

Application Note

Low CxR PhotoMOS[®] Relays

High-precision applications like measurement or data acquisition devices require switches with low on-resistance and low capacitance. The answer are Low CxR PhotoMOS[®] relays, which offer low signal loss and suitable characteristics for higher frequent load signals.



High-precision applications

Panasonic
INDUSTRY

PRODUCT

Low CxR PhotoMOS[®] relays AQY222R2, AQY225R2V, AQY225R3V, AQY225R3T

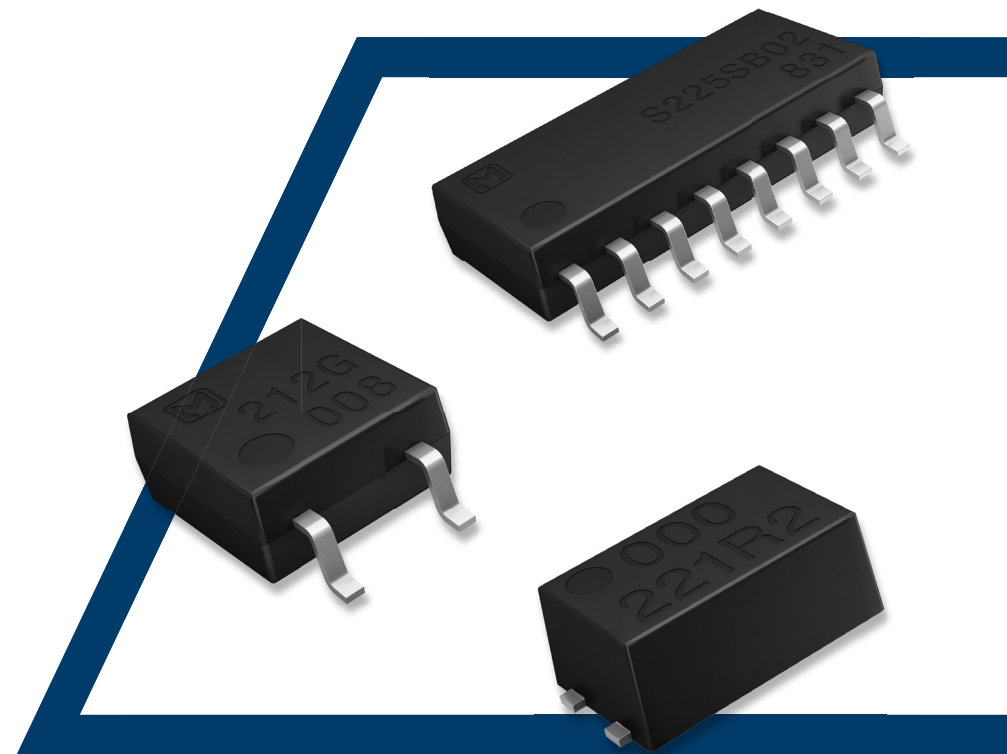
PURPOSE

Low CxR PhotoMOS[®] relays feature an optimized layout of the MOSFET and its guard ring region, combined with an improved internal structure. The results are low signal loss, fast switching times and good isolation characteristics for high-precision applications.

FEATURES

Low control current
Fast switching times
Small analog signal control
Low leakage current
Stable on-resistance over lifetime
Extremely long lifetime
Small size

No preferred mounting position
High vibration and shock resistance
No bouncing and no switching noise



High-precision applications

FACTS & FIGURES

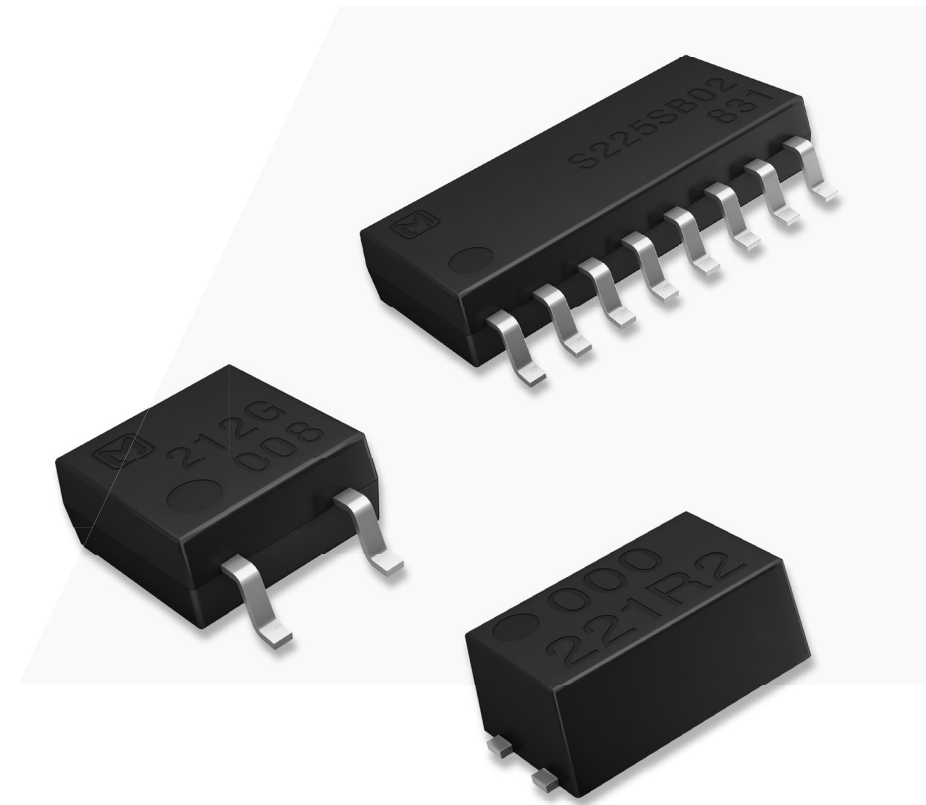
Modern electronics benefit from immense advancements in the semiconductor market, such as rising clock rates, extended functionality of devices and decreased sizes of electronic products. Switches and relays need to meet these challenging market demands, including galvanic separation of input and output. On top of that, high-precision applications like measurement or data acquisition devices require switches with low on-resistance for low signal loss as well as low capacitance for suitable switching times and isolation characteristics. For these scenarios, Panasonic Industry's low CxR PhotoMOS® relays offer tangible advantages with their improved electrical design.

“Low CxR” signifies the reduced capacitance (C) and on-resistance (R), which has been achieved through an optimized layout of the MOSFET and its guard ring region, combined with an improved internal structure including the layout of the bonding pads, manner of wire bonding and new terminal leads. Since there is still a trade-off relation between load voltage, resistance, and capacitance, Panasonic Industry offers several low CxR PhotoMOS® relays.

The variety of electrical characteristics is supplemented by different packages. The low CxR PhotoMOS® relays are available in 4-pin SSOP, 4-pin SOP or a 16-pin SOP package. This makes it easy to find the appropriate PhotoMOS® relay for nearly every application. Especially measurement applications such as data acquisition devices or automated test systems will

Type	Load Voltage (V)	Load Current (A)	ON Resistance (Ohm) typ./max.	Output Capacitance (pF)	Standard Package
AQY221N1S	40V	0.12A	9.80hm typ. 12.50hm max.	2.0pF	4 PIN SOP
AQY221N2S	40V	0.12A	9.50hm typ. 12.50hm max	1.0pF	4 PIN SOP
AQY221R2S	40V	0.25A	0.80hm typ. 1.250hm max	13pF	4 PIN SOP
AQY221N2V	40V	0.12A	9.50hm typ. 12.50hm max	1.0pF	4 PIN SOP
AQY221R2V	40V	0.25A	0.750hm typ. 1.250hm max	12.5pF	4 PIN SOP
AQY221N3V	25V	0.15A	5.50hm typ. 7.50hm max	1.0pF	4 PIN SOP
AQS221N2S	40V	0.06A	9.50hm typ. 12.50hm max	1.0pF	16 PIN SOP

profit from the features of semiconductor technology which PhotoMOS® relays offer. Other applications like telecommunication, security devices, sensor technologies or industrial applications can utilize the advantages of PhotoMOS® relays just as well.



Application Note - How to solve various tasks with Low CxR PhotoMOS® relays

Date: May 2021

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Notes: Data and descriptions in this document are subject to change without notice.

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