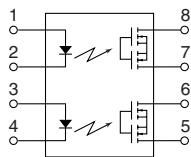
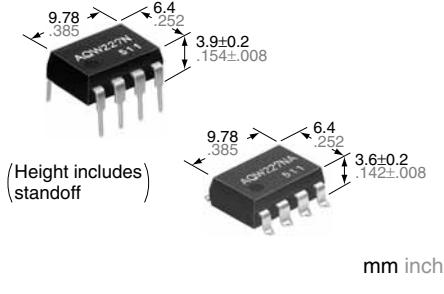


**DIP8-pin type featuring low on-resistance with 200V/400V load voltage**

PhotoMOS®

RF 2 Form A

Low on-resistance (AQW22ON)



**RoHS compliant**

## FEATURES

1. 2-channels (Form A) type with high response speed, low leakage current and low on-resistance.
2. Applicable for 2 Form A use as well as two independent 1 Form A use
3. Low capacitance between output terminals ensures high response speed:

The capacitance between output terminals is small; typ. 10 pF. This enables for a fast operation speed of typ. 0.2 ms.

4. High sensitivity and low on-resistance:
5. Max. 0.07 A of load current can be controlled with input current of 5 mA. The on-resistance is less than our conventional models.
6. Low-level off state leakage current
7. Controls low-level analog signals: PhotoMOS features extremely low closed-circuit offset voltages to enable control of small analog signals without distortion.

## TYPICAL APPLICATIONS

- Measuring instruments  
Scanner, IC checker, Board tester, etc.

## TYPES

	Output rating*		Package	Part No.			Packing quantity	
				Through hole terminal	Surface-mount terminal			
	Load voltage	Load current		Tube packing style	Picked from the 1/2/3-pin side	Picked from the 4/5/6-pin side	Tube	Tape and reel
AC/DC dual use	200 V	50 mA	DIP8-pin	AQW227N	AQW227NA	AQW227NAX	AQW227NAZ	1 tube contains: 50 pcs. 1 batch contains: 500 pcs.
	400 V	40 mA		AQW224N	AQW224NA	AQW224NAX	AQW224NAZ	

\*Indicate the peak AC and DC values.

Note: The surface mount terminal indicator "A" and the packing style indicator "X" or "Z" are not marked on the device.

## RATING

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

Item		Symbol	AQW227N(A)		AQW224N(A)	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>	0.05 A (0.07 A)			Peak AC, DC ( ): in case of using only 1 channel
	Peak load current	I <sub>peak</sub>	0.15 A			A connection: 100 ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>			800 mW	
Total power dissipation		P <sub>T</sub>			850 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			

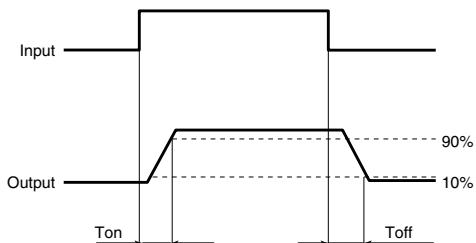
# RF 2 Form A Low on-resistance (AQW22ON)

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

Item		Symbol	AQW227N(A)	AQW224N(A)	Remarks
Input	LED operate current	Typical Maximum	$I_{Fon}$	0.9 mA 3.0 mA	$I_L = \text{Max.}$
	LED turn off current			0.4 mA 0.8 mA	
	LED dropout voltage	Typical Maximum	$V_F$	1.25 V (1.14 V at $I_F = 5 \text{ mA}$ ) 1.5 V	$I_F = 50 \text{ mA}$
	On resistance	Typical Maximum	$R_{on}$	30 Ω 50 Ω	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
Output	Output capacitance	Typical Maximum	$C_{out}$	10 pF 15 pF	$I_F = 0$ $V_B = 0$ $f = 1 \text{ MHz}$
	Off state leakage current	Maximum		$I_{Leak}$	
Transfer characteristics	Turn on time**	Typical Maximum	$T_{on}$	0.2 ms 0.5 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
	Turn off time**	Typical Maximum		0.08 ms 0.2 ms	
	I/O capacitance	Typical Maximum	$C_{iso}$	0.8 pF 1.5 pF	$f = 1 \text{ MHz}$ $V_B = 0$
	Initial I/O isolation resistance	Minimum		$R_{iso}$	

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

\*\*Turn on/Turn off time



## RECOMMENDED OPERATING CONDITIONS

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

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

■ These products are not designed for automotive use.

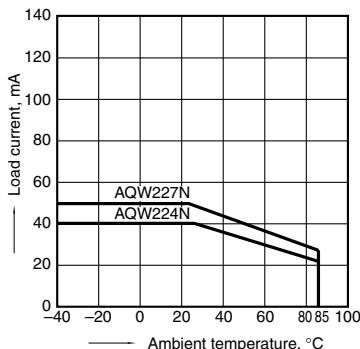
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

## REFERENCE DATA

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

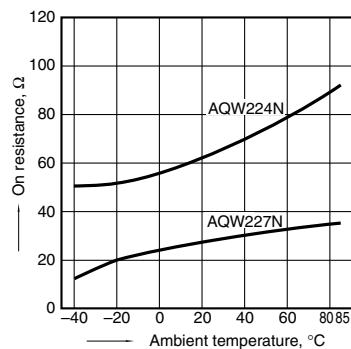
Allowable ambient temperature: -40°C to +85°C  
-40°F to +185°F

When using 2 channels



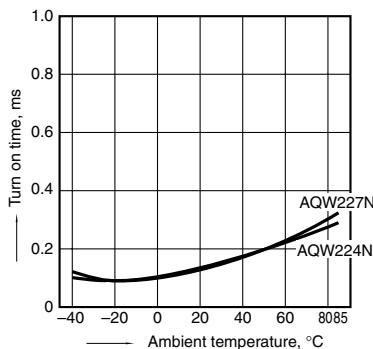
### 2. On resistance vs. ambient temperature characteristics

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

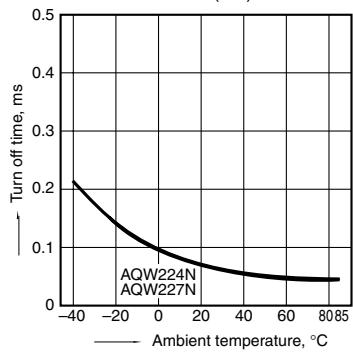
LED current: 5 mA; Load voltage: Max. (DC); Continuous load current: Max. (DC)



# RF 2 Form A Low on-resistance (AQW22ON)

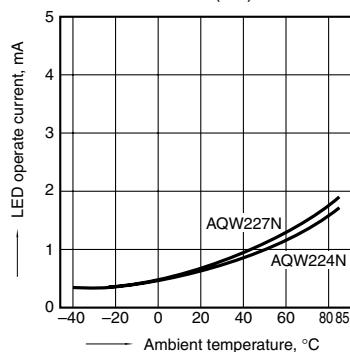
## 4. Turn off time vs. ambient temperature characteristics

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



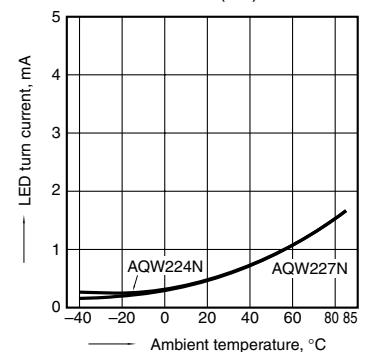
## 5. LED operate current vs. ambient temperature characteristics

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



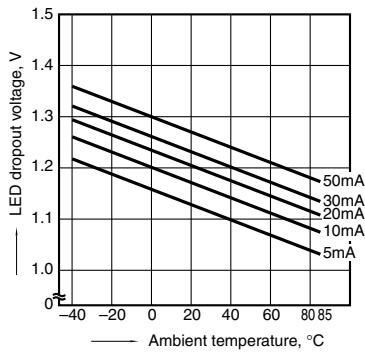
## 6. LED turn off current vs. ambient temperature characteristics

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



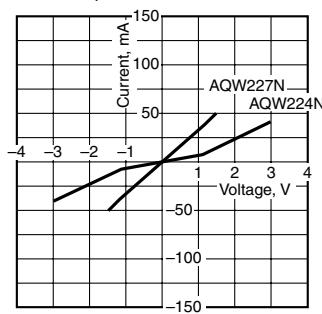
## 7. LED dropout voltage vs. ambient temperature characteristics

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



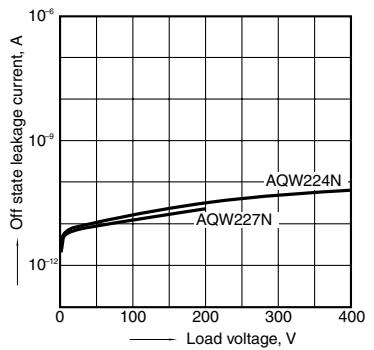
## 8. Voltage vs. current characteristics of output at MOS portion

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



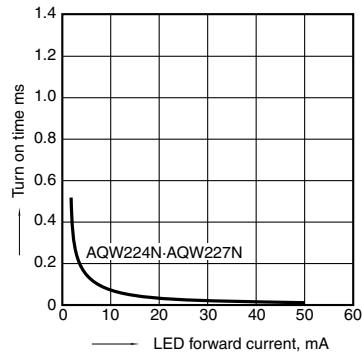
## 9. Off state leakage current

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



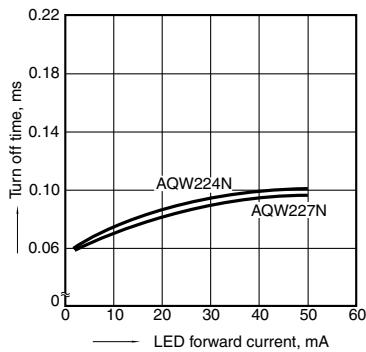
## 10. LED forward current vs. turn on time characteristics

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



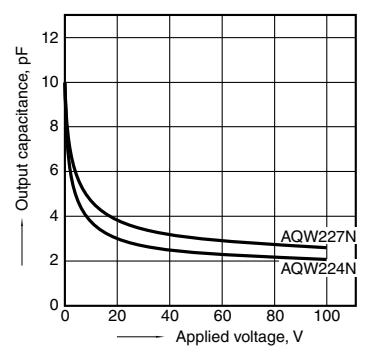
## 11. LED forward current vs. turn off time characteristics

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

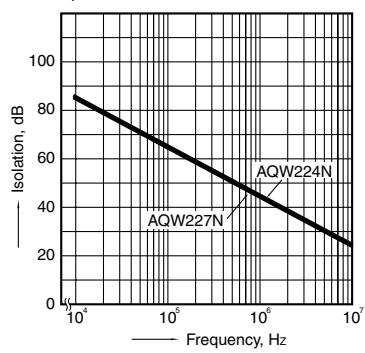
Measured portion: between terminals 5 and 6, 7 and 8; Frequency: 1 MHz, 30 mVRms; Ambient temperature: 25°C 77°F



## 13. Isolation characteristics

(50 Ω impedance)

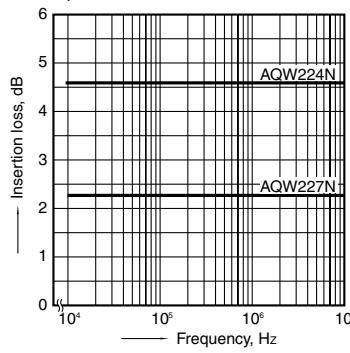
Measured portion: between terminals 5 and 6, 7 and 8;  
Ambient temperature: 25°C 77°F



## 14. Insertion loss characteristics

(50 Ω impedance)

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





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

#### Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помошь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помошь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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