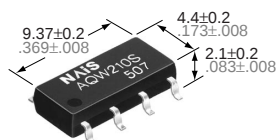


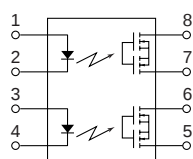
NAIS

GU (General Use) Type SOP Series [2-Channel (Form A) Type]

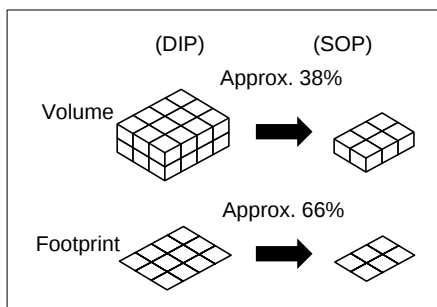
PhotoMOS RELAYS



mm inch



× (H) 2.1 mm (W) .173× (L) .369× (H) .083 inch —approx. 38% of the volume and 66% of the footprint size of DIP type PhotoMOS Relays.



3. Controls low-level analog signals

PhotoMOS relays feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion.

4. Low-level off state leakage current

In contrast to the SSR with an off state leakage current of several milliamps, the PhotoMOS relay features a very small off state leakage current of only 100 pA even with the rated load voltage of 400 V (AYW214S)

FEATURES

1. 2 channels in super miniature design

The device comes in a super-miniature SO package measuring (W) 4.4 × (L) 9.37

2. Tape and reel

The device comes standard in a tape and reel (1,000 pcs./reel) to facilitate automatic insertion machines.

TYPICAL APPLICATIONS

- Telephones
- Measuring instruments
- Computer
- Industrial robots
- High-speed inspection machines.

TYPES

Type	Output rating*		Part No.		Packing quantity in tape and reel
	Load voltage	Load current	Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side	
AC/DC	350 V	100 mA	AYW210SX	AYW210SZ	1,000 pcs.
	400 V	80 mA	AYW214SX	AYW214SZ	

*Indicate the peak AC and DC values.

Notes: (1) Tape package is the standard packing style. Also available in tube. (Part No. suffix "X" or "Z" is not needed when ordering; Tube: 50 pcs.; Case: 1,000 pcs.)

(2) For space reasons, the package type indicator "X" and "Z" are omitted from the seal.

RATING

1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	AYW210S	AYW214S	Remarks
Input	LED forward current	I _F	50 mA	50 mA	
	LED reverse voltage	V _R	3 V	3 V	
	Peak forward current	I _{FP}	1 A	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P _{in}	75 mW	75 mW	
Output	Load voltage (peak AC)	V _L	350 V	400 V	
	Continuous load current	I _L	0.1 A (0.13 A)	0.08 A (0.1 A)	(): in case of using only 1 channel Peak AC, DC
	Peak load current	I _{peak}	0.3 A	0.24 A	A connection: 100 ms (1 shot), V _L = DC
	Power dissipation	P _{out}	600 mW	600 mW	
Total power dissipation		P _T	650 mW	650 mW	
I/O isolation voltage		V _{iso}	1,500 V AC	1,500 V AC	
Temperature limits	Operating	T _{opr}	−40°C to +85°C −40°F to +185°F		Non-condensing at low temperatures
	Storage	T _{stg}	−40°C to +100°C −40°F to +212°F		

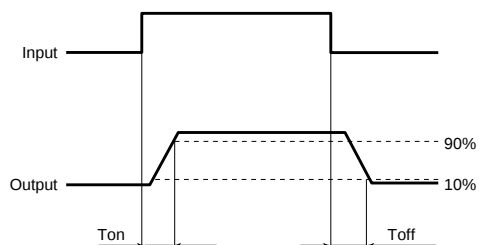
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQW210S	AQW214S	Remarks
Input	LED operate current	Typical	I _{Fon}	0.9 mA		I _L = Max.
		Maximum		3 mA		
	LED turn off current	Minimum	I _{Foff}	0.4 mA		I _L = Max.
		Typical		0.8 mA		
	LED dropout voltage	Typical	V _F	1.14 V (1.25 V at I _F = 50 mA)		I _F = 5 mA
		Maximum		1.5 V		
Output	On resistance	Typical	R _{on}	16 Ω	30 Ω	I _F = 5 mA I _L = Max. Within 1 s on time
		Maximum		35 Ω	50 Ω	
	Off state leakage current	Maximum	I _{leak}	1 μA		I _F = 0 V _L = Max.
Transfer characteristics	Turn on time*	Typical	T _{on}	0.23 ms	0.21 ms	I _F = 5 mA
		Maximum		0.5 ms		I _L = Max.
	Turn off time*	Typical	T _{off}	0.04 ms		I _F = 5 mA
		Maximum		0.2 ms		I _L = Max.
	I/O capacitance	Typical	C _{iso}	0.8 pF		f = 1 MHz
		Maximum		1.5 pF		V _B = 0
	Initial I/O isolation resistance	Minimum	R _{iso}	1,000 MΩ		500 V DC

Note: Recommendable LED forward current $I_F = 5 \text{ mA}$.

For type of connection, see page 32.

*Turn on/ Turn off time



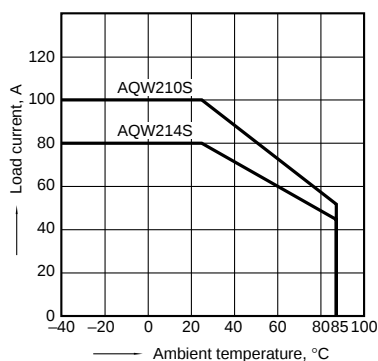
■ For Dimensions, see Page 28.

■ For Schematic and Wiring Diagrams, see Page 32.

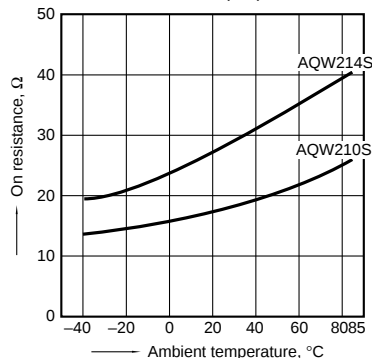
■ For Cautions for Use, see Page 36.

REFERENCE DATA

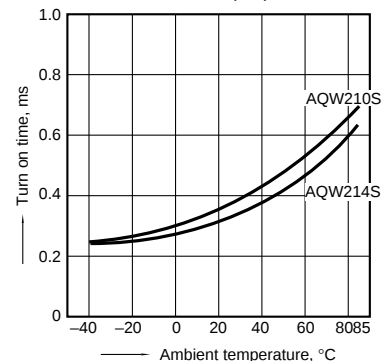
1. Load current vs. ambient temperature characteristics

Allowable ambient temperature: -40°C to $+85^\circ\text{C}$
 -40°F to $+185^\circ\text{F}$ 

2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8;
LED current: 5 mA; Load voltage: Max. (DC);
Continuous load current: Max. (DC)

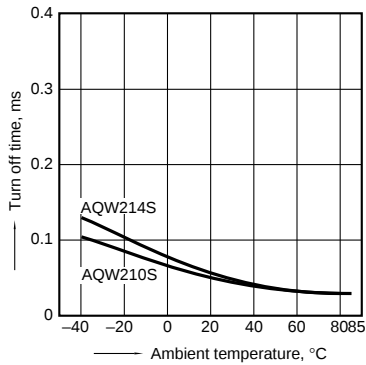
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA;
Load voltage: Max. (DC);
Continuous load current: Max. (DC)

AQW210S

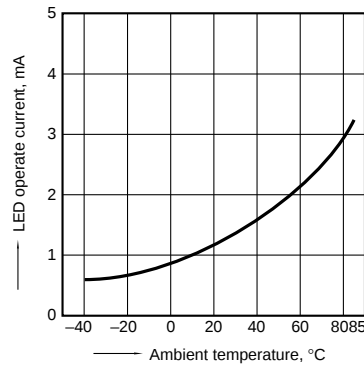
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



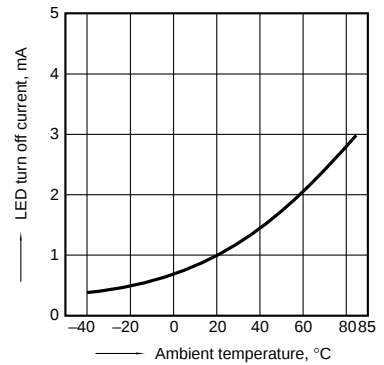
5. LED operate current vs. ambient temperature characteristics

Sample: All types; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



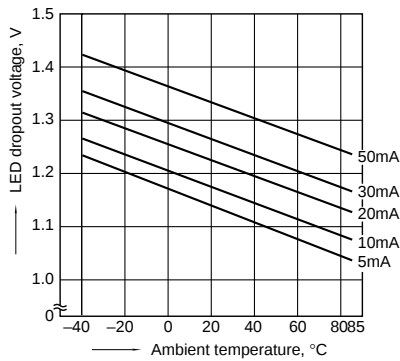
6. LED turn off current vs. ambient temperature characteristics

Sample: All types; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



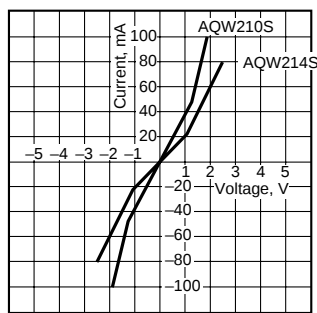
7. LED dropout voltage vs. ambient temperature characteristics

Sample: All types;
LED current: 5 to 50 mA



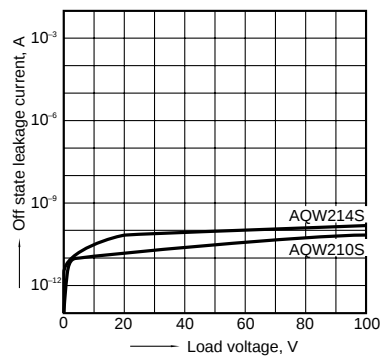
8. Voltage vs. current characteristics of output at MOS portion

Measured portion: between terminals 5 and 6, 7 and 8;
Ambient temperature: 25°C 77°F



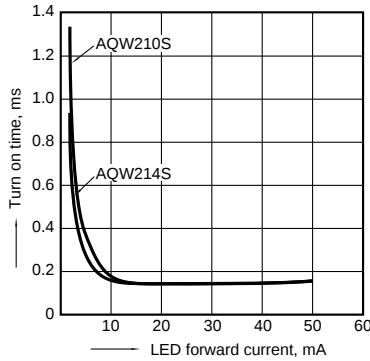
9. Off state leakage current

Measured portion: between terminals 5 and 6, 7 and 8;
Ambient temperature: 25°C 77°F



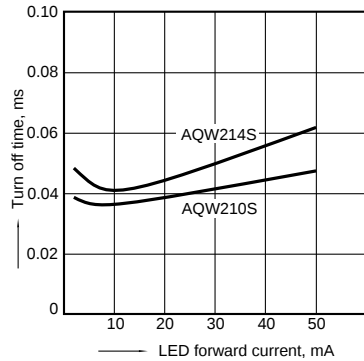
10. LED forward current vs. turn on time characteristics

Measured portion: between terminals 5 and 6, 7 and 8;
Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



11. LED forward current vs. turn off time characteristics

Measured portion: between terminals 5 and 6, 7 and 8;
Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



12. Applied voltage vs. output capacitance characteristics

Measured portion: between terminals 5 and 6, 7 and 8;
Frequency: 1 MHz;
Ambient temperature: 25°C 77°F

