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NTE3091
Optoisolator
SCR Output

Description:

The NTE3091 is a gallium arsenide, infrared emitting diode coupled with a light activated silicon controlled rectifier in a 6–Lead DIP type ppackage.

Absolute Maximum Rating: (T_A = +25°C unless otherwise specified)

Infrared Emitting Diode

Reverse Voltage 6V
Forward Current
  Continuous 60mA
  Peak (Pulse Width = 1μs PPs) 3A
LED Power Dissipation 100mW
  Derate Above 25°C . . . . . 1.33mW/°C

Photo–SCR

Peak Forward Voltage 400V
RMS Forward Current 300mA
Peak Forward Current (Pulse Width = 100μs, Duty Cycle = 1%) 10A
Surge Current (10ms) 5A
Reverse Gate Voltage 6V
Power Dissipation (T_A = +25°C) 400mW
  Derate Above 25°C . . . . . 5.3mW/°C
Power Dissipation (T_C = +25°C) 1000mW
  Derate Above 25°C . . . . . 13.3mW/°C

Total Device

Isolation Surge Voltage (Input–to–Output)
  Peak 3535V
  RMS 2500V
Steady–State Isolation Voltage (Input–to–Output)
  Peak 2100V
  RMS 1500V
Operating Temperature Range . . . . . –55° to +100°C
Storage Temperature Range . . . . . –55° to +150°C
Lead Temperature (During Soldering, 10sec) . . . . . +260°C

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Infrared Emitting Diode						
Forward Voltage	V_F	I_F = 10mA	–	1.2	1.5	V
Reverse Leakage Current	I_R	V_R = 3V	–	–	10	μA
Capacitance	C_J	V = 0, f = 1MHz	–	50	–	pF

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Photo–SCR						
Off–State Voltage	V_{DM}	I_D = 150μA, R_{GK} = 10kΩ, T_A = +100°C	400	–	–	V
Reverse Voltage	V_{RM}		400	–	–	V
On–State Voltage	V_{TM}	I_{TM} = 0.3A	–	1.1	1.3	V
Off–State Current	I_{DM}	V_{DM} = 400V, R_{GK} = 10kΩ, T_A = +100°C	–	–	150	mA
Reverse Current	I_{RM}	V_{RM} = 400V, R_{GK} = 10kΩ, T_A = +100°C	–	20	–	mA
Capacitance (Anode–Gate)		V = 0, f = 1MHz (Gate–Cathode)	–	350	–	pF
Coupled						
Input Current to Trigger		V_{AK} = 50V, R_{GK} = 10kΩ	–	–	20	mA
		V_{AK} = 100V, R_{GK} = 27kΩ	–	–	11	mA
Isolation Resistance		Input–to–Output Voltage = $500V_{DC}$	100	–	–	GΩ
Input–to–Output Capacitance		Input–to–Output Voltage = 0, f = 1MHz	–	–	2	pF
Coupled dv/dt, Input–to–Output			500	–	–	V/s

Pin Connection Diagram