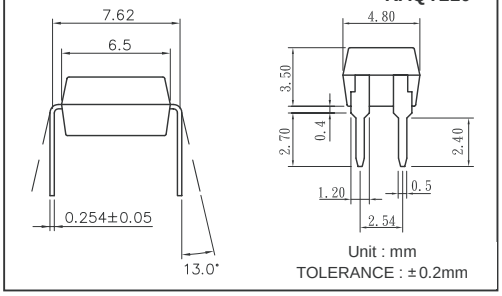
High Voltage, Photo DMos Relay KAQY210/210A

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

Features

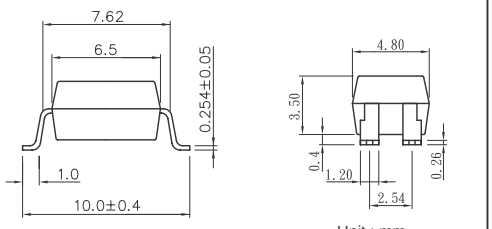
1. Normally Open, Single Pole Single Throw
2. Control 350VAC or DC Voltage
3. Switch 130mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 3750VACrms

KAQY210



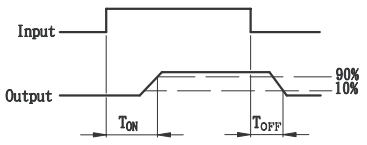
Unit : mm
TOLERANCE : ±0.2mm

KAQY210A



Unit : mm
TOLERANCE : ±0.2mm

Turn on/ Turn off time



Absolute Maximum Ratings

(Ta=25∞C)

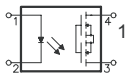
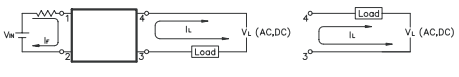
Emitter (Input)	Detector (Output)
Reverse VoltageÖÖÖÖÖÖÖÖÖÖ5.0V	Output Breakdown Voltage ÖÖÖÖÖ±350V
Continuous Forward Current ÖÖÖÖÖ50mA	Continuous Load Current ÖÖÖÖÖ±130mA
Peak Forward Current ÖÖÖÖÖÖÖÖÖ1A	Power Dissipation ÖÖÖÖÖÖÖÖÖ500mW
Power Dissipation ÖÖÖÖÖÖÖÖÖ100mW	
Derate Linearly from 25∞CÖÖÖÖÖ1.3mW/∞C	
General Characteristics	
Isolation Test VoltageÖÖÖÖÖ3750V ACrms	Storage Temperature RangeÖ -40∞C to +125∞C
Isolation Resistance	Operating Temperature RangeÖ-30∞C to +85∞C
Vio=500V, Ta=25∞C ÖÖÖÖÖÖÖÖÖ 10^{10}	Junction TemperatureÖÖÖÖÖÖÖÖÖ100∞C
Total Power Dissipation ÖÖÖÖÖÖ550mW	Soldering Temperature,
Derate Linearly from 25∞CÖÖÖÖÖ2.5mW/∞C	2mm from case, 10 sec ÖÖÖÖÖÖÖÖ260∞C

Electro-optical Characteristics

(Ta=25∞C)

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

Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQY210 & KAQY210A		a	AC/DC	ñ	

Data Curve

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

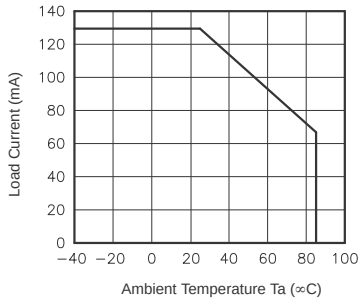


Fig.2 On resistance vs. ambient temperature
Across terminals 3 and 4 pinLED current: 5mA Continuous load current: 130mA(DC)

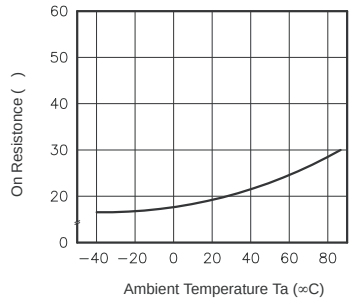


Fig.3 Turn on time vs. ambient temperature
Load voltage 350V(DC)
LED current: 5mA
Continuous load current: 130mA(DC)

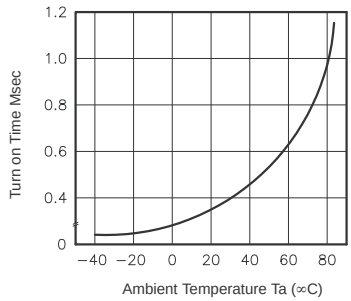


Fig.4 Turn off time vs. ambient temperature
LED current: 5mA; Load voltage: 350V(DC)
Continuous load current: 130mA(DC)

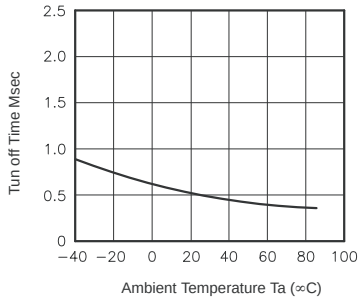


Fig.5 LED operate vs. ambient temperature
Load voltage 350V(DC)
Continuous load current: 130mA(DC)

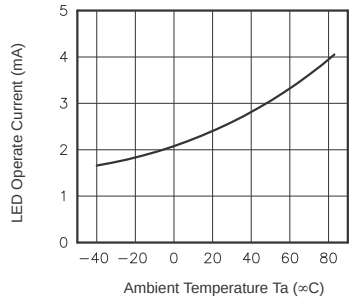


Fig.6 LED turn off current vs. ambient temperature
Load voltage 350V(DC)
Continuous load current: 130mA(DC)

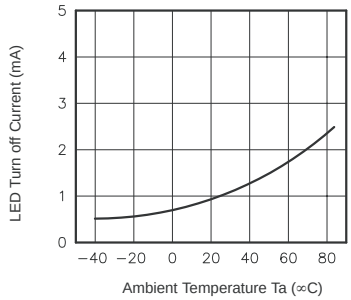


Fig.7 LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA

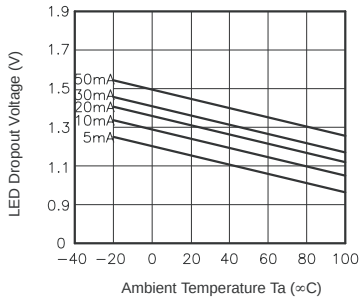


Fig.8 Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 3 and 4 pin
Ambient temperature: 25∞C

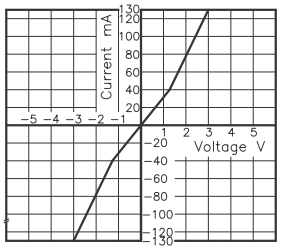


Fig.9 Off state leakage current
Across terminals 3 and 4 pinAmbient temperature: 25∞C

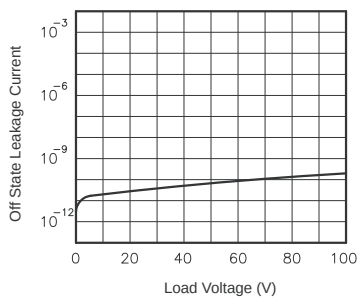


Fig.10 LED forward current vs. turn on time
Across terminals 3 and 4 pin;
Load voltage: 350V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25∞C

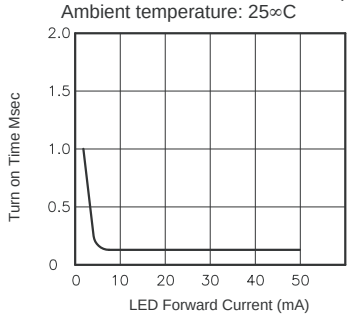


Fig.11 LED forward current vs. turn off time
Across terminals 3 and 4 pin;
Load voltage: 350V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25∞C

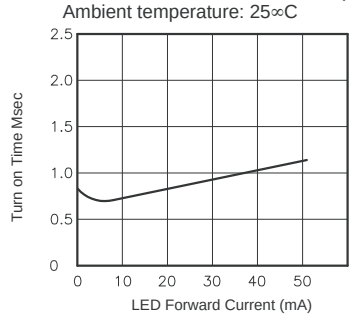


Fig.12 Applied voltage vs. output capacitance
Across terminals 3 and 4 pin
Frequency: 1MHz
Ambient temperature: 25∞C