

OKI electronic components

OCMS2□6DP SERIES

Power Saving Dial Pulse SOP Type Optical MOS Relay For AC/DC Load

GENERAL DESCRIPTION

The OCMS2□6DP series is a family of optical MOS relays for AC/DC load. The input portion is an infrared light emitting diode. The output portion uses a combination of VD-MOS (Vertical Diffusion MOS) FETs and photodiode arrays. The device is encased in an extremely small 6-pin plastic SOP type package.

The series reduced its area to 50% and its volume to 27% of the conventional DIP or SMD-type optical MOS relays.

The series is 2.1mm thick and is ideal for modem card applications.

The optical MOS relay switch may be used in applications that currently use mechanical relay switches, but offers smaller size, noise-free switching, and electronic circuit compatibility because of its non-mechanical operation. Optical MOS relay switches also dissipate less power than equivalent bipolar devices at lower switching frequencies.

FEATURES

- Extremely low voltage control
- Thickness of 2.1mm
- High reliability due to non-contact and optical operation
- No chattering or switch bounces
- No mechanical switching noises
- Small size and easy mounting (6-pin plastic SOP package)

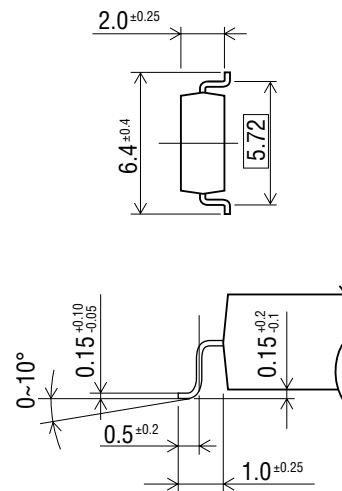
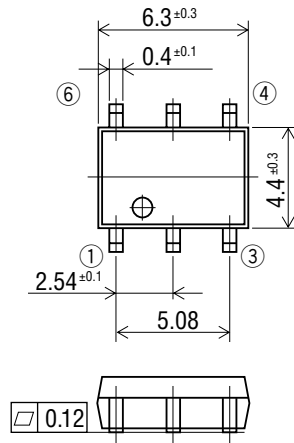
APPLICATIONS

- Telecommunications system (such as modem cards)
- Measurement equipment
- Home electronics
- Automatic meter reading equipment
- Other applications requiring small size or high performance
- Other applications requiring non-contact switches

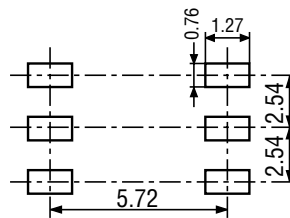
PIN CONFIGURATION

(Unit: mm)

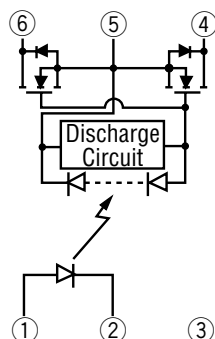
• 6pin SOP Type



• Mounting pad (Top view)



• Pin Connection Diagram



- 1: Anode (LED)
- 2: Cathode (LED)
- 3: NC
- 4: Drain (MOS FET)
- 5: Source (MOS FET)
- 6: Drain (MOS FET)

ABSOLUTE MAXIMUM RATINGS

(Ambient temperature Ta=25°C)

Product Name					OCMS236DP		OCMS246DP	
Parameter		Symbol	Condition	Unit				
Input Characteristics	Continuous Forward Current	I _F		mA	50			
	Derating Factor of Continuous Forward Current	ΔI _F		mA/°C	Refer to [Derating Factor of Continuous Forward Current] of characteristics data			
	Peak Forward Current	I _{FM}	Pulse width 100 μs Cycle 10 ms	A	0.5			
	Reverse Voltage	V _R		V	5			
	Power Dissipation	P _{DL}		mW	75			
Output Characteristics	Load Voltage	V _{OFF}		V	350		400	
	Load Current	I _{ON}		mA	140*		120*	
	Derating Factor of Load Current	ΔI _{ON}		mA/°C	Refer to [Derating Factor of Load Current] of characteristics data			
	Surge Load Current	I _{SUG}	Pulse width 1 ms 1shot	A	0.8		0.7	
	Power Dissipation	P _D		mW	300			
Total Power Dissipation		P _{tot}		mW	325			
Isolation Voltage		V _{IO}		V(rms)	1500			
Operating Temperature		T _{opr}		°C	−40 to +85			
Storage Temperature		T _{sta}		°C	−40 to +100			

* : Load current when mounted on a board. Please contact our sales personnel for detail.

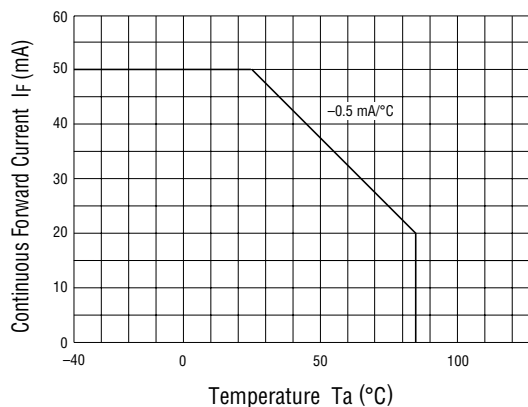
ELECTRICAL CHARACTERISTICS

(Ambient temperature Ta=25°C)

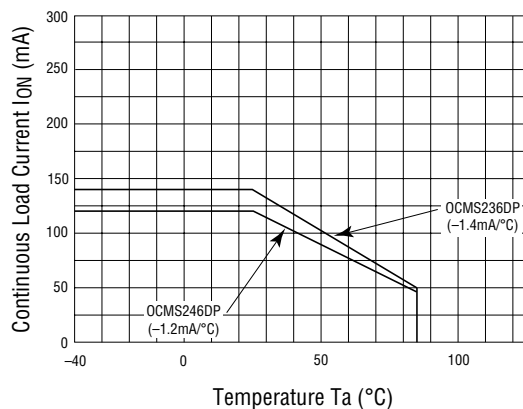
Product Name							
Parameter		Symbol	Condition	Unit	OCMS236DP	OCMS246DP	
Input Characteristics	Forward Voltage	V _F	I _F =10 mA	Min.	V	1.0	
				Max.		1.3	
	Reverse Voltage	I _R	V _R =5 V	Max.	μA	10	
	Operation Input Current	I _{FA}	I _{ON} =100 mA	Max.	mA	0.5	
	Recovery Input Current	I _{FR}	V _{OFF} =Rating I _{ON} =100 μA	Min.	mA	0.02	
Output Characteristics	On-resistance	R _{ON}	I _F =10 mA I _{ON} =100 mA Time to flow current is within one second	Min.	Ω	7.0	10
			Typ.	17		22	
			Max.	24		33	
	Off-state Leakage Current	I _{OFF}	V _{OFF} =Rating	Max.	μA	1.0	
	Output Terminal Capacitance	C _{OUT}	V _{OFF} =50 V f=1 MHz	Typ.	pF	12	10
Coupling Characteristics	Input-to-output Capacitance	C _{IO}	f=1 MHz	Typ.	pF	1.3	
	Turn-on Time	t _{ON}	I _F =2 mA I _{on} =50 mA	Typ.	ms	—	
		Max.		1.25			
	Turn-off Time	t _{OFF}	Typ.	ms	—		
		Max.	0.5				

TYPICAL CHARACTERISTICS

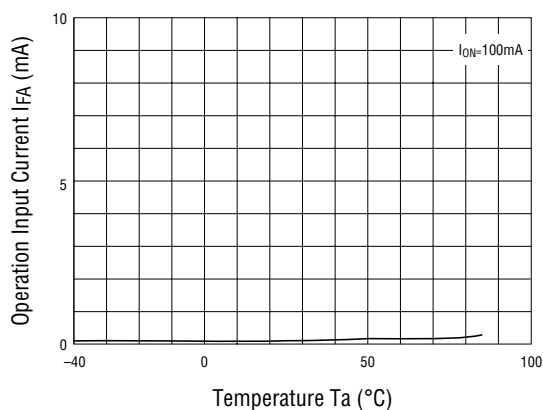
- Derating Factor of Continuous Forward Current



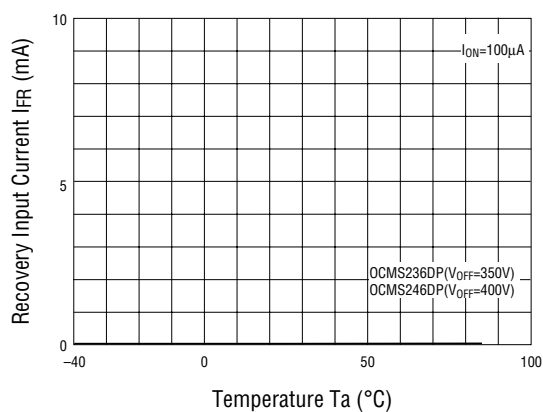
- Derating Factor of Load Current



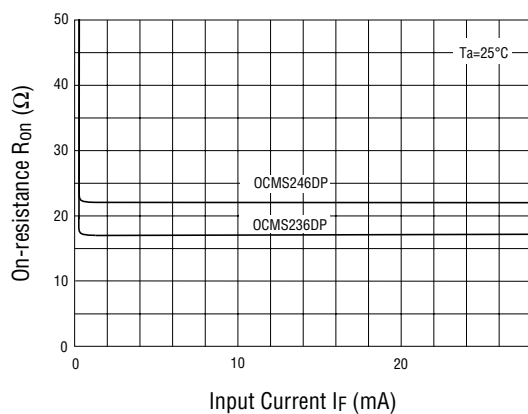
- Operation Input Current vs. Ambient Temperature



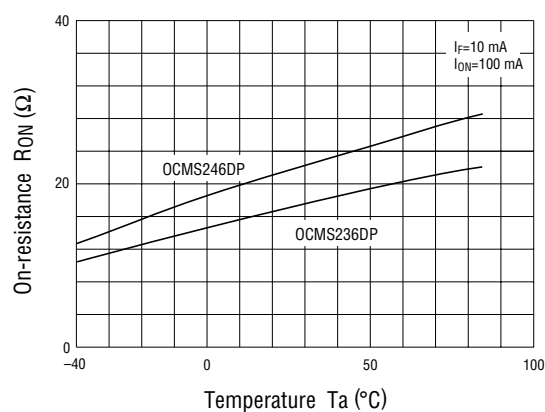
- Recovery Input Current vs. Ambient Temperature



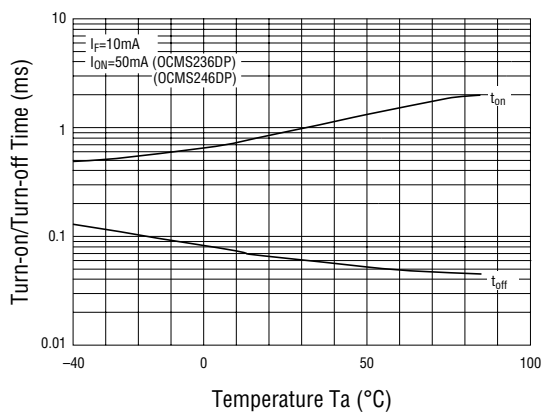
- Continuous forward current vs. On-resistance 1



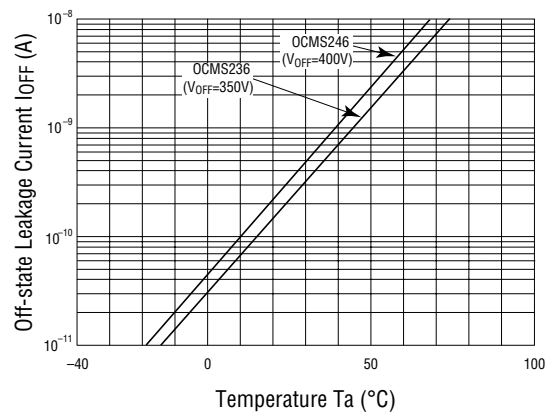
- On-resistance vs. Ambient Temperature 2



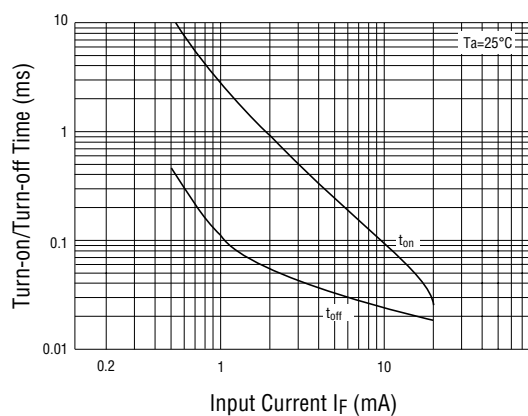
- Turn-on/Turn-off Time vs. Ambient Temperature



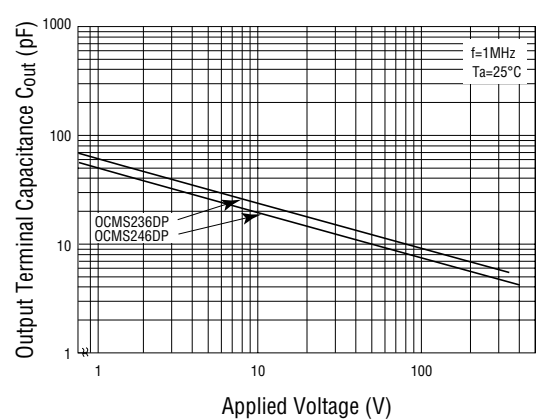
- Off-state Leakage Current vs. Ambient Temperature



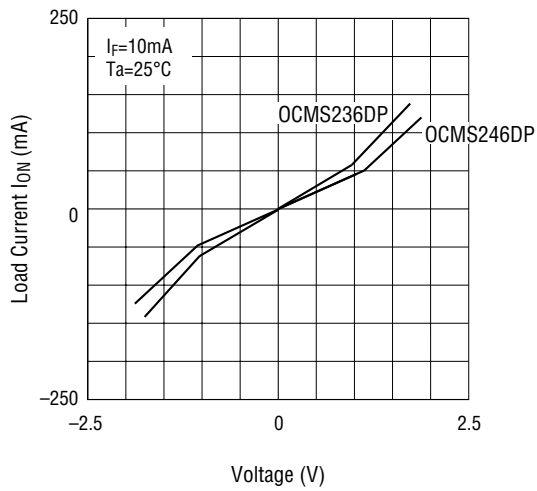
- Continuous Forward Current vs. Turn-on/Turn-off Time



- Output Terminal Capacitance vs. Applied Voltage



- Load Current vs. Voltage



- Example Circuit for Measuring Turn-on/Turn-off Time

