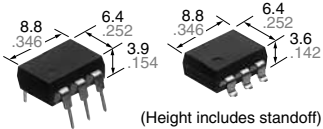


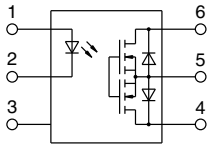
**Capable of 2.4A to 3.5A
high capacity load
current control**

**PhotoMOS[®]
HE 1 Form A
High Capacity (AQV250G3)**

New



mm inch



RoHS compliant

FEATURES

- Greatly increased load current in a compact DIP package**
Continuous load current: 3.5A (AQV252G3)
- Greatly improved specifications allow you to use this in place of mercury and mechanical relays.**
- Low on-resistance (Typ. 33mΩ, AQV252G3)**

TYPICAL APPLICATIONS

- Security equipment
- Fire-preventing system
- Industrial machine
- Thermostat (HVAC temperature controller)

TYPES

| | Output rating* | | Package | Part No. | | | | Packing quantity | |
|----------------|----------------|--------------|----------|-----------------------|------------------------|-----------------------------|------------|--|---------------|
| | | | | Through hole terminal | Surface-mount terminal | | | Tube | Tape and reel |
| | Load voltage | Load current | | | Tube packing style | Tape and reel packing style | | | |
| AC/DC dual use | 60 V | 3.5 A | DIP6-pin | AQV252G3 | AQV252G3A | AQV252G3AX | AQV252G3AZ | 1 tube contains: 50 pcs. 1 batch contains: 500 pcs. | 1,000 pcs. |
| | 100 V | 2.4 A | DIP6-pin | AQV255G3 | AQV255G3A | AQV255G3AX | AQV255G3AZ | | |

*Indicate the peak AC and DC values.

Note: The surface mount terminal indicator "A" and the packing style indicator "X" or "Z" are not marked on the device.

RATING

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

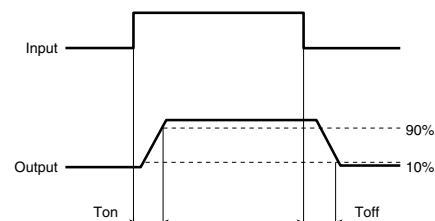
| Item | Symbol | Type of connection | AQV252G3(A) | AQV255G3(A) | Remarks | |
|-------------------------|-------------------------|--------------------|-----------------------------|-------------|---|--|
| Input | LED forward current | I _F | 50 mA | | | |
| | LED reverse voltage | V _R | 5 V | | | |
| | Peak forward current | I _{FP} | 1 A | | f = 100 Hz, Duty factor = 0.1% | |
| | Power dissipation | P _{in} | 75 mW | | | |
| Output | Load voltage (peak AC) | V _L | 60 V | 100 V | | |
| | Continuous load current | I _L | A | 3.5 A | 2.4 A | A connection: Peak AC, DC B, C connection: DC |
| | | | B | 5.0 A | 3.2 A | |
| | | | C | 7.0 A | 4.8 A | |
| | Peak load current | I _{peak} | 10 A | 7.0 A | 100ms (1 shot), V _L = DC at A connection | |
| Power dissipation | P _{out} | 600 mW | | | | |
| Total power dissipation | P _T | 650 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 | | | |

HE 1 Form A High Capacity (AQV250G3)

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

| Item | | Symbol | Type of connection | AQV252G3(A) | AQV255G3(A) | Condition | |
|----------------------------------|----------------------|-------------------|--------------------|--|-------------|---|---|
| Input | LED operate current | Typical | I _{Fon} | — | 0.5 mA | | I _L = 100mA |
| | | Maximum | | | 3 mA | | |
| | LED turn off current | Minimum | I _{Foff} | — | 0.2 mA | | I _L = 100mA |
| Typical | | 0.4 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} | A | 0.033 Ω | 0.07 Ω | I _F = 5 mA I _L = Max. Within 1 s |
| | | Maximum | | | 0.06 Ω | 0.12 Ω | |
| | | Typical | R _{on} | B | 0.017 Ω | 0.035 Ω | |
| | | Maximum | | | 0.04 Ω | 0.07 Ω | |
| | Typical | R _{on} | C | 0.0095 Ω | 0.02 Ω | | |
| | Maximum | | | 0.02 Ω | 0.04 Ω | | |
| Off state leakage current | Maximum | I _{Leak} | — | 1 μA | | I _F = 0 mA, V _L = Max. | |
| Transfer characteristics | Turn on time* | Typical | T _{on} | — | 1.8 ms | | I _F = 5 mA, I _L = 100 mA V _L = 10 V |
| | | Maximum | | | 5 ms | | |
| | Turn off time* | Typical | T _{off} | — | 0.15 ms | | I _F = 5 mA, I _L = 100 mA V _L = 10 V |
| | | Maximum | | | 0.5 ms | | |
| | I/O capacitance | Typical | C _{iso} | — | 0.8 pF | | f = 1 MHz |
| | | Maximum | | | 1.5 pF | | V _B = 0 V |
| Initial I/O isolation resistance | Minimum | R _{iso} | — | 1,000 MΩ | | 500 V DC | |
| Max. operating frequency | Maximum | — | — | 2.5 cps | | I _F = 5 mA, duty = 50% I _L = Max., V _L = Max. | |

*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 forward current | I _F | 5 | 30 | mA |
| AQV252G3(A) Load voltage (Peak AC) | V _L | — | 48 | V |
| AQV252G3(A) Continuous load current (A connection) | I _L | — | 3.3 | A |
| AQV255G3(A) Load voltage (Peak AC) | V _L | — | 80 | V |
| AQV255G3(A) Continuous load current (A connection) | I _L | — | 2.4 | A |

■ These products are not designed for automotive use.

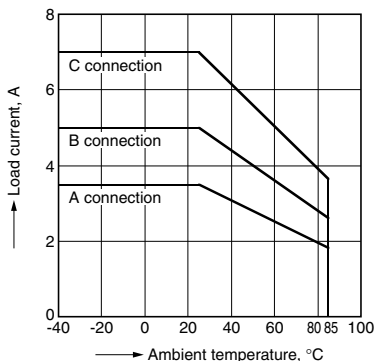
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

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

Sample: AQV252G3

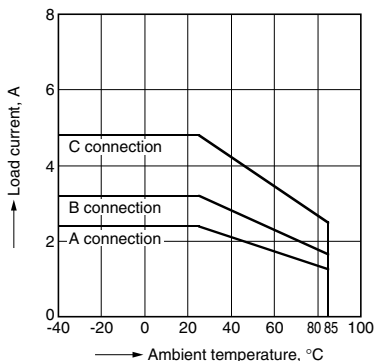
Allowable ambient temperature: -40 to +85°C
-40 to +185°F



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

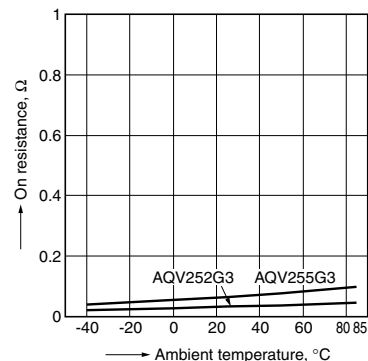
Sample: AQV255G3

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



2. On resistance vs. ambient temperature characteristics

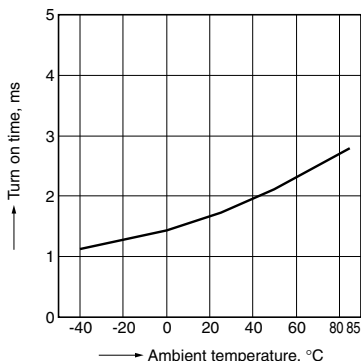
Measured portion: between terminals 4 and 6;
LED current: 5 mA; Load voltage: Max. (DC)
Continuous load current: Max. (DC)



3. Turn on time vs. ambient temperature characteristics

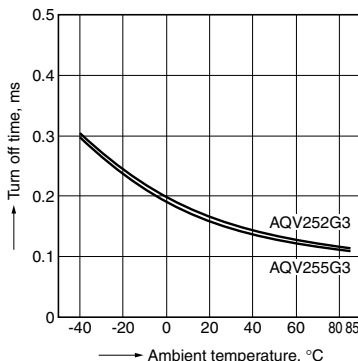
Tested sample: All;

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



4. Turn off time vs. ambient temperature characteristics

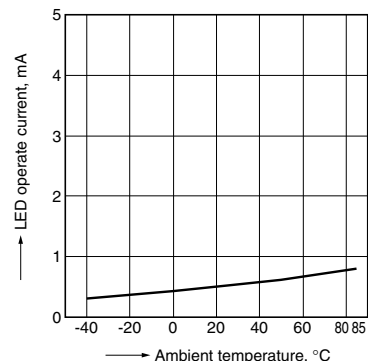
LED current: 5 mA; Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC)



5. LED operate current vs. ambient temperature characteristics

Tested sample: All;

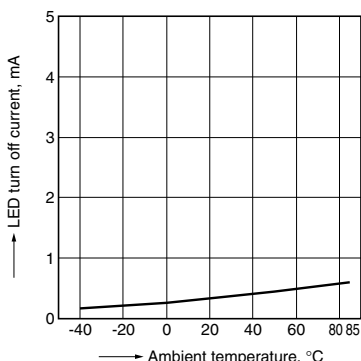
Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC)



6. LED turn off current vs. ambient temperature characteristics

Tested sample: All;

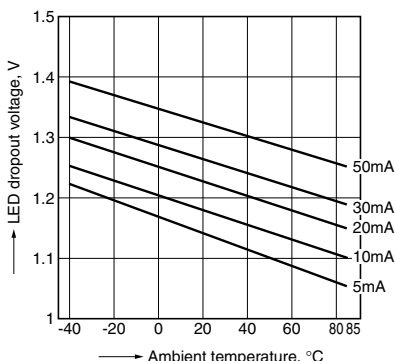
Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC)



7. LED dropout voltage vs. ambient temperature characteristics

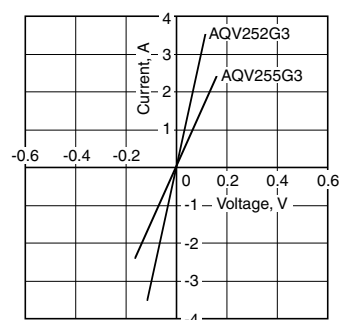
Tested sample: All;

LED current: 5 to 50 mA



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

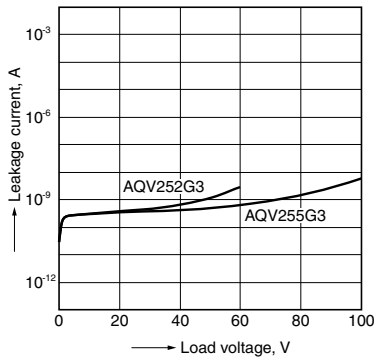
Measured portion: between terminals 4 and 6;
Ambient temperature: 25°C 77°F



HE 1 Form A High Capacity (AQV250G3)

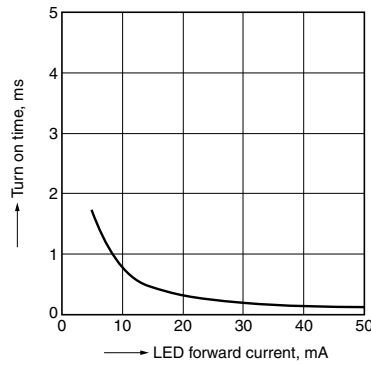
9. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 4 and 6;
Ambient temperature: 25°C 77°F



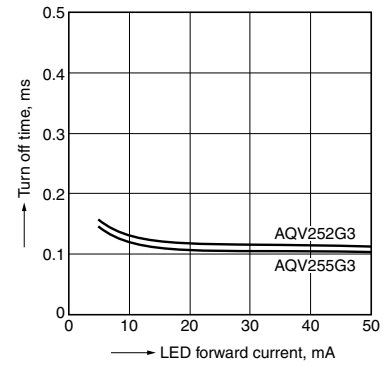
10. Turn on time vs. LED forward current characteristics

Tested sample: All;
Measured portion: between terminals 4 and 6;
Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC);
Ambient temperature: 25°C 77°F



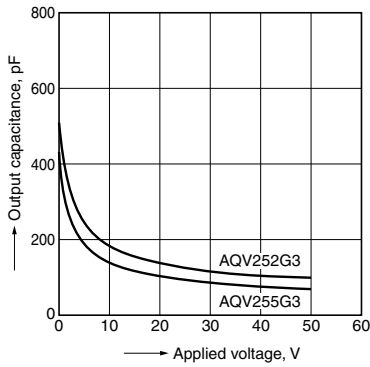
11. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;
Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC);
Ambient temperature: 25°C 77°F



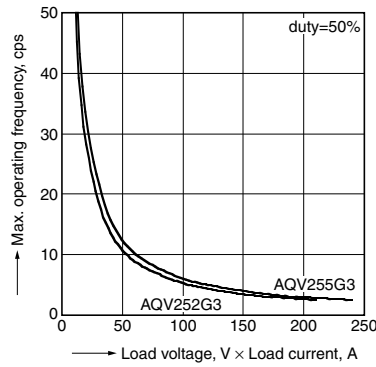
12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 4 and 6;
Frequency: 1 MHz;
Ambient temperature: 25°C 77°F



13. Max. operating frequency vs. load voltage and load current characteristics

LED current: 5 mA
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:](#)

[AQV255G3](#) [AQV252G3](#) [AQV252G3A](#) [AQV255G3AZ](#) [AQV252G3AZ](#) [AQV255G3A](#) [AQV252G3AX](#) [AQV255G3AX](#)