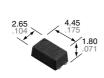
Panasonic

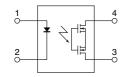
Automation Controls Catalog

C×R type, SSOP package, 60 V, 80 V and 100 V load voltage

Photo MOS[®] RF SSOP 1 Form A C×R (AQY22000V)



mm inch



RoHS compliant

New

FEATURES

1. Miniature SSOP package

(Compared to SOP 4-pin models, volume ratio can be reduced by approximately 53%.)

2. Load voltage: 60 V, 80 V and 100 V

3. Low C×R

Low on resistance and low output capacitance available • 60 V load voltage

Output capacitance: 27 pF (typical), On resistance: 0.8 Ω (typical) • 80 V load voltage

Output capacitance: 4.5 pF (typical), On resistance: 10.5 Ω (typical) \bullet 100 V load voltage

Output capacitance: 5.8 pF (typical), On resistance: 8.8 Ω (typical) 4. Turn on time

80 V and 100 V load voltage type: 0.05 ms (typical)

TYPICAL APPLICATIONS

 Measuring and testing equipment
Semiconductor testing equipment, Probe cards, Datalogger, Board tester and other testing equipment
Telecommunication and broadcasting equipment
Medical equipment
Ultrasonic wave diagnostic machine

4. Multi-point recorder

Warping, Thermo couple, etc.

*Does not support automotive applications.

TYPES

Туре	Output	rating*1	Part No. (Tape and	Packing quantity in the	
	Load voltage	Load current	Picked from the 1 and 4-pin side	Picked from the 2 and 3-pin side	tape and reel
	New 60 V	400 mA	AQY222R2VY	AQY222R2VW	
AC/DC dual use	80 V	120 mA	AQY225R2VY	AQY225R2VW	3,500 pcs.
	New 100 V	120 mA	AQY225R3VY	AQY225R3VW	

Notes: *1. Indicate the peak AC and DC values.

*2. Only tape and reel package is available. Packing quantity of 1,000 pieces is possible. Please consult us.

For space reasons, the three initial letters of the part number "AQY", the package (SSOP) indication "V", and the packaging style "Y" or "W" are not marked on the device.

RATING

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

	0 (, ,		
Item		Symbol	AQY222R2V	AQY225R2V	AQY225R3V	Remarks
Input side	LED forward current	lF	50 mA			
	LED reverse voltage	VR	5 V			
	Peak forward current	IFP	1 A		f = 100 Hz, Duty factor = 0.1%	
	Power dissipation	Pin	75 mW			
Output side	Load voltage (peak AC)	VL	60 V	80 V	100 V	
	Continuous load current	IL I	0.4 A	0.12 A		Peak AC, DC
	Peak load current	Ipeak	1.2 A	0.3 A		100 ms (1shot), V∟ = DC
	Power dissipation	Pout	250 mW			
Total power dissipation		Рт	300 mW			
I/O isolation voltage		Viso	1,500 V AC			
Operating temperature		Topr	−40°C to +85°C −40°F to +185°F			Non-condensing at low temperatures
Storage temperature		Tstg	-40°C to +100°C -40°F to +212°F			

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

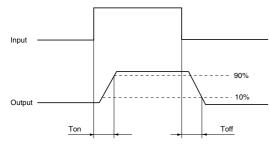
	Item			AQY222R2V	AQY225R2V	AQY225R3V	Condition
Input -	LED operate	Typical		0.5 mA			AQY222R2V: I∟ = 400 mA AQY225R2V: I∟ = 80 mA AQY225R3V: I∟ = 80 mA
	current	Maximum	Fon	3.0 mA			
	LED turn off current	Minimum	L	0.1 mA			
		Typical	Foff	0.45 mA			
	LED dropout	Typical	VF	1.32 V (1.14 V at I⊧ = 5 mA)			— I⊧ = 50 mA
	voltage	Maximum	VF	1.5 V			
Output	On resistance	Typical	P	0.8Ω	10.5Ω	8.8Ω	AQY222R2V: I⊧ = 5 mA, I∟ = 400 mA AQY225R2V: I⊧ = 5 mA, I∟ = 80 mA
		Maximum	Ron	1.25Ω	15Ω	14Ω	AQY225R3V: $I_F = 5 \text{ mA}$, $I_L = 80 \text{ mA}$ Within 1 s on time
	Output capacitance	Typical	Cout	27 pF	4.5 pF	5.8 pF	IF = 0 mA, VB = 0 V, f = 1 MHz
		Maximum		40 pF	6 pF	8 pF	
	Off state leakage current	Typical	Leak	— 0.01 nA		$I_{F} = 0 \text{ mA}, V_{L} = \text{Max}.$	
		Maximum	ILeak	10 nA*			
Transfer characteris- tics	Turn on time**	Typical	Ton	0.15 ms	0.05 ms		
		Maximum	Ion	0.5 ms			AQY222R2V: IF = 5 mA, VL = 10 V, RL = 100Ω AQY225R2V: IF = 5 mA, VL = 10 V, RL = 125Ω
	Turn off time**	Typical	Toff	0.08 ms	3 ms 0.05 ms		AQY225R2V: IF = 5 mA, VL = 10 V, RL = 125Ω AQY225R3V: IF = 5 mA, VL = 10 V, RL = 125Ω
		Maximum	I off	0.2 ms			
	I/O capacitance	Typical	Ciso	0.8 pF			— f = 1 MHz, V _B = 0 V
		Maximum	Ciso	1.5 pF			
	Initial I/O isolation resistance	Minimum	Riso	1,000 ΜΩ			500 V DC

Notes: 1. Please refer to the "Schematic and Wiring Diagrams" for connection method.

2. Variation possible through combinations of output capacitance and on resistance. For more information, please contact our sales office in your area.

*Available as custom orders (1 nA or less)

**Turn on/Turn off time



RECOMMENDED OPERATING CONDITIONS

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

Item	Symbol	Recommended value	Unit
Input LED forward current	lf	5	mA

■ These products are not designed for automotive use.

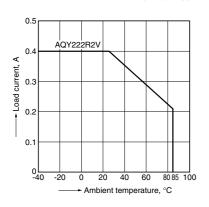
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

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REFERENCE DATA

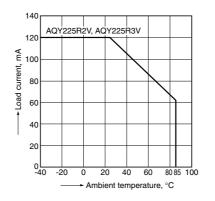
1.-(1) Load current vs. ambient temperature characteristics

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



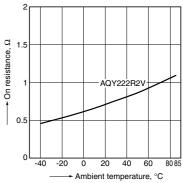
1.-(2) Load current vs. ambient temperature characteristics

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



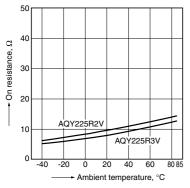
2.-(1) On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4 LED current: 5 mA; Load voltage: 10V (DC) Continuous load current: Max. (DC)



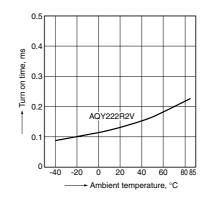
2.-(2) On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4; LED current: 5 mA; Load voltage: 10V (DC); Continuous load current: 80mA (DC)



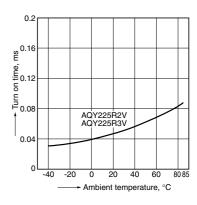
3.-(1) Turn on time vs. ambient temperature characteristics

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



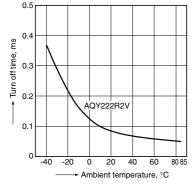
3.-(2) Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC); Continuous load current: 80mA (DC)



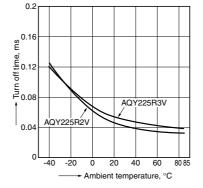
4.-(1) Turn off time vs. ambient temperature characteristics

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

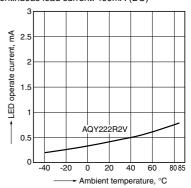


4.-(2) Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC); Continuous load current: 80mA (DC)



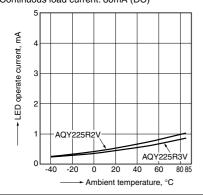
5.-(1) LED operate current vs. ambient temperature characteristics Load voltage: 10V (DC); Continuous load current: 400mA (DC)



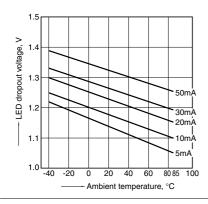
-3-

RF SSOP 1 Form A C×R (AQY22OOOV)

5.-(2) LED operate current vs. ambient temperature characteristics Load voltage: 10V (DC); Continuous load current: 80mA (DC)

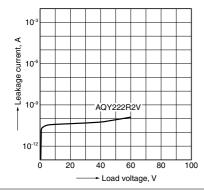


7. LED dropout voltage vs. ambient temperature characteristics LED current: 5 to 50 mA



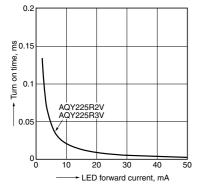
9.-(1) Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 3 and 4; Ambient temperature: 25°C $77^\circ \textrm{F}$



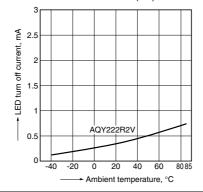
10.-(2) Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



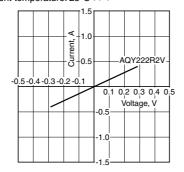
6.-(1) LED turn off current vs. ambient temperature characteristics

Load voltage: 10V (DC); Continuous load current: 400mA (DC)



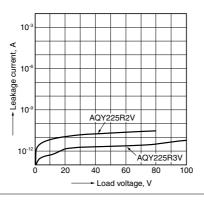
8.-(1) Current vs. voltage characteristics of output at MOS portion

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



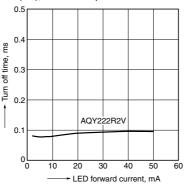
9.-(2) Off state leakage current vs. load voltage characteristics

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



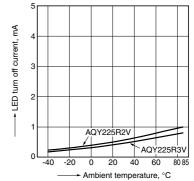
11.-(1) Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 100mA (DC); Ambient temperature: $25^{\circ}C$ $77^{\circ}F$



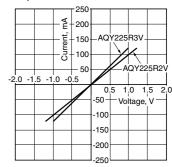
6.-(2) LED turn off current vs. ambient temperature characteristics Load voltage: 10V (DC);

Continuous load current: 80mA (DC)



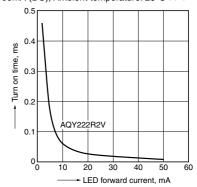
8.-(2) Current vs. voltage characteristics of output at MOS portion

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



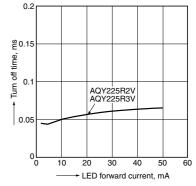
10.-(1) Turn on time vs. LED forward current characteristics

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



11.-(2) Turn off time vs. LED forward current characteristics

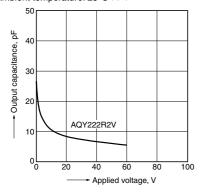
Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



terminals 3 and 4;

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

Measured portion: between terminals 3 and 4; Measurement signal: 1 MHz; Ambient temperature: 25°C 77°F



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

Measured portion: between terminals 3 and 4; Measurement signal: 1 MHz (30m Vrms); Ambient temperature: $25^{\circ}C$ 77°F

