 25A Peak, Note 2	–	1.1	1.8	V
Gate Trigger Current (Continuous DC)	I_{GT}	V_D = 12V, R_L = 24Ω, T_J = +25°C	–	7	40	mA
		V_D = 12V, R_L = 24Ω, T_J = –40°C	–	–	80	mA
Gate Trigger Voltage (Continuous DC)	V_{GT}	V_D = 12V, R_L = 24Ω, T_J = –40°C	–	1	3	V
		V_D = 12V, R_L = 24Ω, T_J = +25°C	–	0.68	2	V
		V_D = 12V, R_L = 24Ω, T_J = +100°C	0.3	–	–	V
Holding Current	I_H	V_D = 12V, I_T = 0.5A	–	20	50	mA
Turn–On Time	t_{gt}	I_{TM} = 8A, I_G = 0.2A, t_r = 100ns	–	0.5	–	µs
Turn–Off Time	t_q	I_{TM} = 8A, I_G = 0.2A, dv/dt = 20V/µs, di/dt = 30A/µs, T_C = +80°C, Pulse Width ≤ 50µs	–	20	–	µs
Forward Voltage Application Rate Exponential	dv/dt	T_C = +100°C	10	100	–	V/µs

Note 2. Pulse test: Pulse Width ≤ 1ms, Duty Cycle ≤ 1%.