

FEATURES

1. High capacity and low on-resistance
Features: Compared to predecessor (AQS225S)

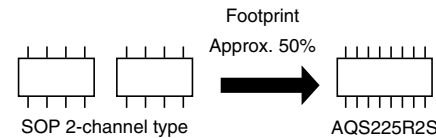
Type	AQS225S	AQS225R2S
C×R	*1 94.5pF·Ω (typ.)	*2 47.25pF·Ω (typ.)
Load current value	50mA	70mA

*1 4.5pF × 21Ω
*2 4.5pF × 10.5Ω

2. 4-channel (4 Form A) of RF PhotoMOS Relays

3. 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.



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

5. 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 0.04ms(typ.).

6. Low-level off state leakage current

7. Controls low-level analog signals

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

TYPICAL APPLICATIONS

For multi-circuit switching

1. Measuring instruments (probe cards, etc.)
2. Test equipment
IC tester, Liquid crystal driver tester, semiconductor performance tester
3. Board tester
Bear board tester, In-circuit tester, function tester
4. Medical equipment
Ultrasonic wave diagnostic machine
5. Multi-point recorder
Warping, thermo couple

RoHS Directive compatibility information
<http://www.mew.co.jp/ac/e/environment/>

TYPES

Type	Output rating*		Package size	Part No.			Packing quantity	
	Load voltage	Load current		Tube packing style	Tape and reel packing style		Tube	Tape and reel
AC/DC type	80V	70mA	SOP 16pin	AQS225R2S	AQS225R2SX (Picked from the 1/2/3/4/5/6/7/8-pin side)	AQS225R2SZ (Picked from the 9/10/11/12/13/14/15/16-pin side)	1 tube contains: 50 pcs. 1 batch contains: 1,000 pcs.	1,000 pcs.

* Indicate the peak AC and DC values.

Note: For space reasons, the package style indicator "X" or "Z" are not marked on the relay.

RATING

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

Item		Symbol	AQS225R2S	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	80 V	
	Continuous load current (peak AC)	I _L	0.07 A	
	Peak load current	I _{peak}	0.2 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 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	

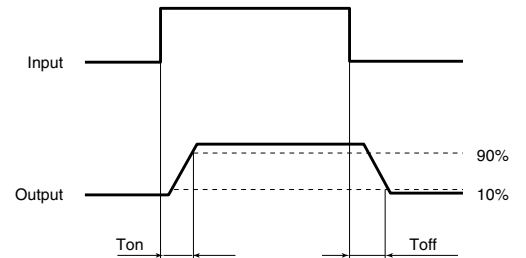
RF PhotoMOS (AQS225R2S)

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

Item		Symbol	AQS225R2S	Condition
Input	LED operate current	Typical	0.9 mA	$I_L = \text{Max.}$
		Maximum	3 mA	
	LED turn off current	Minimum	0.3 mA	$I_L = \text{Max.}$
		Typical	0.85 mA	
LED dropout voltage	Typical	V_F	1.25 V (1.14 V at $I_F = 5 \text{ mA}$)	$I_F = 50 \text{ mA}$
	Maximum		1.5 V	
Output	On resistance	Typical	10.5Ω	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	15Ω	
	Output capacitance	Typical	4.5 pF	$I_F = 0$ $V_B = 0 \text{ V}$ $f = 1 \text{ MHz}$
		Maximum	6 pF	
Off state leakage current	Typical	0.01 nA	$I_F = 0$ $V_L = \text{Max.}$	
	Maximum	10 nA		
Transfer characteristics	Turn on time*	Typical	0.04 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum	0.3 ms	
	Turn off time*	Typical	0.07 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum	0.2 ms	
	I/O capacitance	Typical	0.8 pF	$f = 1 \text{ MHz}$ $V_B = 0$
		Maximum	1.5 pF	
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.

*Turn on/Turn off time

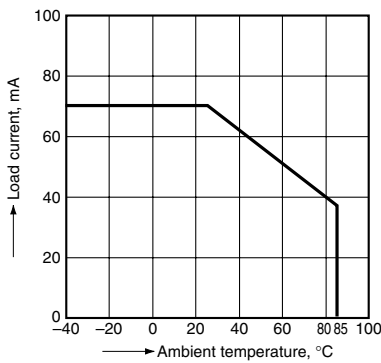


- For Dimensions.
- For Schematic and Wiring Diagrams.
- For Cautions for Use.

REFERENCE DATA

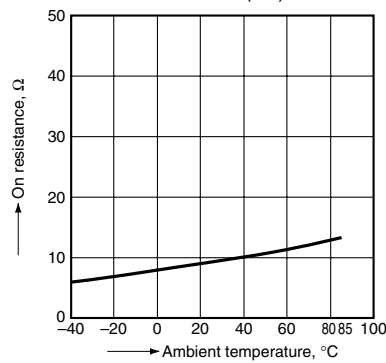
1. Load current vs. ambient temperature characteristics

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



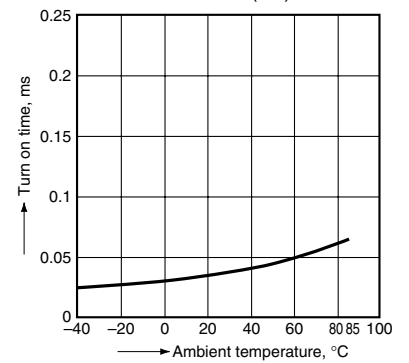
2. On resistance vs. ambient temperature characteristics

LED current: 5 mA;
Continuous load current: 70 mA (DC)



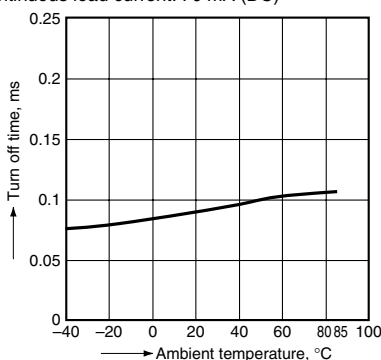
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 80 V (DC);
Continuous load current: 70 mA (DC)



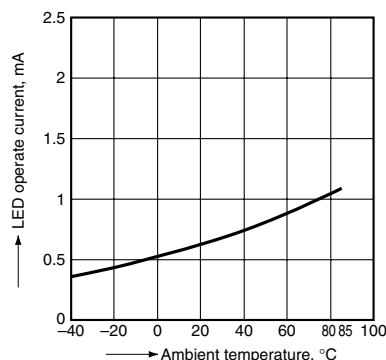
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 80 V (DC);
Continuous load current: 70 mA (DC)



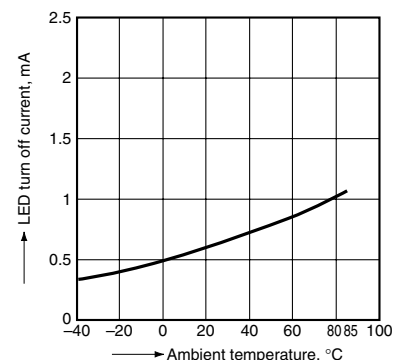
5. LED operate current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



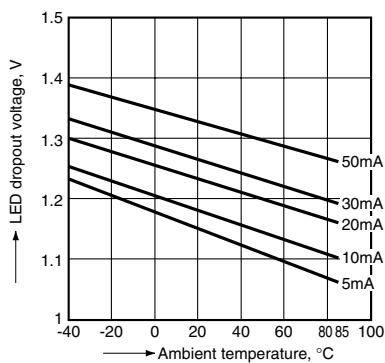
6. LED turn off current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)

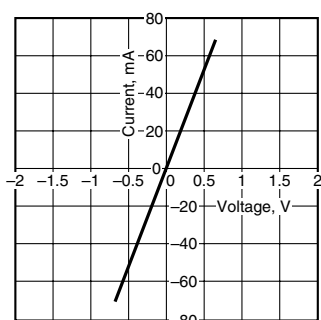


RF PhotoMOS (AQS225R2S)

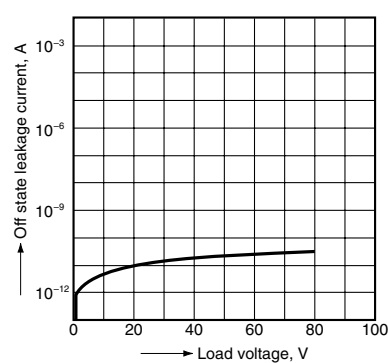
7. LED dropout voltage vs. ambient temperature characteristics
LED current: 5 to 50 mA



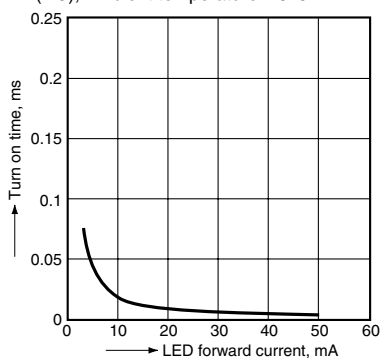
8. Current vs. voltage characteristics of output at MOS portion
Ambient temperature: 25°C 77°F



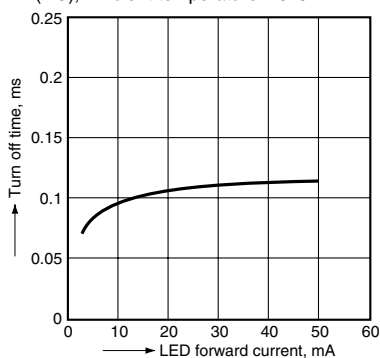
9. Off state leakage current vs. load voltage characteristics
Ambient temperature: 25°C 77°F



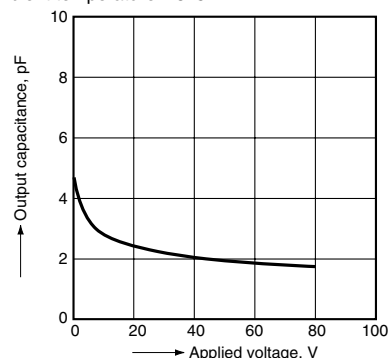
10. Turn on time vs. LED forward current characteristics
Load voltage: 80 V (DC); Continuous load current: 70 mA (DC); Ambient temperature: 25°C 77°F



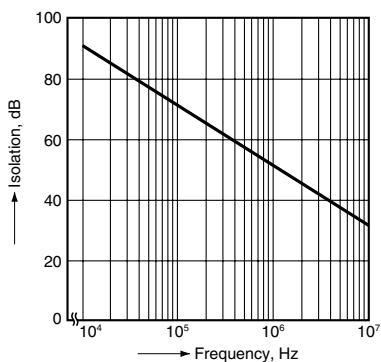
11. Turn off time vs. LED forward current characteristics
Load voltage: 80 V (DC); Continuous load current: 70 mA (DC); Ambient temperature: 25°C 77°F



12. Output capacitance vs. applied voltage characteristics
Frequency: 1 MHz, 30 m Vrms; Ambient temperature: 25°C 77°F



13. Isolation vs. frequency characteristics (50Ω impedance)
Ambient temperature: 25°C 77°F



14. Insertion loss vs. frequency characteristics (50Ω impedance)
Ambient temperature: 25°C 77°F

