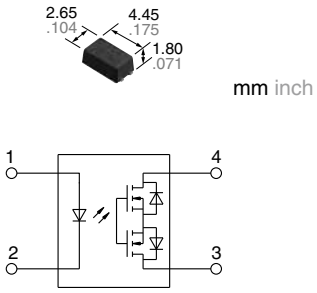
C×R type SSOP package 60 V, 80 V and 100 V load voltage

PhotoMOS®
RF SSOP 1 Form A C×R
(AQY22○○○V)



RoHS compliant

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: Typ. 27 pF, On resistance: Typ. 0.8Ω
• 80 V load voltage
Output capacitance: Typ. 4.5 pF, On resistance: Typ. 10.5Ω
• 100 V load voltage
Output capacitance: Typ. 5.8 pF, On resistance: Typ. 8.8Ω
4. Turn on time
80 V and 100 V load voltage type: Typ. 0.05 ms

TYPICAL APPLICATIONS

1. Measuring and testing equipment
Semiconductor testing equipment, Probe cards, Datalogger, Board tester and other testing equipment
2. Telecommunication and broadcasting equipment
3. Medical equipment
Ultrasonic wave diagnostic machine
4. Multi-point recorder
Data logger, Warping and Thermocouple, etc.

*Does not support automotive applications.

TYPES

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

Item		Symbol	AQY222R2V	AQY225R2V	AQY225R3V	Remarks
Input side	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 side	Load voltage (peak AC)	V_L	60 V	80 V	100 V	
	Continuous load current	I_L	0.4 A	0.12 A		Peak AC, DC
	Peak load current	I_{peak}	1.2 A	0.3 A		100 ms (1shot), V_L = DC
	Power dissipation	P_{out}	250 mW			
Total power dissipation		P_T	300 mW			
I/O isolation voltage		V_{iso}	1,500 Vrms			
Ambient temperature	Operating	T_{opr}	–40 to +85°C –40 to +185°F			(Non-icing at low temperatures)
	Storage	T_{stg}	–40 to +100°C –40 to +212°F			

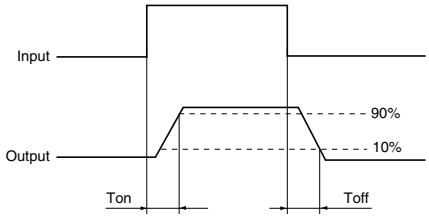
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQY222R2V	AQY225R2V	AQY225R3V	Condition
Input	LED operate current	Typical	I_{Fon}	0.5 mA			AQY222R2V: I_L = 400 mA AQY225R2V: I_L = 80 mA AQY225R3V: I_L = 80 mA
		Maximum		3.0 mA			
	LED turn off current	Minimum	I_{Foff}	0.1 mA			
		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	8.8Ω	AQY222R2V: I_F = 5 mA, I_L = 400 mA AQY225R2V: I_F = 5 mA, I_L = 80 mA AQY225R3V: I_F = 5 mA, I_L = 80 mA Within 1 s
		Maximum		1.25Ω	15Ω	14Ω	
	Output capacitance	Typical	C_{out}	27 pF	4.5 pF	5.8 pF	I_F = 0 mA, V_B = 0 V, f = 1 MHz
		Maximum		40 pF	6 pF	8 pF	
	Off state leakage current	Typical	I_{Leak}	—	0.01 nA		I_F = 0 mA, V_L = Max.
		Maximum		*10 nA			
Transfer characteristics	Turn on time**	Typical	T_{on}	0.15 ms	0.05 ms		AQY222R2V: I_F = 5 mA, V_L = 10 V, R_L = 100Ω AQY225R2V: I_F = 5 mA, V_L = 10 V, R_L = 125Ω AQY225R3V: I_F = 5 mA, V_L = 10 V, R_L = 125Ω
		Maximum		0.5 ms			
	Turn off time**	Typical	T_{off}	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}	1,000 MΩ			500 V DC

Note: 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



3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

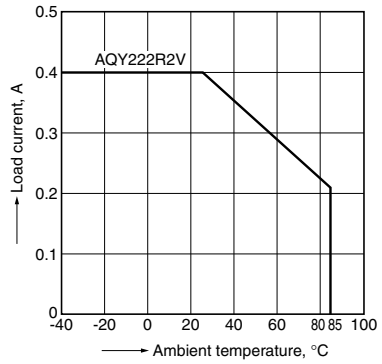
Item		Symbol	Min.	Max.	Unit
LED current		I_F	5	30	mA
AQY222R2V	Load voltage (Peak AC)	V_L	—	30	V
	Continuous load current	I_L	—	0.4	A
AQY225R2V	Load voltage (Peak AC)	V_L	—	40	V
	Continuous load current	I_L	—	0.12	A
AQY225R3V	Load voltage (Peak AC)	V_L	—	50	V
	Continuous load current	I_L	—	0.12	A

■ **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

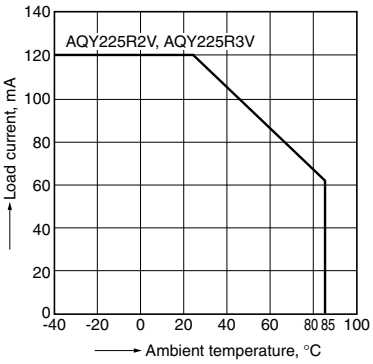
1.-(1) Load current vs. ambient temperature characteristics

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



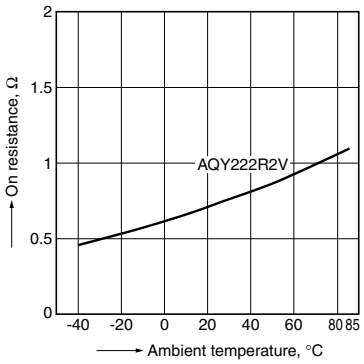
1.-(2) Load current vs. ambient temperature characteristics

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



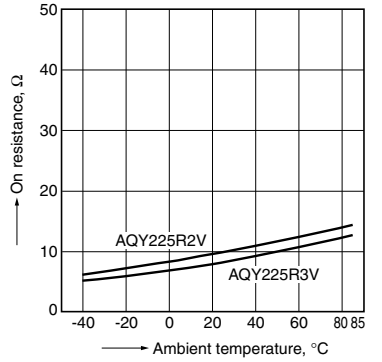
2.-(1) On resistance vs. ambient temperature characteristics

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



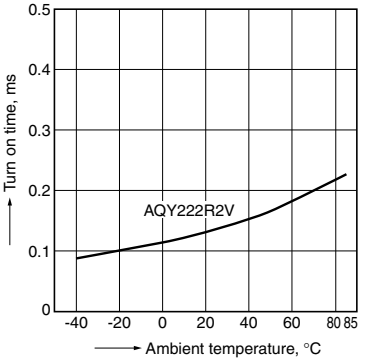
2.-(2) On resistance vs. ambient temperature characteristics

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



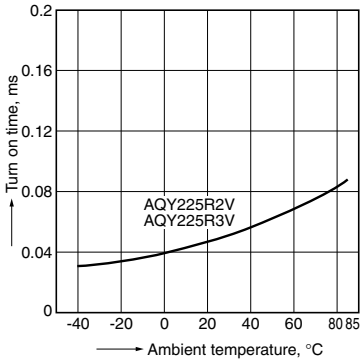
3.-(1) Turn on time vs. ambient temperature characteristics

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



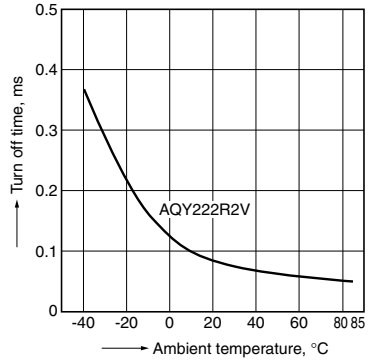
3.-(2) Turn on time vs. ambient temperature characteristics

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



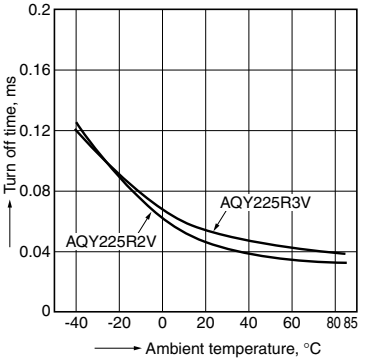
4.-(1) Turn off time vs. ambient temperature characteristics

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



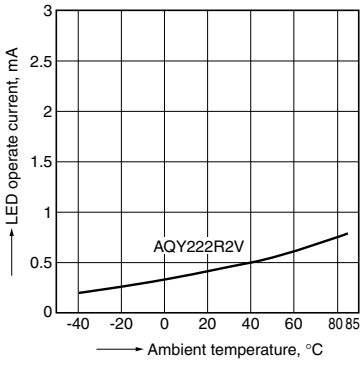
4.-(2) Turn off time vs. ambient temperature characteristics

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

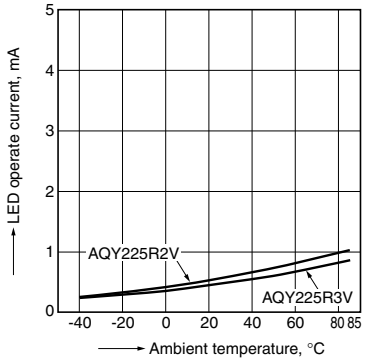


5.-(1) LED operate current vs. ambient temperature characteristics

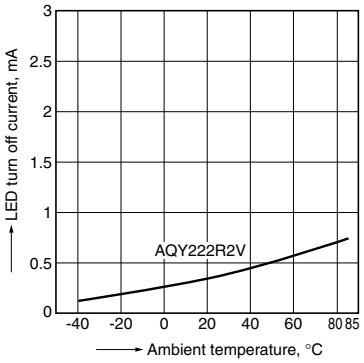
Load voltage: 10V (DC);
Continuous load current: 400mA (DC)



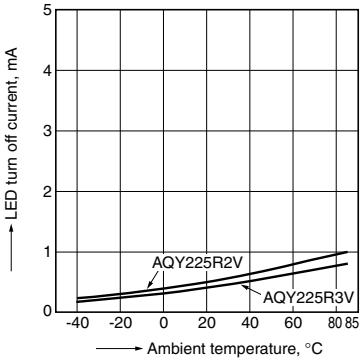
5.-(2) LED operate current vs. ambient temperature characteristics
Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



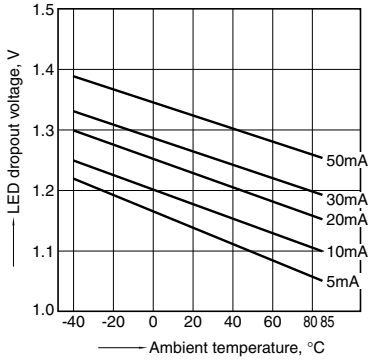
6.-(1) LED turn off current vs. ambient temperature characteristics
Load voltage: 10V (DC);
Continuous load current: 400mA (DC)



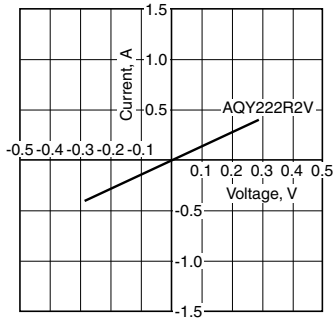
6.-(2) LED turn off current vs. ambient temperature characteristics
Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



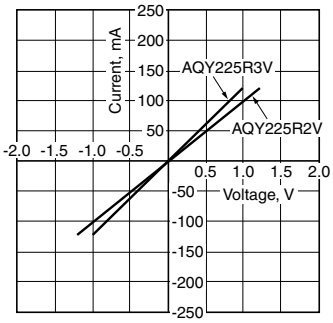
7. LED dropout voltage vs. ambient temperature characteristics
LED current: 5 to 50 mA



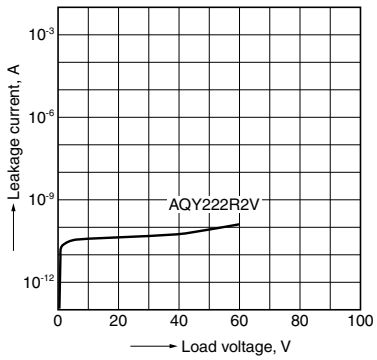
8.-(1) Current vs. voltage characteristics of output at MOS portion
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



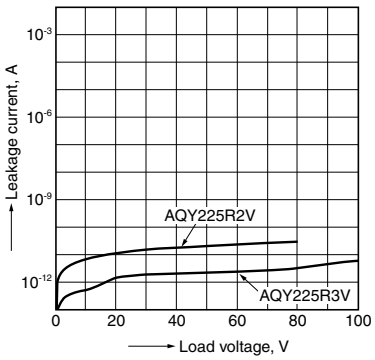
8.-(2) Current vs. voltage characteristics of output at MOS portion
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



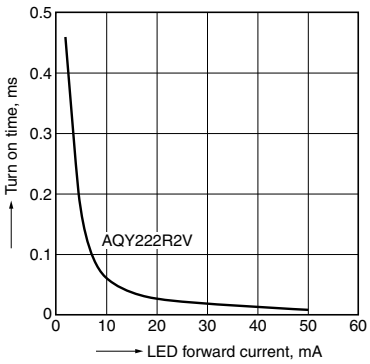
9.-(1) Off state leakage current vs. load voltage characteristics
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



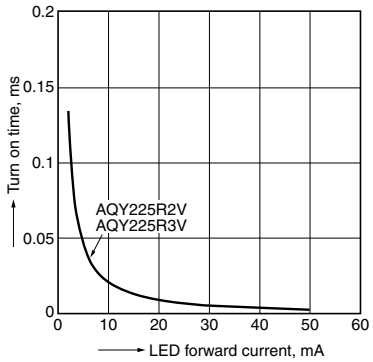
9.-(2) Off state leakage current vs. load voltage characteristics
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



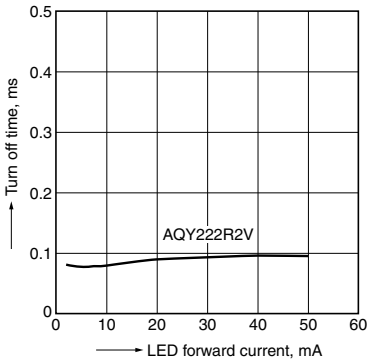
10.-(1) Turn on time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 100mA (DC); Ambient temperature: 25°C 77°F



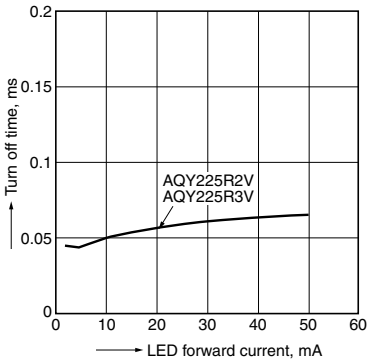
10.-(2) Turn on time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



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°C 77°F

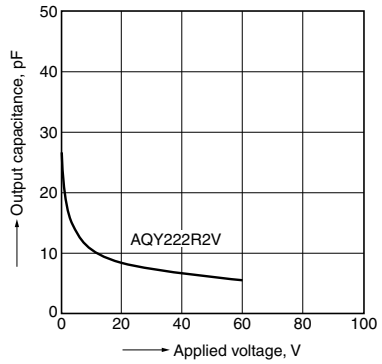


11.-(2) Turn off time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



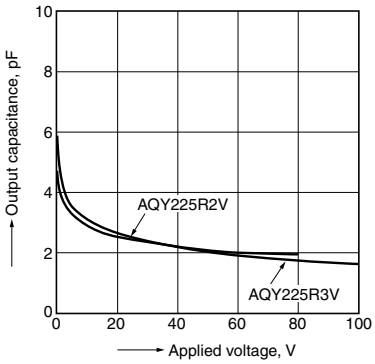
12.-(1) Output capacitance vs. applied voltage characteristics

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;
Ambient temperature: 25°C 77°F



Please contact .....

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