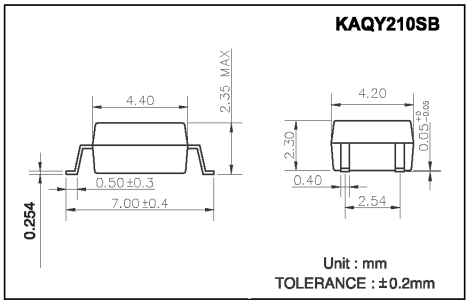
cosmo **High Voltage, Solid State Relay-MOSFET Output KAQY210SB**

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

Features

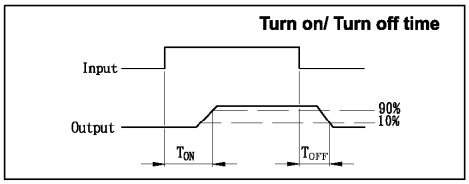
1. Normally Open, Single Pole Single Throw
2. Control 350VAC or DC Voltage
3. Switch 130mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 1500VACrms



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..... $\geq 10^{10}\Omega$	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

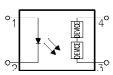
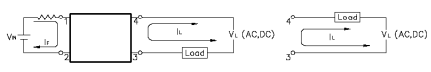


Electro-optical Characteristics

(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≤5uA	0.05			mA
Detector (Output)						
Output Breakdown Voltage	VB	IB=50uA	350			V
Output Off-State Leakage	ITOFF	VT =100V, IF =0mA		0.7	2	uA
I/O Capacitance	CISO	IF =0, f =1MHz		6		pF
ON Resistance	RON	IL =100mA, IF =10mA		28	35	Ω
Turn-On Time	TON	IF =10mA, VL =±20V		0.1	0.5	ms
Turn-Off Time	TOFF	t =10ms, IL =±100mA		0.3	0.5	ms

Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQY210SB		1a	AC/DC	—	

Data Curve

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

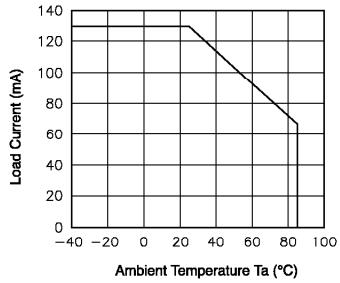


Fig.2 On resistance vs. ambient temperature
Across terminals 3 and 4 pin
LED current: 5mA
Continuous load current: 130mA(DC)

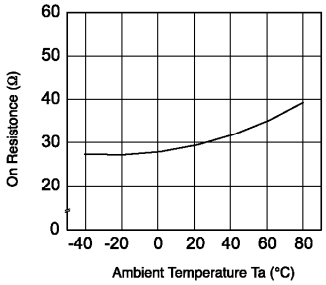


Fig.3 Turn on time vs. ambient temperature
Load voltage 350V(DC)
LED current: 5mA
Continuous load current: 130mA(DC)

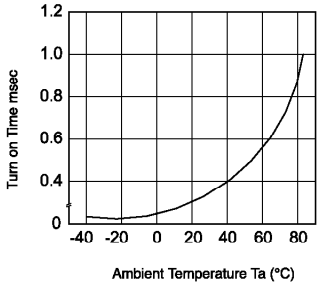


Fig.4 Turn off time vs. ambient temperature
LED current: 5mA; Load voltage: 350V(DC)
Continuous load current: 130mA(DC)

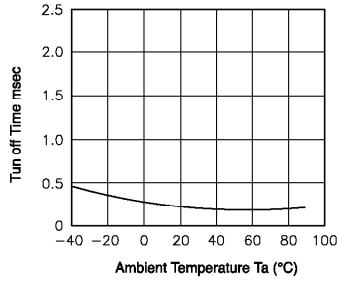


Fig.5 LED operate vs. ambient temperature
Load voltage 350V(DC)
Continuous load current: 130mA(DC)

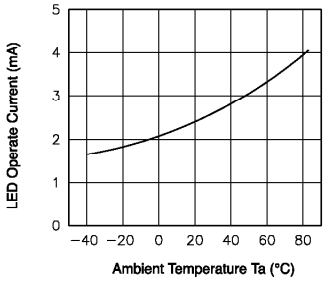


Fig.6 LED turn off current vs. ambient temperature
Load voltage 350V(DC)
Continuous load current: 130mA(DC)

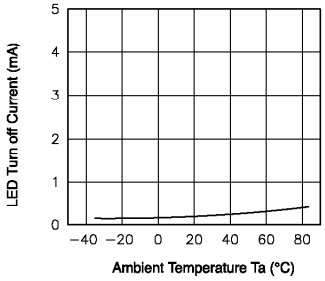


Fig.7 LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA

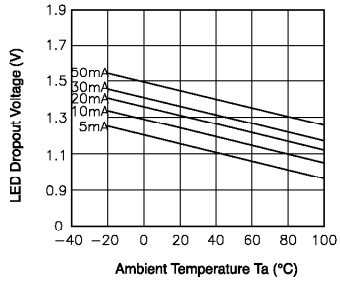


Fig.8 Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 3 and 4 pin
Ambient temperature: 25°C

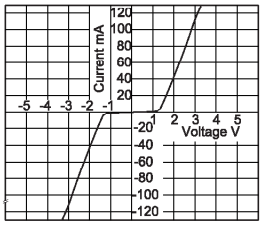


Fig.9 Off state leakage current
Across terminals 3 and 4 pin
Ambient temperature: 25°C

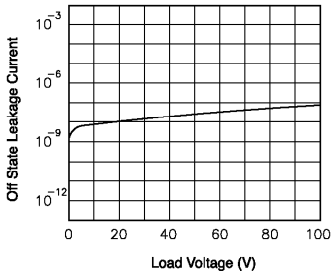


Fig.10 LED forward current vs. turn on time
Across terminals 3 and 4 pin;
Load voltage: 350V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

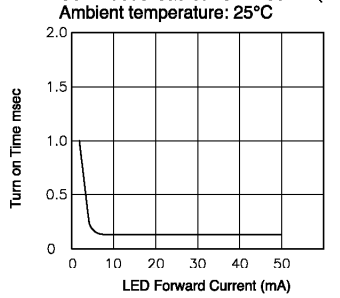


Fig.11 LED forward current vs. turn off time
Across terminals 3 and 4 pin;
Load voltage: 350V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

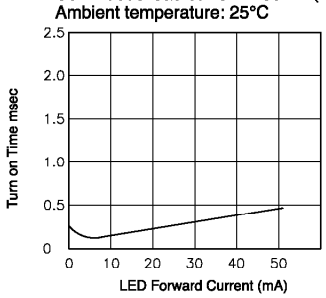


Fig.12 Applied voltage vs. output capacitance
Across terminals 3 and 4 pin
Frequency: 1MHz
Ambient temperature: 25°C