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OKI electronic components

OCS31

Optical PNPN Switches

GENERAL DESCRIPTION

The OCS31 is an optical switch formed by combining an infrared light emitting diode and a PNPN element (photothyristor) that can withstand high voltages. Encased in an 8-pin plastic package, the device uses a connection method that makes bidirectional control possible.

FEATURES

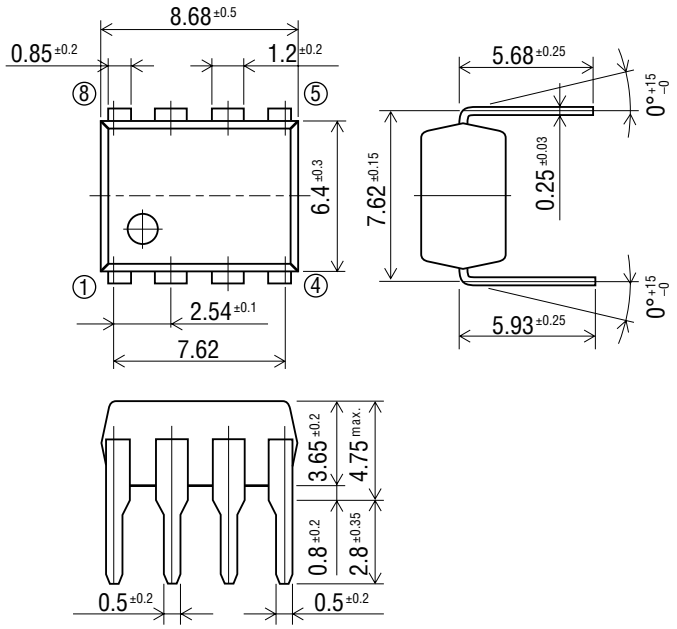
- Photocoupler type 1×1×2 W (double) optical switch
- Available for direct connection to subscriber line
- Total electrical isolation of drive circuit and channel circuit
- Protection function eliminating need for power outage countermeasures
- Bidirectional two-line control
- UL recognized — File number: E86831

APPLICATIONS

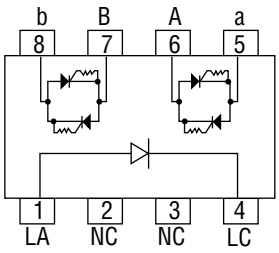
- Electric automatic exchange
- Key telephone system
- Optically coupled circuits

PIN CONFIGURATION

(Unit: mm)



• Pin Connection Diagram



1: Anode (LED)
2: NC (No connection)
3: NC (No connection)
4: Cathode (LED)
5: Output (PNPN)
6: Output (PNPN)
7: Output (PNPN)
8: Output (PNPN)

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Test Condition	Rating	Unit
Input (LED)	Forward Current	I_G	Ta=25°C	60	mA
	Reverse Voltage	V_{RL}		5	V
Output (PNPN)	Forward Blocking Voltage	V_{BO}		350	V
	Continuous ON-State Current	I_F		100	mA
	Surge ON-State Current *	I_{SUG}		1.4	A
Isolation Voltage		V_{I-O}		1500	V
Operating Temperature		T_{opr}	—	–20 to +70	°C
Storage Temperature		T_{stg}	—	–30 to +100	°C

* A single 1 ms pulse

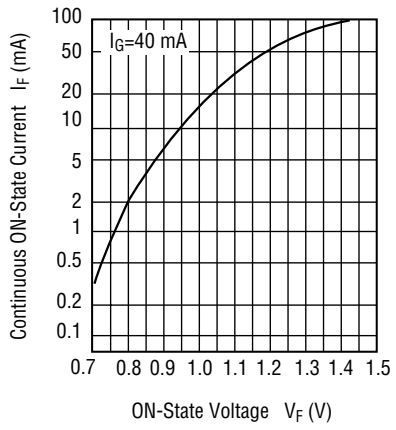
ELECTRICAL CHARACTERISTICS

(Ambient Temperature Ta=25°C)

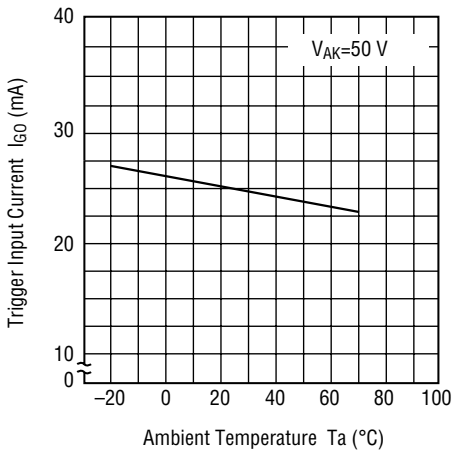
Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Characteristics	Forward Voltage	V_{FL}	I_G=40 mA	—	—	1.4	V
	Reverse Current	I_{RL}	V_{RL}=5 V	—	—	5	μA
Output Characteristics	OFF-State Current	I_{BO}	V_{BO}=320 V	—	—	5	μA
	ON-State Voltage	V_F	I_F=20 mA, I_G=40 mA	—	—	1.3	V
	dV/dt Capability	dV/dt	dt=0.1 μs	120	—	—	V/0.1μs
	Holding Current	I_H	ON to OFF	—	—	1.3	mA
Coupled Characteristics	Trigger Input Current	I_{GO}	V_{AK}=50 VDC	—	—	25	mA

TYPICAL CHARACTERISTICS

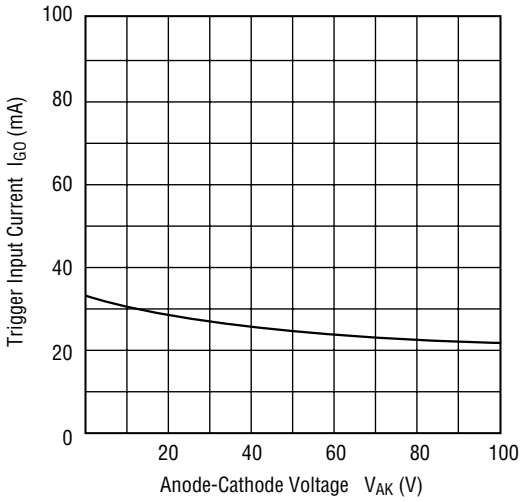
- **Continuous ON-State Current vs. ON-State Voltage (Ta=25°C)**



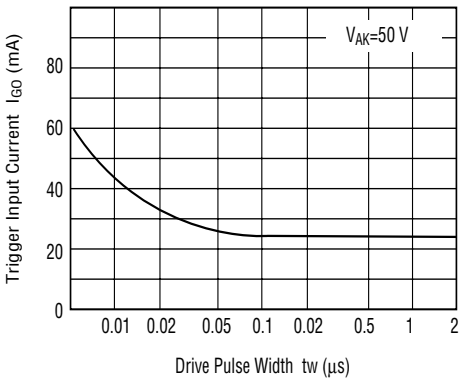
- **Trigger Input Current vs. Ambient Temperature**



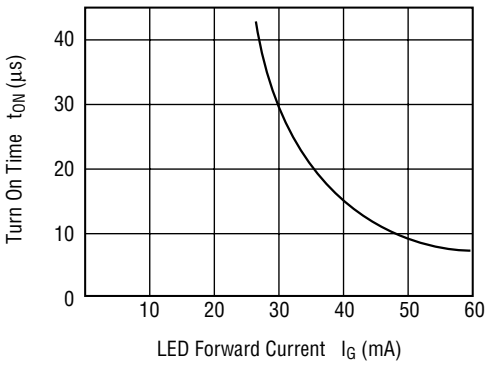
- **Trigger Input Current vs. Anode-Cathode Voltage (Ta=25°C)**



- **Trigger Input Current vs. Drive Pulse Width (Ta=25°C)**



- **Turn On Time vs. LED Forward Current (Ta=25°C)**



- **dV/dt Capability vs. Ambient Temperature**