

OKI electronic components

OCS33

Optical PNPN Switches

GENERAL DESCRIPTION

The OCS33 is an optical PNPN switch, combining an infrared light emitting diode and a PNPN element (photothyristor) in a single 8-pin plastic package. The device is capable of withstanding high voltages. The output PNPN element of the OCS33 forms a half-bridge configuration.

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The OCS33 is designed for extended life-time operation, making the device ideal for applications such as communications and telephone switching equipment.

FEATURES

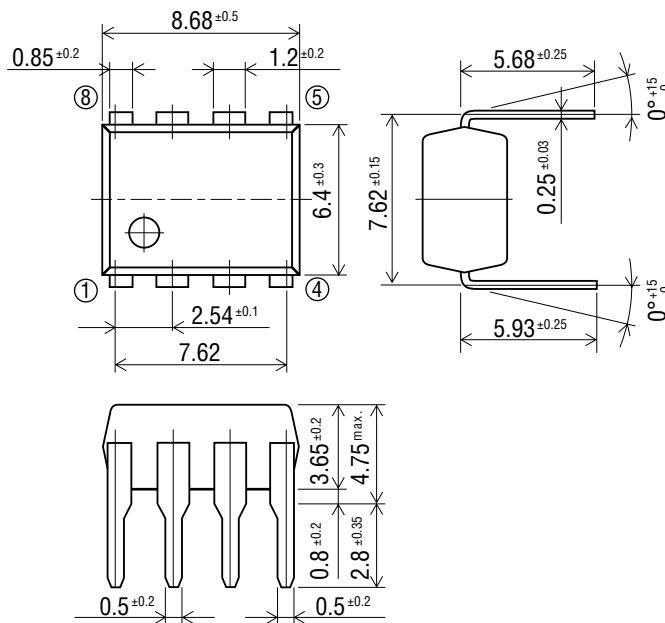
- Forward blocking voltage (V_{BO}, V_{BD}): 320 V (Min.)
- Trigger input current (I_{CO}): 15 mA (Max.)

APPLICATIONS

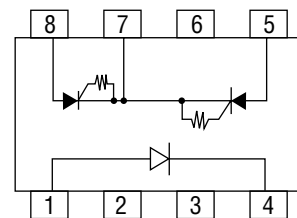
- Electronic automatic exchange
- Key telephone system
- Contactless switch
- Optically coupled circuits.

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: NC | (No connection) |
| 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
Operating Temperature		T_{opr}	—	-20 to +70	°C
Storage Temperature		T_{stg}	—	-30 to +100	°C

* A single 1 ms pulse

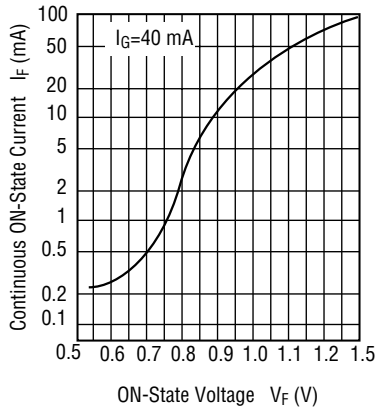
ELECTRICAL CHARACTERISTICS

(Ambient Temperature Ta=25°C)

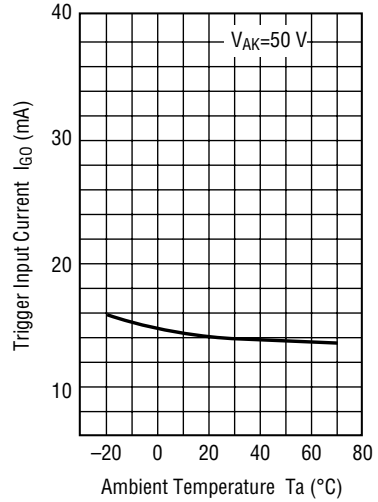
Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Characteristics	Forward Voltage	V_{FL}	$I_G=40$ mA	—	—	1.4	V
	Reverse Current	I_{RL}	$V_{RL}=5$ V	—	—	5	μA
Output Characteristics	OFF-State Current	I_{BO}	$V_{AK}=320$ V	—	—	5	μA
	Reverse Voltage	I_{BD}	$V_{AK}=320$ V	—	—	5	μA
	ON-State Voltage	V_F	$I_F=20$ mA, $I_G=40$ mA	—	—	1.0	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}	$V_{AK}=500$ VDC	—	—	15	mA

TYPICAL CHARACTERISTICS

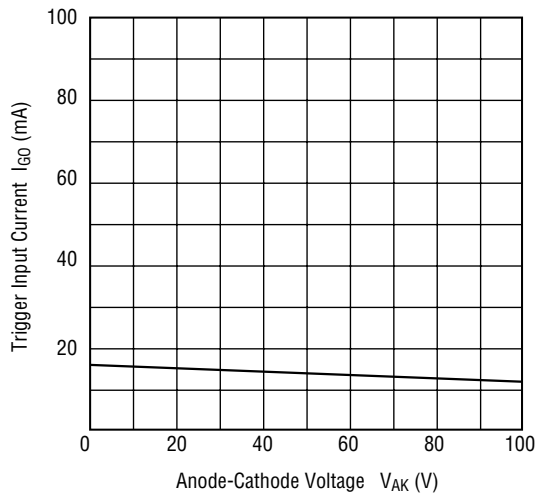
- **Continuous ON-State Current vs. ON-State Voltage ($T_a=25^\circ\text{C}$)**



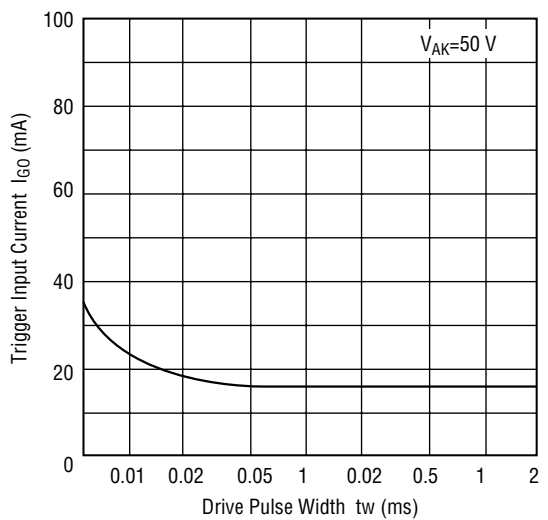
- **Trigger Input Current vs. Ambient Temperature**



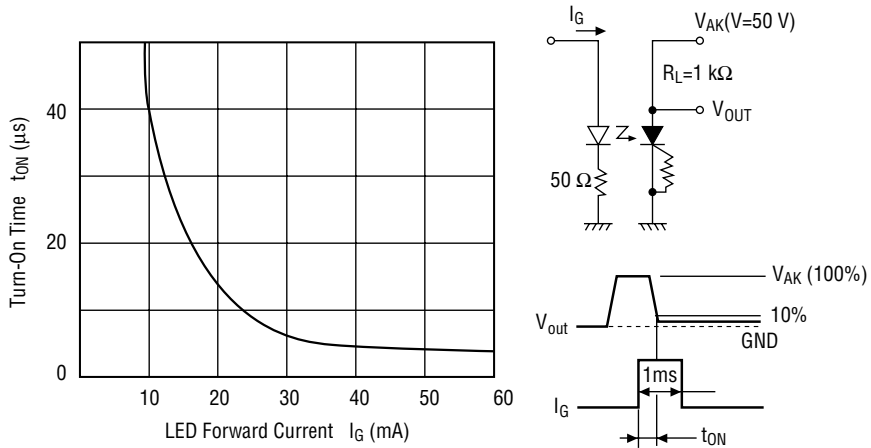
- **Trigger Input Current vs. Anode-Cathode Voltage ($T_a=25^\circ\text{C}$)**



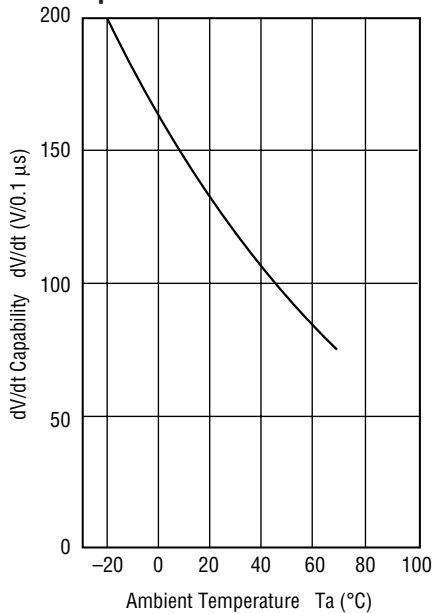
- **Trigger Input Current vs. Drive Pulse Width ($T_a=25^\circ\text{C}$)**



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



• dV/dt Capability vs. Ambient Temperature



• Input LED Forward Current vs. Voltage

