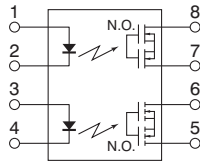


CAD Data

mm inch



## FEATURES

### 1. 2-channel (Form A) in SOP8-pin package miniature

(W) 4.4 × (L) 9.37 × (H) 2.1 mm (W) .173 × (L) .369 × (H) .083 inch —approx. 38% of the volume and 66% of the footprint size of DIP8-pin.

### 2. Low output capacitance and high response speed

The capacitance between output terminals is small; typ. 10pF. This enables a fast operation speed of typ. 0.25ms.

### 3. Low-level off state leakage current

### 4. Controls low-level analog signals

## TYPICAL APPLICATIONS

- Telephones
- Measuring instruments
- Computer input machines
- Industrial robots

## TYPES

	Output rating*		Package	Part No.			Packing quantity	
	Load voltage	Load current		Tube packing style	Tape and reel packing style		Tube	Tape and reel
					Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side		
AC/DC dual use	200V	40mA	SOP8-pin	AQW227NS	AQW227NSX	AQW227NSZ	1 tube contains: 50 pcs. 1 batch contains: 1,000 pcs.	1,000 pcs.

\* Indicate the peak AC and DC values.

Note: The packing style indicator "X" or "Z" is not marked on the relay.

## RATING

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

	Item	Symbol	AQW227NS	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA	
	LED reverse voltage	V <sub>R</sub>	5 V	
	Peak forward current	I <sub>FP</sub>	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>	75 mW	
Output	Load voltage (peak AC)	V <sub>L</sub>	200 V	
	Continuous load current	I <sub>L</sub>	0.04 A (0.05 A)	Peak AC, DC ( ): in case of using only 1 channel
	Peak load current	I <sub>peak</sub>	0.15 A	100 ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	600 mW	
Total power dissipation		P <sub>T</sub>	650 mW	
I/O isolation voltage		V <sub>iso</sub>	1,500 V AC	
Temperature limits	Operating	T <sub>opr</sub>	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperatures
	Storage	T <sub>stg</sub>	-40°C to +100°C -40°F to +212°F	

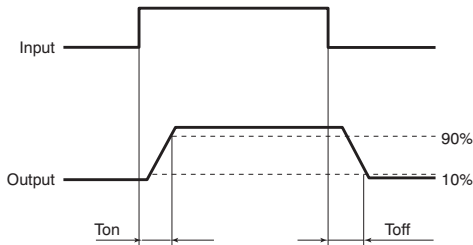
# RF SOP 2 Form A Low on-resistance (AQW227NS)

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

Item			Symbol	AQW227NS	Condition
Input	LED operate current	Typical	$I_{Fon}$	0.7mA	$I_L=Max.$
		Maximum		3.0mA	
	LED turn off current	Minimum	$I_{Foff}$	0.4mA	$I_L=Max.$
		Typical		0.65mA	
LED dropout voltage	Typical	$V_F$	1.25V (1.14V at $I_F=5mA$ )	$I_F=50mA$	
	Maximum		1.5V		
Output	On resistance	Typical	$R_{on}$	30Ω	$I_F=5mA$ $I_L=Max.$ Within 1 s on time
		Maximum		50Ω	
	Output capacitance	Typical	$C_{out}$	10pF	$I_F=0mA$ $V_E=0V$ $f=1MHz$
		Maximum		15pF	
Off state leakage current	Maximum	$I_{Leak}$	10nA (1 nA or less)*	$I_F=0mA$ $V_L=Max.$	
Transfer characteristics	Turn on time**	Typical	$T_{on}$	0.25ms	$I_F=5mA$ $I_L=Max.$
		Maximum		0.5ms	
	Turn off time**	Typical	$T_{off}$	0.08ms	$I_F=5mA$ $I_L=Max.$
		Maximum		0.2ms	
	I/O capacitance	Typical	$C_{iso}$	0.8pF	$f=1MHz$ $V_E=0V$
		Maximum		1.5pF	
Initial I/O isolation resistance	Minimum	$R_{iso}$	1,000MΩ	500V DC	

\* Available as custom orders (1 nA or less)

\*\*Turn on/Turn off time



## RECOMMENDED OPERATING CONDITIONS

Please obey the following conditions to ensure proper relay operation and resetting.

Item	Symbol	Recommended value	Unit
Input LED current	$I_F$	5	mA

### ■ Dimensions

### ■ Schematic and Wiring Diagrams

### ■ Cautions for Use

■ These products are not designed for automotive use.

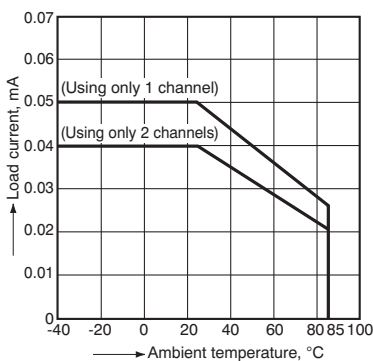
If you are considering to use these products for automotive applications, please contact your local Panasonic technical representative.

Please refer to our information on [PhotoMOS Relays for Automotive Applications](#).

## REFERENCE DATA

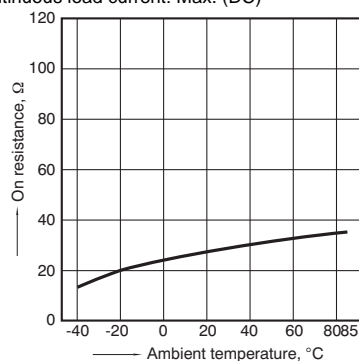
### 1. Load current vs. ambient temperature characteristics

Allowable ambient temperature: -40°C to +85°C  
-40°F to +185°F



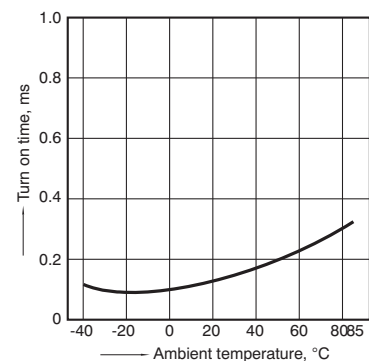
### 2. On resistance vs. ambient temperature characteristics

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

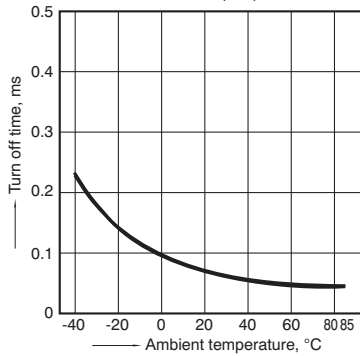
LED current: 5 mA;  
Load voltage: Max. (DC);  
Continuous load current: Max. (DC)



# RF SOP 2 Form A Low on-resistance (AQW227NS)

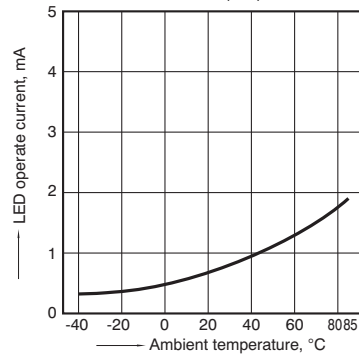
## 4. Turn off time vs. ambient temperature characteristics

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



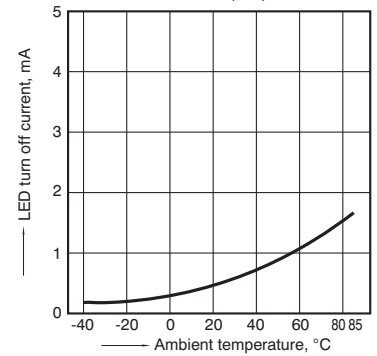
## 5. LED operate current vs. ambient temperature characteristics

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



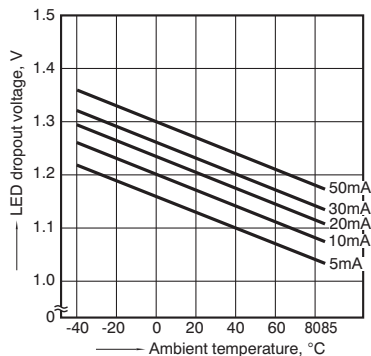
## 6. LED turn off current vs. ambient temperature characteristics

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



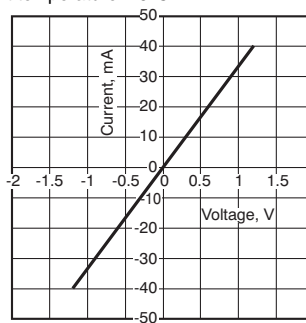
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



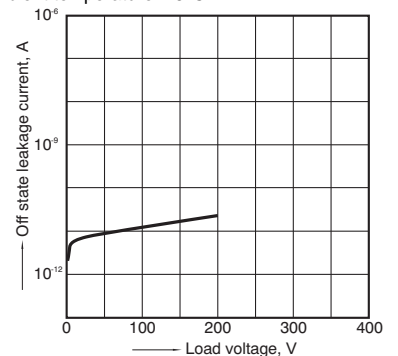
## 8. Current vs. voltage characteristics of output at MOS portion

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



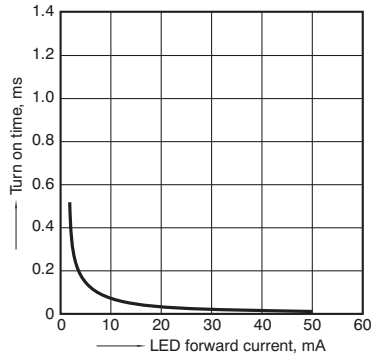
## 9. Off state leakage current vs. load voltage characteristics

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



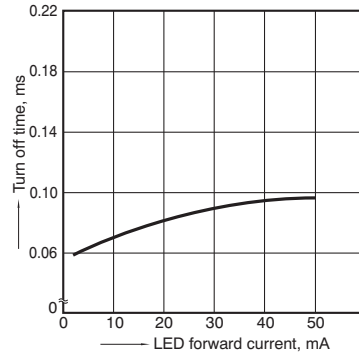
## 10. Turn on time vs. LED forward current characteristics

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



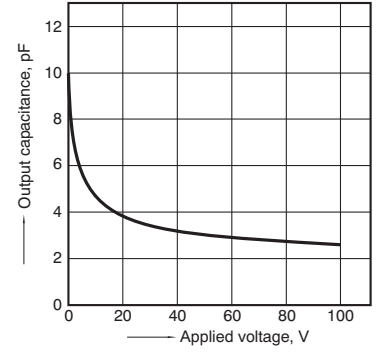
## 11. Turn off time vs. LED forward current characteristics

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



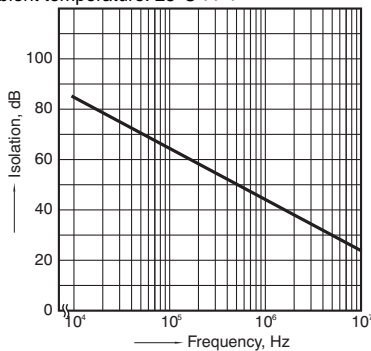
## 12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
Frequency: 1 MHz, 30 mVrms;  
Ambient temperature: 25°C 77°F



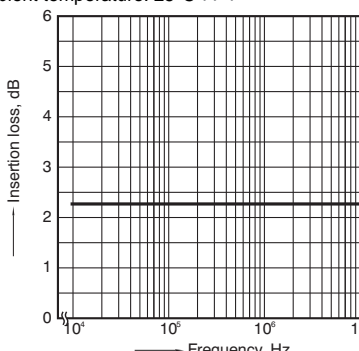
## 13. Isolation vs. frequency characteristics (50 Ω impedance)

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



## 14. Insertion loss vs. frequency characteristics (50 Ω impedance)

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



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