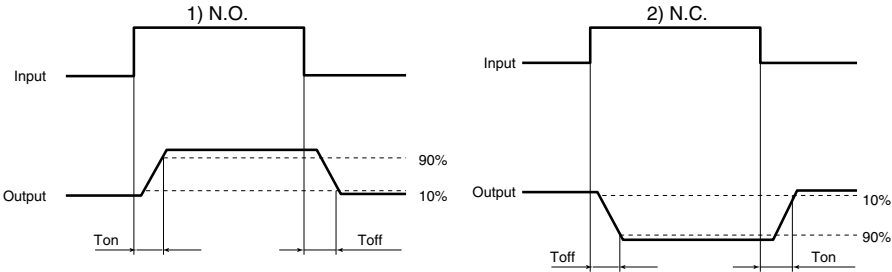


2. Electrical characteristics (Ambient temperature: 25°C 77°F)

| Item                             |                           |               | Symbol                   | AQW614(A)                                | Condition                                                                              |                                                         |
|----------------------------------|---------------------------|---------------|--------------------------|------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------|
| Input                            | LED operate current       | Typical       | I <sub>Fon</sub> (N.O.)  | 0.9 mA                                   | I <sub>L</sub> = 100 mA                                                                |                                                         |
|                                  |                           | Maximum       | I <sub>Foff</sub> (N.C.) | 3 mA                                     |                                                                                        |                                                         |
|                                  | LED reverse current       | Minimum       | I <sub>Foff</sub> (N.O.) | 0.4 mA                                   | I <sub>L</sub> = 100 mA                                                                |                                                         |
|                                  |                           | Typical       | I <sub>Fon</sub> (N.C.)  | 0.8 mA                                   |                                                                                        |                                                         |
|                                  | LED dropout voltage       | Typical       | V <sub>F</sub>           | 1.25 V (1.14 V at I <sub>F</sub> = 5 mA) |                                                                                        | I <sub>F</sub> = 50 mA                                  |
|                                  |                           | Maximum       |                          | 1.5 V                                    |                                                                                        |                                                         |
| Output                           | On resistance             | Typical       | R <sub>on</sub>          | 27 Ω                                     | I <sub>F</sub> = 5 mA (N.O.)<br>I <sub>F</sub> = 0 mA (N.C.)                           |                                                         |
|                                  |                           | Maximum       |                          | 50 Ω                                     | I <sub>L</sub> = 100 mA<br>within 1 s                                                  |                                                         |
|                                  | Off state leakage current | Maximum       | I <sub>Leak</sub>        | 1 μA                                     | I <sub>F</sub> = 0 mA (N.O.)<br>I <sub>F</sub> = 5 mA (N.C.)<br>V <sub>L</sub> = 400 V |                                                         |
|                                  | Transfer characteristics  | Operate time* | Typical                  | T <sub>on</sub> (N.O.)                   | 0.28 ms (N.O.) 0.43 ms (N.C.)                                                          |                                                         |
| Maximum                          |                           |               | T <sub>off</sub> (N.C.)  | 1 ms                                     |                                                                                        |                                                         |
| Reverse time*                    |                           | Typical       | T <sub>off</sub> (N.O.)  | 0.04 ms (N.O.) 0.3 ms (N.C.)             |                                                                                        | I <sub>F</sub> = 5 mA → 0 mA<br>I <sub>L</sub> = 100 mA |
|                                  |                           | Maximum       | T <sub>on</sub> (N.C.)   | 1 ms                                     |                                                                                        |                                                         |
| I/O capacitance                  |                           | Typical       | C <sub>iso</sub>         | 0.8 pF                                   |                                                                                        | f = 1 MHz                                               |
|                                  |                           | Maximum       |                          | 1.5 pF                                   |                                                                                        | V <sub>B</sub> = 0 V                                    |
| Initial I/O isolation resistance |                           | Minimum       | R <sub>iso</sub>         | 1,000 MΩ                                 |                                                                                        | 500 V DC                                                |

\*Operate/Reverse time



3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

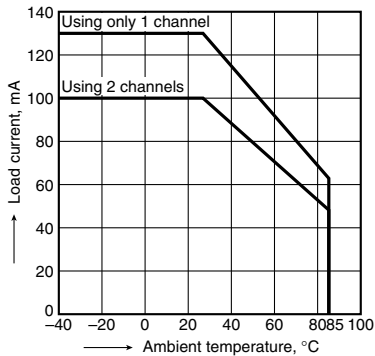
| Item      |                         | Symbol         | Number of used channels | Min. | Max.        | Unit |
|-----------|-------------------------|----------------|-------------------------|------|-------------|------|
| AQW614(A) | LED current             | I <sub>F</sub> |                         | 5    | 30          | mA   |
|           | Load voltage (Peak AC)  | V <sub>L</sub> |                         | —    | 320         | V    |
|           | Continuous load current | I <sub>L</sub> |                         | —    | 0.13<br>0.1 | 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

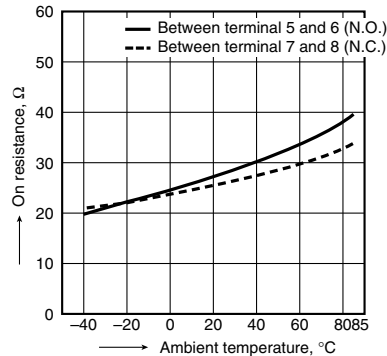
### 1. Load current vs. ambient temperature characteristics

Allowable ambient temperature:  $-40$  to  $+85^{\circ}\text{C}$   
 $-40$  to  $+185^{\circ}\text{F}$



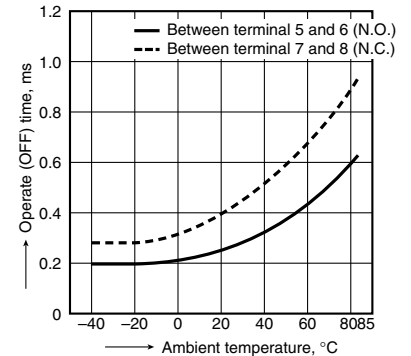
### 2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
 LED current: 5 mA; Load voltage: 400 V (DC);  
 Continuous load current: 100 mA (DC)



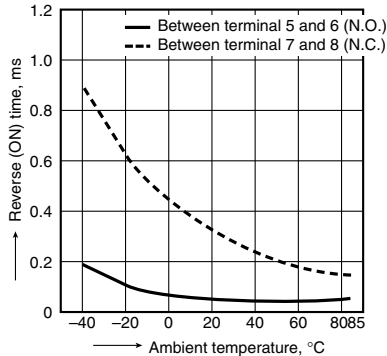
### 3. Operate time vs. ambient temperature characteristics

LED current: 5 mA;  
 Load voltage: 400 V (DC);  
 Continuous load current: 100 mA (DC)



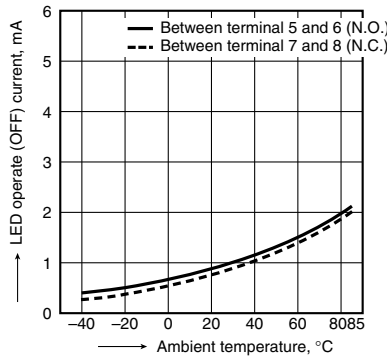
### 4. Reverse time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 400 V (DC);  
 Continuous load current: 100 mA (DC)



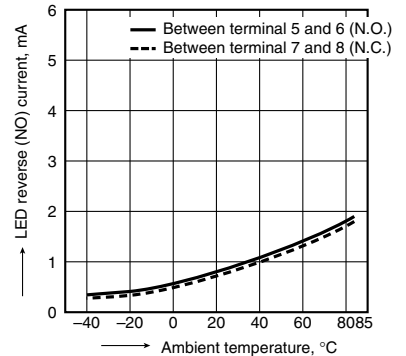
### 5. LED operate current vs. ambient temperature characteristics

Load voltage: 400 V (DC);  
 Continuous load current: 100 mA (DC)



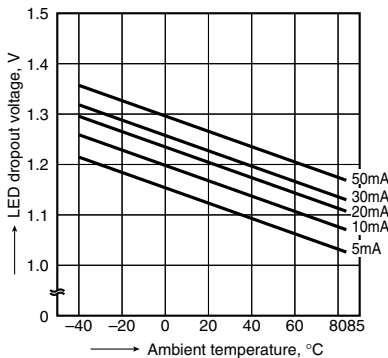
### 6. LED reverse current vs. ambient temperature characteristics

Load voltage: 400 V (DC);  
 Continuous load current: 100 mA (DC)



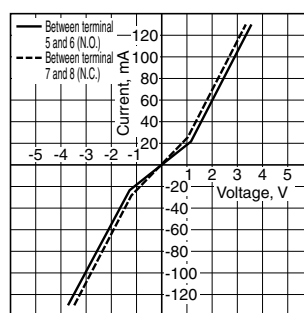
### 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



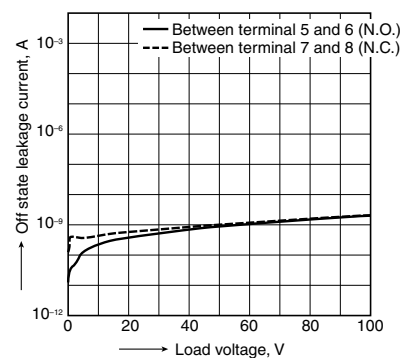
### 8. Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 5 and 6, 7 and 8;  
 Ambient temperature:  $25^{\circ}\text{C}$   $77^{\circ}\text{F}$



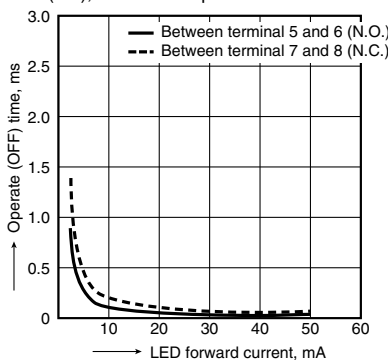
### 9. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
 Ambient temperature:  $25^{\circ}\text{C}$   $77^{\circ}\text{F}$



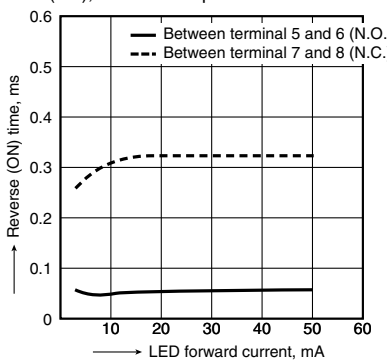
### 10. Operate time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
 Load voltage: 400 V (DC); Continuous load current:  
 100 mA (DC); Ambient temperature:  $25^{\circ}\text{C}$   $77^{\circ}\text{F}$



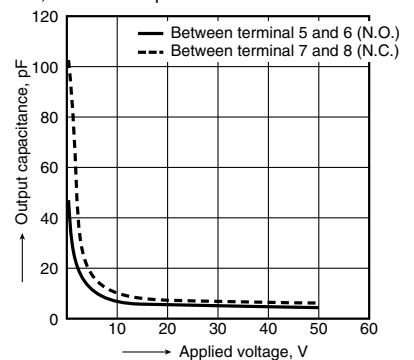
### 11. Reverse time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
 Load voltage: 400 V (DC); Continuous load current:  
 100 mA (DC); Ambient temperature:  $25^{\circ}\text{C}$   $77^{\circ}\text{F}$



### 12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
 LED current: 0 mA (N.O.), 5 mA (N.C.); Frequency:  
 1 MHz; Ambient temperature:  $25^{\circ}\text{C}$   $77^{\circ}\text{F}$



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