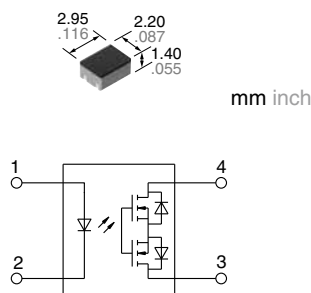


Micro-miniature SON package
C×R10: 40V load voltage
C×R5: 25V load voltage

PhotoMOS®
RF SON 1 Form A C×R10/C×R5
(AQY22○○○M)



RoHS compliant

FEATURES

1. Super miniature SON* package contributes to space savings and high density mounting.

The SON type is a new PhotoMOS with approximately 43% the volume ratio of existing SSOP type. The super miniature leadless construction reduces the mounting area and enables high density mounting.

***Small Outline No-lead package**

Reduced to approximately 43% volume ratio

2. Both low on-resistance (R type) and low capacitance (C type) available at

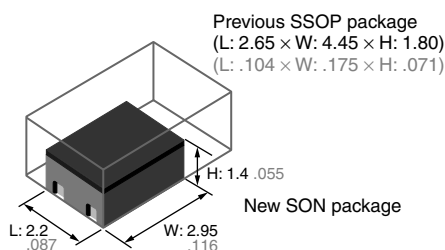
• C×R10

R type: Output capacitance Typ. 14pF
 On resistance Typ. 0.8Ω

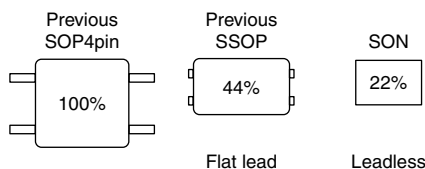
C type: Output capacitance Typ. 1.1pF
 On resistance Typ. 9.5Ω

• C×R5

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



Area comparison (including leads)



TYPICAL APPLICATIONS

1. Measuring equipment

IC tester, Probe cards, board tester and other testing equipment

2. Telecommunication or broadcasting equipment

3. Medical equipment

TYPES

| Type | | Output rating*1 | | Package | Tape and reel packing style*2 | | Packing quantity in 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 | C×R10 | Low on-resistance (R type) | 40 V | 250 mA | SON | AQY221R2MY | AQY221R2MW | 3,500 pcs. |
| | | Low capacitance (C type) | 40 V | 120 mA | | AQY221N2MY | AQY221N2MW | |
| | C×R5 | 25 V | 150 mA | AQY221N3MY | | AQY221N3MW | | |

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, only "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 | Remarks |
|-------------------------|-------------------------|------------|-----------------------------|--------------|-----------|---------------------------------|
| | | | AQY221R2M | AQY221N2M | AQY221N3M | |
| 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 | 40V | 40V | 25V | |
| | Continuous load current | I_L | 0.25A | 0.12A | 0.15A | Peak AC, DC |
| | Peak load current | I_{peak} | 0.75A | — | — | 100ms (1shot), $V_L=DC$ |
| | Power dissipation | P_{out} | 250mW | | | |
| Total power dissipation | | P_T | 300mW | | | |
| I/O isolation voltage | | V_{iso} | 200Vrms | | | |
| 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 | | | |

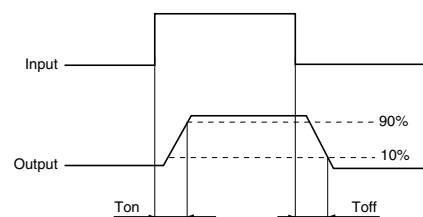
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

| Item | | | Symbol | C×R10 R type | C×R10 C type | C×R5 | Condition | |
|---------------------------|----------------------|------------|---------------------------------|--------------|--------------|------------------------------|---|--|
| | | | | AQY221R2M | AQY221N2M | AQY221N3M | | |
| Input | LED operate current | Typical | I_{Fon} | 0.8 mA | 1.0 mA | | AQY221R2M: $I_L = 250$ mA AQY221N2M: $I_L = 80$ mA AQY221N3M: $I_L = 80$ mA | |
| | | Maximum | | 3.0 mA | | | | |
| | LED turn off current | Minimum | I_{Foff} | 0.1 mA | 0.2 mA | | | |
| | | Typical | | 0.7 mA | 0.9 mA | | | |
| LED dropout voltage | Typical | V_F | 1.35 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 | 9.5Ω | 5.5Ω | AQY221R2M: $I_F = 5$ mA, $I_L = 250$ mA AQY221N2M: $I_F = 5$ mA, $I_L = 80$ mA AQY221N3M: $I_F = 5$ mA, $I_L = 80$ mA Within 1 s | |
| | | Maximum | | 1.25Ω | 12.5Ω | 7.5Ω | | |
| | Output capacitance | Typical | C_{out} | 14 pF | 1.1 pF | | | $I_F = 0$ mA, $V_B = 0$ V $f = 1$ MHz |
| | | Maximum | | 18 pF | 1.5 pF | | | |
| Off state leakage current | Typical | I_{Leak} | 0.02 nA | 0.01 nA | | $I_F = 0$ mA $V_L = Max.$ | | |
| | Maximum | | *10 nA | | | | | |
| Transfer characteristics | Turn on time** | Typical | T_{on} | 0.2 ms | 0.02 ms | | AQY221R2M: $I_F = 5$ mA, $V_L = 10$ V, $R_L = 40$ Ω AQY221N2M: $I_F = 5$ mA, $V_L = 10$ V, $R_L = 125$ Ω AQY221N3M: $I_F = 5$ mA, $V_L = 10$ V, $R_L = 125$ Ω | |
| | | Maximum | | 0.5 ms | 0.2 ms | | | |
| | Turn off time** | Typical | T_{off} | 0.04 ms | 0.02 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 | | | | |

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 |
| AQY221R2M | Load voltage (Peak AC) | V_L | — | 15 | V |
| | Continuous load current | I_L | — | 0.25 | A |
| AQY221N2M | Load voltage (Peak AC) | V_L | — | 15 | V |
| | Continuous load current | I_L | — | 0.12 | A |
| AQY221N3M | Load voltage (Peak AC) | V_L | — | 15 | V |
| | Continuous load current | I_L | — | 0.15 | A |

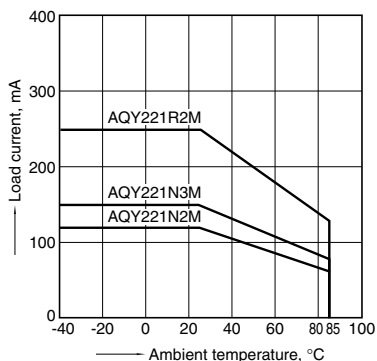
■ These products are not designed for automotive use.

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

REFERENCE DATA

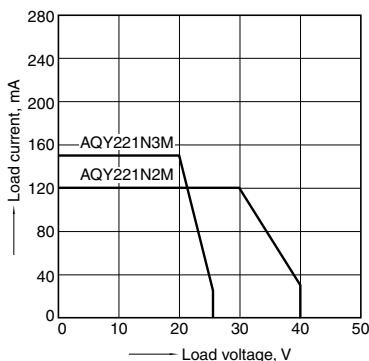
1. Load current vs. ambient temperature characteristics

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



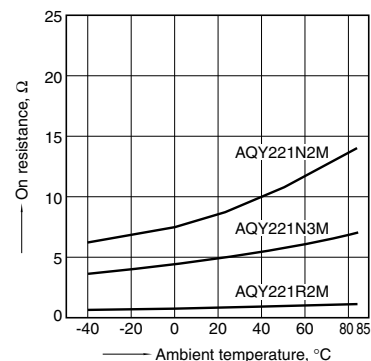
2. Load current vs. Load voltage characteristics

Ambient temperature: 25°C 77°F



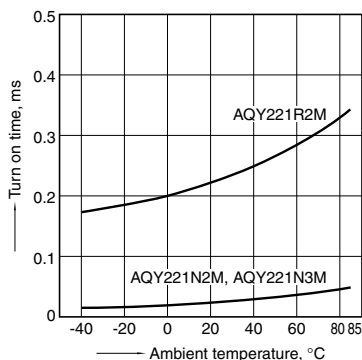
3. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4;
LED current: 5 mA; Load voltage: 10V (DC); Load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M



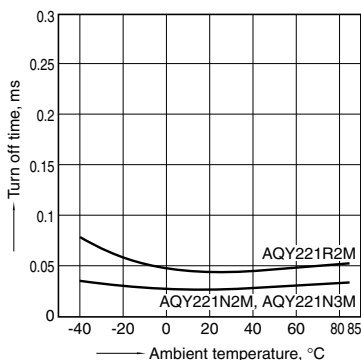
4. Turn on time vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4; LED current: 5 mA; Load voltage: 10V (DC); Continuous load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M



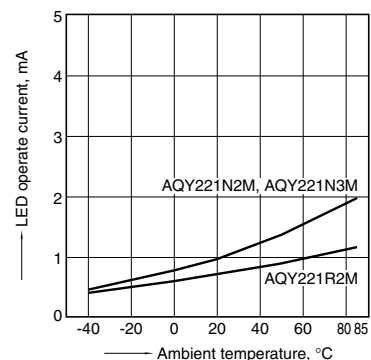
5. Turn off time vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4; LED current: 5 mA; Load voltage: 10V (DC); Continuous load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M



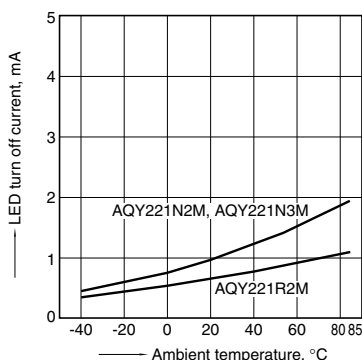
6. LED operate current vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M



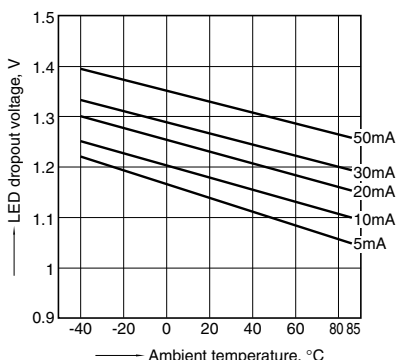
7. LED turn off current vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M



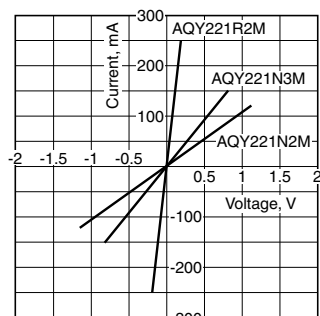
8. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



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

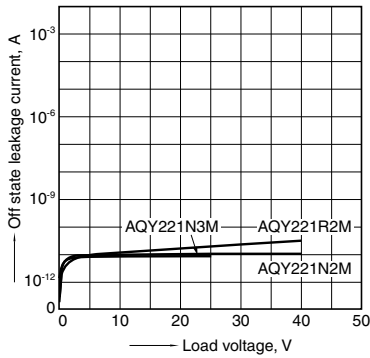
Measured portion: between terminals 3 and 4
Ambient temperature: 25°C 77°F



RF SON 1 Form A C×R10/C×R5 (AQY22○○○M)

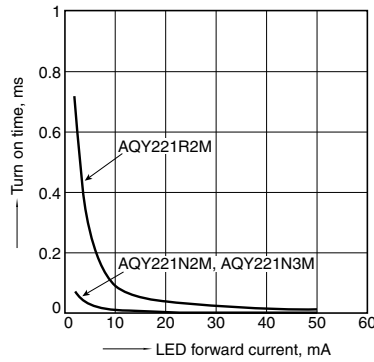
10. Off state leakage current vs. load voltage characteristics

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



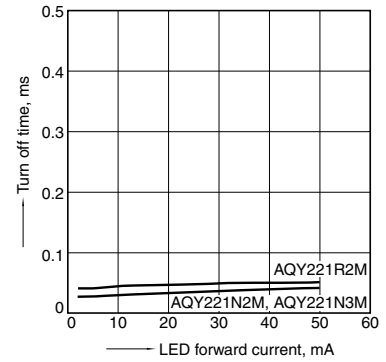
11. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M; Ambient temperature: 25°C 77°F



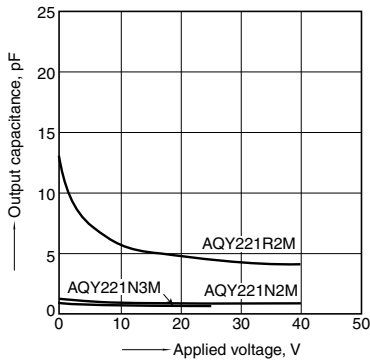
12. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10V (DC); Continuous load current: 250mA (DC) AQY221R2M, 80mA (DC) AQY221N2M, AQY221N3M; Ambient temperature: 25°C 77°F



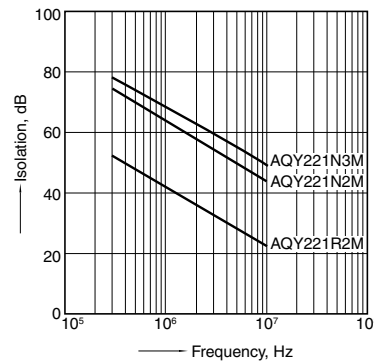
13. Output capacitance vs. applied voltage characteristics

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



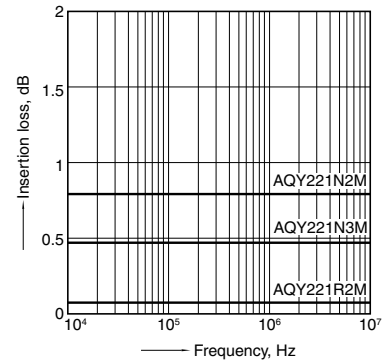
14. Isolation vs. frequency characteristics (50Ω impedance)

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



"PhotoMOS®", "PhotoMOS" and "PHOTOMOS" are registered trademarks of Panasonic Corporation.

*Recognized in Japan, the United States, all member states of European Union and other countries.

Please contact

Panasonic Corporation

Electromechanical Control Business Division

■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan
industrial.panasonic.com/ac/e/

Panasonic®

©Panasonic Corporation 2017

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Panasonic:](#)

[AQY221R2MY](#) [AQY221R2MW](#) [AQY221N2MY](#) [AQY221N2MW](#) [AQY221N2M](#)



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.