

RATING

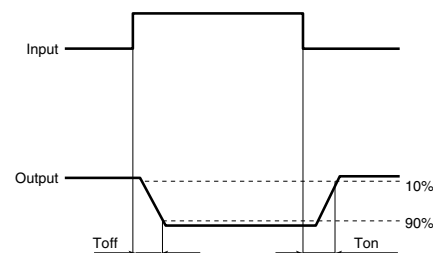
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	Type of connection	AQV453(A)	AQV454(A)	AQV454H(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		250 V	400 V		
	Continuous load current	I _L	A	0.2 A	0.15 A		A connection: Peak AC, DC B, C connection: DC
			B	0.3 A	0.18 A		
			C	0.4 A	0.25 A		
	Peak load current	I _{PEAK}		0.6 A	0.5 A		A connection: 100 ms (1 shot), V _L = DC
	Power dissipation	P _{OUT}		360 mW			
Total power dissipation		P _T		410 mW			
I/O isolation voltage		V _{iso}		1,500 Vrms		5,000 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			

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

Item			Symbol	Type of connection	AQV453(A)	AQV454(A)	AQV454H(A)	Condition	
Input	LED operate (OFF) current	Typical	I _{Foff}	—	1 mA	0.9 mA	1.4 mA	I _L = Max.	
		Maximum			3 mA				
	LED reverse (ON) current	Minimum	I _{Fon}	—	0.4 mA			I _L = Max.	
		Typical			0.9 mA	0.8 mA	1.3 mA		
	LED dropout voltage	Typical	V _F	—	1.25 V (1.14 V at I _F =5 mA)			I _F = 50 mA	
		Maximum			1.5 V				
Output	On resistance	Typical	R _{on}	A	5.5 Ω	11 Ω		I _F = 0 mA I _L = Max. Within 1 s	
		Maximum			8 Ω	16 Ω			
		Typical	R _{on}	B	2.7 Ω	6.3 Ω		I _F = 0 mA I _L = Max. Within 1 s	
		Maximum			4 Ω	8 Ω			
		Typical	R _{on}	C	1.4 Ω	3.1 Ω		I _F = 0 mA I _L = Max. Within 1 s	
		Maximum			2 Ω	4 Ω			
	Off state leakage current	Maximum	I _{Leak}	—	1 μA	1 μA	10 μA	I _F = 5 mA V _L = Max.	
	Transfer characteristics	Operate (OFF) time*	Typical	T _{off}	—	1.52 ms	1.2 ms	1.8 ms	I _F = 0 mA → 5 mA I _L = Max.
			Maximum			3 ms	2.0 ms	3.0 ms	
Reverse (ON) time*		Typical	T _{on}	—	0.4 ms	0.36 ms	0.4 ms	I _F = 5 mA → 0 mA I _L = Max.	
		Maximum			1 ms				
I/O capacitance		Typical	C _{iso}	—	1.3 pF			f = 1 MHz V _B = 0 V	
		Maximum			3 pF				
Initial I/O isolation resistance		Minimum	R _{iso}	—	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	Min.	Max.	Unit
LED current		I _F	5	30	mA
AQV453(A)	Load voltage (Peak AC)	V _L	—	200	V
	Continuous load current (A connection)	I _L	—	0.2	A
AQV454(A)	Load voltage (Peak AC)	V _L	—	320	V
	Continuous load current (A connection)	I _L	—	0.15	A
AQV454H(A)	Load voltage (Peak AC)	V _L	—	320	V
	Continuous load current (A connection)	I _L	—	0.15	A

■ These products are not designed for automotive use.

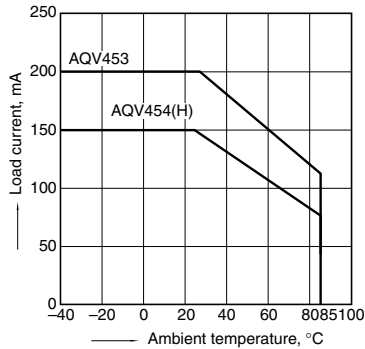
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

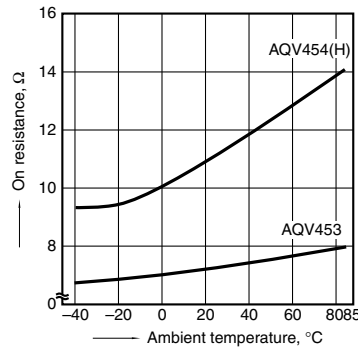
Allowable ambient temperature: -40 to $+85^{\circ}\text{C}$
 -40 to $+185^{\circ}\text{F}$

Type of connection: A



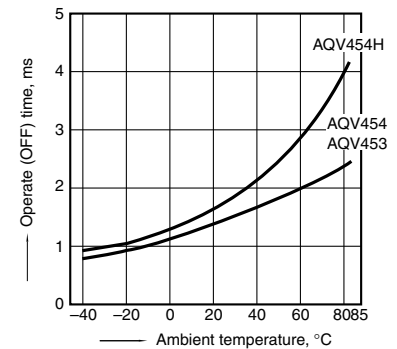
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 4 and 6;
 LED current: 0 mA; Load voltage: Max. (DC);
 Continuous load current: Max. (DC)



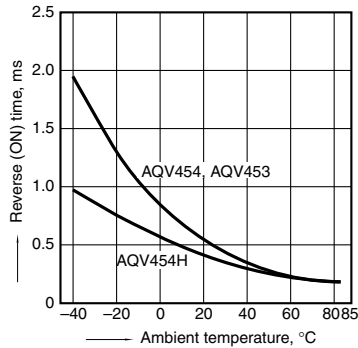
3. Operate (OFF) time vs. ambient temperature characteristics

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



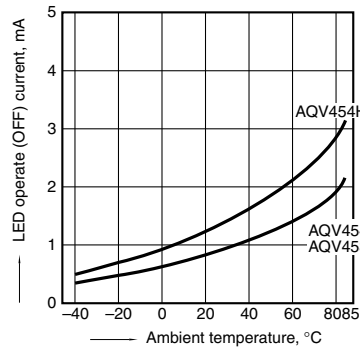
4. Reverse (ON) time vs. ambient temperature characteristics

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



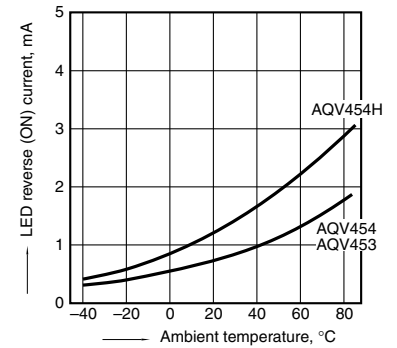
5. LED operate (OFF) current vs. ambient temperature characteristics

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



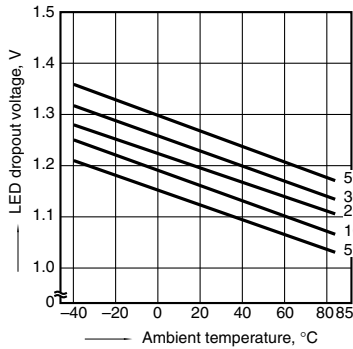
6. LED reverse (ON) current vs. ambient temperature characteristics

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



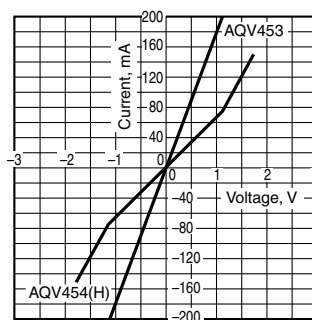
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



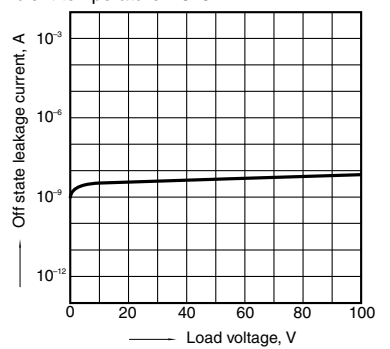
8. Current vs. voltage characteristics of output at MOS portion

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



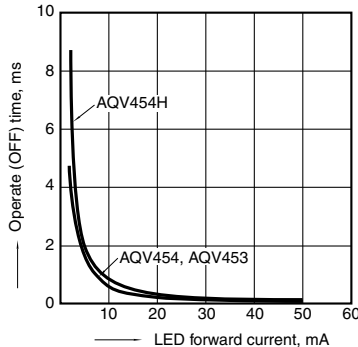
9. Off state leakage current vs. load voltage characteristics

Sample: AQV454;
 Measured portion: between terminals 4 and 6;
 Ambient temperature: 25°C 77°F



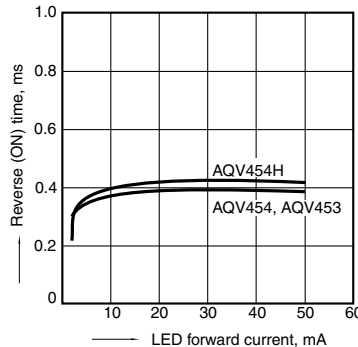
10. Operate (OFF) time vs. LED forward current characteristics

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



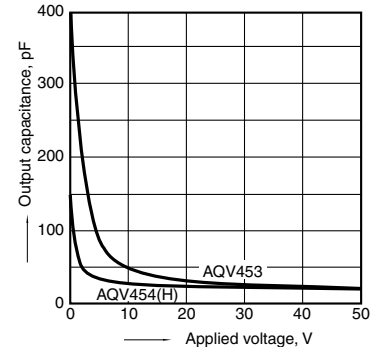
11. Reverse (ON) time vs. LED forward current characteristics

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



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ASCTB146E 201703-T

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