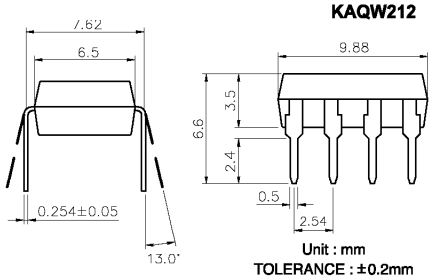
cosmo High Voltage, Solid State Relay-MOSFET Output KAQW212/212A

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

Features

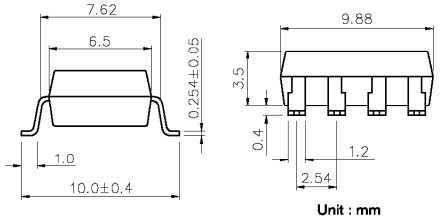
1. Normally Open, Single Pole Single Throw
2. Control 60V AC or DC Voltage
3. Switch 400mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 3750VACrms

KAQW212



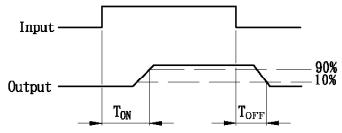
Unit : mm
TOLERANCE : ±0.2mm

KAQW212A



Unit : mm
TOLERANCE : ±0.2mm

Turn on/ Turn off time



Absolute Maximum Ratings

(Ta=25°C)

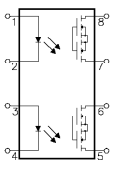
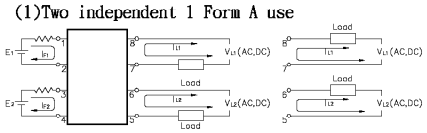
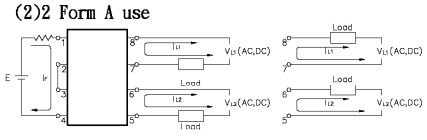
Emitter (Input)	Detector (Output)
Reverse Voltage.....5.0V	Output Breakdown Voltage .....±60V
Continuous Forward Current 50mA	Continuous Load Current .....±400mA
Peak Forward Current 1A	Power Dissipation 500mW
Power Dissipation 100mW	
Derate Linearly from 25°C .....1.3mW/°C	
General Characteristics	
Isolation Test Voltage.....3750VACrms	Storage Temperature Range ...-40°C to +125°C
Isolation Resistance	Operating Temperature Range...-30°C to +85°C
Vio=500V, Ta=25°C .....≥10^{10}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≤5uA	0.2			mA
Detector (Output)						
Output Breakdown Voltage	VB	IB=50uA	60			V
Output Off-State Leakage	ITOFF	VT =60V , IF =0mA		0.2	1	uA
I/O Capacitance	CISO	IF =0, f =1MHz		6		pF
ON Resistance	RON	IL =100mA, IF =10mA		0.83	2.50	Ω
Turn-On Time	TON	IF =10mA, VL =±20V		0.2	1.5	ms
Turn-Off Time	TOFF	t =10ms, IL =±100mA		0.3	1.5	ms

Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQW212 & KAQW212A		2a	AC/DC	–	(1)Two independent 1 Form A use  (2)2 Form A use 

Data Curve

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

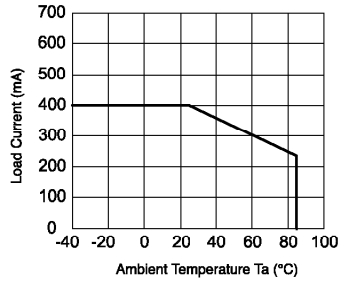


Fig.2 On resistance vs. ambient temperature
Across terminals 5,7 and 6,8 pin
LED current: 5mA
Continuous load current: 400mA(DC)

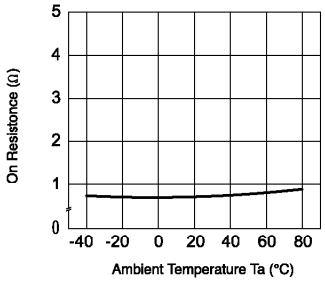


Fig.3 Turn on time vs. ambient temperature
Load voltage: 60V(DC)
LED current: 5mA
Continuous load current: 400mA(DC)

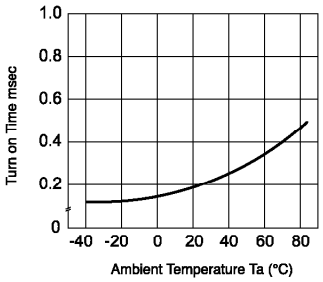


Fig.4 Turn off time vs. ambient temperature
LED current: 5mA; Load voltage: 60V(DC)
Continuous load current: 400mA(DC)

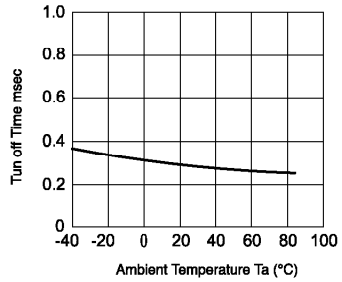


Fig.5 LED operate vs. ambient temperature
Load voltage: 60V(DC)
Continuous load current: 400mA(DC)

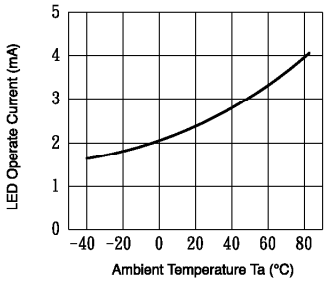


Fig.6 LED turn off current vs. ambient temperature
Load voltage: 60V(DC)
Continuous load current: 400mA(DC)

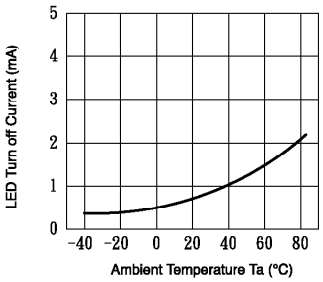


Fig.7 LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA

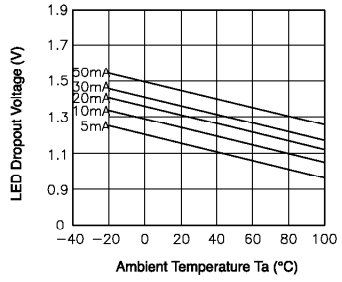


Fig.8 Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 5,7 and 6,8 pin
Ambient temperature: 25°C

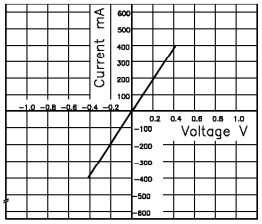


Fig.9 Off state leakage current
Across terminals 5,7 and 6,8 pin
Ambient temperature: 25°C

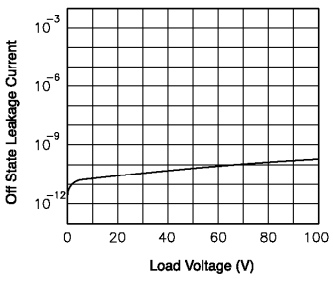


Fig.10 LED forward current vs. turn on time
Across terminals 5,7 and 6,8 pin;
Load voltage: 60V (DC);
Continuous load current: 400mA (DC);
Ambient temperature: 25°C

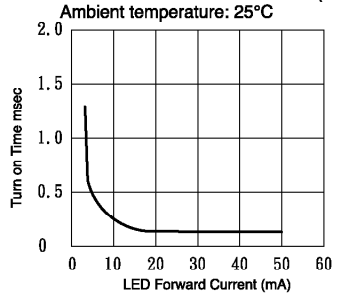


Fig.11 LED forward current vs. turn off time
Across terminals 5,7 and 6,8 pin;
Load voltage: 60V (DC);
Continuous load current: 400mA (DC);
Ambient temperature: 25°C

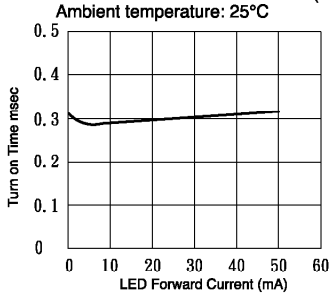
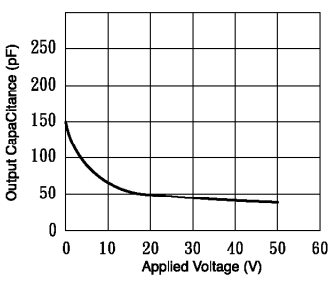


Fig.12 Applied voltage vs. output capacitance
Across terminals 5,7 and 6,8 pin
Frequency: 1MHz
Ambient temperature: 25°C



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