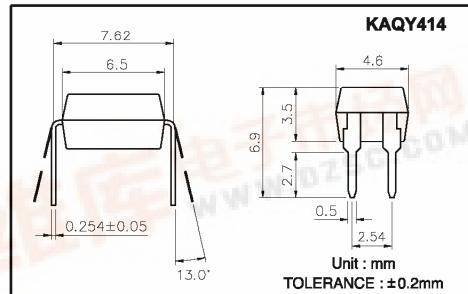


COSMO High Voltage, Solid State Relay-MOSFET Output KAQY414/414A

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

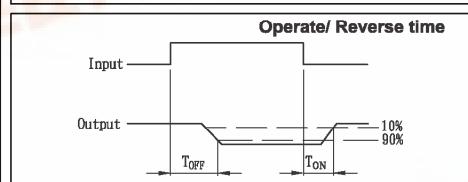
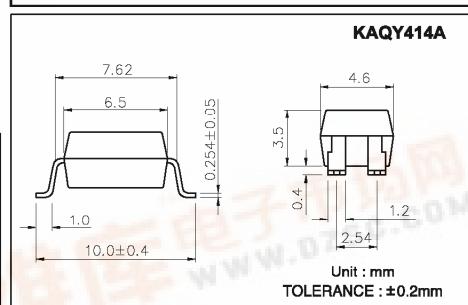
Features

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
General Characteristics	
Isolation Test Voltage.....	3750VACrms
Isolation Resistance	Operating Temperature Range... -40°C to +125°C
Vio=500V, Ta=25°C.....	≥10 ¹⁰ Ω
Total Power Dissipation.....	550mW
Derate Linearly from 25°C.....	2.5mW/°C
Storage Temperature Range.... -40°C to +125°C	
Operating Temperature Range... -30°C to +85°C	
Junction Temperature..... 100°C	
Soldering Temperature, 2mm from case, 10 sec..... 260°C	



Electro-optical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Emitter (Input)						
Forward Voltage	V _F	I _F = 10mA		1.2	1.5	V
Operation Input Current	I _{OFF}	V _L = ±20V, I _L ≤ 5uA			5	mA
Recovery Input Current	I _{ON}	V _L = ±20V, I _L = 100mA, t = 10mS	0.2			mA
Detector (Output)						
Output Breakdown Voltage	V _B	I _B = 50uA	400			V
Output Off-State Leakage	I _{TOFF}	V _T = 100V, I _F = 10mA	0.2	2	uA	
I/O Capacitance	C _{ISO}	I _F = 0, f = 1MHz	6			pF
ON Resistance	R _{ON}	I _L = 100mA, I _F = 0mA	40	50	50	Ω
Reverse (ON) Time	T _{ON}	I _F = 10mA, V _L = ±20V	0.6	1.5	ms	
Operate (OFF) Time	T _{OFF}	t = 10ms, I _L = ±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

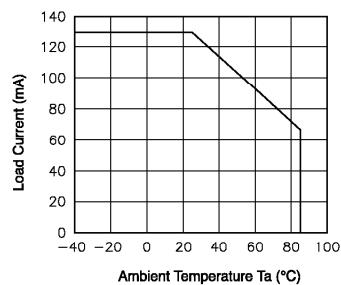


Fig.2 On resistance vs. ambient temperature
Across terminals 3 and 4 pin
LED current: 0mA
Continuous load current: 130mA(DC)

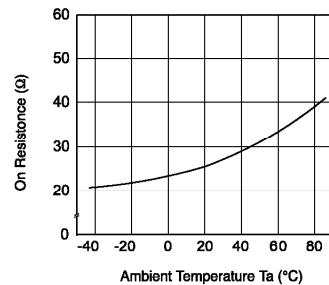


Fig.3 Operate (OFF) time vs. ambient temperature
Load voltage 400V(DC)
LED current: 5mA
Continuous load current: 130mA(DC)

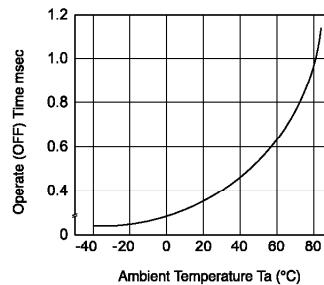


Fig.4 Reverse (ON) time vs. ambient temperature; LED current: 5mA;
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)

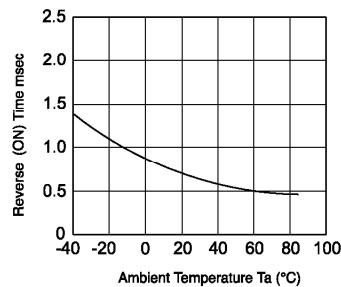


Fig.5 LED operate (OFF) vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)

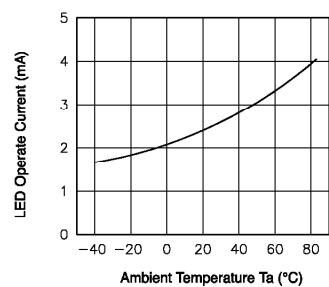


Fig.6 LED reverse (ON) current vs. ambient temperature
Load voltage 400V(DC)
Continuous load current: 130mA(DC)

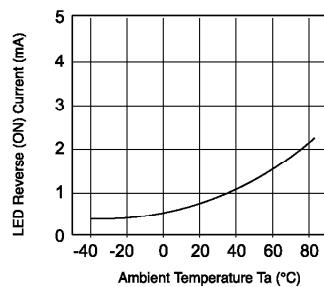


Fig.7 LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA

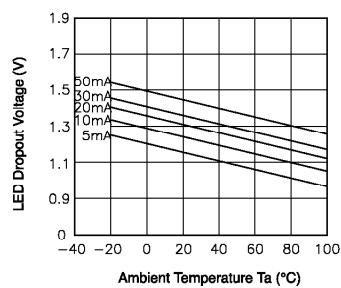


Fig.8 Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 3 and 4 pin
Ambient temperature: 25°C

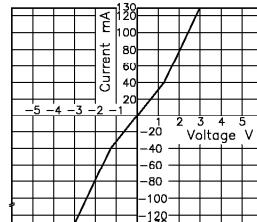


Fig.9 Off state leakage current
Across terminals 3 and 4 pin
Ambient temperature: 25°C

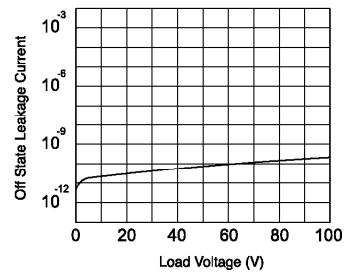


Fig.10 LED forward current vs. operate (OFF) time
Across terminals 3 and 4 pin;
Load voltage: 400V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

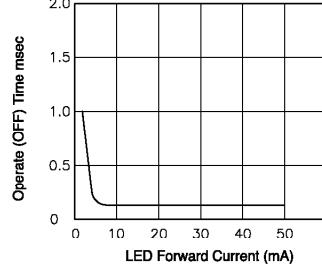


Fig.11 LED forward current vs. reverse (ON) time
Across terminals 3 and 4 pin;
Load voltage: 400V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

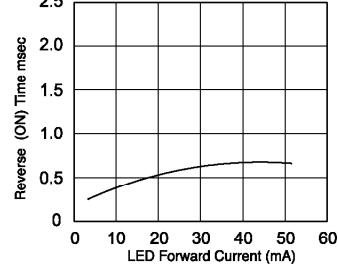


Fig.12 Applied voltage vs. output capacitance
Across terminals 3 and 4 pin
Frequency: 1MHz
Ambient temperature: 25°C

