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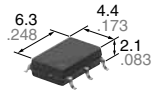
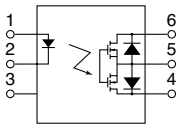
**Miniature SOP6-pin type with high capacity of 1.25A load current**

PhotoMOS®
# HE SOP 1 Form A
High Capacity (AQV255GS)




mm inch




**RoHS compliant**

## FEATURES

**1. High capacity in a miniature SOP package**
Continuous load current: 1.25A
Load voltage: 80V
**2. Greatly improved specifications allow you to use this in place of mercury and mechanical relays.**

## TYPICAL APPLICATIONS

- Security equipment
- Fire-preventing system
- Measuring instruments

## TYPES

| | Output rating* | | Package | Part No. | | | Packing quantity | |
|---|---|---|---|---|---|---|---|---|
| | | | | 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 dual use | 80 V | 1.25 A | SOP6-pin | AQV255GS | AQV255GSX | AQV255GSZ | 1 tube contains: 75 pcs. 1 batch contains: 1,500 pcs. | 1,000 pcs. |

*Indicate the peak AC and DC values.
Note: For space reasons, the two initial letters of the part number "AQ" and the packing style indicator "X" or "Z" are not marked on the device.

## RATING

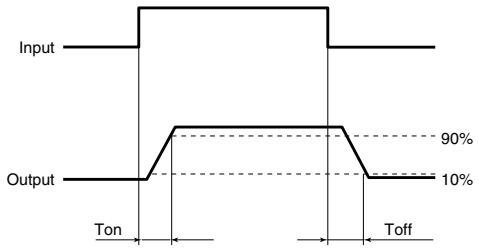
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

| Item | | Symbol | Type of connection | AQV255GS | 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) | $V_L$ | | 80 V | |
| | Continuous load current | $I_L$ | A | 1.25 A | A connection: Peak AC, DC<br>B, C connection: DC |
| | | | B | 1.75 A | |
| | | | C | 2.5 A | |
| | Peak load current | $I_{peak}$ | | 3 A | 100ms (1 shot), $V_L$ = DC |
| | Power dissipation | $P_{out}$ | | 450 mW | |
| Total power dissipation | | $P_T$ | | 500 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 | |

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

| Item | | | Symbol | Type of connection | AQV255GS | 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 | 0.09 Ω | $I_F$ = 5 mA<br>$I_L$ = Max.<br>Within 1 s on time |
| | | Maximum | | | 0.15 Ω | |
| | | Typical | $R_{on}$ | B | 0.05 Ω | |
| | | Maximum | | | 0.12 Ω | |
| | | Typical | $R_{on}$ | C | 0.03 Ω | |
| | | Maximum | | | 0.1 Ω | |
| | Off state leakage current | Maximum | $I_{Leak}$ | — | 1 μA | $I_F$ = 0 mA, $V_L$ = Max. |
| Transfer characteristics | Turn on time* | Typical | $T_{on}$ | — | 1.3 ms | $I_F$ = 5 mA, $I_L$ = 100 mA<br>$V_L$ = 10 V |
| | | Maximum | | | 5 ms | |
| | Turn off time* | Typical | $T_{off}$ | — | 0.1 ms | $I_F$ = 5 mA, $I_L$ = 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 |
| | Max. switching frequency | Maximum | — | — | 5 times/s | $I_F$ = 5 mA, duty = 50%<br>$V_L \times I_L$ = 100 V·A |

*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 to 10 | mA |

## ■ For Dimensions.

## ■ For Schematic and Wiring Diagrams.

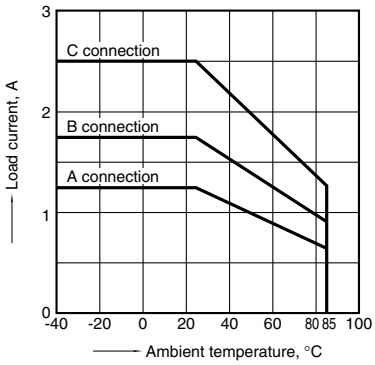
## ■ For Cautions for Use.

**■ 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

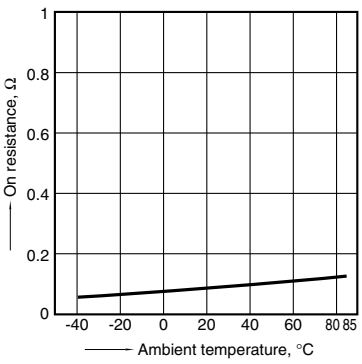
1. Load current vs. ambient temperature characteristics

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



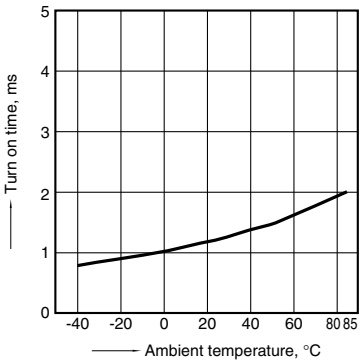

2. On resistance vs. ambient temperature characteristics

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)



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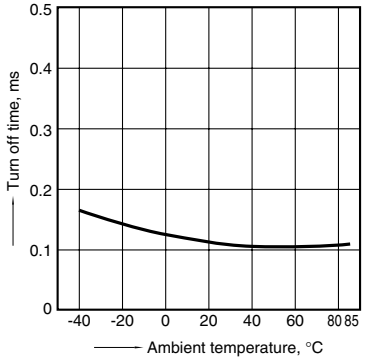
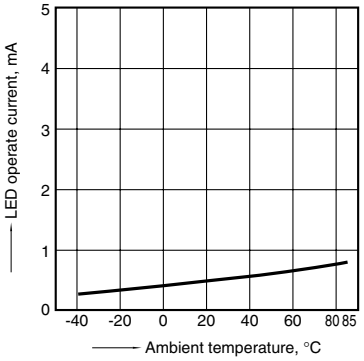
4. Turn off time vs. ambient temperature characteristics

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



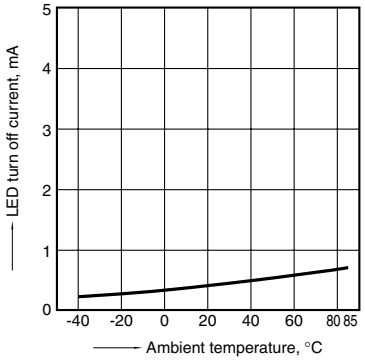

5. LED operate current vs. ambient temperature characteristics

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



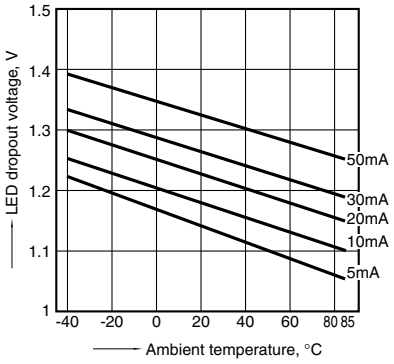

6. LED turn off current vs. ambient temperature characteristics

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



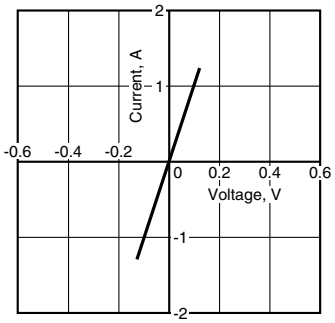

7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



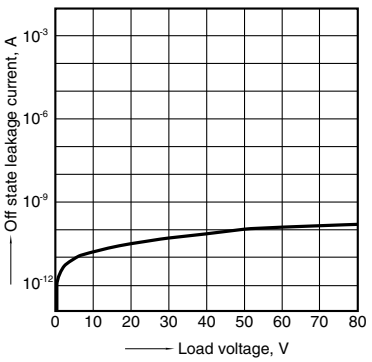

8. Current vs. voltage characteristics of output at MOS portion

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



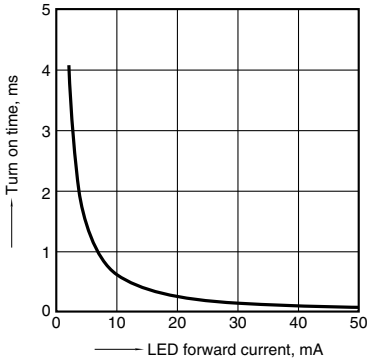

9. Off state leakage current vs. load voltage characteristics

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



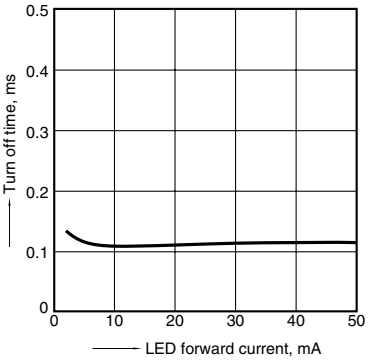

10. Turn on time vs. LED forward current characteristics

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



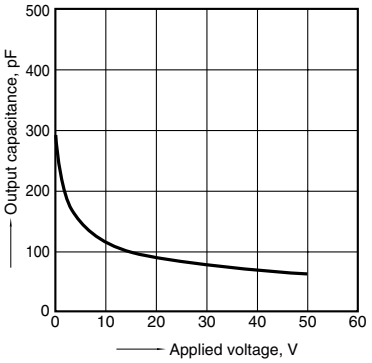

11. Turn off time vs. LED forward current characteristics

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




13. Max. switching frequency vs. load voltage and load current

LED current: 5 mA
Ambient temperature: 25°C 77°F