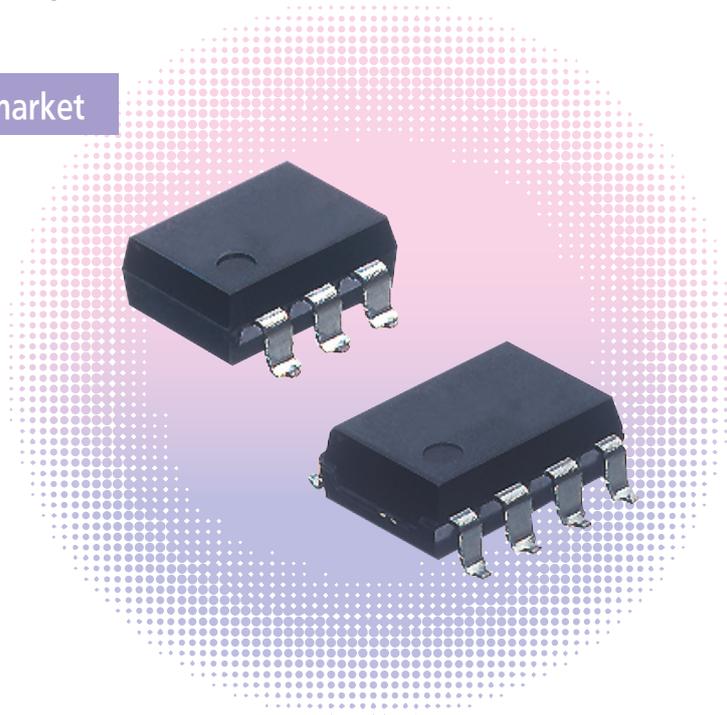
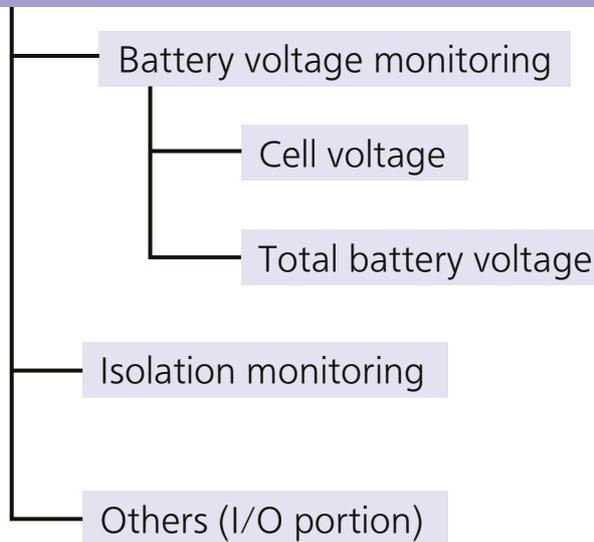


PhotoMOS®

■ Applications

- PhotoMOS® are mainly for high voltage battery monitoring in automotive applications.
- Starting from the early 2000s with HEV, we have achieved a great global track record with PHEV, EV and FCV selling over 100 million pieces.

Main PhotoMOS® applications in automotive market



■ Typical products for automotive applications

■ Types and absolute maximum ratings (Ambient temperature: 25°C)

Part number	Type	Package	Contact configuration	Load voltage (V _L)* ¹	Continuous load current (I _L)* ¹	Ambient temperature	
						Operating (T _{opr})	Storage (T _{stg})
AQW216HAX C*8	GU	DIP8-pin (SMD)	2 Form A	600 V	40 mA (50 mA)* ²	-40 to +85°C *	-40 to +100°C *
AQV219HAX C*9	GU	DIP6-pin (SMD)	1 Form A	900 V	15 mA		
AQV258HAX C*9	HE	DIP6-pin (SMD)	1 Form A	1,500 V	20 mA		

*1. Peak value for AC.

*2. In case of using only 1 channel

***Please inquire regarding support for temperatures between -40 and 105°C.**

■ Recommended conditions of use (Ambient temperature: 25° C)

Part number	Load voltage (V _L)	Continuous load current (I _L)	LED forward current (I _F)
AQW216HAX C*8	Max. 360 V	Max. 20 mA (25 mA)* ¹	10 mA
AQV219HAX C*9	Max. 540 V	Max. 7.5 mA	10 mA
AQV258HAX C*9	Max. 900 V	Max. 10 mA	10 mA

*1. In case of using only 1 channel

Electrical characteristics (Ambient temperature: 25°C)

Item			Symbol	Part number			Test conditions
				AQW216HAX C*8	AQV219HAX C*9	AQV258HAX C*9	
Input	LED operate current	Typ.	I_{fon}	1 mA	1.4 mA	1.2 mA	$I_{\text{L}} = \text{Max.}$
		Max.		3 mA	3 mA	3 mA	
	LED turn off current	Min.	I_{foff}	0.2 mA	0.2 mA	0.2 mA	
		Typ.		0.8 mA	1.3 mA	1.1 mA	
LED dropout voltage	Typ.	V_{F}	1.25 V	1.35 V	1.35 V	$I_{\text{F}} = 50 \text{ mA}$	
	Max.		1.5 V	1.5 V	1.5 V		
Output	On resistance	Typ.	R_{on}	70 Ω	310 Ω	305 Ω	$I_{\text{F}} = 10 \text{ mA}$ $I_{\text{L}} = \text{Max.}$
		Max.		150 Ω	500 Ω	500 Ω	
	Off state leakage current	Max.	I_{Leak}	1 μA	1 μA	10 μA	$I_{\text{F}} = 0 \text{ mA}, V_{\text{L}} = \text{Max.}$
Transfer characteristics	Turn on time	Typ.	T_{on}	0.2 ms	0.08 ms	0.3 ms	$I_{\text{F}} = 10 \text{ mA}$ $I_{\text{L}} = \text{Max.}$
		Max.		0.5 ms	0.5 ms	2 ms	
	Turn off time	Typ.	T_{off}	0.04 ms	0.03 ms	0.1 ms	
		Max.		0.4 ms	0.2 ms	0.5 ms	

Before selecting PhotoMOS® for automotive applications

Automotive grade PhotoMOS® are generally used in automotive environment since stricter enhanced quality controls are needed.

The user is cautioned and asked to inquire with our sales representative before designing the products in such environments.

About specification reviews

Automotive applications require specification reviews.

This is important and necessary in order to prevent performance, quality and reliability problems.

The following parameters should be reviewed with our sales representative:

- Targeted application
- Targeted levels of quality and reliability
- Circuits description of load level, driving methods, etc.
- Usage conditions
- Influence at failure and failsafe concepts, etc.

About derating design

Derating is essential in any reliable design and a significant factor in consideration of product life.

Sufficient derating is needed absolute maximum rating when designing a system.

It is recommended using a derated voltage of 60% (or less) of absolute maximum load voltage rating, and 50% (or less) of absolute maximum load current ratings.

It is the responsibility of the customer to design the safety of the equipment by installing protective circuits and redundant circuits, and to conduct safety tests.

**All automotive products are handled as special orders.
Please contact our sales representative for confirmation of usage conditions, etc.**