PRODUCT SPECIFICATION

cosmo ELECTRONICS CORPORATION	SOLID STATE RELAY - MOSFET OUTPUT **KAQV210H**	Preliminary SHEET 1 OF 7	REV. 0

● OUTSIDE DIMENSION：

cosmo
V210H
XXX — Date Code

7.62
6.50
6.9
3.5
2.7
0.254±0.05
13.0°   13.0°
7.3
0.5
2.54

Unit：mm
Tolerance：±0.2mm

● Turn On / Turn Off time

Input

Output
90%
10%

T_{ON} T_{OFF}

6 5 4

1 2 3

1 FORM A
NORMALLY OPEN

5,6   4
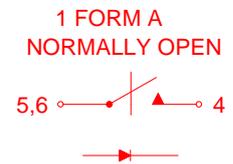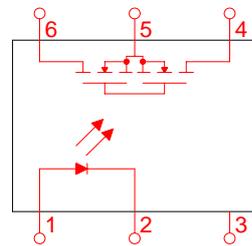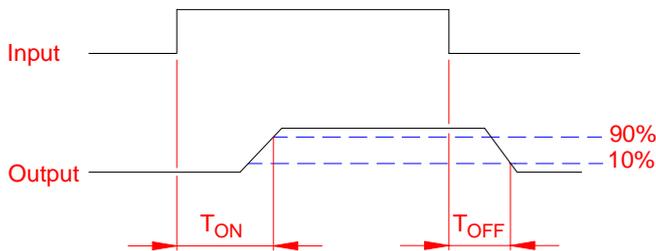
● Absolute Maximum Ratings （Ta=25℃）

| 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℃ ……………	1.3mW/℃		
General Characteristics			
Isolation Test Voltage ………………	5000VACrms	Storage Temperature Range ……	-40℃ to +125℃
Isolation Resistance Vio=500V，Ta=25℃ ………………………	$\geqq 10^{10}\Omega$	Operating Temperature Range …	-40℃ to +85℃
		Junction Temperature ………………………	100℃
Total Power Dissipation ……………………	550mW	Soldering Temperature，	
Derate Linearly from 25℃ ……………	2.5mW/℃	2mm from case，10 sec …………………	260℃

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cosmo ELECTRONICS CORPORATION	SOLID STATE RELAY - MOSFET OUTPUT **KAQV210H**	**Preliminary** **SHEET 2 OF 7**	**REV.** **0**

● **Electro-optical Characteristics** （Ta=25℃）

Parameter			Symbol	Conditions	Min.	Typ.	Max.	Unit.
Emitter（Input）								
Forward Voltage			V_F	I_F=10mA		1.2	1.5	V
Operation Input Current			IF_{ON}	V_L=±20V，I_L=100mA，t=10ms			5.0	mA
Recovery Input Current			IF_{OFF}	V_L=±20V，$I_L \leqq$5μA	0.2			mA
Detector（Output）								
Output Breakdown Voltage			V_B	I_B=50μA	350			V
Output Off-State Leakage			IT_{OFF}	V_T=100V，I_F=0mA		0.2	1	μA
I/O Capacitance			C_{ISO}	I_F=0，f=1MHz		6		pF
ON Resistance	Connection	A	R_{ON}	I_L=100mA，I_F=10mA		20	30	Ω
		B				10	15	
		C				5	7.5	
Turn-On Time			T_{ON}	I_F=10mA，V_L=±20V t=10ms，I_L=±100mA		0.3	1.0	ms
Turn-Off Time			T_{OFF}			0.7	1.5	ms

● **Schematic and Wiring Diagrams**

Schematic	Output Configuration	Load	Connection	Wiring Diagrams
	1a	AC/DC	A	
		DC	B	
		DC	C	

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● **Data Curve**

Load current vs. ambient temperature
Allowable ambient Temperature：
**-40℃ to +85℃**

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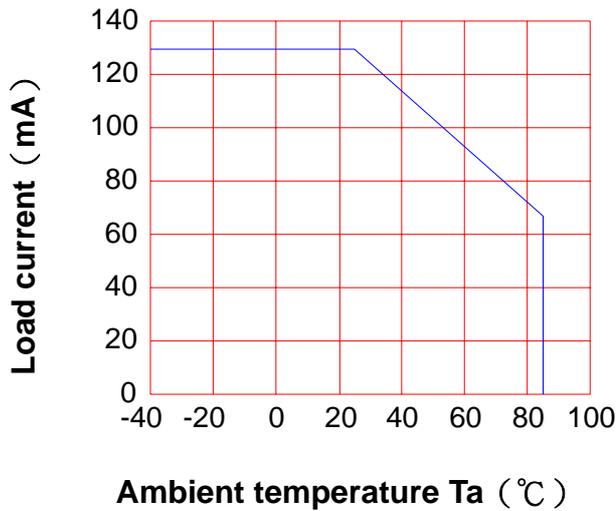
On resistance vs. ambient temperature
across terminals 4 and 6 pin
LED current：5mA
Continuous load current：130mA（DC）

Ambient temperature Ta（℃）
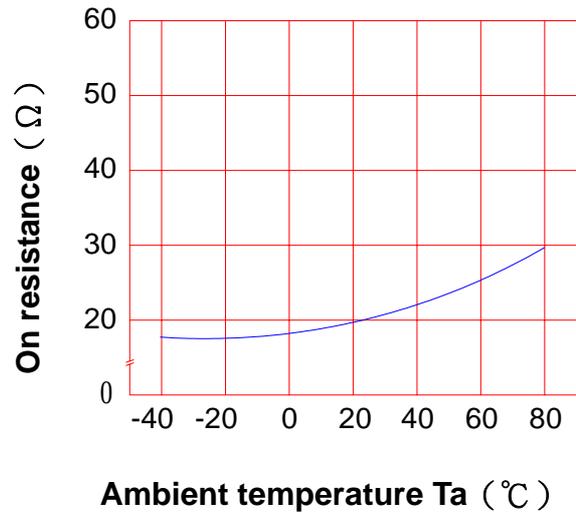
Turn On Time vs. ambient temperature
Load voltage 350V（DC）
LED current：5mA
Continuous load current：130mA（DC）

Ambient temperature Ta（℃）
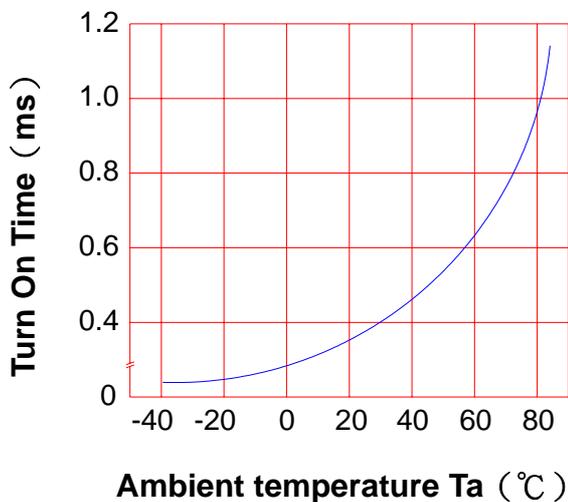
Turn Off Time vs. ambient temperature
Load voltage 350V（DC）
LED current：5mA
Continuous load current：130mA（DC）
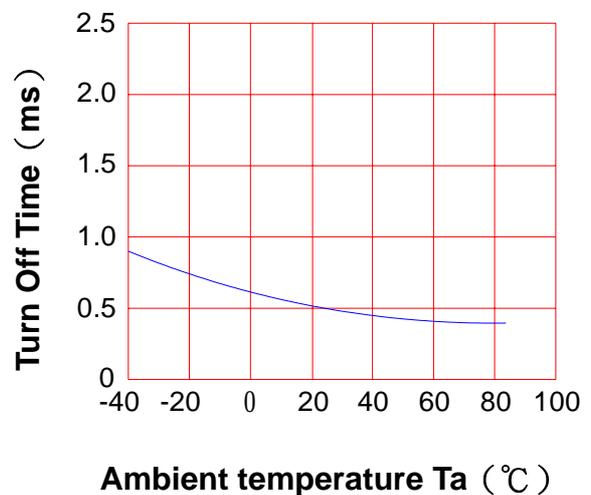
Ambient temperature Ta（℃）

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LED operate current vs. ambient temperature
Load Voltage：350V（DC）
Continuous load current：130mA（DC）
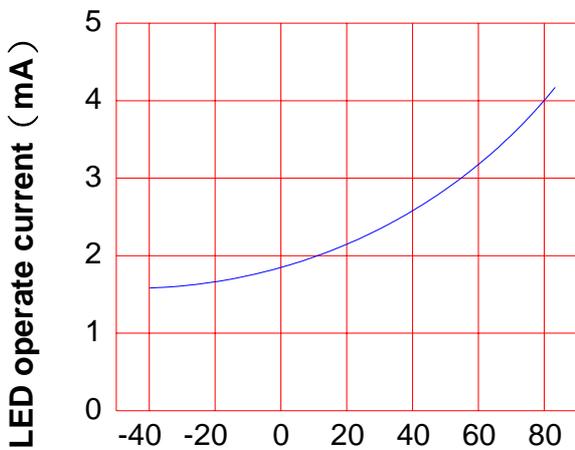
LED Turn Off current vs. ambient temperature
Load Voltage：350V（DC）
Continuous load current：130mA（DC）
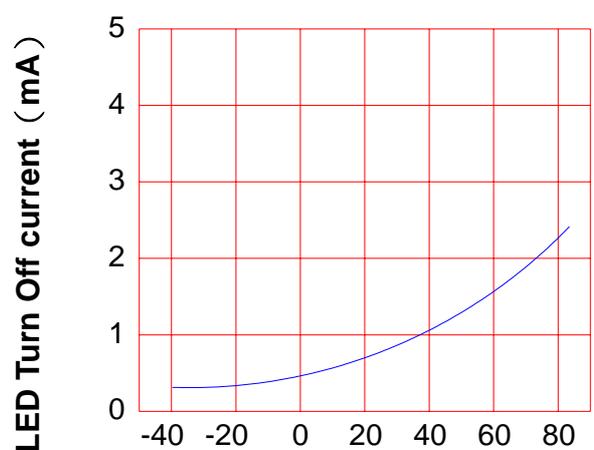
LED dropout voltage vs. ambient temperature
LED current：5 to 50mA
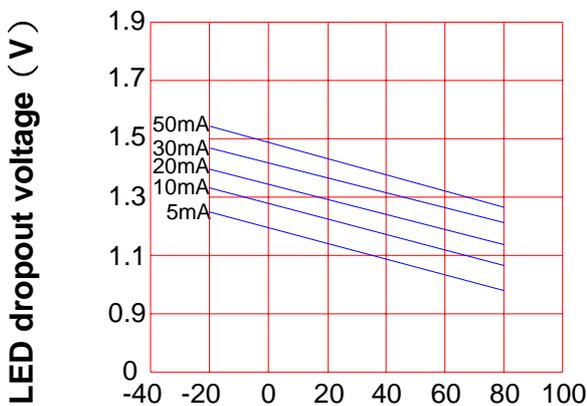
Voltage vs. current characteristics of output at MOSFET portion
Measured portion：across terminals 4 and 6 pin
Ambient temperature：25℃
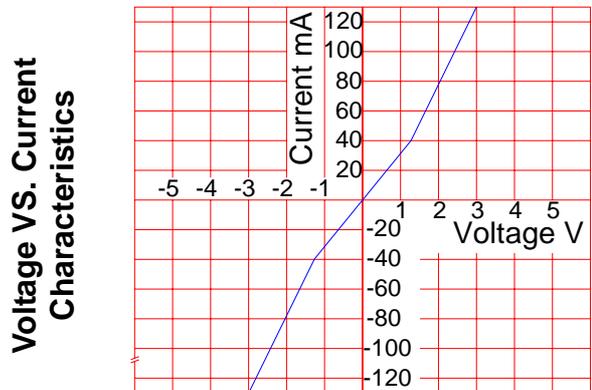
Ambient temperature：25℃

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SOLID STATE RELAY - MOSFET OUTPUT
KAQV210H

Preliminary

SHEET 5 OF 7

REV. 0

LED forward current vs. Turn On Time
Across terminals 4 and 6pin
**Load voltage：350V（DC）**
Continuous load current：130mA（DC）
Ambient temperature：25℃
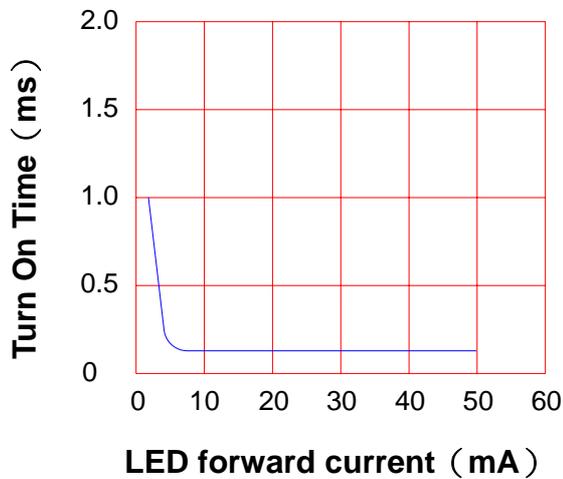
Off state leakage current
Across terminals 4and 6 pin
**Ambient temperature：25℃**
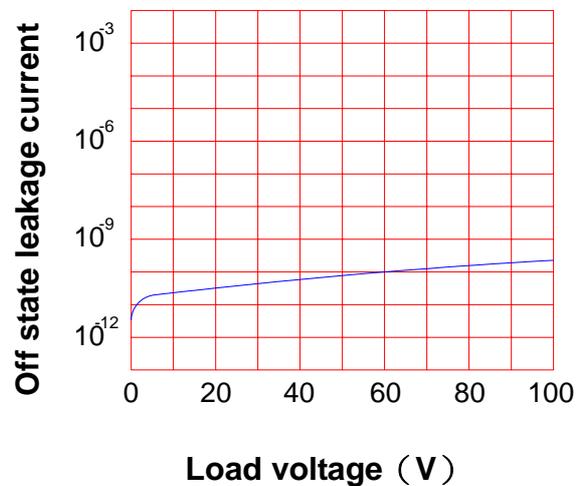
LED forward current vs. reverse(ON) time
Across terminals 4 and 6 pin
Load voltage：350V（DC）
**Continuous load current：130mA（DC）**
Ambient temperature：25℃
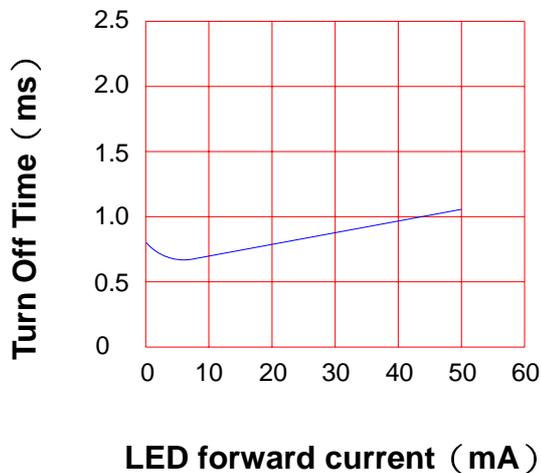
Applied voltage vs. output capacitance
Across terminals 4 and 6 pin
Frequency：1MHz
Ambient temperature：25℃
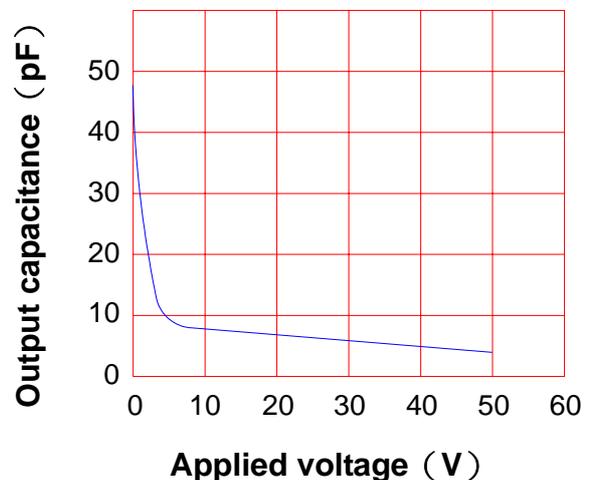
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SHEET 6 OF 7 | **REV.**
0 |

● USING METHODS

Examples of resistance value to control LED forward current（IF）

SSR-MOSFET OUTPUT　　　　　　　　（IF=5mA）
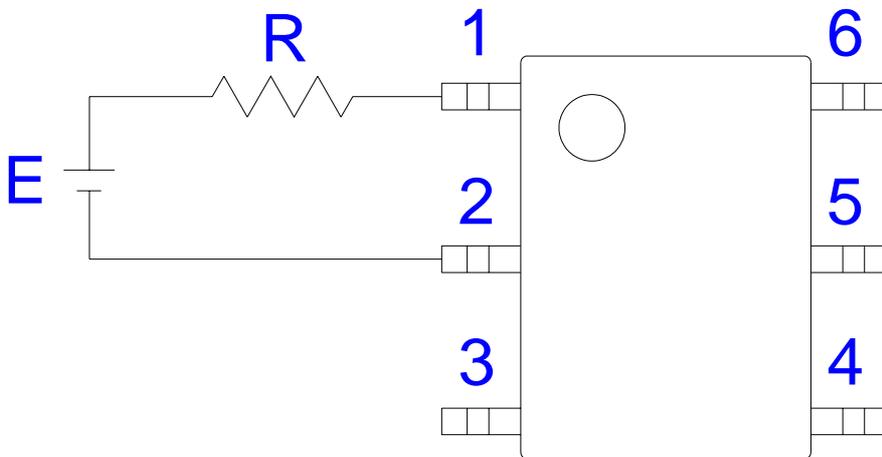
E	R
3.3V	Approx. 330 Ω
5V	Approx. 640 Ω
12V	Approx. 1.9K Ω
15V	Approx. 2.5K Ω
24V	Approx. 4.1K Ω

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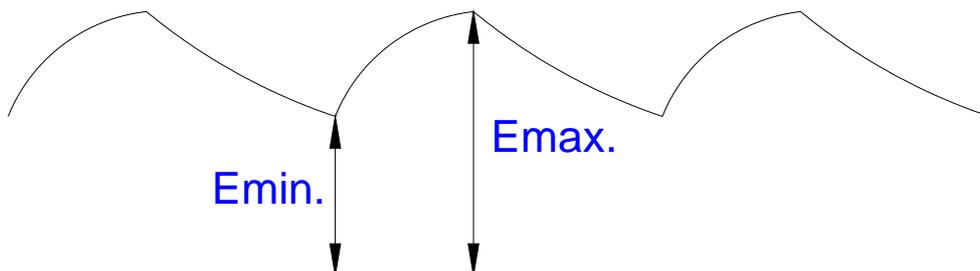
PRODUCT SPECIFICATION

● USING METHODS

Regulate the spike voltage generated on the inductive load as follows：

Load

Load

R-C Snubber