

COSMO

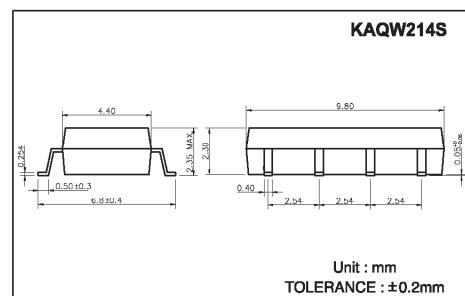
High Voltage, Solid State Relay-MOSFET Output

KAQW214S

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

Features

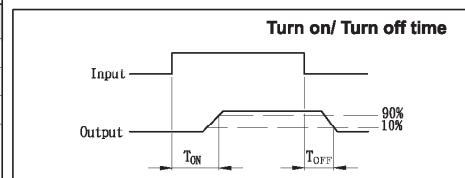
1. Normally Open, Single Pole Single Throw
2. Control 400VAC or DC Voltage
3. Switch 130mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 1500VACrms



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.....	1500VACrms
Isolation Resistance	Storage Temperature Range ...-40°C to +125°C
Vio=500V, Ta=25°C	Operating Temperature Range...-30°C to +85°C
Total Power Dissipation	Junction Temperature.....100°C
Derate Linearly from 25°C	Soldering Temperature, 2mm from case, 10 sec260°C



Electro-optical Characteristics

(Ta=25°C)

Parameter	Symbol	Conditions	Min.	T 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	0.2			mA
Detector (Output)						
Output Breakdown Voltage	VB	IB=50uA	400			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	Ron	IL =100mA, IF =10mA	20	25		Ω
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

Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQW214S		2a	AC/DC	-	<p>(1) Two independent 1 Form A use</p> <p>(2) 2 Form A use</p>

Data Curve

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

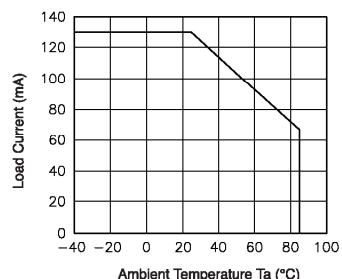


Fig.2 On resistance vs. ambient temperature
Across terminals 5,7 and 6,8 pin
LED current: 5mA
Continuous load current: 130mA(DC)

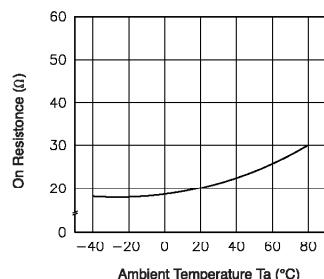


Fig.3 Turn on time vs. ambient temperature
Load voltage: 400V(DC)
LED current: 5mA
Continuous load current: 130mA(DC)

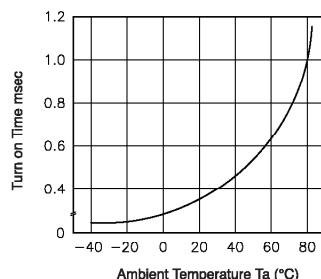


Fig.4 Turn off time vs. ambient temperature
LED current: 5mA; Load voltage:
400V(DC)
Continuous load current: 130mA(DC)

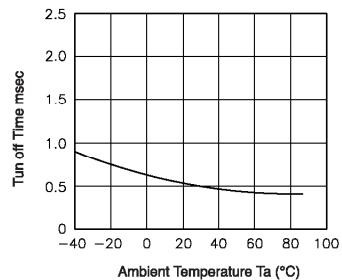


Fig.5 LED operate vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)

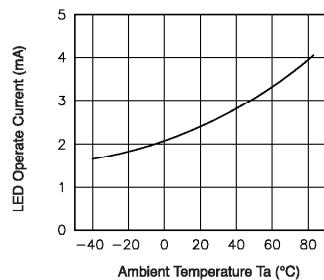


Fig.6 LED turn off current vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)

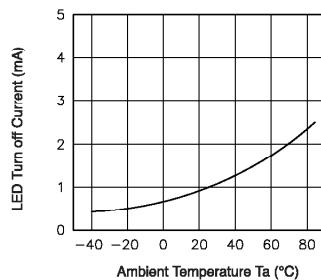


Fig.7 LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA

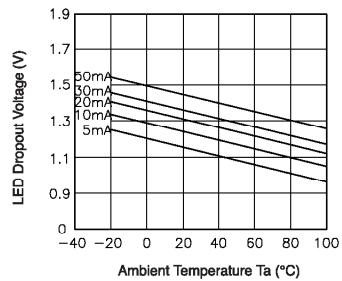


Fig.8 Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 5,7 and 6,8 pin
Ambient temperature: 25°C

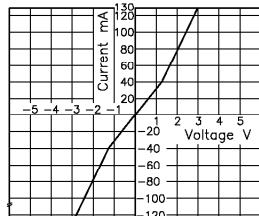


Fig.9 Off state leakage current
Across terminals 5,7 and 6,8 pin
Ambient temperature: 25°C

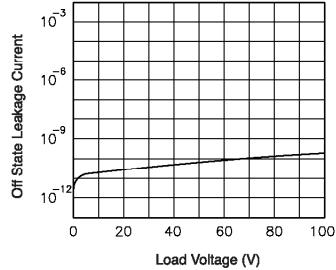


Fig.10 LED forward current vs. turn on time
Across terminals 5,7 and 6,8 pin;
Load voltage: 400V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

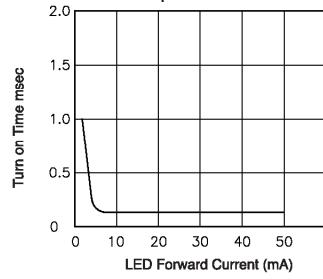


Fig.11 LED forward current vs. turn off time
Across terminals 5,7 and 6,8 pin;
Load voltage: 400V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

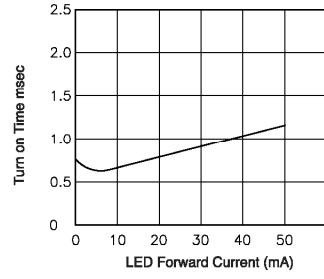


Fig.12 Applied voltage vs. output capacitance
Across terminals 5,7 and 6,8 pin
Frequency: 1MHz
Ambient temperature: 25°C

