

FEATURES

1. Low output capacitance between output terminals, and low ON-resistance (Load voltage: 60 to 80V)

	AQY222R1S	AQY225R1S	AQY225R2S
Output capacitance (Cout)	24.5pF (typ.)	37.5pF (typ.)	4.5pF (typ.)
On resistance (Ron)	0.8Ω (typ.)	0.8Ω (typ.)	10.5Ω (typ.)

2. SO package 4-pin type in super miniature design

Size: (W)4.3 × (L)4.4 × (H)2.1 mm
(W).169 × (L).173 × (H).083 inch

3. Low-level off-state leakage current of 10pA

The SSR has an off-state leakage current of several milliamperes, where as this PhotoMOS relay has typ. 10pA (typical) even with the rated load voltage (AQY225R2S)

4. Controls low-level analog signals

TYPICAL APPLICATIONS

Measuring and testing equipment

1. Testing equipment for semiconductor performance
IC tester, Liquid crystal driver tester, semiconductor performance tester

2. Board tester
Bare board tester, In-circuit tester, function tester

3. Multi-point recorder
Warping, thermo couple

TYPES

Type	Output rating*		Part No.			Packing quantity	
	Load voltage	Load current	Surface mount terminal			Tube	Tape and reel
			Tube packing style	Tape and reel packing style			
AC/DC type	60V	0.5A	AQY222R1S	AQY222R1SX	AQY222R1SZ	1 tube contains: 100 pcs. 1 batch contains: 2,000 pcs.	1,000 pcs.
	80V	0.35A	AQY225R1S	AQY225R1SX	AQY225R1SZ		
	80V	0.15A	AQY225R2S	AQY225R2SX	AQY225R2SZ		

* Indicate the peak AC and DC values.

Note: For space reasons, the initial letters of the part number "AQY", the SMD terminal shape indicator "S" and the packaging style indicator "X" or "Z" are not marked on the relay. (Ex. the label for product number AQY225R1S is 225R1)

RATING

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

	Item	Symbol	AQY222R1S	AQY225R1S	AQY225R2S	Remarks
Input	LED forward current	I _F	50mA			
	LED reverse voltage	V _R	5V			
	Peak forward current	I _{FP}	1A			f=100 Hz, Duty factor=0.1%
	Power dissipation	P _{in}	75mW			
Output	Load voltage (peak AC)	V _L	60V	80V		
	Continuous load current	I _L	0.5A	0.35A	0.15A	Peak AC,DC
	Peak load current	I _{peak}	1A	0.7A	0.45A	100 ms (1 shot), V _L = DC
	Power dissipation	P _{out}	300mW			
Total power dissipation		P _T	350mW			
I/O isolation voltage		V _{iso}	1,500V 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 (AQY22OROS)

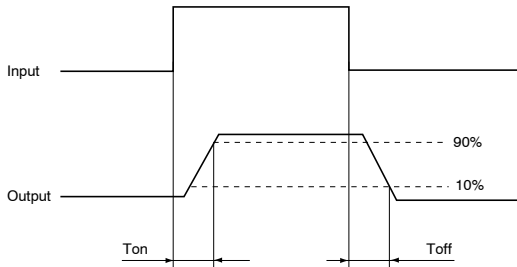
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQY222R1S	AQY225R1S	AQY225R2S	Condition	
Input	LED operate current	Typical	I _{Fon}	0.5 mA			I _L = Max.	
		Maximum		3.0 mA				
	LED turn off current	Minimum	I _{Foff}	0.1 mA			I _L = Max.	
		Typical		0.45 mA				
LED dropout voltage	Typical	V _F	1.32 V (1.14 V at I _F = 5 mA)			I _F = 50 mA		
	Maximum		1.5 V					
Output	On resistance	Typical	R _{on}	0.8Ω		10.5Ω	I _F = 5 mA I _L = Max.	
		Maximum		1.2Ω		15Ω		
	Output capacitance	Typical	C _{out}	24.5 pF	37.5 pF	4.5 pF	I _F = 0 mA, f = 1 MHz V _B = 0 V (amplitude of 30mV) Measured from 10s onward after application	
		Maximum		30 pF	45 pF	6.0 pF		
	Off state leakage current	Typical	I _{Leak}	0.05 nA	0.03 nA	0.01 nA		I _F = 0 mA V _L = Max.
		Maximum		10 nA				
Transfer characteristics	Switching speed	Turn on time*	T _{on}	0.15 ms	0.25 ms	0.05 ms	I _F = 5 mA V _L = 10V R _L = 100Ω	
				Maximum	0.5ms	0.75ms		0.5ms
		Turn off time*	T _{off}	0.06 ms	0.08 ms	0.05 ms		
				Maximum	0.2 ms			
	I/O capacitance	Typical	C _{iso}	0.8 pF			f = 1 MHz V _B = 0 V	
		Maximum		1.5 pF				
Initial I/O isolation resistance	Minimum	R _{iso}	1,000MΩ			500 V DC		

Note: Recommendable LED forward current I_F = 5 mA.

Type of connection

*Turn on/Turn off time

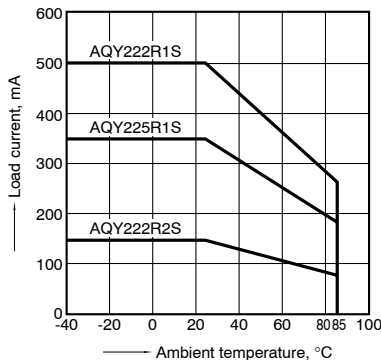


- Dimensions
- Schematic and Wiring Diagrams
- Cautions for Use

REFERENCE DATA

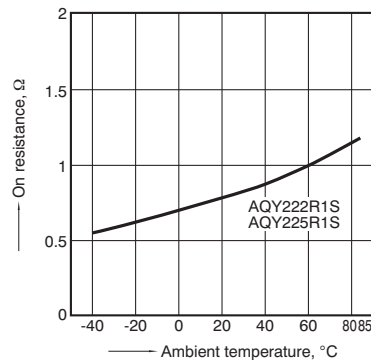
1. Load current vs. ambient temperature characteristics

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



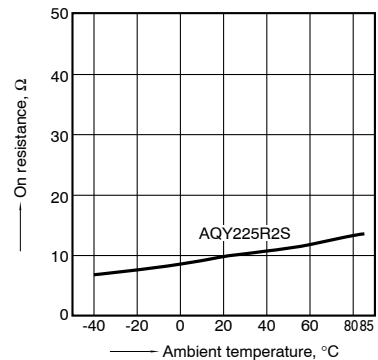
2.-(1) On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4
LED current: 5 mA; Load voltage: Max. (DC)
Continuous load current: Max. (DC)



2.-(2) On resistance vs. ambient temperature characteristics

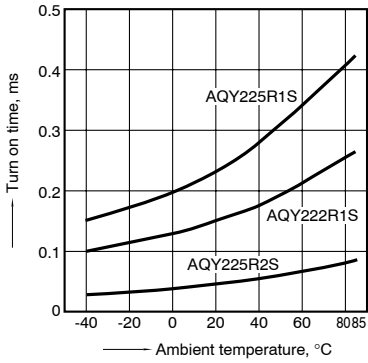
Measured portion: between terminals 3 and 4
LED current: 5 mA; Load voltage: Max. (DC)
Continuous load current: Max. (DC)



RF PhotoMOS (AQY220R0S)

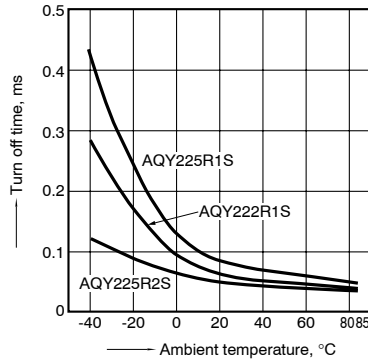
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC)
Continuous load current: 100mA (DC)



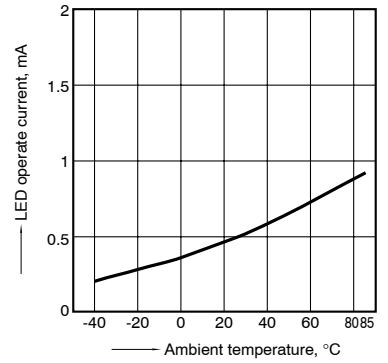
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC)
Continuous load current: 100mA (DC)



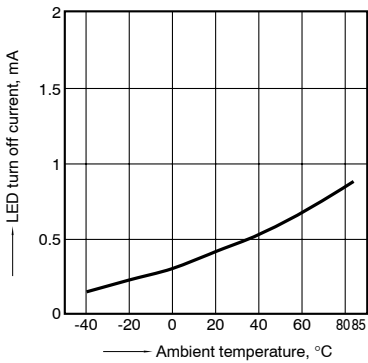
5. LED operate current vs. ambient temperature characteristics

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



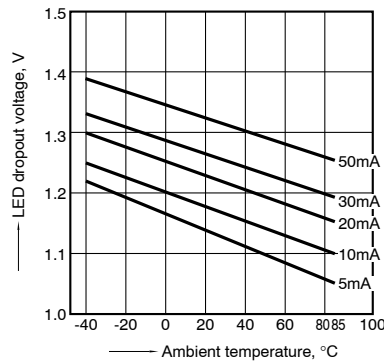
6. LED turn off current vs. ambient temperature characteristics

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



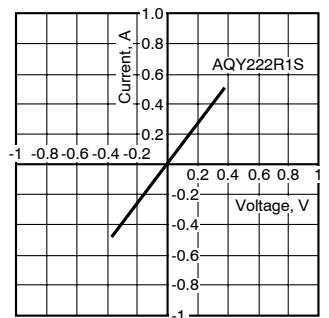
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



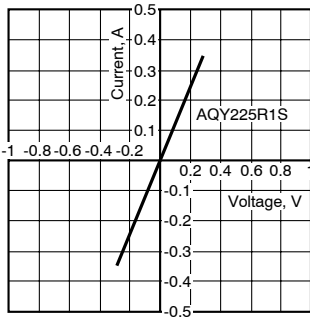
8.-(1) Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 3 and 4
Ambient temperature: 25°C 77°F



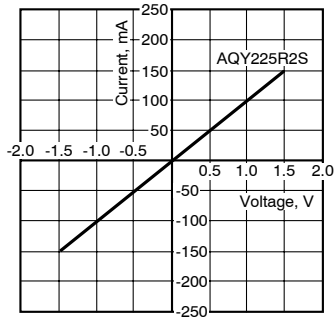
8.-(2) Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 3 and 4
Ambient temperature: 25°C 77°F



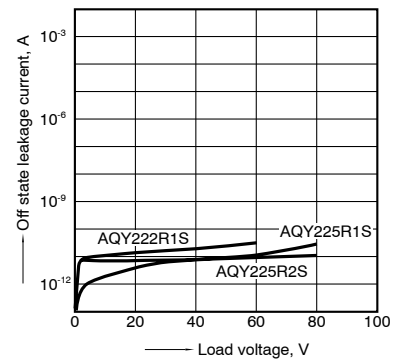
8.-(3) Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 3 and 4
Ambient temperature: 25°C 77°F



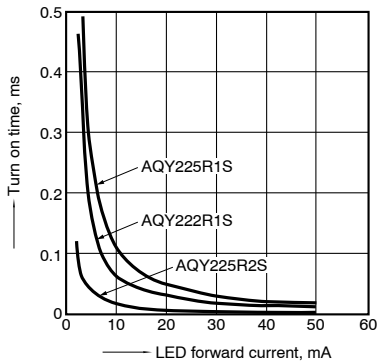
9. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 3 and 4
Ambient temperature: 25°C 77°F



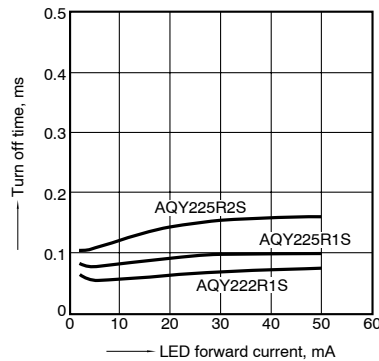
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4
Load voltage: 10V (DC)
Continuous load current: 100mA (DC)
Ambient temperature: 25°C 77°F



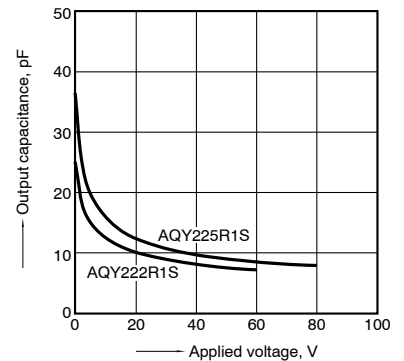
11. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4
Load voltage: 10V (DC)
Continuous load current: 100mA (DC)
Ambient temperature: 25°C 77°F



12.-(1) Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4
Frequency: 1 MHz, 30m Vrms
Ambient temperature: 25°C 77°F



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12.-(2) Output capacitance vs. applied voltage characteristics
Measured portion: between terminals 3 and 4
Frequency: 1 MHz, 30m Vrms
Ambient temperature: 25°C 77°F

