

RATING

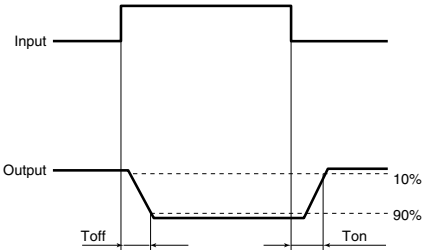
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	Type of connection	AQV414S	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		400 V	
	Continuous load current	I _L	A	0.10 A	A connection: Peak AC, DC B, C connection: DC
			B	0.11 A	
			C	0.12 A	
	Peak load current	I _{peak}		0.3 A	A connection: 100 ms (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 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	AQV414S	Condition
Input	LED operate (OFF) current	Typical	I _{Foff}	—	0.6 mA	I _L = Max.
		Maximum			3 mA	
	LED reverse (ON) current	Minimum	I _{Fon}	—	0.4 mA	I _L = Max.
		Typical			0.55 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	26 Ω	I _F = 0 mA I _L = Max. Within 1 s
		Maximum			50 Ω	
		Typical	R _{on}	B	20 Ω	I _F = 0 mA I _L = Max. Within 1 s
		Maximum			25 Ω	
		Typical	R _{on}	C	10 Ω	I _F = 0 mA I _L = Max. Within 1 s
		Maximum			12.5 Ω	
	Off state leakage current	Maximum	I _L Leak	—	1 μA	I _F = 5 mA, V _L = Max.
	Transfer characteristics	Operate (OFF) time*	Typical	T _{off}	—	0.47 ms
Maximum			1.0 ms			
Reverse (ON) time*		Typical	T _{on}	—	0.28 ms	I _F = 5 mA → 0 mA V _L = Max.
		Maximum			1.0 ms	
I/O capacitance		Typical	C _{iso}	—	0.8 pF	f = 1 MHz V _B = 0 V
		Maximum			1.5 pF	
Initial I/C 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
AQV414S	LED current	I _F	5	30	mA
	Load voltage (Peak AC)	V _L	—	320	V
	Continuous load current (A connection)	I _L	—	0.1	A

■ These products are not designed for automotive use.

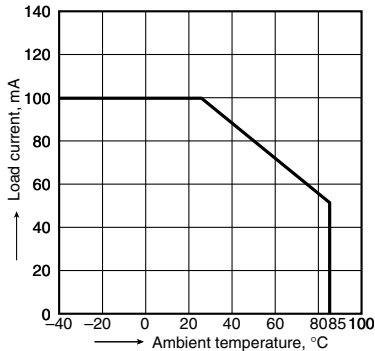
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

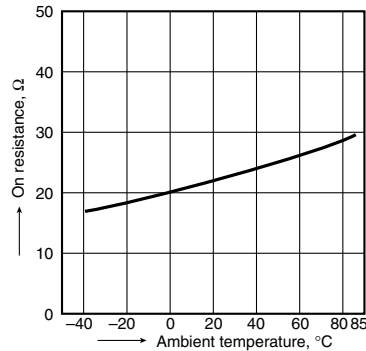
Allowable ambient temperature: -40 to $+85^{\circ}\text{C}$
 -40 to $+185^{\circ}\text{F}$

Type of connection: A



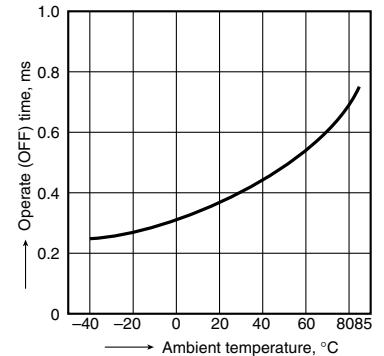
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 4 and 6;
 LED current: 0 mA;
 Continuous load current: 100 mA (DC)



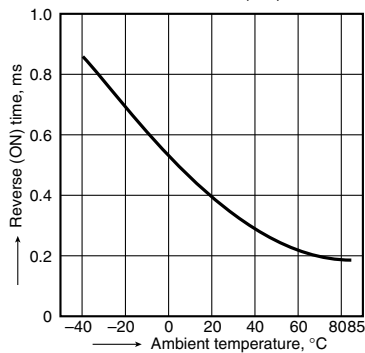
3. Operate (OFF) time vs. ambient temperature characteristics

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



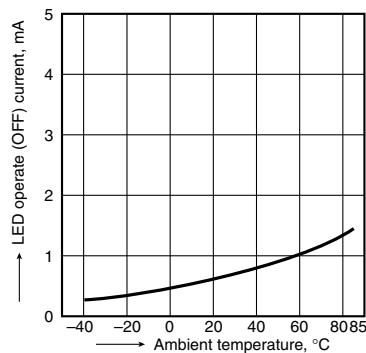
4. Reverse (ON) time vs. ambient temperature characteristics

LED current: 50 mA;
 Load voltage: 400 V (DC);
 Continuous load current: 100 mA (DC)



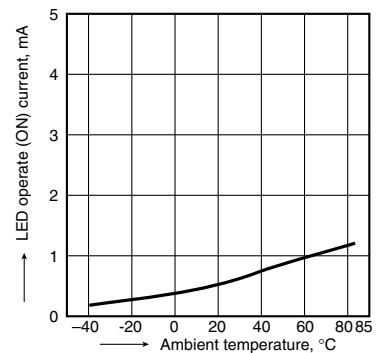
5. LED operate (OFF) current vs. ambient temperature characteristics

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



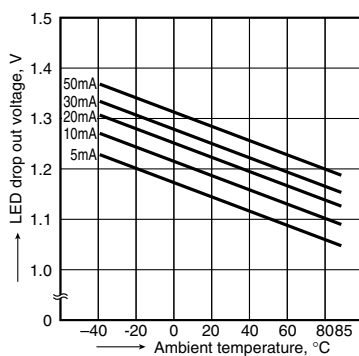
6. LED reverse (ON) current vs. ambient temperature characteristics

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



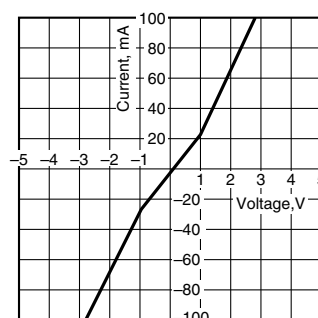
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



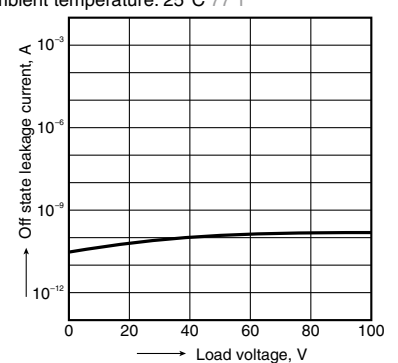
8. Current vs. voltage characteristics of output at MOS portion

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



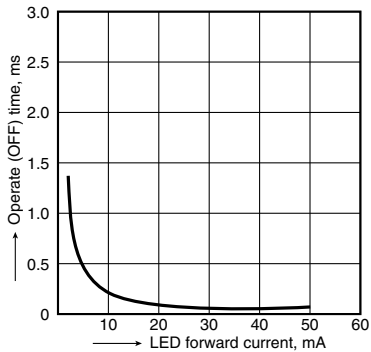
9. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 4 and 6;
 LED current: 5 mA;
 Ambient temperature: 25°C 77°F



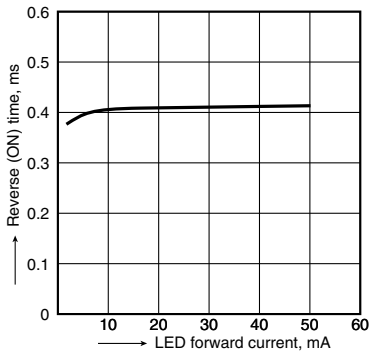
10. Operate (OFF) time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;
Load voltage: 400 V (DC); Continuous load current:
100 mA (DC); Ambient temperature: 25°C 77°F



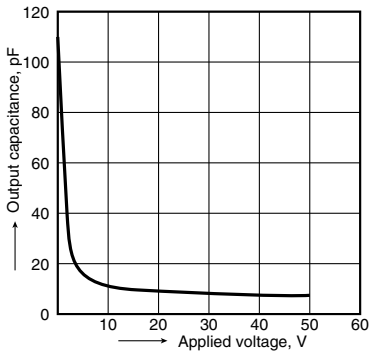
11. Reverse (ON) time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;
Load voltage: 400 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;
LED current: 5 mA; Frequency: 1 MHz;
Ambient temperature: 25°C 77°F



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