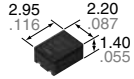
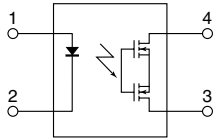


Miniature low profile SON package
Lower output capacitance
and on resistance (C×R5)
25V load voltage

PhotoMOS®
RF SON 1 Form A C×R5
(AQY221N3M)



mm inch



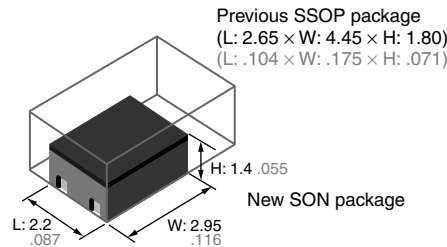
RoHS compliant

FEATURES

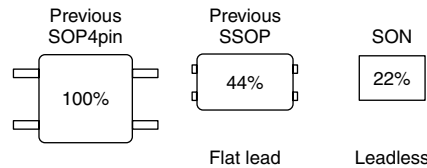
1. Miniature low profile SON* package contributes to space savings and high density mounting.

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



Area comparison (including leads)



2. Lower output capacitance and on-resistance

Output capacitance (C_{out}): 1.1pF (typ.)
On resistance (R_{on}): 5.5Ω (typ.)

3. High speed switching

Turn on time: 0.02ms (typ.)
Turn off time: 0.02ms (typ.)

TYPICAL APPLICATIONS

1. Measuring and testing equipment
IC tester, Probe cards, Board tester
2. Telecommunication and broadcasting equipment
3. Medical equipment
Ultrasonic wave diagnostic machine

TYPES

| | 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 | 25 V | 150 mA | SON | AQY221N3MY | AQY221N3MW | 3,500 pcs. |

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

*2 Only tape and reel package is available.

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

RATING

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

| Item | | Symbol | AQY221N3M | Remarks |
|-------------------------|-------------------------|------------------|---------------------------------|------------------------------------|
| 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 | 25V | |
| | Continuous load current | I _L | 0.15A | Peak AC, DC |
| | Power dissipation | P _{out} | 250mW | |
| Total power dissipation | | P _T | 300mW | |
| I/O isolation voltage | | V _{iso} | 200V AC | |
| Operating temperature | | T _{opr} | -40°C to +85°C -40°F to +185°F | Non-condensing at low temperatures |
| Storage temperature | | T _{stg} | -40°C to +100°C -40°F to +212°F | |

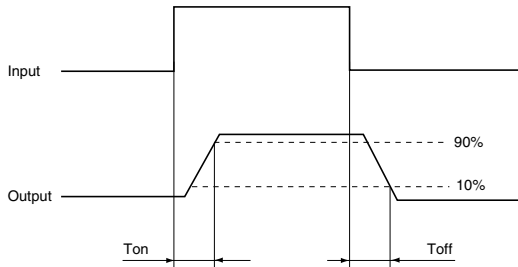
RF SON 1 Form A C×R5 (AQY221N3M)

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

| Item | | | Symbol | AQY221N3M | Condition |
|--------------------------|---------------------------|----------------|------------------------------------------|-----------|-------------------------------------------------------------------------|
| Input | LED operate current | Typical | I _{Fon} | 1.0 mA | I _L = 80 mA |
| | | Maximum | | 3.0 mA | |
| | LED turn off current | Minimum | I _{Foff} | 0.2 mA | I _L = 80 mA |
| | | Typical | | 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} | 5.5Ω | I _F = 5 mA I _L = 80 mA Within 1 s on time |
| | | Maximum | | 7.5Ω | |
| | Output capacitance | Typical | C _{out} | 1.1 pF | I _F = 0 mA V _B = 0 V f = 1 MHz |
| | | Maximum | | 1.5 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} | 0.02 ms | I _F = 5 mA V _L = 10 V R _L = 125Ω |
| | | Maximum | | 0.2 ms | |
| | Turn off time* | Typical | T _{off} | 0.02 ms | I _F = 5 mA V _L = 10 V R _L = 125Ω |
| | | 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.

*Turn on/Turn off time



RECOMMENDED OPERATING CONDITIONS

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

| Item | Symbol | Recommended value | Unit |
|-------------------|----------------|-------------------|------|
| Input LED current | I _F | 5 | mA |

■ For Dimensions.

■ For Schematic and Wiring Diagrams.

■ For Cautions for Use.

■ These products are not designed for automotive use.

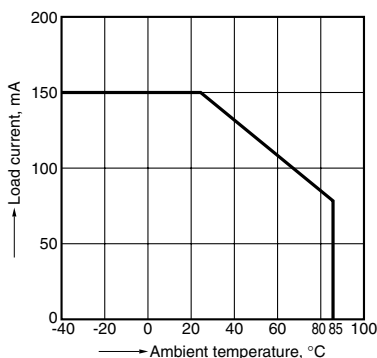
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

For more information.

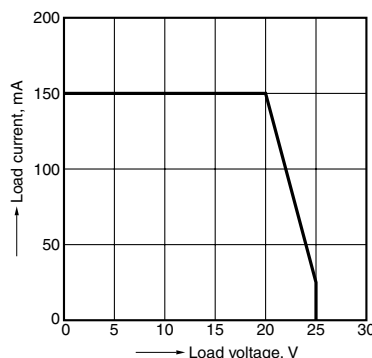
REFERENCE DATA

1. Load current vs. ambient temperature characteristics

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

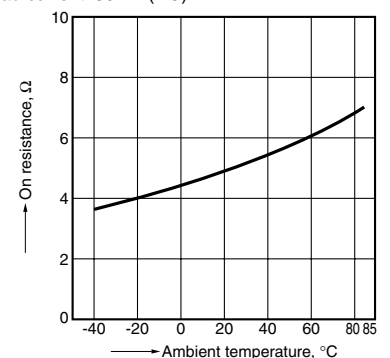


2. Load current vs. Load voltage characteristics
Ambient temperature: 25°C 77°F



3. On resistance vs. ambient temperature characteristics

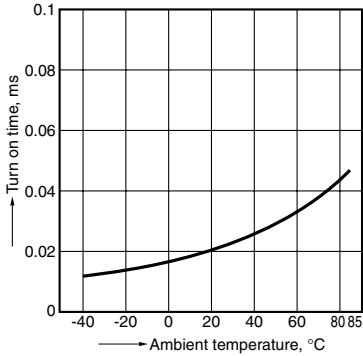
Measured portion: between terminals 3 and 4
LED current: 5 mA; Load voltage: 10V (DC);
Load current: 80mA (DC)



RF SON 1 Form A C×R5 (AQY221N3M)

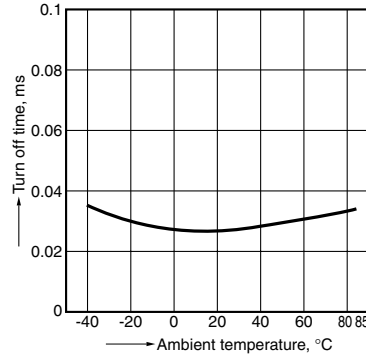
4. Turn on time vs. ambient temperature characteristics

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



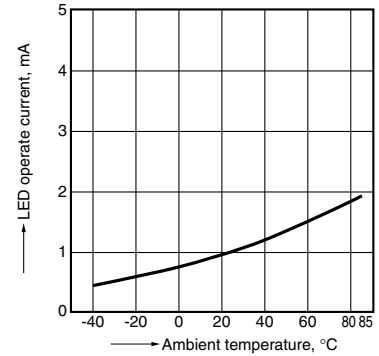
5. Turn off time vs. ambient temperature characteristics

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



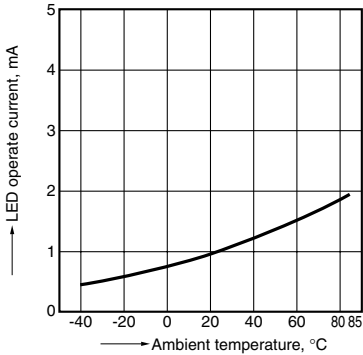
6. LED operate current vs. ambient temperature characteristics

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



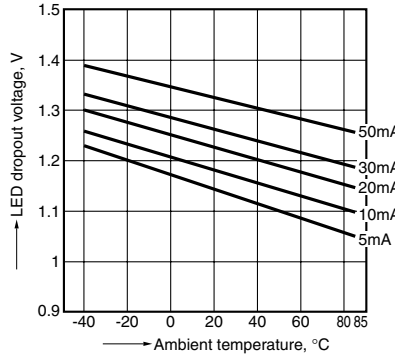
7. LED turn off current vs. ambient temperature characteristics

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



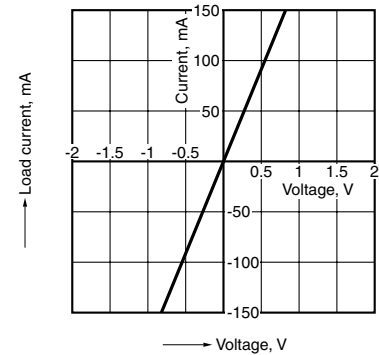
8. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



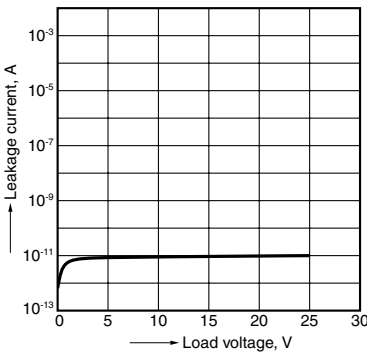
9. Current vs. voltage characteristics of output at MOS portion

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



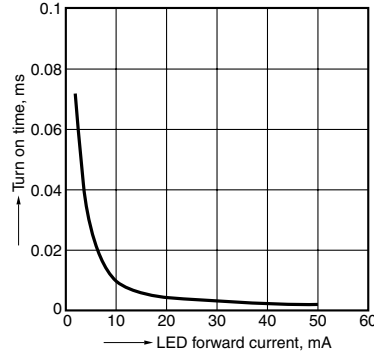
10. Off state leakage current vs. load voltage characteristics

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



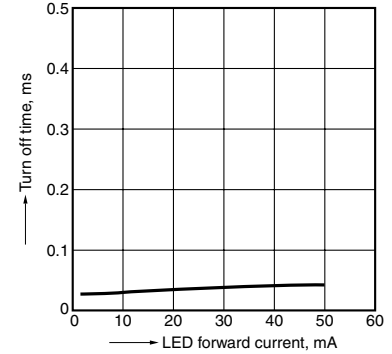
11. Turn on time vs. LED forward current characteristics

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



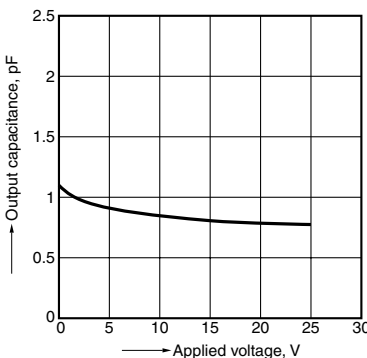
12. Turn off time vs. LED forward current characteristics

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



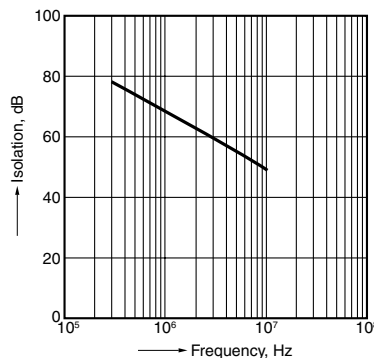
13. Output capacitance vs. applied voltage characteristics

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



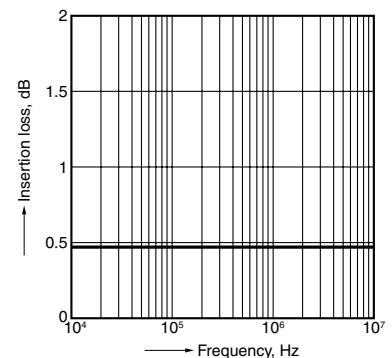
14. Isolation vs. frequency characteristics (50Ω impedance)

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



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

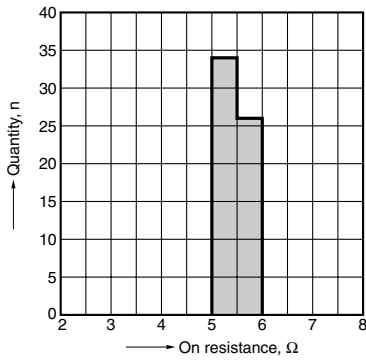
Measured portion: between terminals 3 and 4
Ambient temperature: 25°C 77°F



RF SON 1 Form A C×R5 (AQY221N3M)

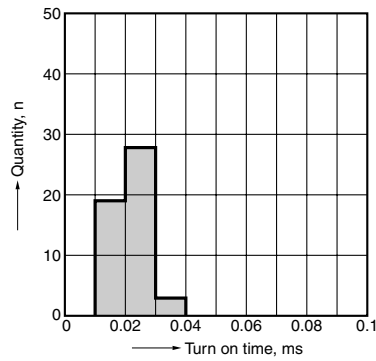
16. On resistance distribution

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



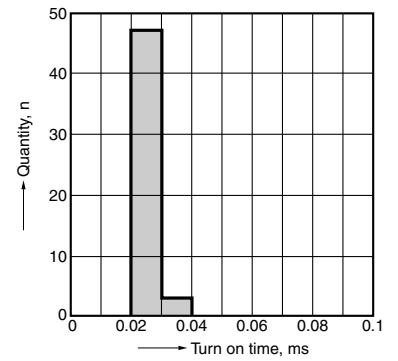
17. Turn on time distribution

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



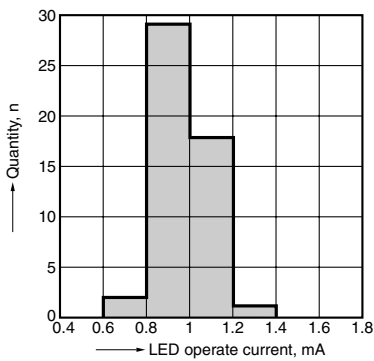
18. Turn off time distribution

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



19. LED operate current distribution

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



Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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