OKI electronic components

OCS30

Optical PNPN Switches

GENERAL DESCRIPTION

The OCS30 is an optical switch formed by combining an infrared light emitting diode and a PNPN element (photothyristor) that can withstand high voltages. The device is encased in an 8-pin plastic package. The output PNPN element of the OCS30 forms a bridge configuration, giving the device rectification capabilities.

FEATURES

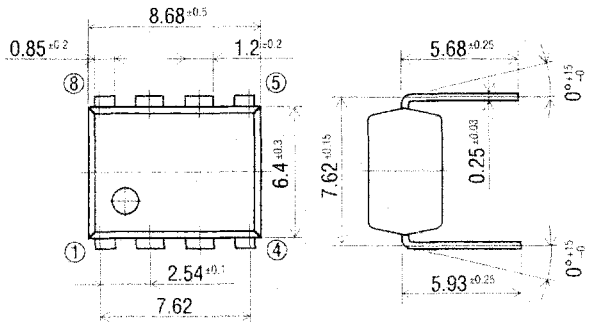
- Optical switch with photocoupler type 1 × 1 × 2 W (single) bridge
- Available for direct connection to subscriber line
- Total electrical isolation of drive circuit and channel circuit
- Protection function eliminating need for power outage countermeasures
- Simple polarity agreement
- UL recognized — File number: E86831

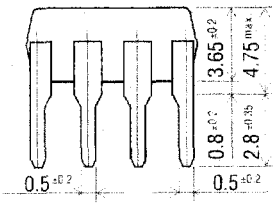
APPLICATIONS

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

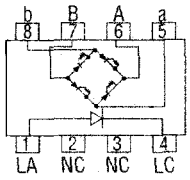
PIN CONFIGURATION

(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
	Reverse Voltage	V_{BD}		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

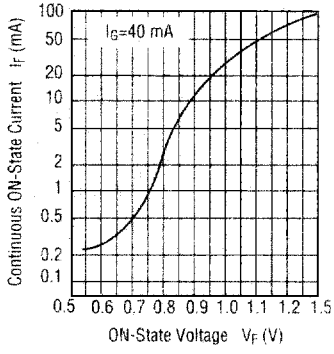
ELECTRICAL CHARACTERISTICS

(Ambient Temperature Ta=25°C)

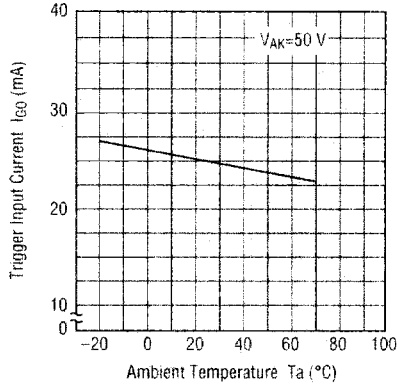
Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Characteristics	Forward Voltage	V_{FL}	I_G=40 mA	—	—	1.4	V
	Reverse Current	I_{RL}	V_{RL}=5 V	—	—	5	μA
Output Characteristics	OFF-State Current	I_{BO}	V_{BO}=320 V	—	—	5	μA
	Reverse Current	I_{BD}	V_{BD}=320 V	—	—	5	μA
	ON-State Voltage	V_F	I_F=20 mA, I_G=40 mA	—	—	1.0	V
	ON Resistance	R_{ON}	I_F=20 mA, ΔI_F=1 mA, I_G=40 mA	—	—	10	Ω
	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
	Reverse Photo Current	I_L	V_{KA}=50 V, I_G=40 mA	—	—	650	μA

TYPICAL CHARACTERISTICS

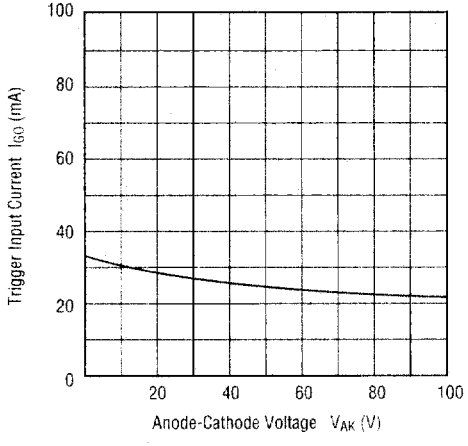
- **Continuous ON-State Current vs. ON-State Voltage (Ta=25°C)**



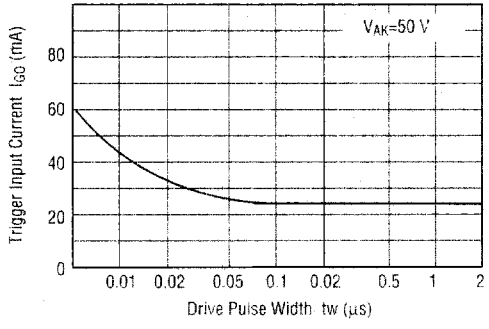
- **Trigger Input Current vs. Ambient Temperature**



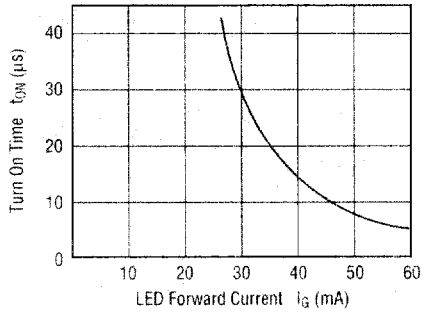
- **Trigger Input Current vs. Anode-Cathode Voltage (Ta=25°C)**



- **Trigger Input Current vs. Drive Pulse Width**



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



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