

OKI electronic components

OCM4□6, 4□7 SERIES

Dual-Channel/Package General-purpose Type Optical MOS Relay For AC/DC Load

GENERAL DESCRIPTION

The OCM4□6 and OCM4□7 Series are dual-channel, optical MOS relays for AC/DC load. The device is available in the same form factor as single-channel devices, with an 8-pin DIP and SMD-type (gull-wing) package.

FEATURES

- Extremely low voltage control
- High reliability due to non-contact, optical operation
- No chattering or switch bounces
- No mechanical switching noises
- Small size and easy mounting (6-pin plastic DIP or SMD-type [gull-wing] package)

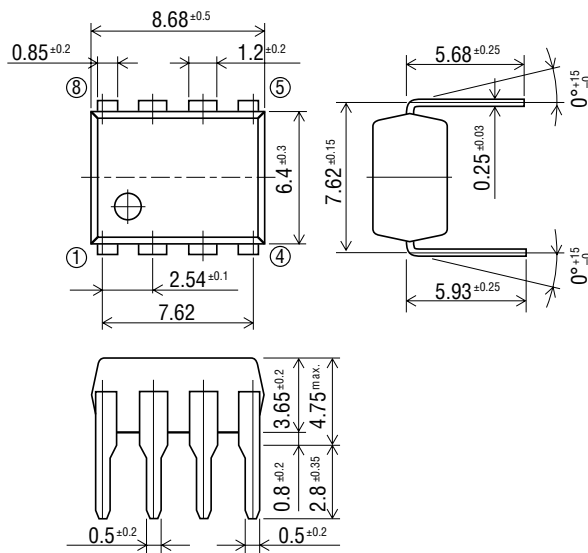
APPLICATIONS

- Telecommunications equipment
- Measurement equipment
- Home electronics
- Automatic meter reading equipment
- Other applications requiring small size or high performance
- Other applications requiring non-contact switches

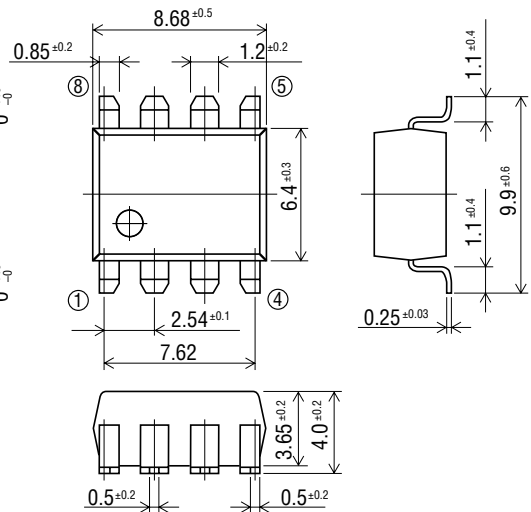
PIN CONFIGURATION

(Unit: mm)

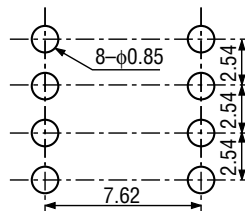
• DIP Type



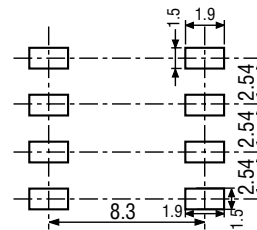
• SMD Type (gull-wing)



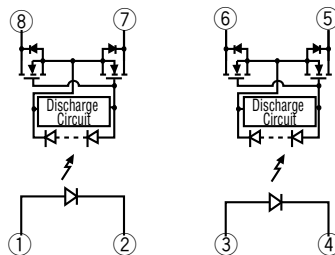
• Through hole (Bottom view)



• Mounting pad (Top view)



• Pin Connection Diagram



- 1: Anode (LED1)
- 2: Cathode (LED1)
- 3: Anode (LED2)
- 4: Cathode (LED2)
- 5: Drain (MOS FET2)
- 6: Drain (MOS FET2)
- 7: Drain (MOS FET1)
- 8: Drain (MOS FET1)

ABSOLUTE MAXIMUM RATINGS

(Ambient temperature Ta=25°C)

Product Name					OCM406	OCM416	OCM426	OCM436	OCM446
Parameter		Symbol	Condition	Unit	OCM407	OCM417	OCM427	OCM437	OCM447
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	60	100	200	350	400
	Load Current	I _{ON}		mA	250	200	150	100	75
	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	0.5			0.3	
	Power Dissipation	P _D		mW	300				
	Total Power Dissipation	P _{tot}		mW	325				
Isolation Voltage		V _{IO}		V(rms)	1500				
					OCM406	OCM416	OCM426	OCM436	OCM446
					4000				
					OCM407	OCM417	OCM427	OCM437	OCM447
Operating Temperature		T _{opr}		°C	−40 to +85				
Storage Temperature		T _{stg}		°C	−40 to +100				

ELECTRICAL CHARACTERISTICS

(Ambient temperature Ta=25°C)

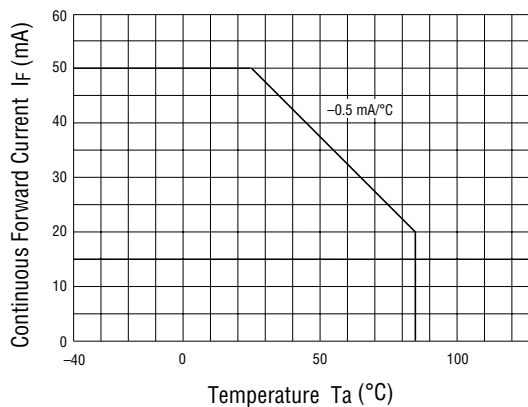
Product Name					OCM406	OCM416	OCM426	OCM436	OCM446	
Parameter		Symbol	Condition		Unit	OCM407	OCM417	OCM427	OCM437	OCM447
Input Characteristics	Forward Voltage	V _F	I _F =10 mA	Min.	V	1.0				
				Max.		1.3				
	Reverse Voltage	I _R	V _R =5 V	Max.	μA	10				
	Operation Input Current *1	I _{FA}	I _{ON} =100 mA or Rating	Max.	mA	5				
	Recovery Input Current	I _{FR}	V _{OFF} =Rating I _{ON} =100 μA	Min.	mA	0.2				
Output Characteristics	On-resistance	R _{ON}	I _F =10 mA I _{ON} =100 mA OCM406, 407, 416, 417 OCM426, 427 I _{ON} =Rating *4 Time to flow current is within one second	Min.	Ω	1.0	2.0	4.0	7.0	10
				Typ.		2.0	3.0	7.0	17	22
				Max.		3.0	4.0	10	24	33
	Off-state Leakage Current*2	I _{OFF}	V _{OFF} =Rating	Max.	μA	1.0				
	Output Terminal Capacitance	C _{OUT}	V _{OFF} =50 V f=1 MHz	Typ.	pF	35	25	15	12	10
Coupling Characteristics	Input-to-output Capacitance	C _{IO}	f=1 MHz	Typ.	pF	1.3				
	Turn-on Time *3	t _{ON}	I _F =10 mA I _{on} =100 mA OCM406, 407 OCM416, 417 OCM426, 427	Typ.	ms	0.3				
				Max.		1.0				
	Turn-off Time *3	t _{OFF}	I _{off} =50 mA OCM436, 437 OCM446, 447	Typ.	ms	0.2				
Max.				1.0						

*1 : Can correspond to special specification $I_{FA}<3.0\text{ mA}$ *2 : Can correspond to special specification $I_{OFF}<1.0\text{ nA}$ *3 : Can correspond to special specification $t_{ON} / t_{OFF}<0.5\text{ ms}$

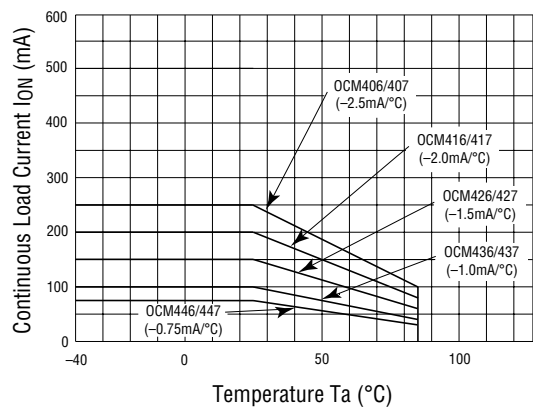
*4 : Except (OCM406, 407, 416, 417, 426, 427)

TYPICAL CHARACTERISTICS

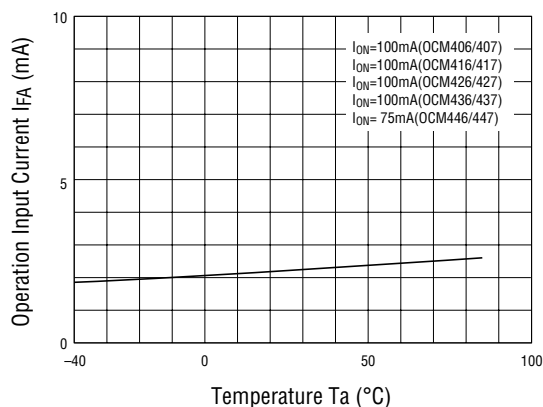
- Derating Factor of Continuous Forward Current



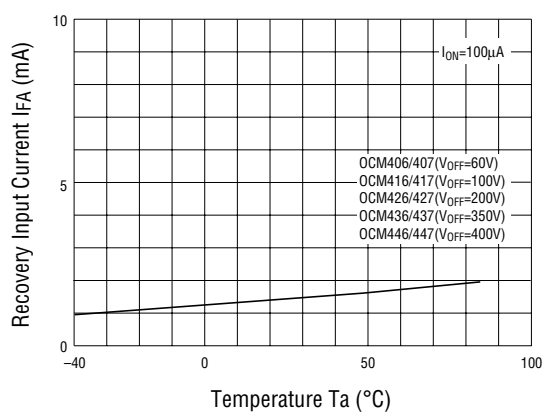
- Derating Factor of Load Current



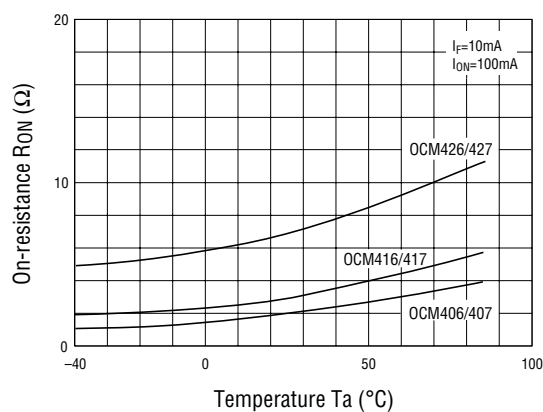
- Operation Input Current vs. Ambient Temperature



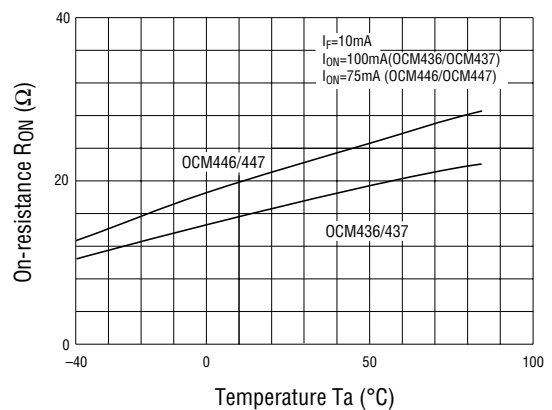
- Recovery Input Current vs. Ambient Temperature



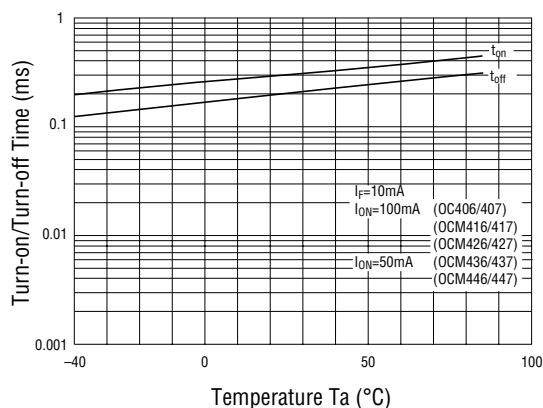
- On-resistance vs. Ambient Temperature 1



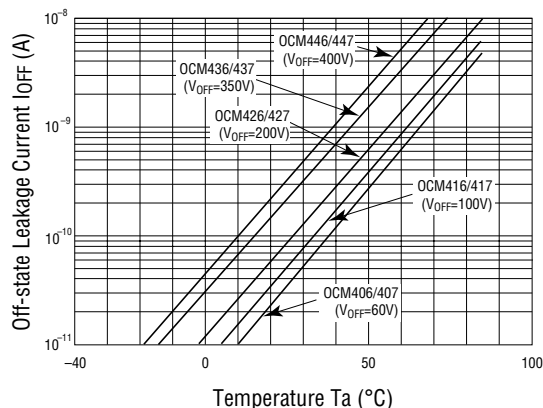
- On-resistance vs. Ambient Temperature 2



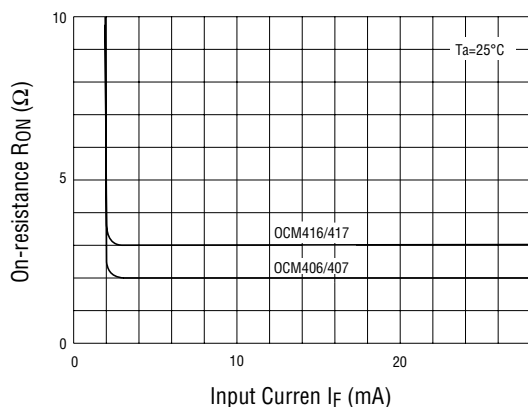
- Turn-on/Turn-off Time vs. Ambient Temperature



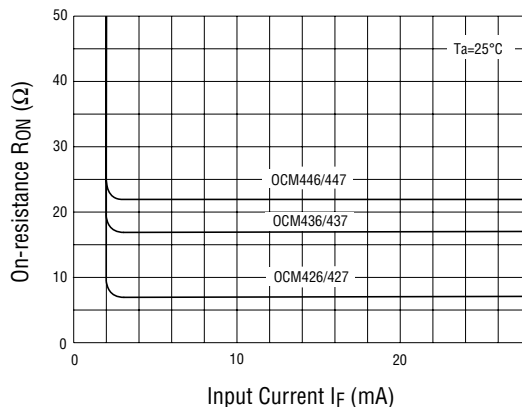
- Off-state Leakage Current vs. Ambient Temperature



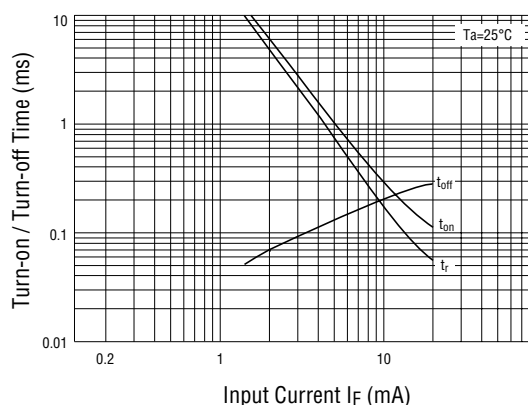
- Continuous Forward Current vs. On-resistance 1



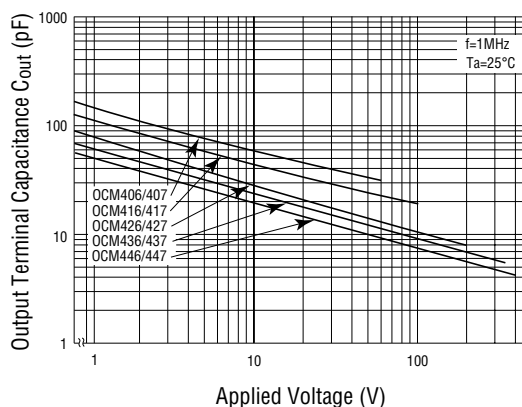
- Continuous Forward Current vs. On-resistance 2



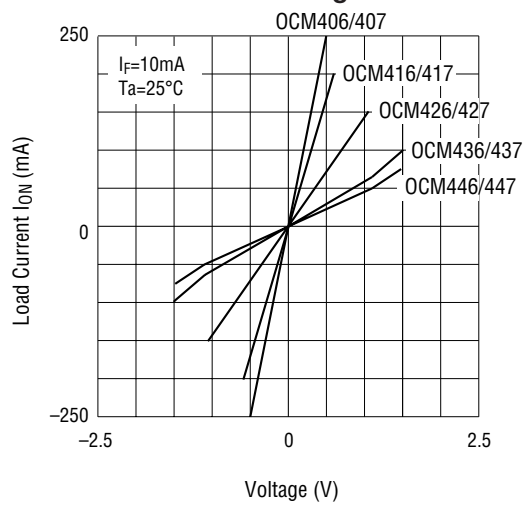
- Continuous Forward Current vs. Turn-on/Turn-off Time



- Output Terminal Capacitance vs. Applied Voltage



- Load Current vs. Voltage



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

