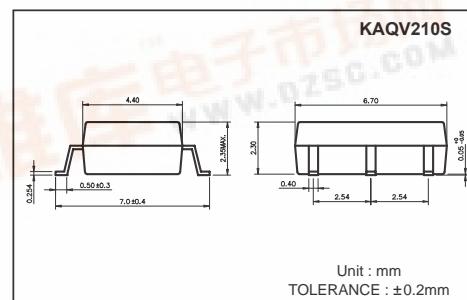


# High Voltage, Photo Mos Relay KAQV210S

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

## Features

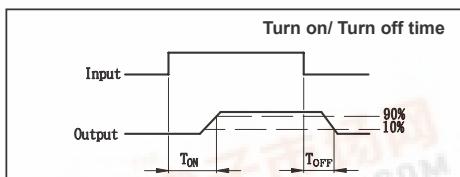
1. Normally Open, Single Pole Single Throw
2. Control 350VAC or DC Voltage
3. Switch 130mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 1500VACrms



## Absolute Maximum Ratings

(Ta=25°C)

Emitter ( Input )	Detector ( Output )
Reverse Voltage ..... 5.0V	Output Breakdown Voltage ..... ±350V
Continuous Forward Current ..... 50mA	Continuous Load Current ..... ±130mA
Peak Forward Current ..... 1A	Power Dissipation ..... 500mW
Power Dissipation ..... 100mW	
Derate Linearly from 25°C ..... 1.3mW/°C	
General Characteristics	
Isolation Test Voltage ..... 1500VACrms	Storage Temperature Range ... -40°C to +125°C
Isolation Resistance	Operating Temperature Range ... -30°C to +85°C
Vio=500V, Ta=25°C ..... ≥10 <sup>10</sup> Ω	Junction Temperature ..... 100°C
Total Power Dissipation ..... 550mW	Soldering Temperature,
Derate Linearly from 25°C ..... 2.5mW/°C	2mm from case, 10 sec ..... 260°C



## Electro-optical Characteristics

(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Emitter (Input)							
Forward Voltage	VF	IF=10mA		1.2	1.5	V	
Operation Input Current	IFON	VL =±20V, IL =100mA, t =10mS			5	mA	
Recovery Input Current	IFOFF	VL =±20V, IL ≤5μA	0.2			mA	
Detector (Output)							
Output Breakdown Voltage	VB	IB=50μA	350			V	
Output Off-State Leakage	ITOFF	VT =100V, IF =0mA	0.2	1		uA	
I/O Capacitance	CISO	IF =0, f =1MHz	6			pF	
ON Resistance	Connection	RON	IL =100mA, IF =10mA	20	30	Ω	
				10	15		
				5	7.5		
Turn-On Time		TON	IF =10mA, VL =±20V	0.3	1.0	ms	
Turn-Off Time		TOFF		0.7	1.5	ms	

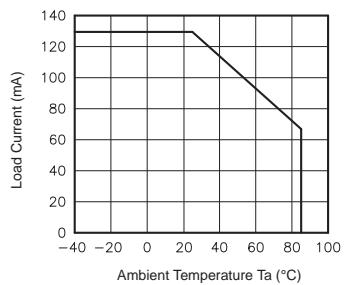
## Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQV210S	  	1a	AC/DC	A	
			DC	B	
			DC	C	

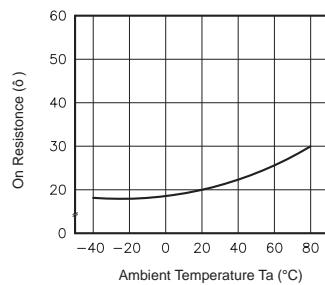
# KAQV210S

## Data Curve

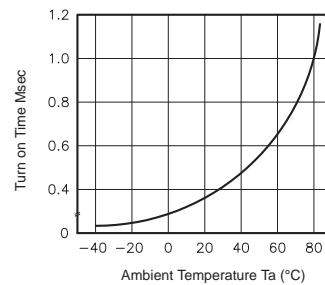
**Fig.1** Load current vs. ambient temperature  
Allowable ambient temperature:  
-40°C to +85°C



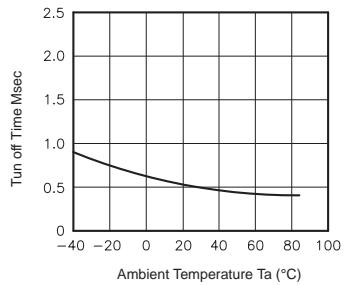
**Fig.2** On resistance vs. ambient temperature  
Across terminals 4 and 6 pin  
LED current: 5mA  
Continuous load current: 130mA(DC)



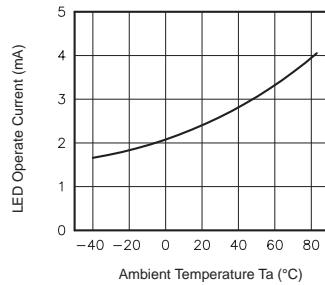
**Fig.3** Turn on time vs. ambient temperature  
Across terminals 4 and 6 pin  
LED current: 5mA  
Continuous load current: 130mA(DC)



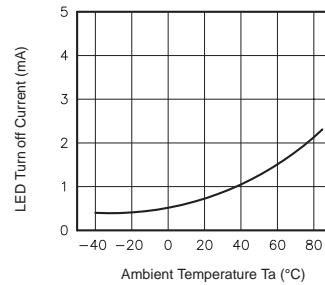
**Fig.4** Turn off time vs. ambient temperature  
LED current: 5mA; Load voltage:  
350V(DC)  
Continuous load current: 130mA(DC)



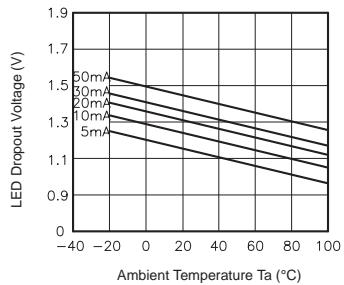
**Fig.5** LED operate vs. ambient temperature  
Load voltage 350V(DC)  
Continuous load current: 130mA(DC)



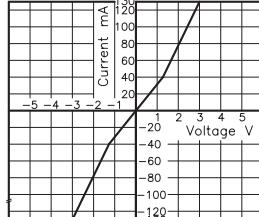
**Fig.6** LED turn off current vs. ambient temperature  
Load voltage 350V(DC)  
Continuous load current: 130mA(DC)



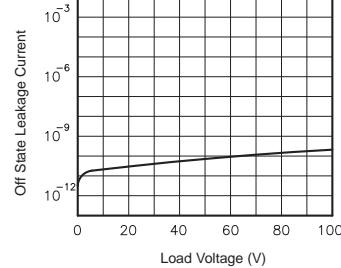
**Fig.7** LED dropout voltage vs. ambient temperature  
LED current: 5 to 50mA



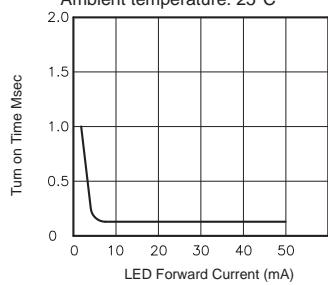
**Fig.8** Voltage vs. current characteristics of output at MOS FET portion  
Measured portion: across terminals 4 and 6 pin  
Ambient temperature: 25°C



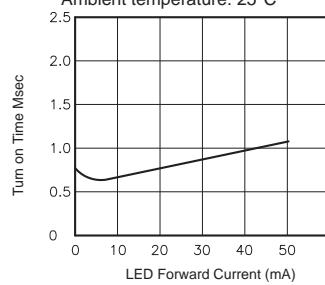
**Fig.9** Off state leakage current  
Across terminals 4 and 6 pin  
Ambient temperature: 25°C



**Fig.10** LED forward current vs. turn on time  
Across terminals 4 and 6 pin;  
Load voltage: 350V (DC);  
Continuous load current: 130mA (DC);  
Ambient temperature: 25°C



**Fig.11** LED forward current vs. turn off time  
Across terminals 4 and 6 pin;  
Load voltage: 350V (DC);  
Continuous load current: 130mA (DC);  
Ambient temperature: 25°C



**Fig.12** Applied voltage vs. output capacitance  
Across terminals 4 and 6 pin  
Frequency: 1MHz  
Ambient temperature: 25°C

