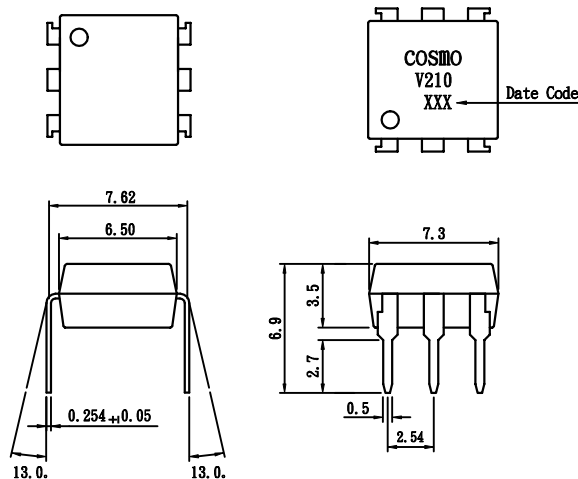


PRODUCT SPECIFICATION

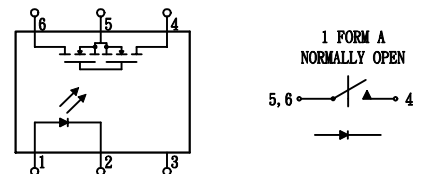
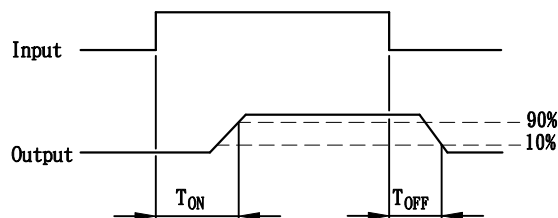
COSMO ELECTRONICS CO., LTD.	PHOTO MOS RELAYS: KAQV210	SHEET 1 OF 7
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• OUTSIDE DIMENSION :



Unit:mm
Tolerance: ± 0.2 mm

• Turn on/Turn off time



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

Emitter (Input)

Reverse Voltage 5.0V
Continuous Forward Current 50mA
Peak Forward Current (1s) 1A
Power Dissipation 100mW
Derate Linearly from 25°C 1.3mW/ $^\circ\text{C}$
Detector (Output)

Output Breakdown Voltage $\pm 350\text{V}$
Continuous Load Current $\pm 130\text{mA}$
Power Dissipation 500mW

General Characteristics

Isolation Test Voltage 3750VAC_{RMS}

Isolation Resistance

$V_{10}=500\text{V}$, $T_A=25^\circ\text{C}$ $\geq 10^{10}\Omega$

Total Power Dissipation 550mW

Derate Linearly from 25°C 2.5mW/ $^\circ\text{C}$
Storage Temperature Range -40 to $+150^\circ\text{C}$
Operating Temperature Range -40 to $+85^\circ\text{C}$
Junction Temperature 100°C
Soldering Temperature, 2mm from case, 10 sec. 260°C

PRODUCT SPECIFICATION

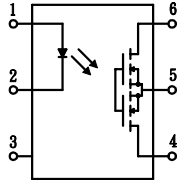
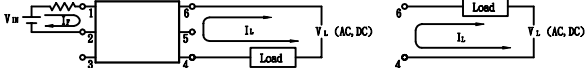
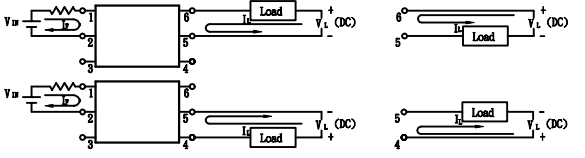
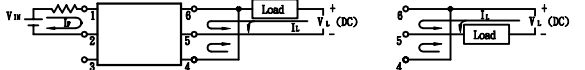
COSMO ELECTRONICS CO., LTD.	PHOTO MOS RELAYS: KAQV210	SHEET 2 OF 7
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Characteristics

($T_A = 25^\circ \text{C}$)

Description	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Emitter (Input)						
Forward Voltage	V_F		1.8	2.0	V	$I_F = 10\text{mA}$
Operation Input Current	I_{FON}			5	mA	$V_L = \pm 20\text{V}$, $I_L = 100\text{mA}$, $t = 10 \text{ ms}$
Recovery Input Current	I_{FOFF}	0.2			mA	$V_L = \pm 20\text{V}$, $I_L = < 5\text{uA}$
Detector (Output)						
Output Breakdown Voltage	V_B	350			V	$I_B = 50\text{uA}$
Output Off-State Leakage	$I_{T(OFF)}$		0.2	1	uA	$V_T = 100\text{V}$, $I_F = 0\text{mA}$
I/O Capacitance	C_{ISO}		6		pF	$I_F = 0$, $f = 1\text{MHz}$
ON Resistance	Connection	A	20	30	Ω	$I_L = 100\text{mA}$, $I_F = 10\text{mA}$
		B	10	15		
		C	5	7.5		
Turn-on Time	T_{ON}		0.3	1.0	ms	$I_F = 10\text{mA}$, $V_L = \pm 20\text{V}$
Turn-off Time	T_{OFF}		0.7	1.5	ms	$t = 10\text{ms}$, $I_L = \pm 100\text{mA}$

Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring diagram
KAQV210		1a	AC/DC	A	
			DC	B	
			DC	C	

PRODUCT SPECIFICATION

COSMO

ELECTRONICS CO., LTD.

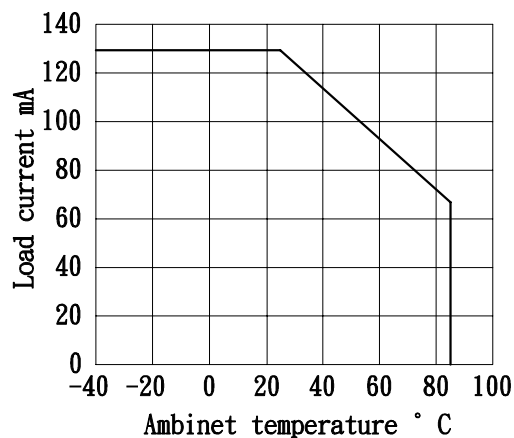
PHOTO MOS RELAYS:

KAQV210

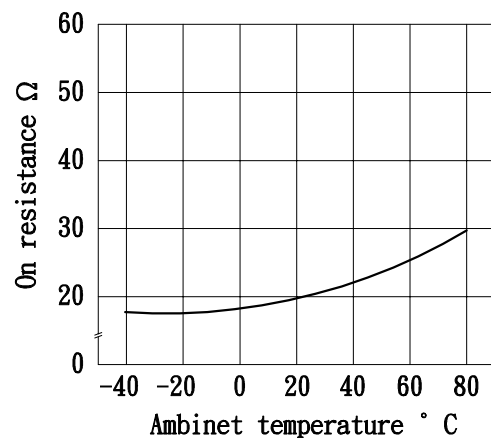
SHEET 3 OF 7

DATA CURVE

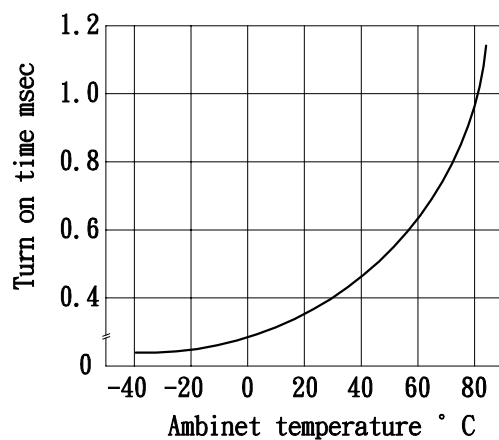
Load current vs. ambient temperature
Allowable ambient temperature:
-40° C+85° C



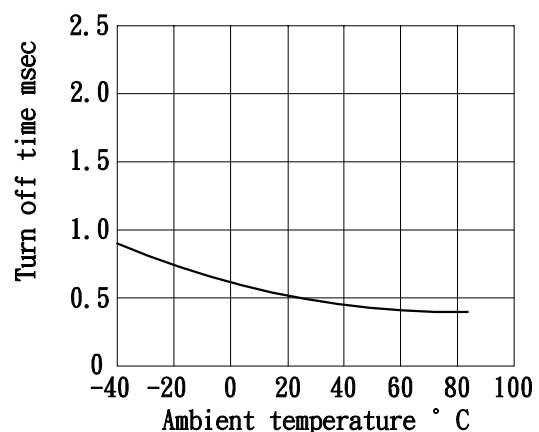
On resistance vs. ambient temperature
Across terminals 4 and 6 pin
LED current: 5mA
Continuous load current: 130 mA(DC)



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



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



PRODUCT SPECIFICATION

COSMO

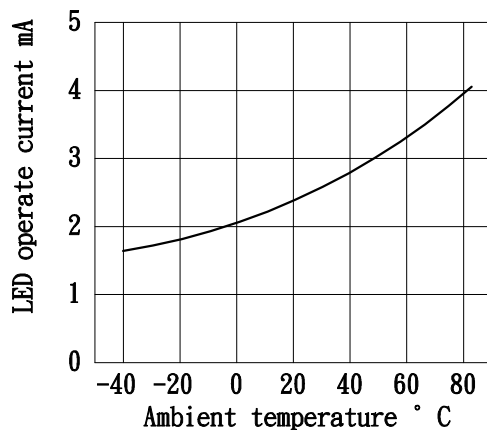
ELECTRONICS CO., LTD.

PHOTO MOS RELAYS:

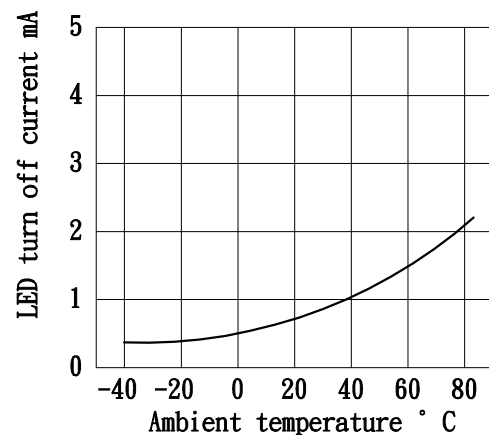
KAQV210

SHEET 4 OF 7

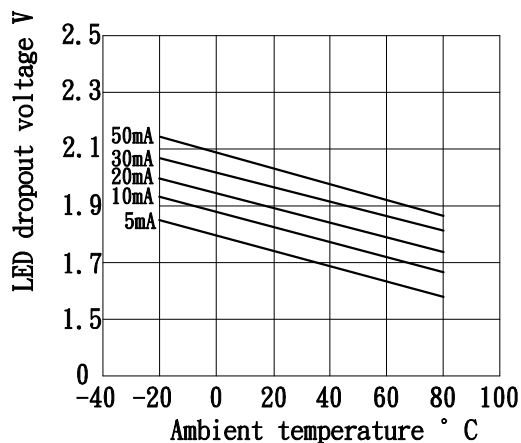
LED operate vs. ambient temperature
Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



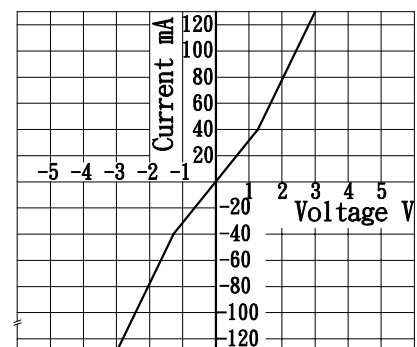
LED turn off current vs. ambient temperature
Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



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



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



PRODUCT SPECIFICATION

COSMO

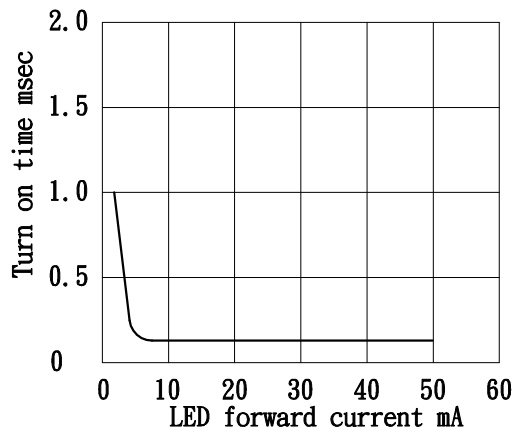
ELECTRONICS CO., LTD.

PHOTO MOS RELAYS:

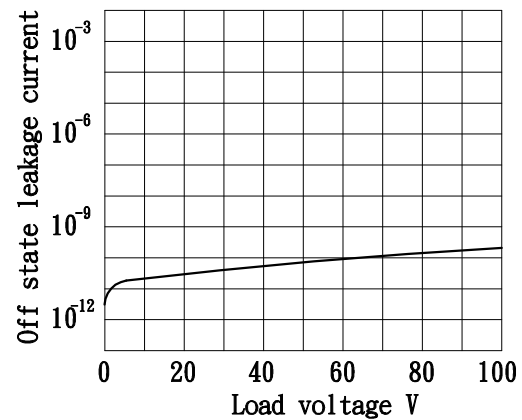
KAQV210

SHEET 5 OF 7

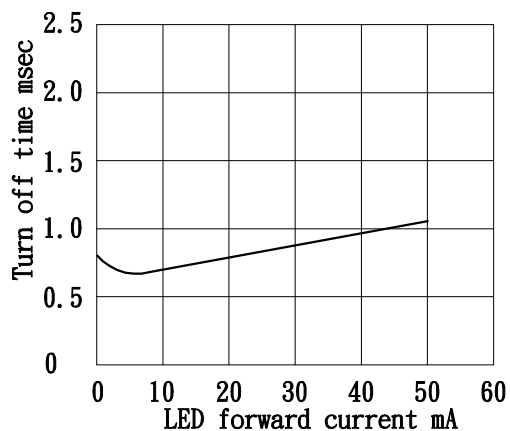
LED forward current vs. turn on time
Across terminals 4 and 6pin; Load voltage: 350V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25° C



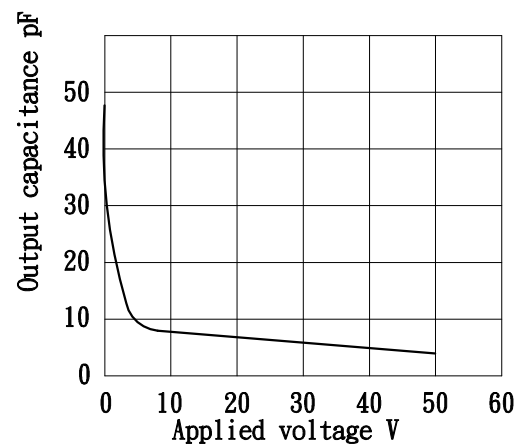
Off state leakage current
Across terminals 4 and 6pin
Ambient temperature: 25° C



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



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

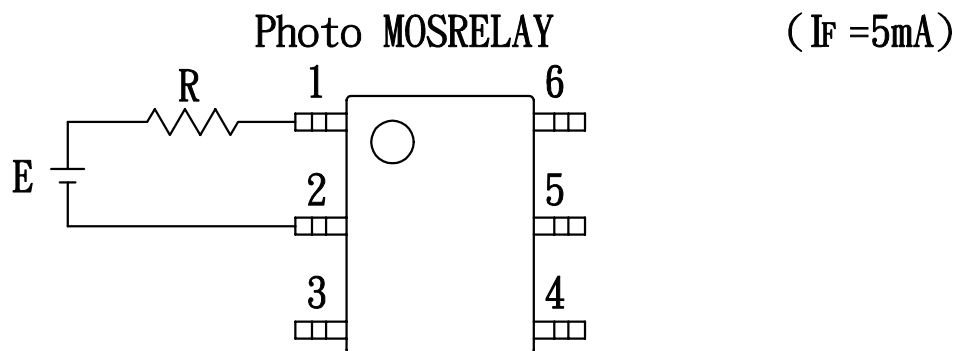


PRODUCT SPECIFICATION

COSMO ELECTRONICS CO., LTD.	PHOTO MOS RELAYS: KAQV210	SHEET 6 OF 7
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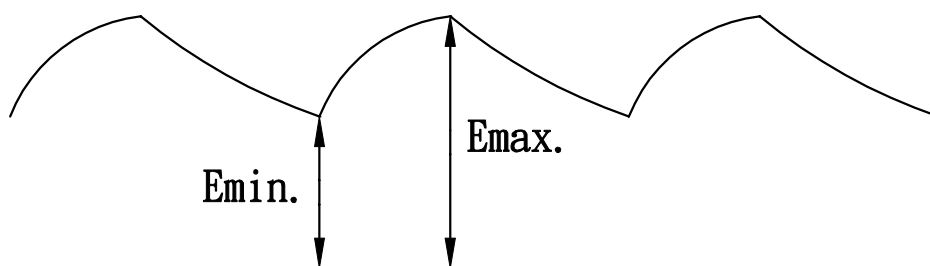
USING METHODS

Examples of resistance value to
control LED forward current I_F



E	R
3.3V	Approx. 240 ohm
5V	Approx. 540 ohm
12V	Approx. 1.8K ohm
15V	Approx. 2.4K ohm
24V	Approx. 4K ohm

- (1) LED forward current must be more than 5mA, at E min.
- (2) LED forward current must be less than 50mA, at E max.

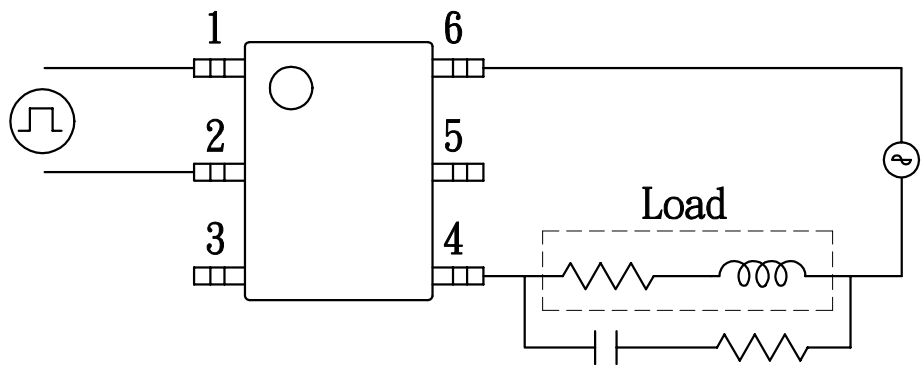
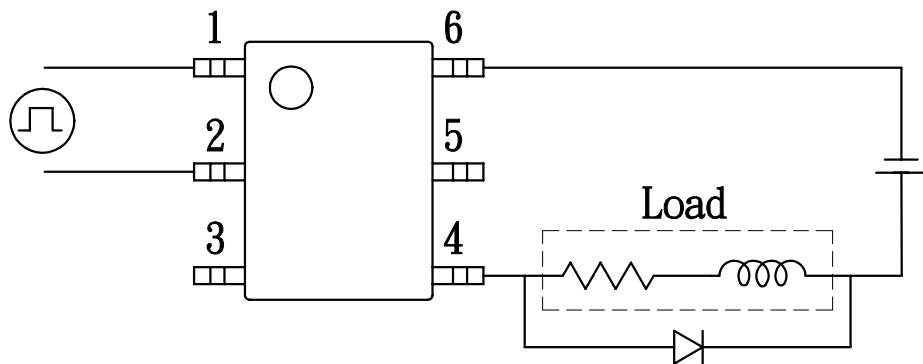


PRODUCT SPECIFICATION

COSMO ELECTRONICS CO., LTD.	PHOTO MOS RELAYS: KAQV210	SHEET 7 OF 7
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USING METHODS

Regulate the spike voltage generated on the inductive load as follows



R-C Snubber