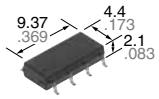
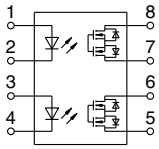
Miniature SOP8-pin type
Low on-resistance
200V load voltage

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



mm inch



RoHS compliant

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
The capacitance between output terminals is small; Typ. 10pF.
High response speed
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 device.

RATING

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

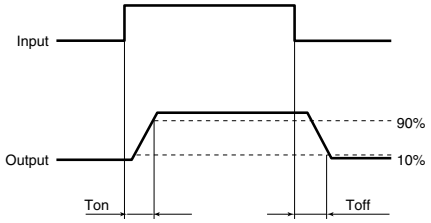
Item		Symbol	AQW227NS	Remarks
Input	LED forward current	I_F	50 mA	
	LED reverse voltage	V_R	5 V	
	Peak forward current	I_{FP}	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P_{in}	75 mW	
Output	Load voltage (peak AC)	V_L	200 V	
	Continuous load current	I_L	0.04 A (0.05 A)	Peak AC, DC ( ): in case of using only 1 channel
	Peak load current	I_{peak}	0.15 A	100 ms (1 shot), V_L = DC
	Power dissipation	P_{out}	600 mW	
Total power dissipation		P_T	650 mW	
I/O isolation voltage		V_{iso}	1,500 Vrms	
Ambient temperature	Operating	T_{opr}	–40 to +85°C –40 to +185°F	(Non-icing at low temperatures)
	Storage	T_{stg}	–40 to +100°C –40 to +212°F	

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
		Maximum		50Ω	
	Output capacitance	Typical	C_{out}	10pF	I_F=0mA V_B=0V f=1 MHz
		Maximum		15pF	
	Off state leakage current	Maximum	I_{Leak}	*10nA	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_B=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



3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

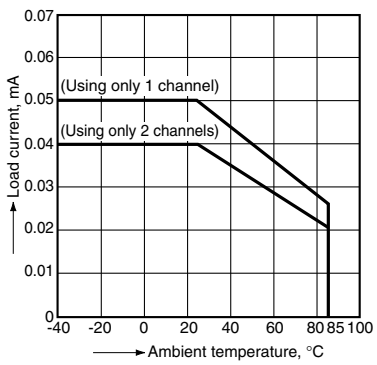
Item		Symbol	Number of used channels	Min.	Max.	Unit
LED current		I_F		5	30	mA
AQW227NS	Load voltage (Peak AC)	V_L		—	160	V
	Continuous load current	I_L	1ch 2ch	—	0.05 0.04	A

■ **These products are not designed for automotive use.**
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

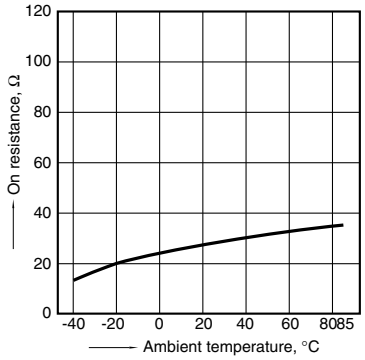
1. Load current vs. ambient temperature characteristics

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



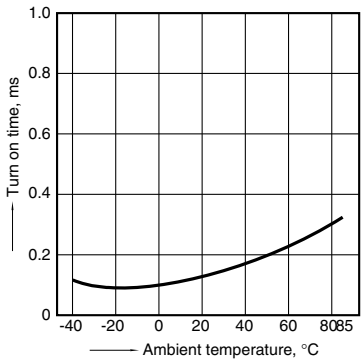
2. On resistance vs. ambient temperature characteristics

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

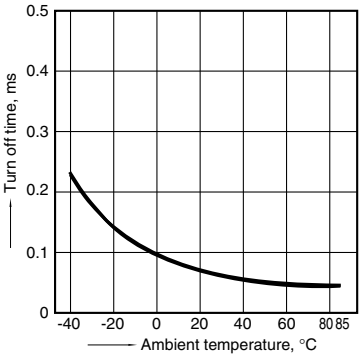


3. Turn on time vs. ambient temperature characteristics

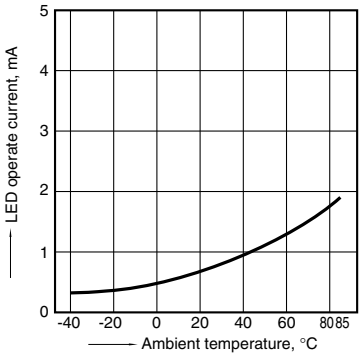
LED current: 5 mA;
Load voltage: Max. (DC);
Continuous load current: Max. (DC)



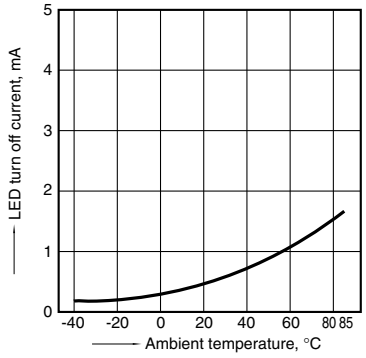
4. Turn off time vs. ambient temperature characteristics
LED current: 5 mA; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



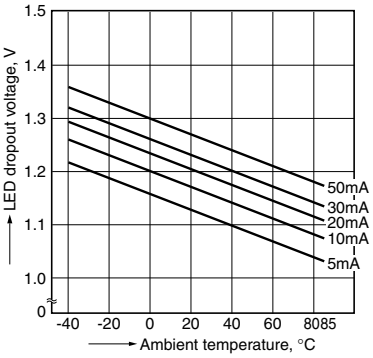
5. LED operate current vs. ambient temperature characteristics
Load voltage: Max. (DC);
Continuous load current: Max. (DC)



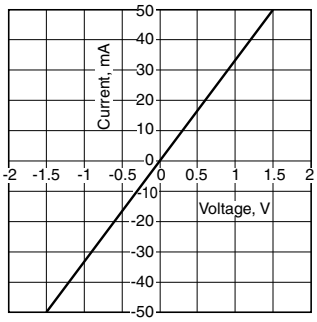
6. LED turn off current vs. ambient temperature characteristics
Load voltage: Max. (DC);
Continuous load current: Max. (DC)



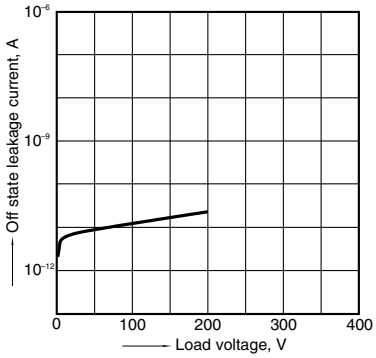
7. LED dropout voltage vs. ambient temperature characteristics
LED current: 5 to 50 mA



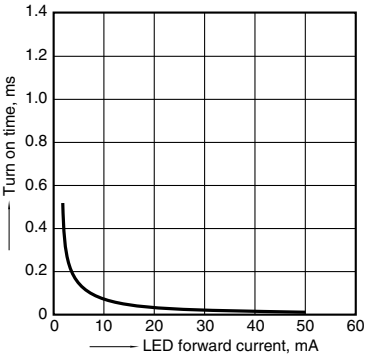
8. Current vs. voltage characteristics of output at MOS portion
Measured portion: between terminals 5 and 6, 7 and 8;
Ambient temperature: 25°C 77°F



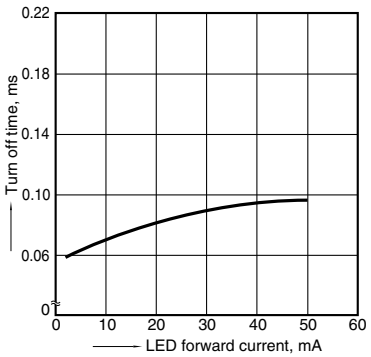
9. Off state leakage current vs. load voltage characteristics
Measured portion: between terminals 5 and 6, 7 and 8;
Ambient temperature: 25°C 77°F



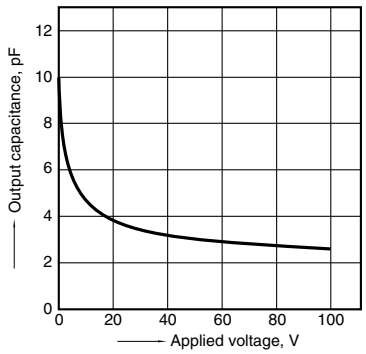
10. Turn on time vs. LED forward current characteristics
Measured portion: between terminals 5 and 6, 7 and 8;
Load voltage: Max. (DC);
Continuous load current: Max. (DC);
Ambient temperature: 25°C 77°F



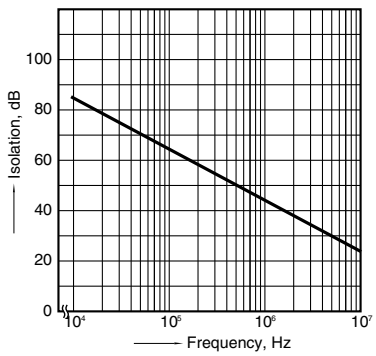
11. Turn off time vs. LED forward current characteristics
Measured portion: between terminals 5 and 6, 7 and 8;
Load voltage: Max. (DC);
Continuous load current: Max. (DC);
Ambient temperature: 25°C 77°F



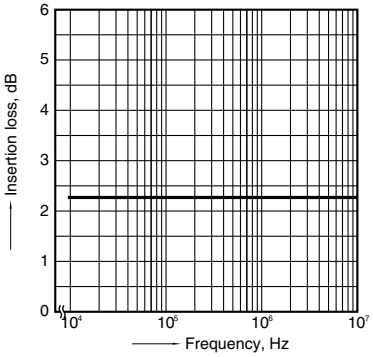
12. Output capacitance vs. applied voltage characteristics
Measured portion: between terminals 5 and 6, 7 and 8;
Frequency: 1 MHz, 30mVrms;
Ambient temperature: 25°C 77°F



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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