

FEATURES

- Turn On Current (I_{FT}), 5.0 mA Typical
- Gate Trigger Current (I_{GT}), 20 mA
- Surge Anode Current, 10 Amp
- Blocking Voltage, 200 VAC_{PK}
- Gate Trigger Voltage (V_{GT}), 0.6 Volt
- Isolation Voltage, 5300 VAC_{RMS}
- Solid State Reliability
- Standard DIP Package
- Underwriters Lab File #E52744

DESCRIPTION

The 4N39 is an optically coupled SCR with a Gallium Arsenide infrared emitter and a silicon photo SCR sensor. Switching can be achieved while maintaining a high degree of isolation between triggering and load circuits. The 4N39 can be used in SCR triac and solid state relay applications where high blocking voltages and low input current sensitivity are required.

Maximum Ratings

Emitter

Peak Reverse Voltage6.0 V
Peak Forward Current

(100 μ s, 1% Duty Cycle) 1.0 A
Continuous Forward Current 60 mA
Power Dissipation at 25°C100 mW
Derate Linearly from 50°C2 mW/°C

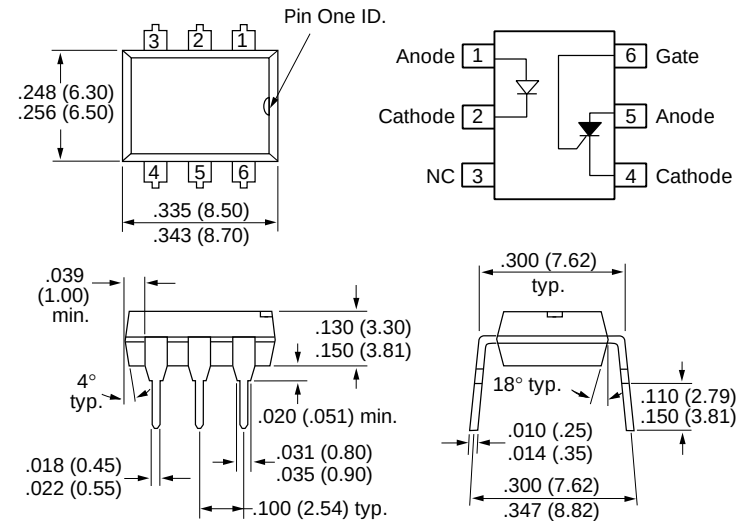
Detector

Reverse Gate Voltage6.0 V
Anode Peak Blocking Voltage200 V
Peak Reverse Gate Voltage6 V
Anode Current 300 mA
Surge Anode Current (100 μ s duration) 10 A
Surge Gate Current (5 ms duration) 100 mA
Power Dissipation, 25°C ambient400 mW
Derate Linearly from 25°C8 mW/°C

Package

Isolation Test Voltage (1 sec.) 5300 VAC_{RMS}
Isolation Resistance
V_{IO}=500 V, T_A=25°C $\geq 10^{12} \Omega$
V_{IO}=500 V, T_A=100°C $\geq 10^{11} \Omega$
Total Package Dissipation450 mW
Derate Linearly from 50°C9 mW/°C
Operating Temperature-55°C to +100°C
Storage Temperature-55°C to +150°C
Soldering Temperature (10 s.)260°C

Package Dimensions in Inches (mm)



Characteristics (T_A=25°C)

	Sym- bol	Min.	Typ	Max	Unit	Condition
Emitter						
Forward Voltage	V _F		1.2	1.5	V	I _F =20 mA
Reverse Current	I _R			10	μ A	V _R =5 V
Detector						
Forward Blocking Voltage	V _{DM}	200			V	R _{GK} =10 K Ω T _A =100°C I _d =150 μ A
Reverse Blocking Voltage	V _{RM}	200			V	
On-state Voltage	V _{TM}			1.2	V	I _{TM} =300 mA
Holding Current	I _H			200	μ A	R _{GK} =27 K Ω V _{FX} =50 V
Gate Trigger Voltage	V _{GT}		0.6	1.0	V	V _{FX} =100 V R _{GK} =27 K Ω R _L =10 K Ω
Forward Leakage Current	I _{DM}			50	μ A	R _{GK} =10 K Ω V _{RX} =200 V I _F =0, T _A =100°C
Reverse Leakage Current	I _{RM}			50	μ A	R _{GK} =27 K Ω V _{RX} =200 V I _F =0, T _A =100°C
Package						
Turn-On Current	I _{FT}		15	30	mA	V _{FX} =50 V R _{GK} =10 K Ω
			8	14		V _{FX} =100 V R _{GK} =27 K Ω
Isolation Capacitance			2		pF	f=1 MHz