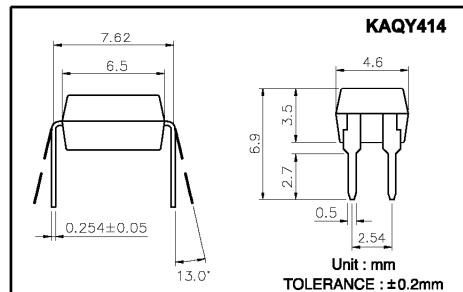


# COSMO High Voltage, Solid State Relay-MOSFET Output KAQY414/414A

UL 1577/ UL 508 (File No.E108430), FI EN60950 (File No.FI13698)

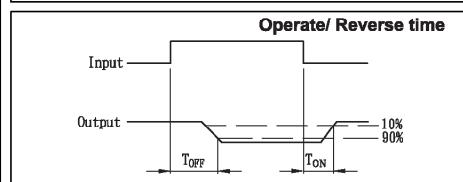
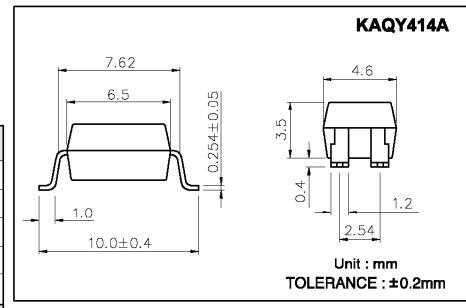
## Features

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



## Absolute Maximum Ratings (Ta=25°C)

Emitter (Input)	Detector (Output)
Reverse Voltage.....	5.0V
Continuous Forward Current.....	50mA
Peak Forward Current.....	1A
Power Dissipation.....	100mW
Derate Linearly from 25°C.....	1.3mW/°C
Power Dissipation.....	
Derate Linearly from 25°C.....	



## Electro-optical Characteristics (Ta=25°C)

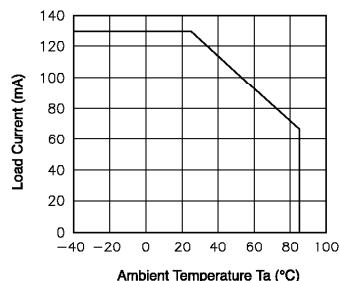
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Emitter (Input)</b>						
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =10mA		1.2	1.5	V
Operation Input Current	I <sub>OFF</sub>	V <sub>L</sub> =±20V, I <sub>L</sub> =5uA		5		mA
Recovery Input Current	I <sub>ON</sub>	V <sub>L</sub> =±20V, I <sub>L</sub> =100mA, t=10ms	0.2			mA
<b>Detector (Output)</b>						
Output Breakdown Voltage	V <sub>B</sub>	I <sub>B</sub> =50uA	400			V
Output Off-State Leakage	I <sub>TOFF</sub>	V <sub>T</sub> =100V, I <sub>F</sub> =10mA	0.2	2		uA
I/O Capacitance	C <sub>ISO</sub>	I <sub>F</sub> =0, f=1MHz		6		pF
ON Resistance	R <sub>ON</sub>	I <sub>L</sub> =100mA, I <sub>F</sub> =0mA	40	50		Ω
Reverse (ON) Time	T <sub>ON</sub>	I <sub>F</sub> =10mA, V <sub>L</sub> =±20V	0.6	1.5		ms
Operate (OFF) Time	T <sub>OFF</sub>	t=10ms, I <sub>L</sub> =±100mA	0.3	1.0		ms

## Schematic and Wiring Diagrams

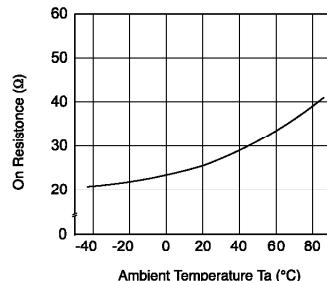
Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQY414 & KAQY414A		1b	AC/DC	—	

## Data Curve

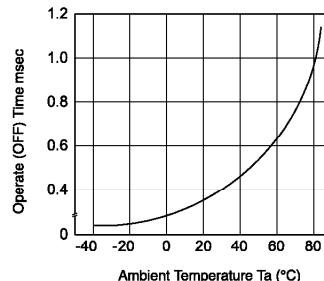
**Fig.1** Load current vs. ambient temperature  
Allowable ambient temperature:  
-40°C to +85°C



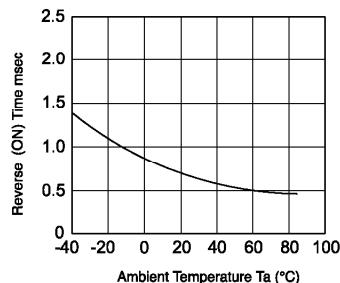
**Fig.2** On resistance vs. ambient temperature  
Across terminals 3 and 4 pin  
LED current: 0mA  
Continuous load current: 130mA(DC)



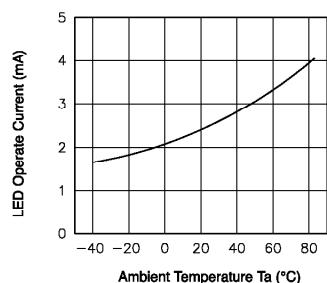
**Fig.3** Operate (OFF) time vs. ambient temperature  
Load voltage 400V(DC)  
LED current: 5mA  
Continuous load current: 130mA(DC)



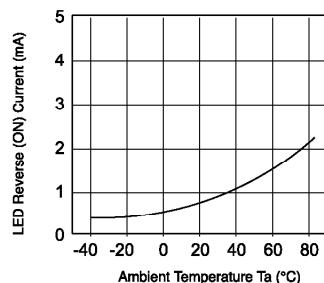
**Fig.4** Reverse (ON) time vs. ambient temperature; LED current: 5mA;  
Load voltage: 400V(DC)  
Continuous load current: 130mA(DC)



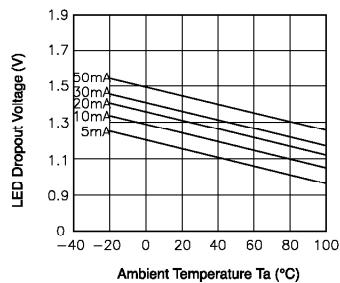
**Fig.5** LED operate (OFF) vs. ambient temperature  
Load voltage: 400V(DC)  
Continuous load current: 130mA(DC)



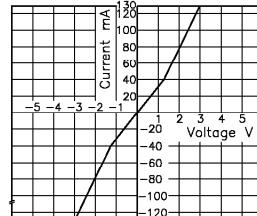
**Fig.6** LED reverse (ON) current vs. ambient temperature  
Load voltage 400V(DC)  
Continuous load current: 130mA(DC)



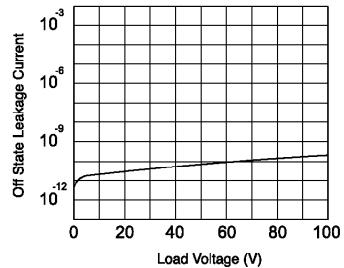
**Fig.7** LED dropout voltage vs. ambient temperature  
LED current: 5 to 50mA



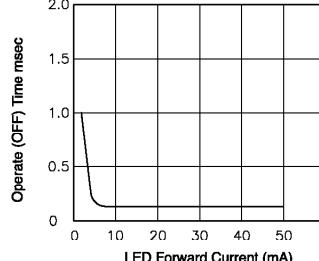
**Fig.8** Voltage vs. current characteristics of output at MOS FET portion  
Measured portion: across terminals 3 and 4 pin  
Ambient temperature: 25°C



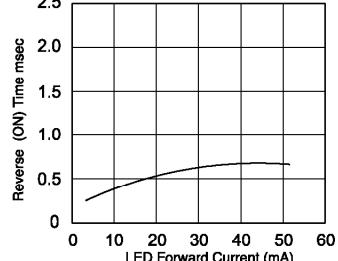
**Fig.9** Off state leakage current  
Across terminals 3 and 4 pin  
Ambient temperature: 25°C



**Fig.10** LED forward current vs. operate (OFF) time  
Across terminals 3 and 4 pin;  
Load voltage: 400V (DC);  
Continuous load current: 130mA (DC);  
Ambient temperature: 25°C



**Fig.11** LED forward current vs. reverse (ON) time  
Across terminals 3 and 4 pin;  
Load voltage: 400V (DC);  
Continuous load current: 130mA (DC);  
Ambient temperature: 25°C



**Fig.12** Applied voltage vs. output capacitance  
Across terminals 3 and 4 pin  
Frequency: 1MHz  
Ambient temperature: 25°C

