anasonīc

4.6 mm² mounting area C×R10: 30 V/40 V load voltage C×R5: 25 V load voltage

Photo MOS[®] RFVSSOP1FormAC×R10/C×R5 (AQY22OOOT)



mm inch



RoHS compliant

FEATURES

1. VSSOP type with further reduction in mounting area 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. Low on resistance and low output capacitance available • C×R10

<R type>

Output capacitance: Typ. 37.5 pF, On resistance: Typ. 0.18Ω Output capacitance: Typ. 14 pF, On resistance: Typ. 0.8Ω <C type>

Output capacitance: Typ. 1.1 pF, On resistance: Typ. 9.5Ω • C×R5

Output capacitance: Typ. 1.1 pF, On resistance: Typ. 5.5Ω

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

Туре			Output rating*1		Part No. (Tape and	Deaking quantity in		
			Load voltage	Load current	Picked from the 1 and 4-pin side	Picked from the 2 and 3-pin side	the tape and reel	
AC/DC dual use	C×R10	Low on registence (P type)	30 V	800 mA	AQY221R6TY	AQY221R6TW	- 1,000 pcs.	
		Low on resistance (n type)	40 V	250 mA	AQY221R2TY	AQY221R2TW		
		Low output capacitance (C type)	40 V	120 mA	AQY221N2TY	AQY221N2TW		
		C×R5	25 V	150 mA	AQY221N3TY	AQY221N3TW]	

Notes: *1 Indicate the peak AC and DC values. *2 Only tape and reel package is available.

For space reasons, only "1R6", "1R2", "1N2" or "1N3" is marked on the product as the part number.

RATING

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

Item		Symbol	C×R10 R type		C×R10 C type	C×R5 type	Bomorko	
			AQY221R6T	AQY221R2T	AQY221N2T	AQY221N3T	nemaiks	
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	30 V	40 V	40 V	25 V		
	Continuous load current	l.	0.8 A	0.25 A	0.12 A	0.15 A	Peak AC, DC	
	Peak load current	Ipeak	1.5 A	0.75 A	-	-	100 ms (1shot), V∟ = DC	
	Power dissipation	Pout		250	mW			
Total power dissipation		Рт		300	mW			
I/O isolation voltage		Viso		200	Vrms			
Ambient temperature	Operating	Topr		–40 to +85°C	–40 to +185°F	(Non-icing at low temperatures)		
	Storage	Tstg		-40 to +100°C	–40 to +212°F			

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

Item			Symbol	C×R10 R type		C×R10 C type	C×R5 type	O and this ar	
				AQY221R6T	AQY221R2T	AQY221N2T	AQY221N3T	Condition	
Input	LED operate	Typical	1-	0.5	mA	0.7	$AOY221B6T: _ = 100 mA$		
	current	Maximum	IFon	3.0 mA				AQY221R2T: $ _{L} = 250 \text{ mA}$ AQY221N2T: $ _{L} = 80 \text{ mA}$	
	LED turn off	Minimum	le "	0.1 mA 0.2 mA					
	current	Typical	ΙΕΟΠ	0.4 mA 0.6 mA			AQY221N31: IL = 80 MA		
	LED dropout	Typical	Ve		1.14 V (1.35 V	′ at I⊧ = 50 mA)	I 5 mA		
	voltage	Maximum	VF	1.5 V					
0.1.1	On resistance	Typical	Ron	0.18 Ω	0.8 Ω	9.5 Ω	5.5 Ω	AQY221R6T: $ _{F} = 5 \text{ mA}$, $ _{L} = 800 \text{ mA}$ AQY221R2T: $ _{F} = 5 \text{ mA}$, $ _{L} = 250 \text{ mA}$	
		Maximum		0.35 Ω	1.25 Ω	12.5 Ω	7.5 Ω	AQY221N21. $F = 5$ mA, $L = 80$ mA Within 1 s	
Output	Output capacitance	Typical	<u> </u>	37.5 pF 14 pF		1.1 pF		f = 0 - 0	
		Maximum	Cout	100 pF	18 pF	1.5 pF		$ \mathbf{F} - \mathbf{O} \mathbf{H}_{\mathbf{A}}, \mathbf{I} - \mathbf{I} \mathbf{V} \mathbf{H}_{\mathbf{Z}}, \mathbf{V} \mathbf{B} = \mathbf{O} \mathbf{V} $	
	Off state	Typical	. I		0.02 nA	0.01 nA		h = 0 mA + 1/2 = Max	
	leakage current Maximum		ILeak	*10 nA				IF = 0 IIIA, VL = IVIAX.	
Transfer characteris- tics	Turn on time**	Typical	т.,	0.1 ms 0.01 ms			AQY221B6T: I₅ = 5 mA. V₁ = 10 V. B₁ = 100 Ω		
		Maximum	Ion	0.5	0.5 ms		ms	AQY221R2T: $I_F = 5 \text{ mA}$, $V_L = 10 \text{ V}$, $R_L = 40 \Omega$	
	Turn off time**	Typical	Т."	0.06 ms 0.03 ms			AQY221N2T: $I_F = 5 \text{ mA}$, $V_L = 10 \text{ V}$, $R_L = 125 \Omega$		
		Maximum	100		0.2	ms		Ag $122 \text{ mod} 1.1\text{F} = 5 \text{ mA}, \text{ VL} = 10 \text{ V}, \text{ RL} = 125 \Omega$	
	I/O canacitance	Typical	Circo		0.4	pF		$f = 1 MHz V_P = 0 V$	
		Maximum	0150	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.

1 5 1							
Ite	em	Symbol	Min.	Max.	Unit		
LED c	current	lF	5	30	mA		
AOV001DET	Load voltage (Peak AC)	V∟	—	15	V		
AQTZZINOT	Continuous load current	l.	—	0.8	A		
	Load voltage (Peak AC)	V∟	—	15	V		
AQTZZINZI	Continuous load current	l.	—	0.25	A		
	Load voltage (Peak AC)	V∟	—	15	V		
AQTZZINZI	Continuous load current	l.	—	0.12	A		
	Load voltage (Peak AC)	V∟	—	15	V		
AQ F22 INST	Continuous load current		—	0.15	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: 800mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T



4. Turn on time vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4 LED current: 5 mA; Load voltage: 10V (DC) Continuous load current: 100mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T



5. Turn off time vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4 LED current: 5 mA; Load voltage: 10V (DC) Continuous load current: 100mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T



6. LED operate current vs. ambient temperature characteristics Measured portion: between terminals 3 and 4 Load voltage: 10V (DC)

Continuous load current: 100mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T



7. LED turn off current vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4 Load voltage: 10V (DC)

Continuous load current: 100mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T



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

LED dropout voltage, V

9. Current vs. voltage characteristics of output at MOS portion Measured portion: between terminals 3 and 4;

Ambient temperature: 25°C 77°F





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RF VSSOP 1 Form A C×R10/C×R5 (AQY22OOOT)

10. Off state leakage current vs. load voltage characteristics

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



11. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4 Load voltage: 10V (DC)

Continuous load current: 100mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T

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: 100mA (DC) AQY221R6T, 250mA (DC) AQY221R2T, 80mA (DC) AQY221N2T, AQY221N3T

Ambient temperature: 25°C 77°F



13. Output capacitance vs. applied voltage characteristics

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



14. Isolation vs. frequency characteristics $(50\Omega \text{ impedance})$

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



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

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



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