

NTE3046 Optoisolator SCR Photothyristor Output

Description:

The NTE3046 consists of a photo SCR coupled to a gallium arsenide infrared diode in a 6-Lead DIP type plastic package.

Features:

- Built-In Memory
- AC Switch (SPST)
- High Current Carrying Capability

Absolute Maximum Ratings:

LED (GaAs Diode)

Reverse Voltage	3V
Forward Current	
Continuous	60mA
Peak (50μs pulse, 120 pps)	500mA
Power Dissipation ($T_A = +25^{\circ}\text{C}$)	90mW
Derate Linearly Above 25°C	1.2mW/ $^{\circ}\text{C}$

Detector (Photo SCR)

DC Anode Current	100mA
Peak Pulse Current (100μs pulse, 120 pps)	1.0A
Average Gate Current	25mA
Reverse Gate Current	1.0mA
Anode Voltage (DC or Peak AC)	400V
Power Dissipation ($T_A = +25^{\circ}\text{C}$)	200mW
Derate Linearly Above 25°C	2.67mW/ $^{\circ}\text{C}$

Total Device

Isolation Surge Voltage	3550V
Power Dissipation ($T_A = +25^{\circ}\text{C}$)	250mW
Derate Linearly Above 25°C	3.3mW/ $^{\circ}\text{C}$
Operating Temperature Range	-30° to $+100^{\circ}\text{C}$
Storage Temperature Range	-55° to $+150^{\circ}\text{C}$
Lead Temperature (During Soldering for 7sec)	$+260^{\circ}\text{C}$

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Diode						
Forward Voltage	V_F	$I_F = 20\text{mA}$	—	1.25	1.5	V
Reverse Voltage	V_R	$I_R = 10\mu\text{A}$	3.0	—	—	V
Junction Capacitance	C_J	$V_R = 0$	—	50	—	pF
Detector						
Forward Leakage Current	I_{FX}	$V_{FX} = \text{Rated } V_{FX}, R_{GK} = 27\text{k}\Omega$	—	0.02	2.0	μA
Reverse Leakage Current	I_{RX}	$V_{RX} = \text{Rated } V_{RX}, R_{GK} = 27\text{k}\Omega$	—	0.02	2.0	μA
Forward Blocking Voltage	V_{FSM}, V_{DM}	$R_{GK} = 10\text{k}\Omega, T_A = +100^{\circ}\text{C}$	400	—	—	V
Reverse Blocking Voltage	V_{ROM}		400	—	—	V
ON Voltage	V_{TM}	$I_T = 100\text{mA}$	—	0.98	1.3	V
Holding Current	I_{HX}	$R_{GK} = 27\text{k}\Omega$	0.01	0.16	0.50	mA
Gate Trigger Voltage	V_{GT}	$V_{FX} = 100\text{V}$	—	0.6	1.0	V
Gate Trigger Current	I_{GT}	$V_{FX} = 100\text{V}, R_L = 10\text{k}\Omega, R_{GK} = 27\text{k}\Omega$	—	23	100	μA
Coupled						
Turn-On Current (Threshold)	I_{FT}	$V_{FX} = 100\text{V}, R_{GK} = 27\text{k}\Omega$	0.5	5.0	14.0	mA
Switching	$t_r + t_d$	$V_{CC} = 20\text{V}, I_F = 30\text{mA}, R_{GK} = 27\text{k}\Omega$	—	7	—	μs
Steady State Voltage		$t = 1\text{min}$	3500	—	—	V
		$t = 1\text{min}$	2500	—	—	V_{rms}
Surge Isolation Rating	V_{ISO}	$t = 1\text{sec}$	4000	—	—	V
		$t = 1\text{sec}$	3000	—	—	V_{rms}
Isolation Resistance	R_{ISO}	$V = 500\text{V}$	10^{11}	10^{12}	—	Ω
Isolation Capacitance	C_{ISO}	$f = 1\text{MHz}$	—	1	2	pF

Pin Connection Diagram