

# W414/W414A

## HIGH VOLTAGE, PHOTO MOS RELAY

COSMO

### FEATURES

- Normally Close, Single Pole Single Throw
- Control 400VAC or DC Voltage
- Switch 130mA Loads
- LED control Current, 5mA
- Low ON-Resistance
- $dv/dt$ , >500V/ms
- Isolation Test Voltage, 3750VACrms

### Absolute Maximum Ratings( $T_a=25^\circ\text{C}$ )

#### Emitter(Input)

Reverse Voltage .....	5.0V
Continuous Forward Current .....	50mA
Peak Forward Current .....	1A
Power Dissipation .....	100mW
Derate Linearly from $25^\circ\text{C}$ .....	1.3mW/ $^\circ\text{C}$

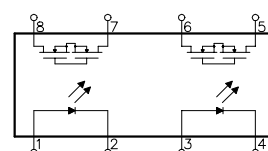
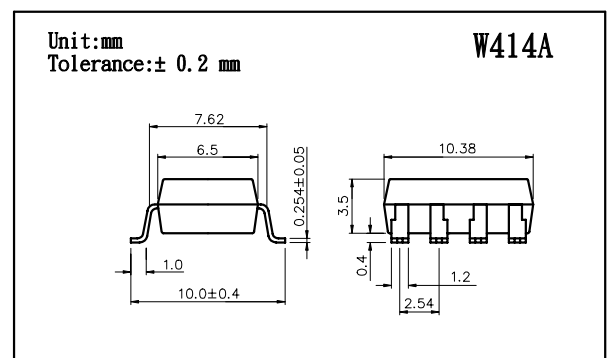
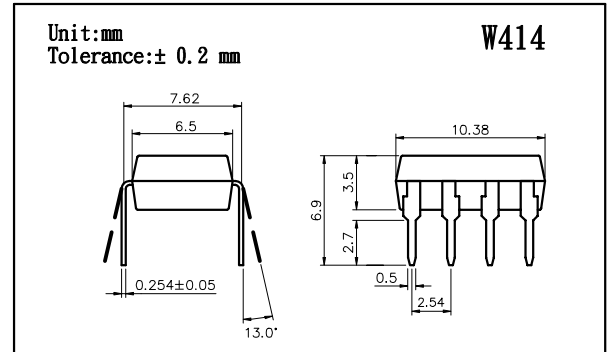
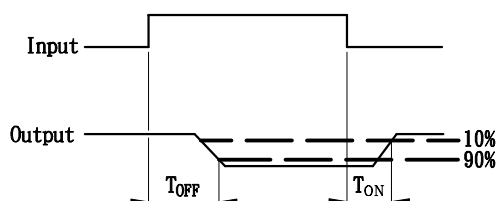
#### Detector(Output)

Output Breakdown Voltage .....	$\pm 400\text{V}$
Continuous Load Current .....	$\pm 130\text{mA}$
Power Dissipation .....	500mW

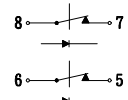
### General Characteristics

Isolation Test Voltage .....	3750VACrms
Isolation Resistance $V_{io}=500\text{V}$ , $T_a=25^\circ\text{C}$ .....	$\geq 10^{10}\Omega$
Total Power Dissipation .....	550mW
Derate Linearly from $25^\circ\text{C}$ .....	2.5mW/ $^\circ\text{C}$
Storage Temperature Range .....	$-40^\circ\text{C}$ to $+125^\circ\text{C}$
Operating Temperature Range .....	$-30^\circ\text{C}$ to $+85^\circ\text{C}$
Junction Temperature .....	$100^\circ\text{C}$
Soldering Temperature, 2mm from case, 10 sec .....	$260^\circ\text{C}$

#### • Operate/Reverse time



DUAL 1 FORM B  
NORMALLY CLOSE



# W414/W414A

## HIGH VOLTAGE, PHOTO MOS RELAY

### Characterisitcs

(Ta=25°C)

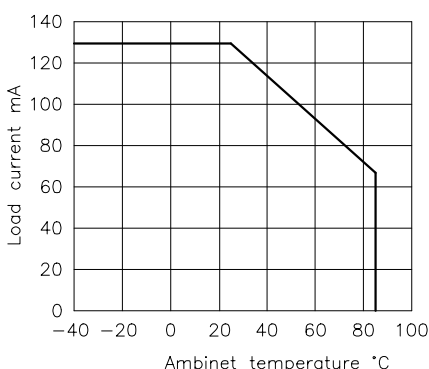
Description	Symbol	Min.	Typ.	Max.	Unit	Test Condition
<b>Emitter(Input)</b>						
Forward Voltage	VF		1.8	2.0	V	IF=10mA
Operation Input Current	I <sub>FOFF</sub>			5	mA	VL=± 20V, IL<=5uA
Recovery Input Current	I <sub>FON</sub>	0.2			mA	VL=± 20V, IL=100mA t=10mS
<b>Detector (output)</b>						
Output Breakdown Voltage	VB	400			V	IB=50uA
Output Off-State Leakage	IT(OFF)		0.2	2	uA	VT=100V, IF=10mA
I/O Capacitance	CISO		6		pF	IF=0, f=1MHz
ON Resistance	R <sub>ON</sub>		40	50	Ω	IL=100mA, IF=0mA
Reverse(ON) Time	T <sub>ON</sub>		0.6	1.5	ms	IF=10mA, VL=± 20V
Operate(OFF) Time	T <sub>OFF</sub>		0.3	1.0	ms	t=10ms, IL=± 100mA

### Mos Relay Schematic and Wiring Diagrams

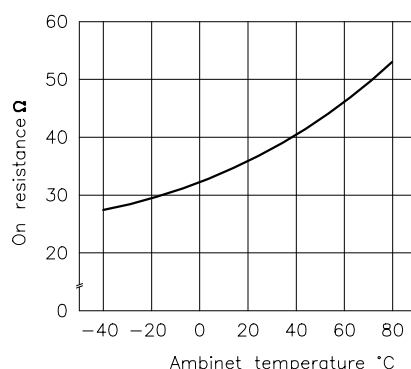
Type	Schematic	Output configur- -ation	Load	Con- nection	Wiring Diagrams
W414 & W414A		2b	AC/DC	—	<p>(1)Two independent 1 Form B use</p> <p>(2)2 Form B use</p>

### DATA CURVE

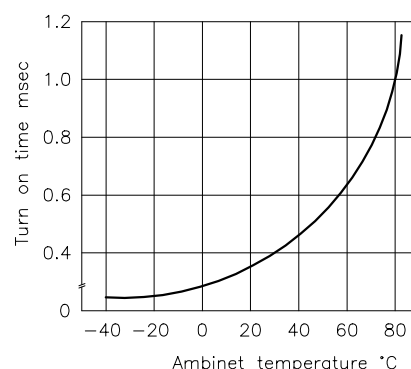
Load current vs. ambient temperature  
Allowable ambient temperature:  
-40°C to +85°C



On resistance vs. ambient temperature  
Across terminals 5,7 and 6,8 pin  
LED current: 0mA  
Continuouse load current: 130mA(DC)



Operate(OFF) time vs. ambient temperature  
Load voltage 400V(DC)  
LED current: 5mA  
Continuouse load current: 130mA(DC)

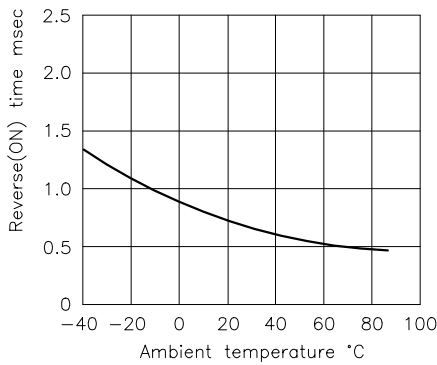


# W414/W414A

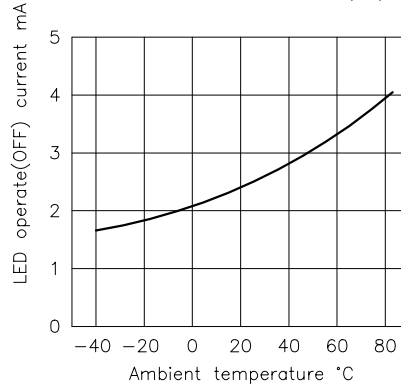
## HIGH VOLTAGE, PHOTO MOS RELAY

### W414/W414A

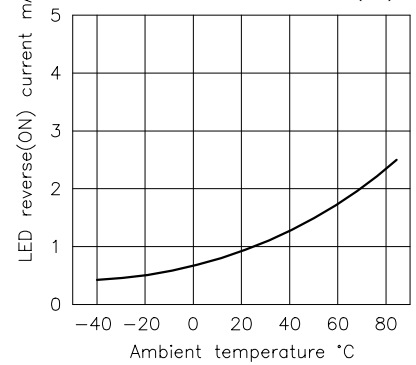
Reverse(ON) time vs. ambient temperature  
LED current: 5mA; Load voltage: 400V(DC)  
Continuous load current: 130mA(DC)



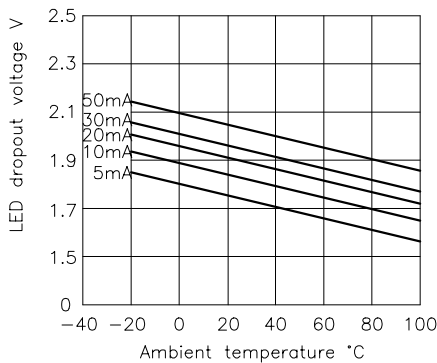
LED operate(OFF) vs. ambient temperature  
Load voltage: 400V(DC)  
Continuous load current: 130mA(DC)



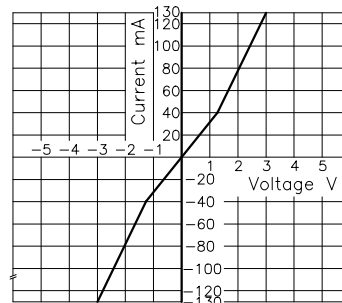
LED reverse(ON) current vs. ambient temperature  
Load voltage: 400V(DC)  
Continuous load current: 130mA(DC)



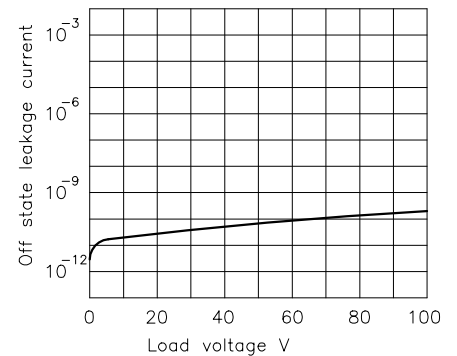
LED dropout voltage vs. ambient temperature  
LED current: 5 to 50mA



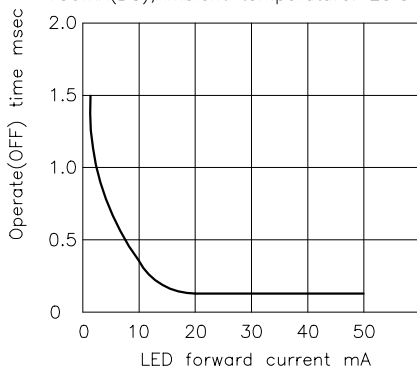
Voltage vs. current characteristics of output at MOS FET portion  
Measured portion: across terminals 5,7 and 6,8 pin  
Ambient temperature: 25°C



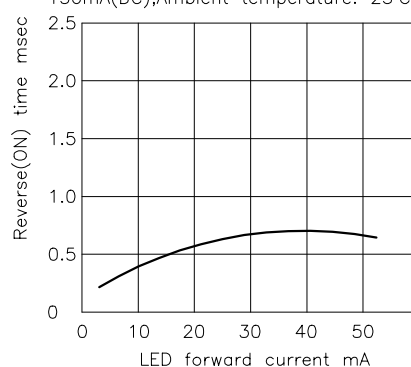
Off state leakage current  
Across terminals 5,7 and 6,8 pin  
Ambient temperature: 25°C



LED forward current vs. operate(OFF) time  
Across terminals 5,7 and 6,8 pin; Load voltage: 400V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25°C



LED forward current vs. reverse(NO) time  
Across terminals 5,7 and 6,8 pin; Load voltage: 400V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25°C



Applied voltage vs. output capacitance  
Across terminals 5,7 and 6,8 pin  
Frequency: 1MHz; Ambient temperature: 25°C

