

### FEATURES

**1. 4-channel(4 Form A) of RF PhotoMOS Relays**

**2. SO package 16-pin type in super miniature design**

The device comes in a super-miniature SO package measuring (W)10.37 × (L)4.4 × (H)2.1mm (W) .408 × (L).173 × (H).083inch— approx. 50% of the footprint size of 8-pin(2-channel) type.

**3. Applicable for 4 Form A use, as well as 4 independent 1 Form A**

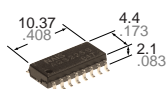
**4. Low capacitance between output terminals ensure high response speed:**

The capacitance between output terminals is small, typically 4.5pF.

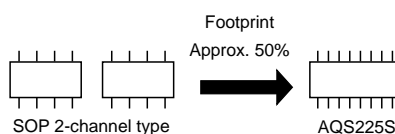
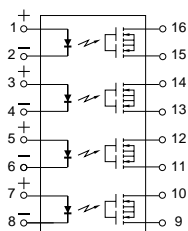
This enables for a fast operation speed of 0.1ms(typ.).

**5. Low-level off state leakage current**

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



mm inch



### TYPICAL APPLICATIONS

- Telephone and data communication equipment
- Measuring equipment
- Medical equipment
- Industrial equipment

### TYPES

Type	Output rating*		Part No.		Packing quantity in tape and reel
	Load voltage	Load current	Picked from the 1/2/3/4/5/6/7/8-pin side	Picked from the 9/10/11/12/13/14/15/16-pin side	
AC/DC type	80 V	50 mA	AQS225SX	AQS225SZ	1,000 pcs.

\* 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	AQS225S	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA	
	LED reverse voltage	V <sub>R</sub>	3 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	V <sub>L</sub>	80 V	
	Continuous load current	I <sub>L</sub>	0.05 A	
	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	

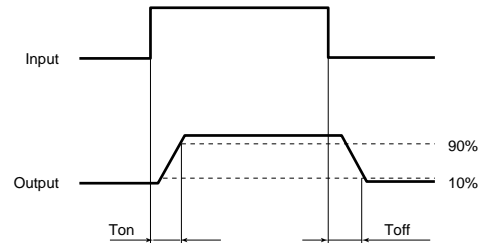
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQS225S	Condition
Input	LED operate current	Typical	I <sub>Fon</sub>	0.9 mA	I <sub>L</sub> = Max.
		Maximum		3 mA	
	LED turn off current	Minimum	I <sub>Foff</sub>	0.3 mA	I <sub>L</sub> = Max.
		Typical		0.85 mA	
LED dropout voltage	Typical	V <sub>F</sub>	1.14 (1.25 V at I <sub>F</sub> = 50mA)	I <sub>F</sub> = 5mA	
	Maximum		1.5 V		
Output	On resistance	Typical	R <sub>on</sub>	21Ω	I <sub>F</sub> = 5 mA I <sub>L</sub> = Max. Within 1 s on time
		Maximum		35Ω	
	Output capacitance	Typical	C <sub>out</sub>	4.5 pF	I <sub>F</sub> = 0 V <sub>B</sub> = 0 V f = 1 MHz
		Maximum		6 pF	
	Off state leakage current	Typical	I <sub>Leak</sub>	30 pA	I <sub>F</sub> = 0 V <sub>L</sub> = Max.
Maximum		10 nA			
Transfer characteristics	Turn on time*	Typical	T <sub>on</sub>	0.1 ms	I <sub>F</sub> = 5 mA I <sub>L</sub> = Max.
		Maximum		0.3 ms	
	Turn off time*	Typical	T <sub>off</sub>	0.03 ms	I <sub>F</sub> = 5 mA I <sub>L</sub> = Max.
		Maximum		0.1 ms	
	I/O capacitance	Typical	C <sub>iso</sub>	0.8 pF	f = 1 MHz V <sub>B</sub> = 0
		Maximum		1.5 pF	
Initial I/O isolation resistance	Minimum	R <sub>iso</sub>	1,000 MΩ	500 V DC	

Note: Recommendable LED forward current I<sub>F</sub>= 5 mA.

For type of connection, see page 34.

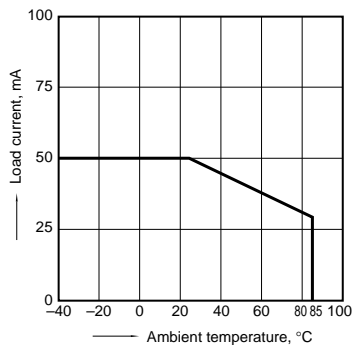
\*Turn on/Turn off time



REFERENCE DATA

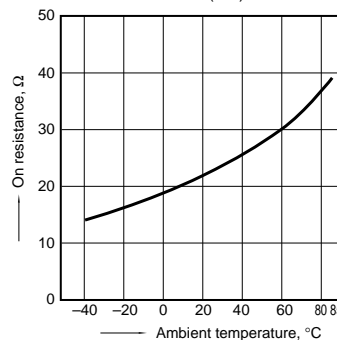
1. Load current vs. ambient temperature characteristics

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



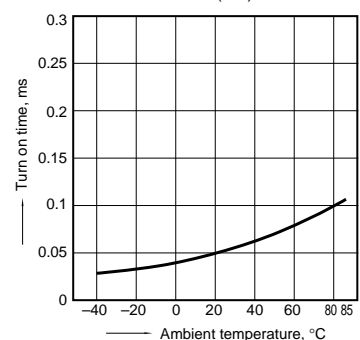
2. On resistance vs. ambient temperature characteristics

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



3. Turn on time vs. ambient temperature characteristics

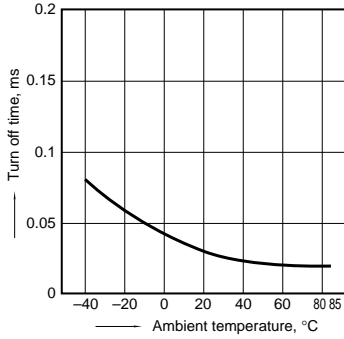
LED current: 5 mA; Load voltage: Max. (DC);  
Continuous load current: Max. (DC)



# AQS225S

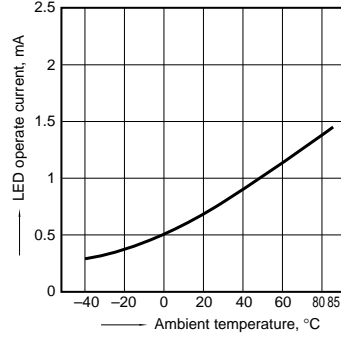
## 4. Turn off time vs. ambient temperature characteristics

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



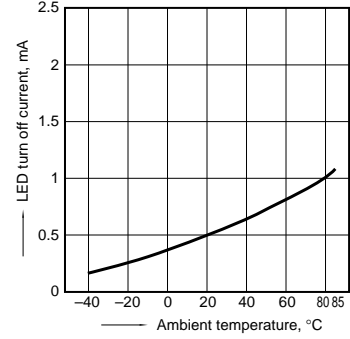
## 5. LED operate current vs. ambient temperature characteristics

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



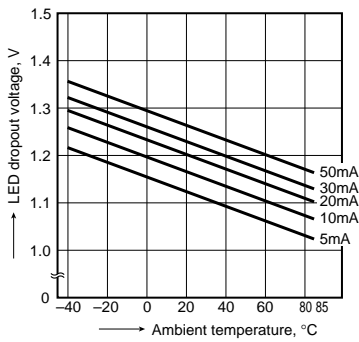
## 6. LED turn off current vs. ambient temperature characteristics

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



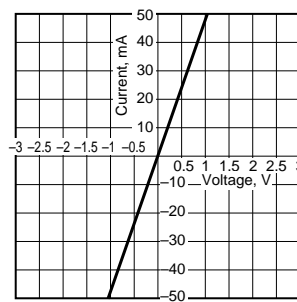
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



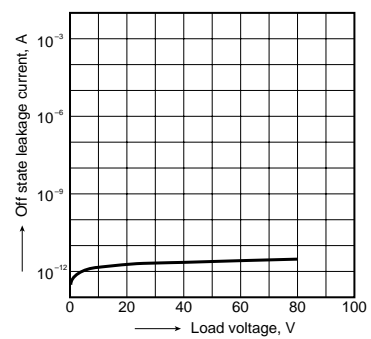
## 8. Voltage vs. current characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



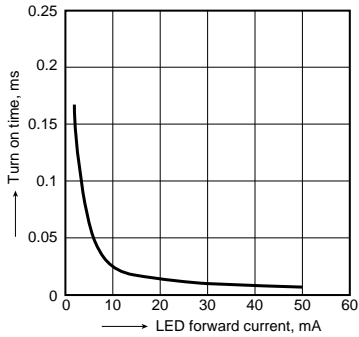
## 9. Off state leakage current

Ambient temperature: 25°C 77°F



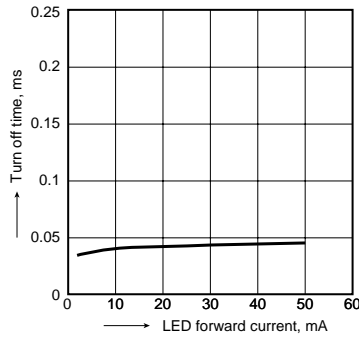
## 10. LED forward current vs. turn on time characteristics

Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



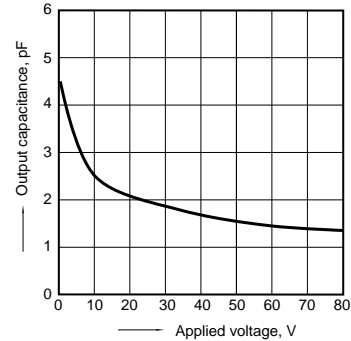
## 11. LED forward current vs. turn off time characteristics

Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



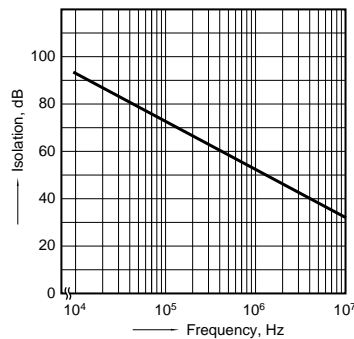
## 12. Applied voltage vs. output capacitance characteristics

Frequency: 1 MHz; Ambient temperature: 25°C 77°F



## 13. Isolation characteristics (50Ω impedance)

Ambient temperature: 25°C 77°F



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

Ambient temperature: 25°C 77°F

