

PHOTOMOS RELAYS

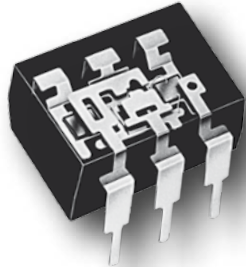
AN OVERVIEW



What makes PhotoMOS relays so successful?

Modern semiconductor technology enables fast, quiet, bounce-free switching, even in miniature sizes. PhotoMOS relays nevertheless enjoy an almost unlimited lifetime if used according to the specifications. Moreover, they are extremely reliable, unaffected by vibrations, and their

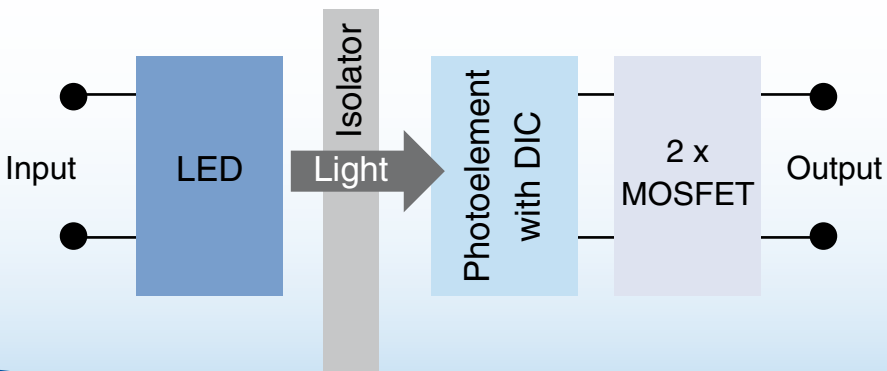
ON-resistance remains stable throughout their entire lifetime.

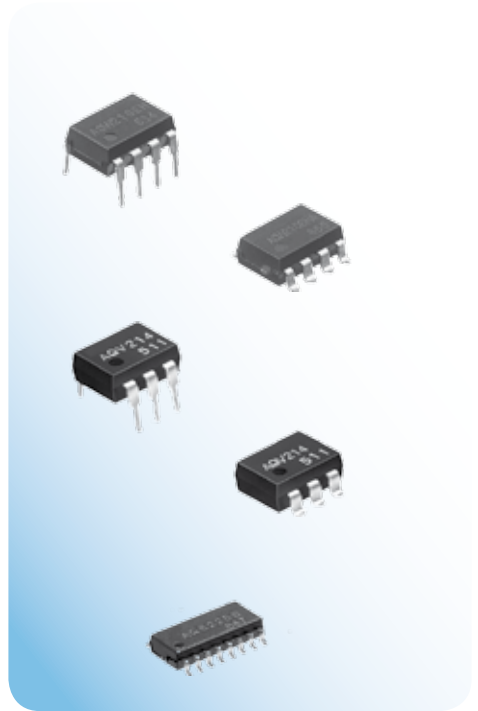


PhotoMOS technology

The basic construction of the PhotoMOS relay can be seen in the illustration. Light emitted from an LED on the input side passes through an isolator permeable to light and is detected by a solar cell. Via a trigger circuit, the solar cell's output voltage controls the gates of two source-coupled MOSFETs at the output. This arrangement allows PhotoMOS relays to switch both AC and DC loads.

The integration of MOSFET technology in PhotoMOS relays differentiates them significantly from semiconductor relays with triacs or transistors at the output.





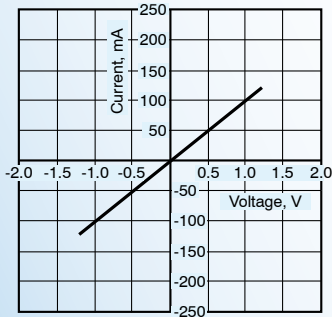
The most important advantages at a glance

- Linear output characteristics
- No threshold voltage
- Low operate current
(sensitive type $\leq 0.31\text{mA}$)
- Low output capacitance
(RF type $\leq 1\text{pF}$)
- Absolute minimum leakage current
(pA)
- Extremely long lifetime
- Stable ON-resistance over the entire lifetime
- Extremely compact design
(VSSOP, SON, SSOP, SOP)
- No contact bounce
- Highly resistant to shock and vibration
- Flexible mounting orientation

A few distinguishing features of PhotoMOS relays

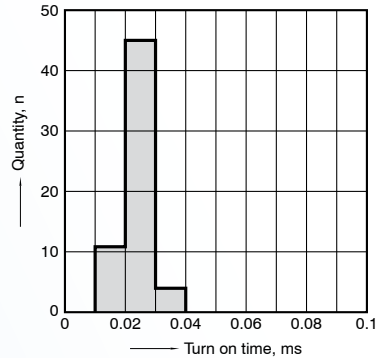
1. Linear output characteristics

(e.g. AQY225R2V)



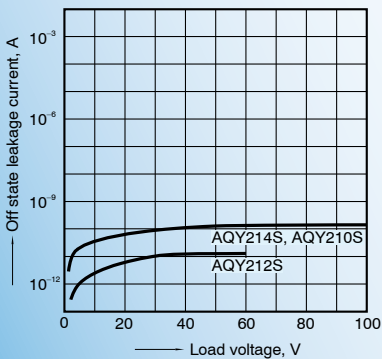
2. Fast switching times

with little variation (e.g. AQY221N3V)



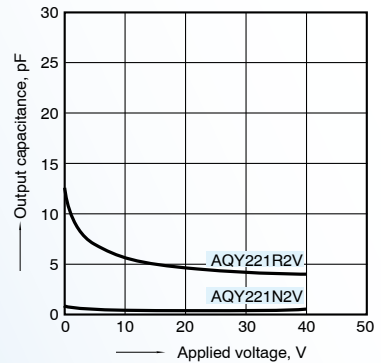
3. Low off-state leakage current

in the pA range (e.g. AQY21*S)



4. Low output capacitance










(e.g. AQY221*V)



Typical applications

- Measuring devices and technology
- IC and PC board testers
- Multiplexers
- Medical technology
- Industrial control systems
- Battery management
- Signal/alarm contacts
- Outputs for programmable controllers
- Pulse and counter outputs

PhotoMOS relays: Popular type selection table

	Type ¹⁾	Package	Contact	Voltage (V) ²⁾	Current (A) ²⁾	R _{on} ³⁾ (Ω)	Info.
	AQY211EH(A)	DIP4	1a	30	1.0	0.25	General use
	AQY212EH(A)			60	0.55	0.85	
	AQY212GH(A)				1.1	0.34	
	AQY210EH(A)			350	0.13	18	
	AQY214EH(A)			400	0.12	26	
	AQY216EH(A)			600	0.05	52	
	AQY212S	SOP4	1a	60	0.5	0.83	
	AQY212GS				1.0	0.34	
	AQY212G2S				1.25	0.2	
	AQY210S			350	0.12	17	
	AQY214S		400	0.1	25		
	AQY412S		1b	60	0.5	1	
	AQY410S			350	0.12	18	
	AQY414S			400	0.1	26	
	AQY232S	SOP4	1a	60	0.5	0.85	Low operate current
	AQY230S			350	0.12	19	
	AQY234S			400	0.1	27	
	AQY210KS	SOP4	1a	350	0.12	23	Short circuit protected
	AQV112KL(A)	DIP6		60	0.5	0.55	
	AQV251G	DIP6	1a	30	3.5	0.035	High power
	AQV252G			60	2.5	0.08	
	AQV259H(A)			1.000	0.03	85	
	AQV258H(A)			1.500	0.02	345	
AQV255GS	SOP6	80	1.25	0.09			
	AQY221R2T	VSSOP	1a	40	0.25	0.8	Low CxR for high frequencies C _{min} =1pF
	AQY221R2M	SON		40	0.25	0.8	
	AQY221N2M			40	0.12	9.5	
	AQY221N3M			25	0.15	5.5	
	AQY221N2V			SSOP	40	0.12	
	AQY221R2V	40			0.25	0.75	
	AQY221N3V	25			0.15	5.5	
	AQY225R2V	80			0.12	10.5	
	AQY221R4V	40			0.5	0.55	
		AQY221N2S			SOP4	40	
AQY221R2S		40		0.25		0.8	
AQY225R2S		80		0.15		10.5	
	AQS225R2S	SOP16	4a	80	0.07	10.5	
	AQZ102	SIL4	1a	60	4.0	0.05	DC only
	AQZ202			60	3.0	0.11	AC & DC
	AQZ205			100	2.0	0.23	
	AQZ204			400	0.5	2	
	AQZ404		1b	400	0.5	2.8	

1) A = SMD type

2) Maximum values (DC or peak AC)

3) Typical value

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