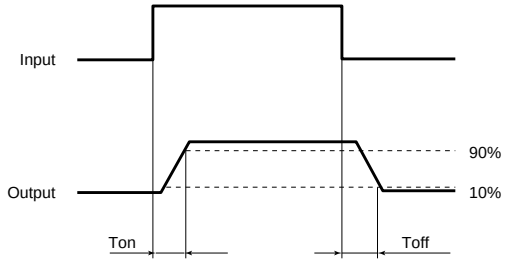
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQV210HL(A)	Condition
Input	LED operate current	Typical	I_{Fon}	1.6 mA	I_L = Max.
		Maximum		3.0 mA	
	LED turn off current	Minimum	I_{Foff}	0.4 mA	I_L = Max.
		Typical		1.5 mA	
	LED dropout voltage	Minimum	V_F	1.14 (1.25 V at I_F = 50mA)	I_F = 5 mA
		Typical		1.5 V	
Output	On resistance	Typical	R_{on}	20Ω	I_F = 5 mA I_L = Max. Within 1 s on time
		Maximum		25Ω	
	Off state leakage current	Maximum	I_{Leak}	1μA	I_F = 0 V_L = Max.
	Current limit	Typical	—	180 mA	I_F = 5 mA
Transfer characteristics	Turn on time*	Typical	T_{on}	0.8 ms	I_F = 5 mA I_L = Max.
		Maximum		2.0 ms	
	Turn off time*	Typical	T_{off}	0.05 ms	I_F = 5 mA I_L = Max.
		Maximum		1.0 ms	
	I/O capacitance	Typical	C_{iso}	0.8 pF	f = 1 MHz V_B = 0
		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.

For type of connection, see Page 31.

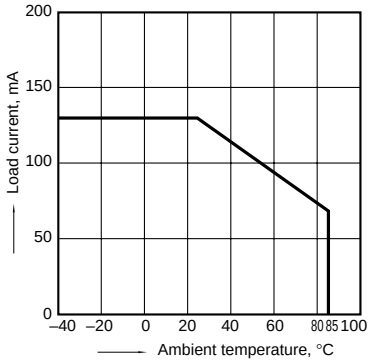
*Turn on/Turn off time



REFERENCE DATA

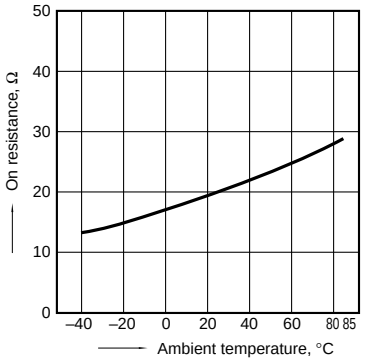
1. Load current vs. ambient temperature characteristics

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



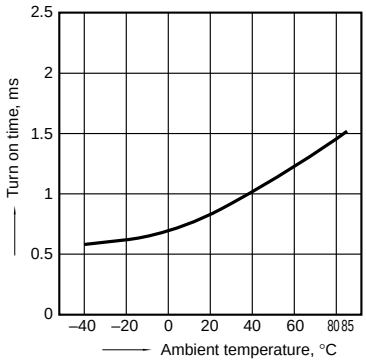
2. On resistance vs. ambient temperature characteristics

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



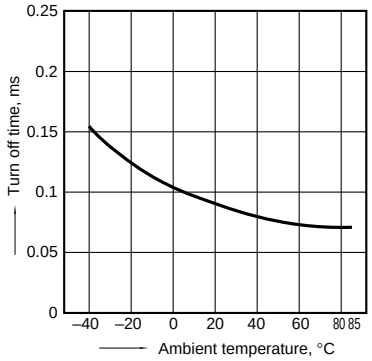
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max.(DC);
Continuous load current: Max.(DC)



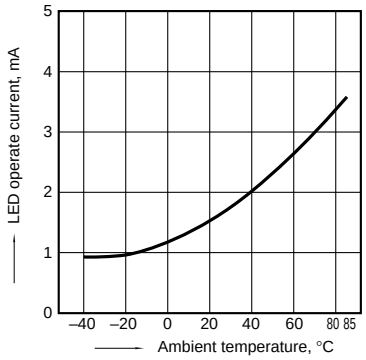
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max.(DC);
Continuous load current: Max.(DC)



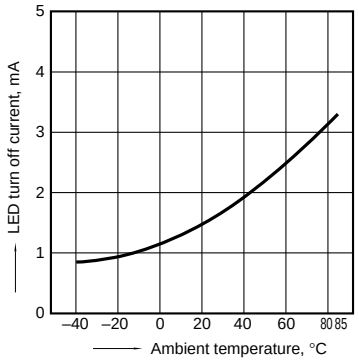
5. LED operate current vs. ambient temperature characteristics

Load voltage: Max.(DC);
Continuous load current: Max.(DC)



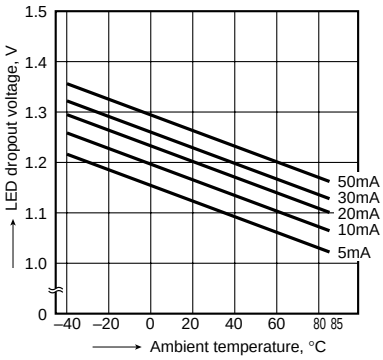
6. LED turn off current vs. ambient temperature characteristics

Load voltage: Max.(DC);
Continuous load current: Max.(DC)



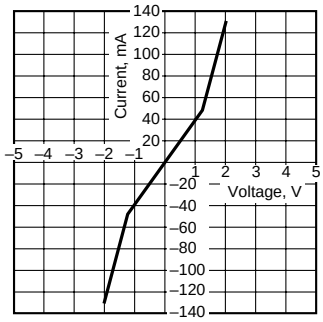
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



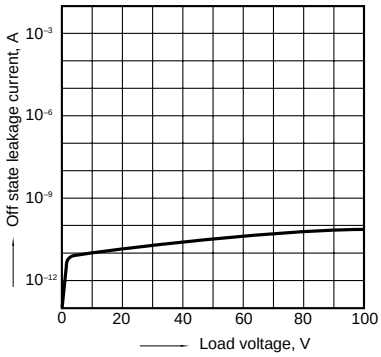
8. Voltage vs. current characteristics of output at MOS portion

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



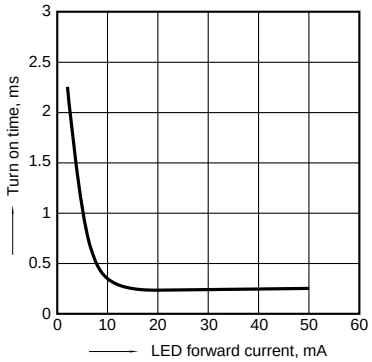
9. Off state leakage current

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



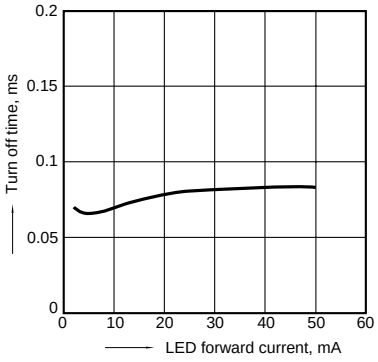
10. LED forward current vs. turn on time characteristics

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



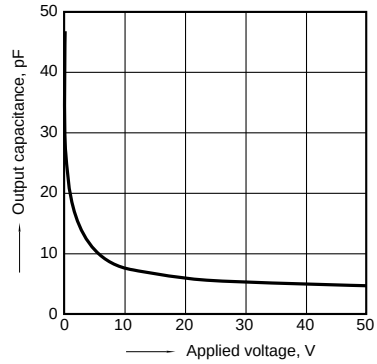
11. LED forward current vs. turn off time characteristics

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



12. Applied voltage vs. output capacitance characteristics

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



What is current limit

When a load current reaches the specified output control current, a current limit function works against the load current to keep the current a constant value.
The current limit circuit built into the PhotoMOS relay thus controls the instantaneous load current to effectively ensure circuit safety.
This safety feature protects circuits downstream of the PhotoMOS relay against over-current.
But, if the current-limiting feature is used longer than the specified time, the PhotoMOS relay can be destroyed. Therefore, set the output loss to the max. rate or less.

• Comparison of output voltage and output current characteristics

V-I Characteristics