

SIEMENS

LH1298

HIGH VOLTAGE, SOLID STATE RELAY OPTOCOUPLER

FEATURES

- Normally Closed, Single Pole Single Throw Operation
- Control 350 VAC or DC Voltage
- Switch 100 mA Loads
- LED Control Current, 1.5 mA
- Low ON-Resistance
- dv/dt , >500 V/ms
- Isolation Test Voltage, 3750 VAC_{RMS}
- Current Limiting
- Underwriters Lab File # E52744

APPLICATIONS

- Telephone Switch Hook
- High Voltage Test Equipment
- TRIAC Driver
- Motor Control
- Industrial Control Systems

DESCRIPTION

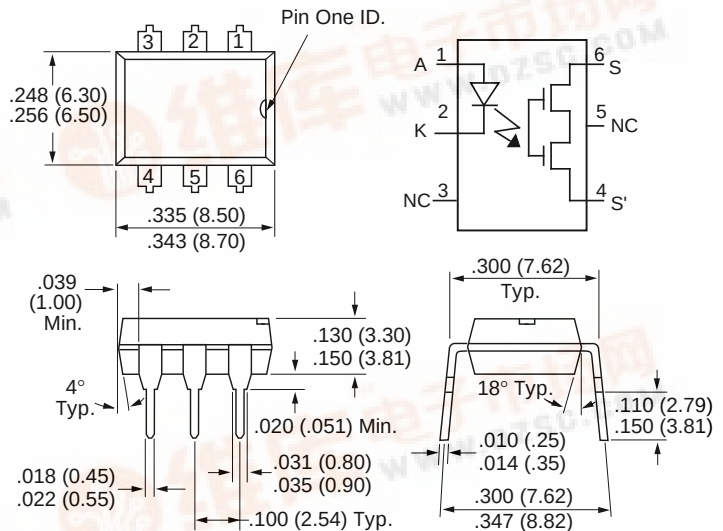
The LH1298 is a single pole single throw (SPST), normally closed (NC), solid state relay. The relay can control AC or DC loads currents up to 100 mA, with a supply voltage up to 350 V. The device is packaged in a six pin 0.3 inch dual-in line package. This package offers an insulation dielectric withstand of 3750 VAC_{RMS}.

The coupler consists of a AlGaAs LED that is optically coupled to a dielectrically isolated monolithic integrated circuit. The IC chip consists of a photodiode array, control circuitry and high voltage DMOS transistors. The typical ON resistance between the output terminals is 30 Ω at 0 mA LED current. The switch offers low off-state leakage current at LED current of 5 mA or greater. There is on board output current limiting circuitry.

Maximum Ratings

Terminal Voltage 350 V
 Terminal Current 100 mA
 LED Forward Current 60 mA
 LED Reverse Current 6 mA
 Isolation Test Voltage 3750 VAC_{RMS}
 Isolation Resistance
 $V_{IO}=500$ V, $T_A=25^\circ\text{C}$ $\geq 10^{12}$ Ω
 $V_{IO}=500$ V, $T_A=100^\circ\text{C}$ $\geq 10^{11}$ Ω
 Operating Temperature Range -40 to $+85^\circ\text{C}$
 Storage Temperature Range -40 to $+150^\circ\text{C}$
 Lead Soldering Temperature
 at 260°C , 2 mm from case 5 sec.

Package Dimensions in Inches (mm)



Characteristics ($T_A=25^\circ\text{C}$)

Emitter	Sym	Min.	Typ.	Max.	Units	Condition
Forward Voltage	V_F		1.25	1.5	V	$I_F=10$ mA
V_F Temperature Coefficient	$\Delta V_F/\Delta T_A$		-2.2		mV/ $^\circ\text{C}$	
Reverse Current	I_R		1	10	μA	$V_R=6$ V
Junction Capacitance	C_J		15		pF	$V_R=0$ V $f=1$ MHz
Dynamic Resistance	$\Delta V_F/\Delta I_F$		6		W	$I_F=10$ mA
Switching Time	t_R, t_F		1		μs	$I_F=10$ mA
Detector						
Output Break-down Voltage	V_B	350			V	$I_B=50$ μA
Output OFF-State Leakage Current	$I_{T(OFF)}$		0.1	1	μA	$V_T=100$ V, $I_F=5$ mA
			0.1	5	μA	$V_T=300$ V, $I_F=2.5$ mA
Terminal Capacitance	C_T		24		pF	$V_T=0$, $f=$ MHz
Current Limit			150		mA	
Package						
LED Forward Current, Turn-Off	I_{Fth}		1.5	2.5	mA	$V_L=\pm 300$ V, $T_A=25^\circ\text{C}$
ON-resistance	R_{ON}	20	30	50	W	$I_T=\pm 25$ mA, $I_F=0$ mA
Turn-on Time	T_{ON}			3	ms	$I_F=5$ mA, $V_L=50$ V,
Turn-off Time	T_{OFF}			2	ms	$R_L=1$ k Ω