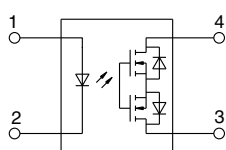


**C×R3 type,
VSSOP package,
20 V load voltage**

**PhotoMOS[®]
RF VSSOP 1 Form A C×R3
(AQY22○○○T)**



mm inch



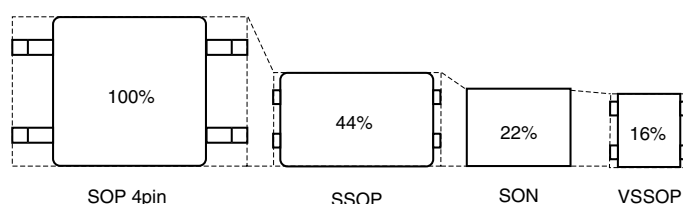
RoHS compliant

FEATURES

1. Miniature VSSOP package

4.6 mm² mounting area achieved. Approx. 29% less than previous product (SON type).

Contributes to the miniaturization of instruments and higher density mounting.



2. Load voltage: 20 V

3. Low C×R (C×R3)

Output capacitance: Typ. 1.1 pF, On resistance: Typ. 2.8Ω

TYPICAL APPLICATIONS

1. Measuring and testing equipment

IC tester, Probe card, Board tester and other testing equipment

2. Telecommunication equipment

*Does not support automotive applications.

TYPES

Type	*1 Output rating		*2 Part No. (Tape and reel packing style)		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	20 V	180 mA	AQY221N5TY	AQY221N5TW	1,000 pcs.

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

*2. Only tape and reel package is available.

For space reasons, only "1N5" is marked on the product as the part number.

RATING

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

Item		Symbol	AQY221N5T	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	20 V	
	Continuous load current	I_L	0.18 A	Peak AC, DC
	Power dissipation	P_{out}	250 mW	
Total power dissipation		P_T	300 mW	
I/O isolation voltage		V_{iso}	200 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	

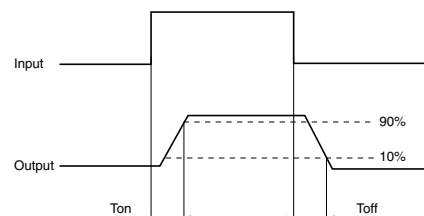
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQY221N5T	Condition	
Input	LED operate current	Typical	I_{Fon}	0.7 mA	$I_L = 80$ mA	
		Maximum		3 mA		
	LED turn off current	Minimum	I_{Foff}	0.2 mA		
		Typical		0.6 mA		
	LED dropout voltage	Typical	V_F	1.14 V (1.35 V at $I_F = 50$ mA)		$I_F = 5$ mA
Maximum		1.5 V				
Output	On resistance	Typical	R_{on}	2.8 Ω	$I_F = 5$ mA, $I_L = 80$ mA Within 1 s	
		Maximum		4.5 Ω		
	Output capacitance	Typical	C_{out}	1.1 pF	$I_F = 0$ mA, $f = 1$ MHz, $V_B = 0$ V	
		Maximum		1.5 pF		
	Off state leakage current	Typical	I_{Leak}	0.01 nA	$I_F = 0$ mA, $V_L = \text{Max.}$	
Maximum		*10 nA				
Transfer characteristics	Turn on time**	Typical	T_{on}	0.02 ms	$I_F = 5$ mA, $V_L = 10$ V, $R_L = 125$ Ω	
		Maximum		0.2 ms		
	Turn off time**	Typical	T_{off}	0.01 ms		
		Maximum		0.2 ms		
	I/O capacitance	Typical	C_{iso}	0.4 pF		$f = 1$ MHz, $V_B = 0$ V
		Maximum		1.5 pF		

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
AQY221N5T	Load voltage (Peak AC)	V_L	—	10	V
	Continuous load current	I_L	—	0.18	A

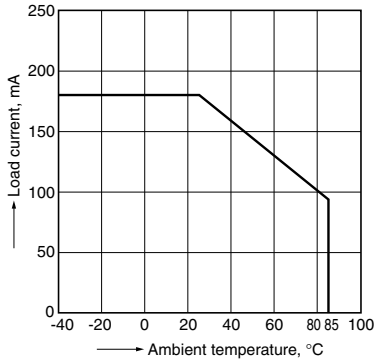
■ These products are not designed for automotive use.

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

REFERENCE DATA

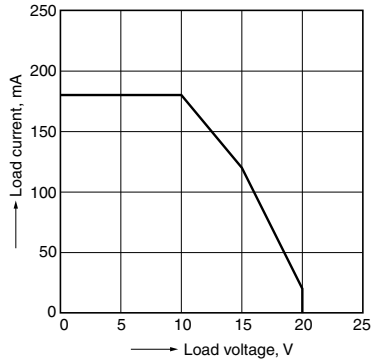
1. Load current vs. ambient temperature characteristics

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



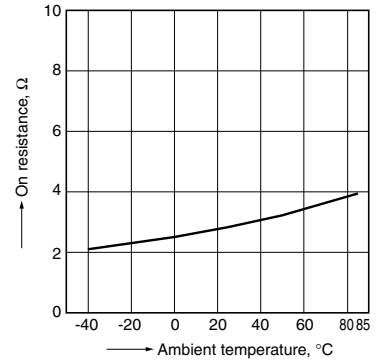
2. Load current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



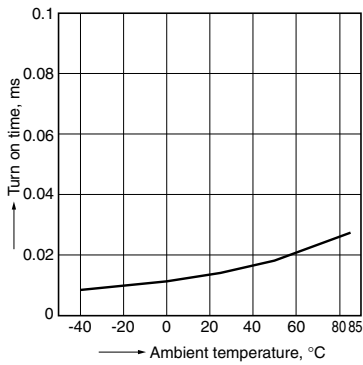
3. On resistance vs. ambient temperature characteristics

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



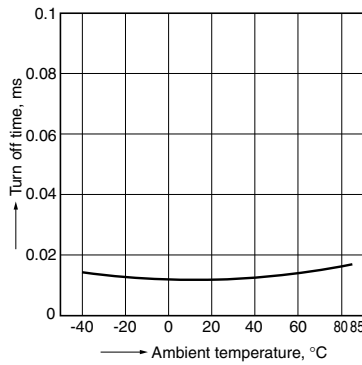
4. Turn on time vs. ambient temperature characteristics

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



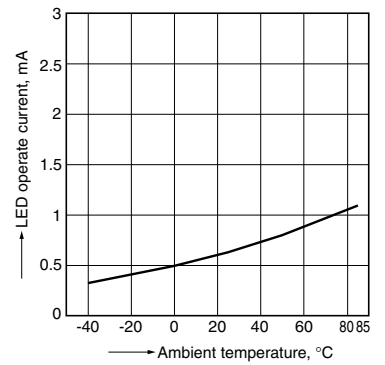
5. Turn off time vs. ambient temperature characteristics

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



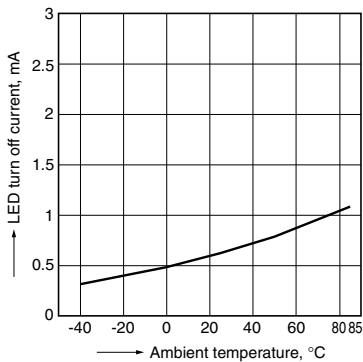
6. LED operate current vs. ambient temperature characteristics

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



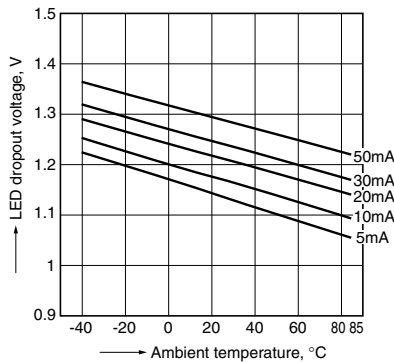
7. LED turn off current vs. ambient temperature characteristics

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



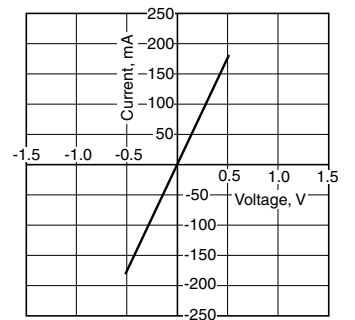
8. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



9. Current vs. voltage characteristics of output at MOS portion

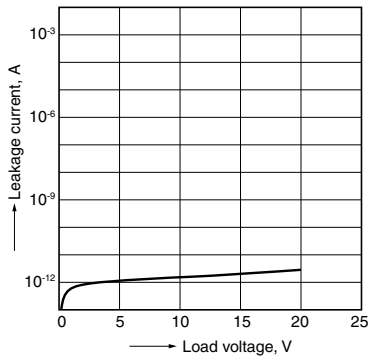
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



RF VSSOP 1 Form A CxR3 (AQY22000T)

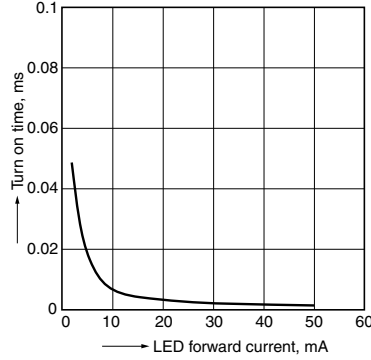
10. Off state leakage current vs. load voltage characteristics

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



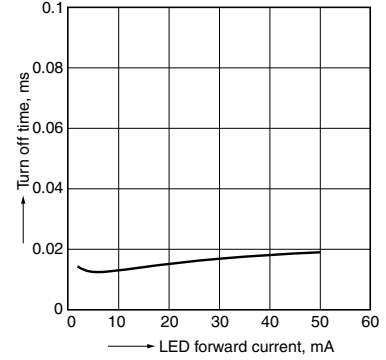
11. Turn on time vs. LED forward current characteristics

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



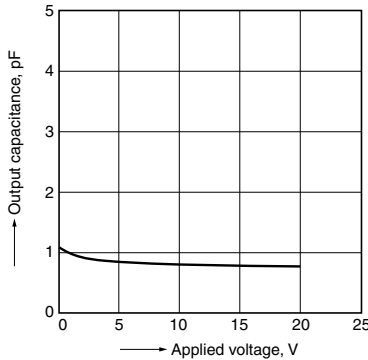
12. Turn off time vs. LED forward current characteristics

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



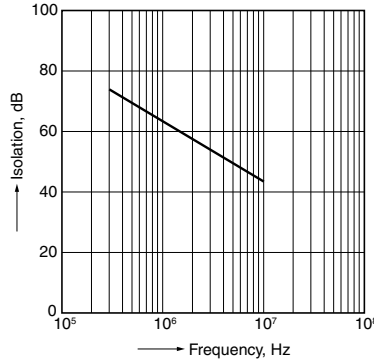
13. Output capacitance vs. applied voltage characteristics

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



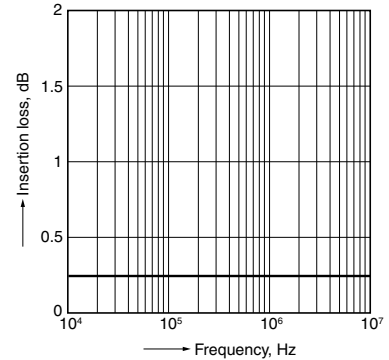
14. Isolation vs. frequency characteristics (50Ω impedance)

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



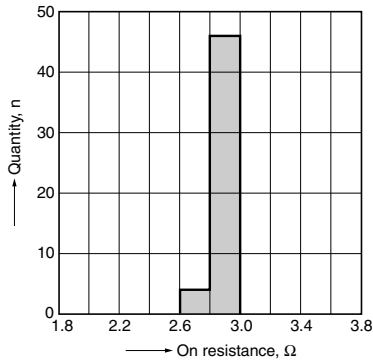
15. Insertion loss vs. frequency characteristics (50Ω impedance)

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



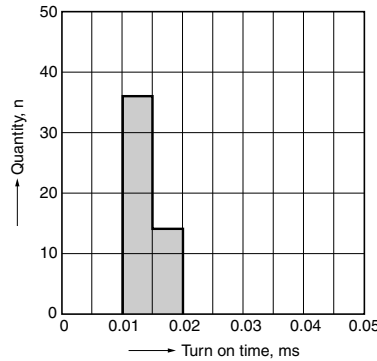
16. On resistance distribution

Measured portion: between terminals 3 and 4
LED current: 5 mA
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



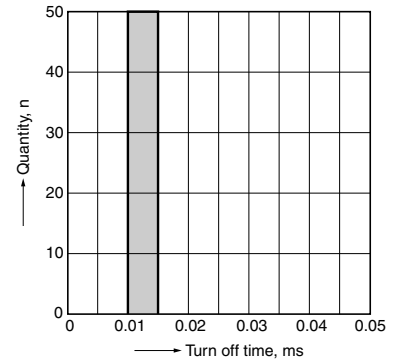
17. Turn on time distribution

Load voltage: 10V (DC)
LED current: 5 mA
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



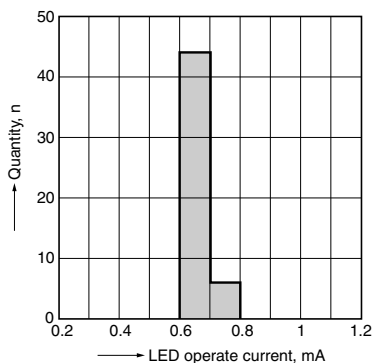
18. Turn off time distribution

Load voltage: 10V (DC)
LED current: 5 mA
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



19. LED operate current distribution

Load voltage: 10V (DC)
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



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