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OKI electronic components

OCS40

Optical PNPN Switches with OFF Function

GENERAL DESCRIPTION

The OCS40 adds an OFF function to the standard optical PNPN switch to provide an optically controlled ON-OFF function. In addition to standard latch functions, the OCS40 also offers a pulse- drive-controlled ON-OFF capability.

FEATURES

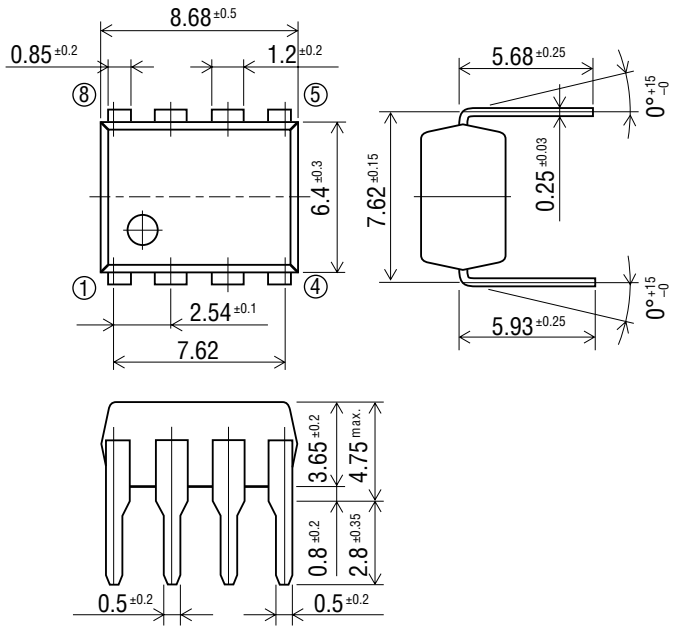
- ON-OFF control using pulse
- Low drive current (I_{GON}, I_{GOFF} : 10 mA Max.)
- High blocking voltage (V_{BO}, V_{BD} : 350 V Min.)
- Total I/O isolation

APPLICATIONS

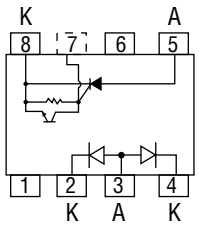
- Electronic automatic exchange
- Key telephone system
- Home electronics
- Measuring instrument
- Substitute for latching relay
- Optically coupled circuits

PIN CONFIGURATION

(Unit: mm)



• Pin Connection Diagram



1: NC (No connection)
2: OFF Cathode (LED)
3: ON, OFF Anode (LED)
4: ON Cathode (LED)
5: PNPN Anode
6: NC (No connection)
7: PIN cut
8: PNPN Cathode

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 Current	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		Vin-out		1500	V
Operating Temperature		T_{opr}	—	–20 to +70	°C
Storage Temperature		T_{stg}	—	–55 to +125	°C

* A single 1 ms pulse

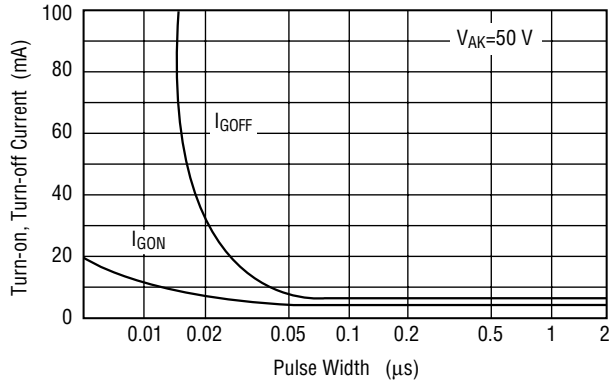
ELECTRICAL CHARACTERISTICS

(Ambient Temperature Ta=25°C)

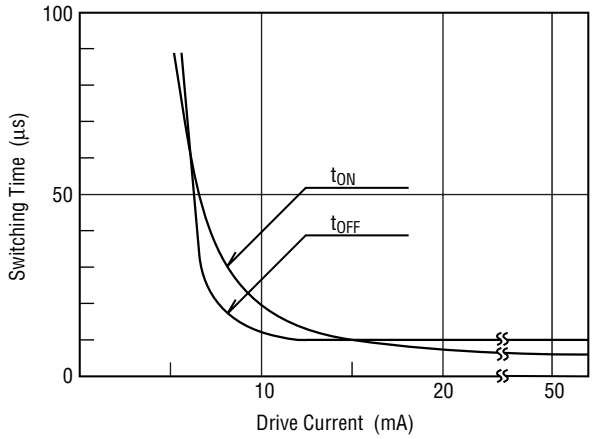
Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Characteristics	Forward Voltage	V_{FL}	I_G=40 mA	—	—	1.4	V
	Reverse Current	I_{RL}	V_{RL}=5 V	—	—	5	μA
Output Characteristics	OFF-State Current	I_{BO}	V_{BD}=320 V	—	—	5	μA
	Reverse Current	I_{BD}	V_{BD}=320 V	—	—	5	μA
	ON-State Voltage	V_F	I_F=20 mA, I_G=40 mA	—	—	1.0	V
	dV/dt Capability	dV/dt	—	80	—	—	V/0.1μs
			I_{GOFF}=0.25 mA	210	—	—	
	Holding Current	I_H	ON to OFF	—	—	1.3	mA
Coupled Characteristics	Turn on Current	I_{GON}	V_{AK}=50 V	—	—	10	mA
			V_{AK}=50 V, I_{GOFF}=0.35 mA	—	—	10	
	Turn off Current	I_{GOFF}	I_F=100 mA	—	—	10	mA

TYPICAL CHARACTERISTICS

- **Turn-on, Turn-off Current vs. Pulse Width (Ta=25°C)**



- **Switching Time vs. Drive Current (Ta=25°C)**



- **Drive Example**