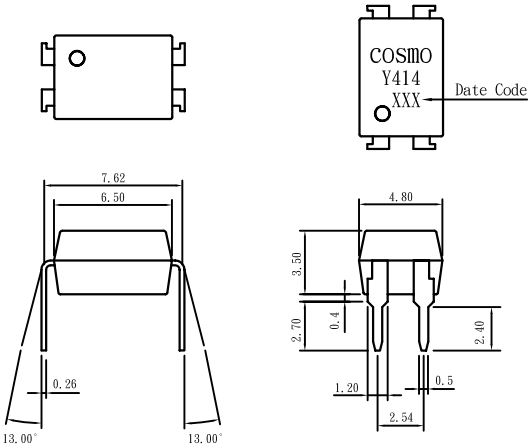
PRODUCT SPECIFICATION

DATE:11/28/2002

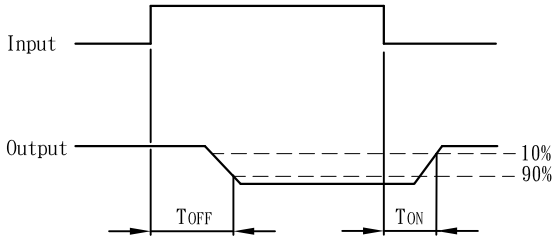
COSMO ELECTRONICS CORPORATION	PHOTO MOS RELAYS: KAQY414	NO. 60M01002	REV.
		SHEET 1 OF 7	1

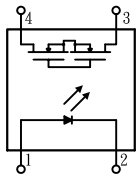
• OUTSIDE DIMENSION :

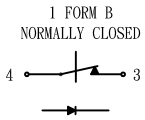


Unit:mm
Tolerance:± 0.2 mm

• Operate/Reverse time







Absolute Maximum Ratings (T_A=25° C)

Emitter (Inpute)

Reverse Voltage 5.0V
Continuous Forward Current 50mA
Peak Forward Current (1us) 1A
Power Dissipation. 100mW
Derate Linearly from 25° C . . . . . 1.3mW/° C

Detector (Output)

Output Breakdown Voltage . . . . . .± 400V
Continous Load Current . . . . . ± 130mA
Power Dissipation 500mW

General Characteristics

Isolation Test Voltage. . . . . .3750VAC_{RMS}
Isolation Resistance
V_{IO} =500V, T_A=25° C. . . . . .$\geq 10^{10}\Omega$
Total Power Dissipation 550mW
Derate Linearly form 25° C. . . . . .2.5mW/° C
Storage Temperature Range . . . . -40 to +150° C
Operating Temperature Range. . . . -40 to +85° C
Junction Temperature . . . . . .100° C
Soldering Temperature, 2mm from case, 10 sec. 260° C

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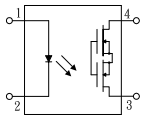
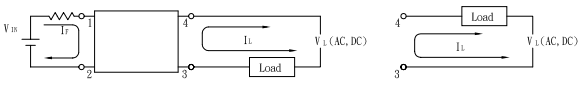
Characteristics (T_A=25° C)

Description	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Emitter (Input)						
Forward Voltage	V_F		1.2	1.5	V	I_F =10mA
Operation Input Current	I_{FOFF}			5	mA	V_L=± 20V, I_L=< 5uA,
Recovery Input Current	I_{FON}	0.2			mA	V_L=± 20V, I_L=100mA t=10 ms
Deterctor (Output)						
Output Breakdown Voltage	V_B	400			V	I_B=50uA
Output Off-State Leakage	$I_{T(OFF)}$		0.2	2	uA	V_T=100V, I_F=10mA
I/O Capacitance	C_{ISO}		6		pF	I_F=0, f=1MHz
ON Resistance	R_{ON}		25	50	Ω	I_L=100mA, I_F=0mA
Reverse(ON) Time	T_{ON}		0.6	1.5	ms	I_F=10mA, V_L=± 20V
Operate(OFF) Time	T_{OFF}		0.3	1.0	ms	t=10ms, I_L=± 100mA

Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configur-ation	Load	Con-nection	Wiring diagram
KAQY414		1b	AC/DC	-	

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COSMO ELECTRONICS CORPORATION	PHOTO MOS RELAYS: KAQY414	NO. 60M01002	REV.
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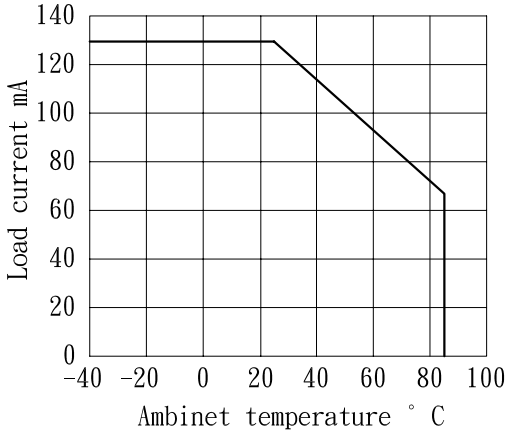
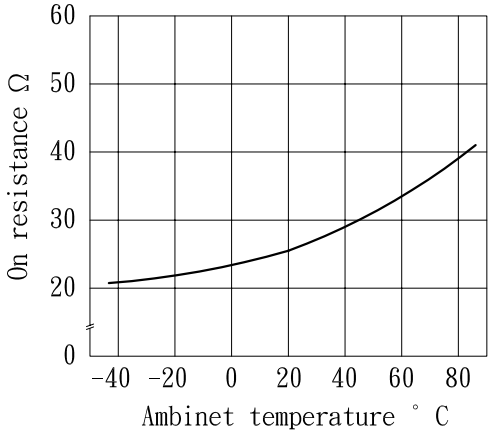
DATA CURVE

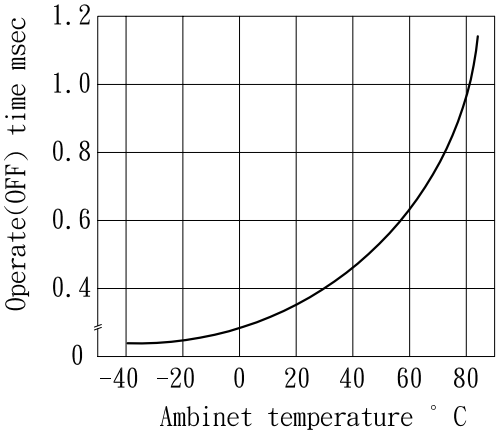
Load current vs. ambient temperature
Allowable ambient temperature:
-40° C to +85° C



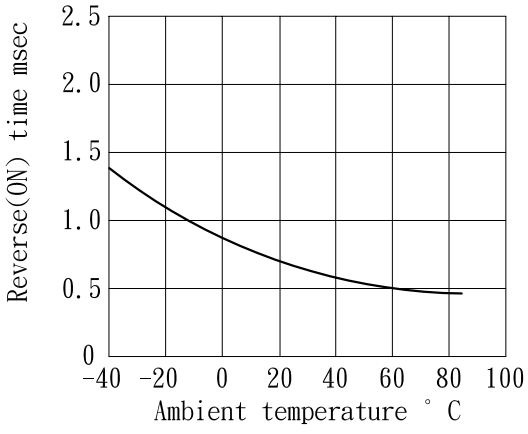
On resistance vs. ambient temperature
Across terminals 3 and 4 pin
LED current:0mA
Continuous load current: 130 mA(DC)



Operate(OFF) time vs. ambient temperature
Load voltage 400 V(DC)
LED current :5mA
Continuous load current: 130mA(DC)



Reverse(ON) time vs. ambient temperature
LED current: 5mA;Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



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COSMO ELECTRONICS CORPORATION	PHOTO MOS RELAYS: KAQY414	NO. 60M01002	REV.
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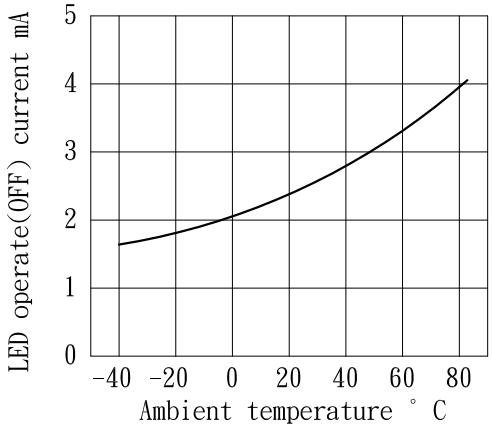
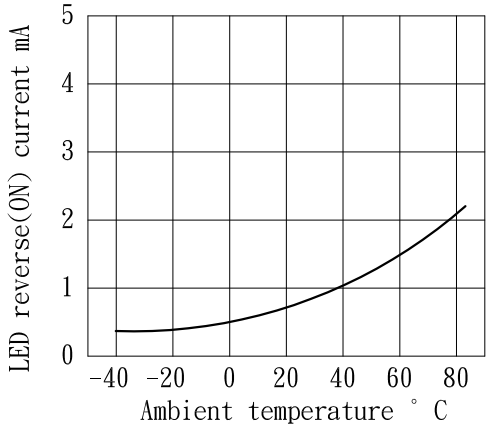
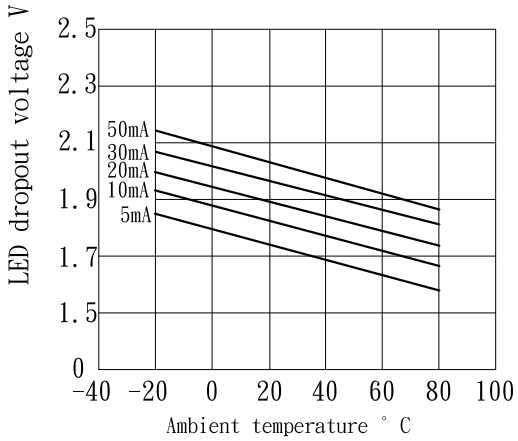
LED operate(OFF) vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



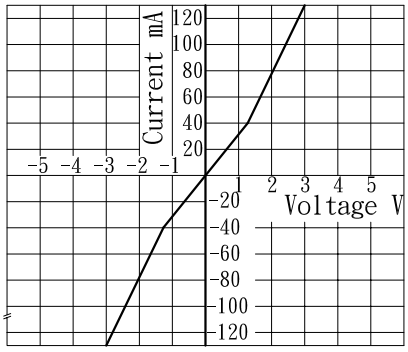
LED reverse(ON) current vs. ambient temperature
Load voltage: 400V(DC)
Continuons load current: 130mA(DC)



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 3 and 4 pin
Ambient temperature: 25° C



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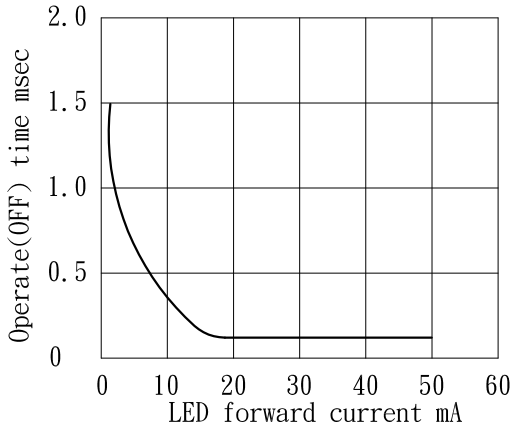
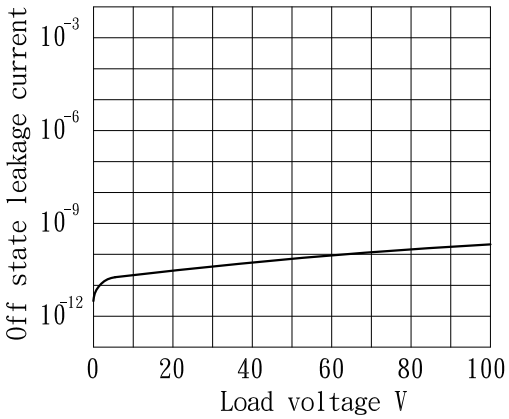
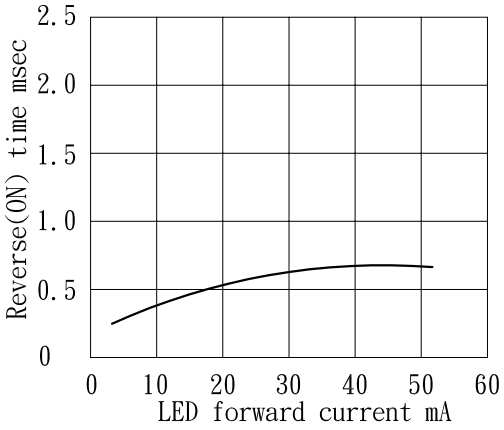
LED forward current vs. operate(OFF) time
Across terminals 3 and 4pin;Load voltage: 400V(DC);Continuous load current: 130mA(DC);Ambient temperature: 25° C



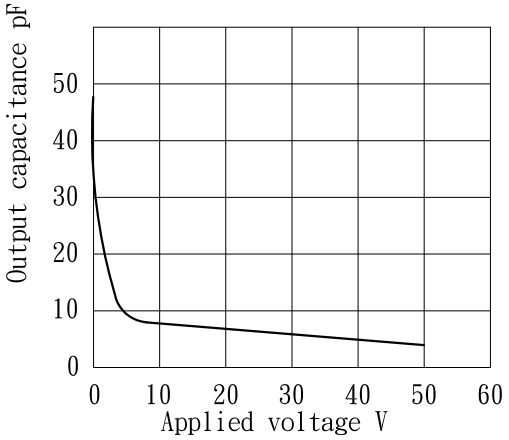
Off state leakage current
Across terminals 3 and 4pin
Ambient temperature: 25° C



LED forward current vs. reverse(ON) time
Across terminals 3 and 4pin;Load voltage: 400V(DC);Continuous load current: 130 mA(DC);Ambient temperature: 25° C



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



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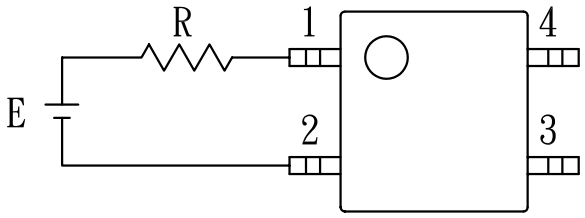
USING METHODS

Examples of resistance value to control LED forward current I_F

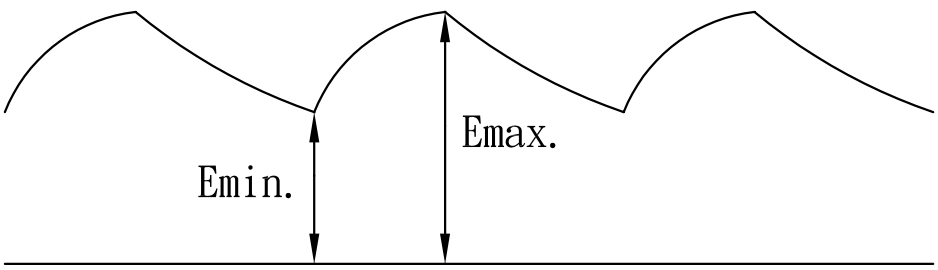
Photo MOSRELAY (I_F =5mA)



E	R
3.3V	Approx. 330 ohm
5V	Approx. 640 ohm
12V	Approx. 1.9K ohm
15V	Approx. 2.5K ohm
24V	Approx. 4.1K 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.



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COSMO ELECTRONICS CORPORATION	PHOTO MOS RELAYS: KAQY414	NO.60M01002	REV.
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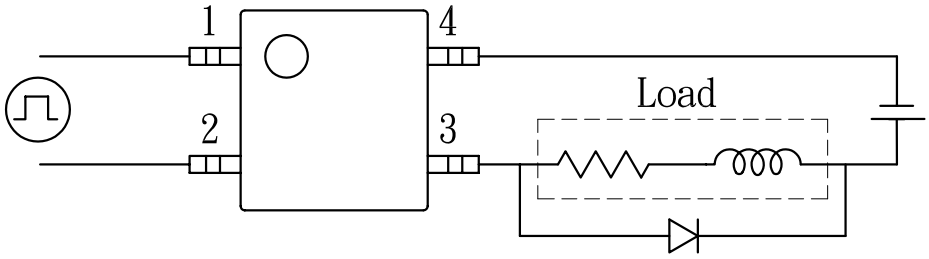
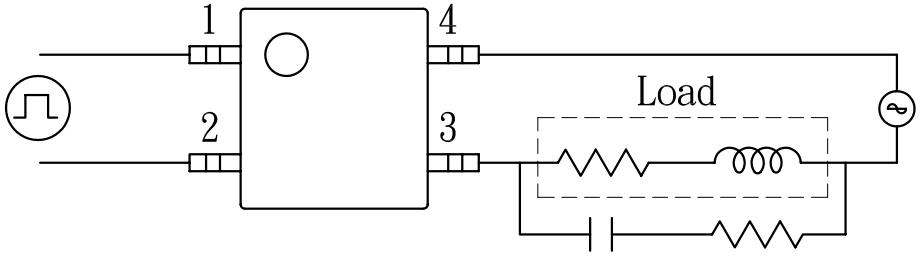
USING METHODS

Regulate the spike voltage generated on the inductive load as follows





R-C Snubber