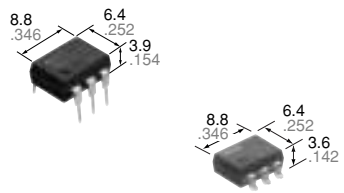
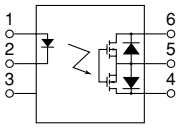
Panasonic
ideas for life

**Greatly increase load current (2.5A). Load voltage is 60V.**

# HE PhotoMOS (AQV252G)




mm inch




## FEATURES

**1. Greatly increased load current in the same package size.**

**2. Greatly improved specs allow you to use this in place of mercury and mechanical relays.**

## TYPICAL APPLICATIONS

• Crime and fire prevention market (use in I/O for alarm and security devices, etc.)
• Measuring instrument market (circuit testers, etc.)

## TYPES

| Type | Output rating* | | Part No. | | | | Packing quantity | |
|---|---|---|---|---|---|---|---|---|
| | | | Through hole terminal | Surface-mount terminal | | | | |
| | Load voltage | Load current | Tube packing style | | Tape and reel packing style | | Tube | Tape and reel |
| | | | | | Picked from the 1/2/3-pin side | Picked from the 4/5/6-pin side | | |
| AC/DC type | 60 V | 2.5 A | AQV252G | AQV252GA | AQV252GAX | AQV252GAZ | 1 tube contains 50 pcs. 1 batch contains 500 pcs. | 1,000 pcs. |

*Indicate the peak AC and DC values.
Note: For space reasons, the SMD terminal shape indicator “A” and the package type indicator “X” and “Z” are omitted from the seal.

## RATING

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

| Item | | Symbol | Type of connection | AQV252G(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 | |
| | Continuous load current (peak AC) | $I_L$ | A | 2.5 A | A connection: Peak AC, DC<br>B, C connection: DC |
| | | | B | 3.5 A | |
| | | | C | 5.0 A | |
| | Peak load current | $I_{peak}$ | | 6.0 A | 100ms (1 shot), $V_L$ = DC |
| | Power dissipation | $P_{out}$ | | 500 mW | |
| Total power dissipation | | $P_T$ | | 550 mW | |
| I/O isolation voltage | | $V_{iso}$ | | 1,500 V AC | |
| Temperature limits | Operating | $T_{opr}$ | | –40°C to +85°C –40°F to +185°F | Non-condensing at low temperatures |
| | Storage | $T_{stg}$ | | –40°C to +100°C –40°F to +212°F | |

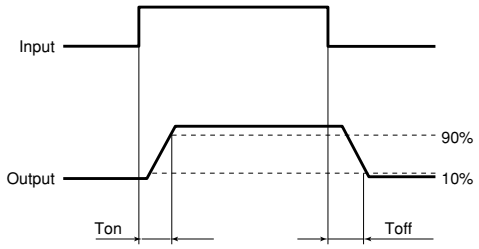
# HE PhotoMOS (AQV252G)

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

| Item | | | Symbol | Type of connection | AQV252G(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 | | | 0.45 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 | 0.08 Ω | $I_F$ = 5 mA<br>$I_L$ = Max.<br>Within 1 s on time |
| | | Maximum | | | 0.12 Ω | |
| | | Typical | $R_{on}$ | B | 0.04 Ω | |
| | | Maximum | | | 0.06 Ω | |
| | | Typical | $R_{on}$ | C | 0.02 Ω | |
| | | Maximum | | | 0.03 Ω | |
| | Off state leakage current | Maximum | $I_{Leak}$ | — | 1 μA | $I_F$ = 0 mA<br>$V_L$ = Max. |
| Transfer characteristics | Turn on time* | Typical | $T_{on}$ | — | 1.1 ms | $I_F$ = 5 mA<br>$I_L$ = 100 mA<br>$V_L$ = 10 V |
| | | Maximum | | | 5.0 ms | |
| | Turn off time* | Typical | $T_{off}$ | — | 0.25 ms | $I_F$ = 5 mA<br>$I_L$ = 100 mA<br>$V_L$ = 10 V |
| | | Maximum | | | 0.5 ms | |
| | I/O capacitance | Typical | $C_{iso}$ | — | 0.8 pF | f = 1 MHz<br>$V_B$ = 0 V |
| | | Maximum | | | 1.5 pF | |
| | Initial I/O isolation resistance | Minimum | $R_{iso}$ | — | 1,000 MΩ | 500 V DC |

Note: Recommendable LED forward current $I_F$ = 5 to 10 mA.

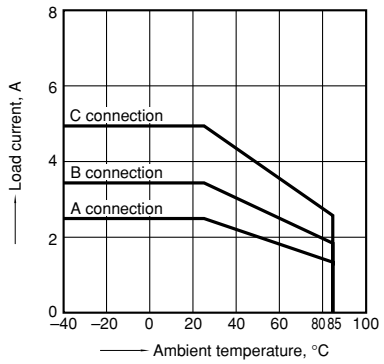
*Turn on/Turn off time




## REFERENCE DATA

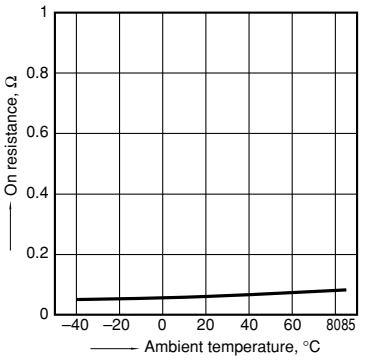
1. Load current vs. ambient temperature characteristics

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



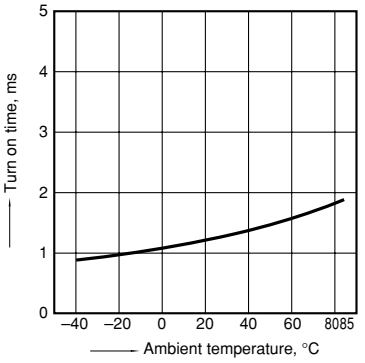

2. On resistance vs. ambient temperature characteristics

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



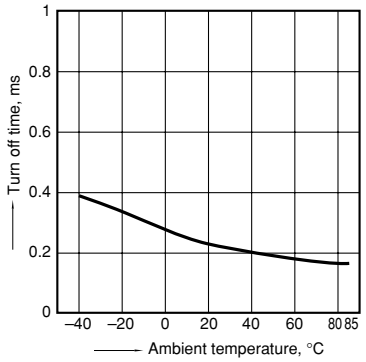

3. Turn on time vs. ambient temperature characteristics

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



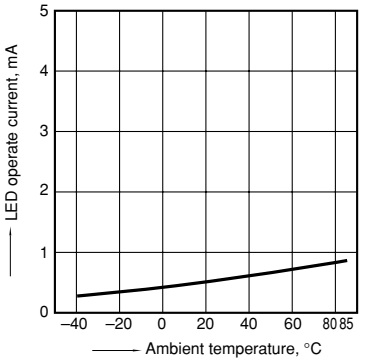
4. Turn off time vs. ambient temperature characteristics

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



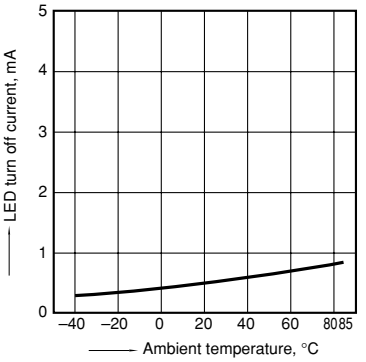

5. LED operate current vs. ambient temperature characteristics

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



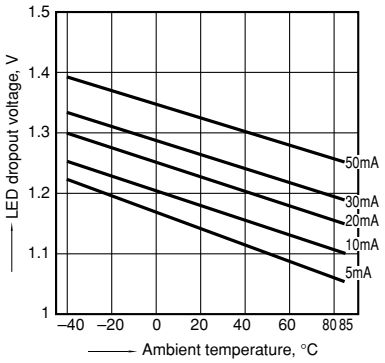

6. LED turn off current vs. ambient temperature characteristics

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



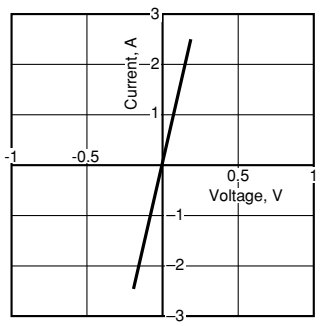

7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



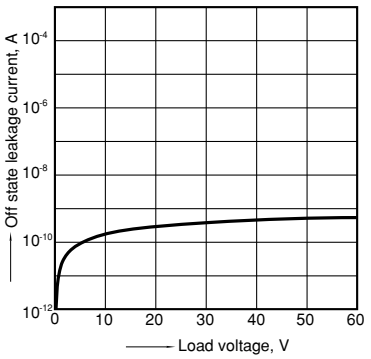

8. Current vs. voltage characteristics of output at MOS portion

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



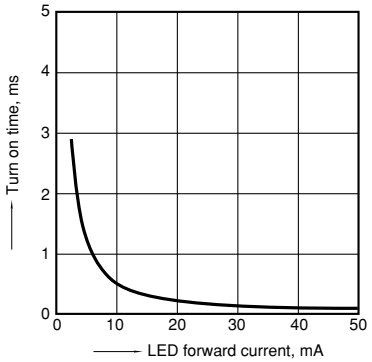

9. Off state leakage current vs. load voltage characteristics

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



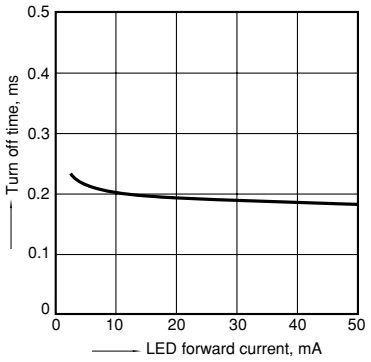

10. Turn on time vs. LED forward current characteristics

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