

PhotoMOS Relays

Semiconductor Relays

PhotoMOS Relay Dimensions









Type	Dimensions	
AQV21(SOP) AQV22(SOP) AQV41(SOP) Series	<p>Recommended mounting pad (Top view)</p> <p>Terminal thickness = 0.15 General tolerance: ±0.1</p> <p>Tolerance: ±0.1</p>	<p>Tolerance: ±0.1</p>
AQY22 (SON) Series	<p>Recommended mounting pad (Top view)</p> <p>General tolerance: ±0.2</p>	<p>Tolerance : ±0.1</p>
APV21 (SSOP) AQY22 (SSOP) Series	<p>Terminal thickness = 0.15 General tolerance: ±0.5</p>	<p>Tolerance: ±0.1</p>
AQW21(SOP) AQW61(SOP) Series	<p>Terminal thickness = 0.15 General tolerance: ±0.1</p>	<p>Tolerance: ±0.1</p>
AQS22(SOP) Series	<p>Terminal thickness = 0.15 General tolerance: ±0.1</p>	<p>Tolerance: ±0.1</p>








Please download **CAD Data** from our Web site: www.panasonic-electric-works.com

Type	Dimensions		
AQZ27 Series	<p>Through hole terminal type</p> <p>Terminal thickness = 0.25 General tolerance: ±0.1</p>	<p>Surface mount terminal type</p> <p>Terminal thickness = 0.25 General tolerance: ±0.1</p>	<p>PC board pattern (Bottom view)</p> <p>Tolerance: ±0.1</p> <p>Recommended mounting pad (Top view)</p> <p>Tolerance: ±0.1</p>
AQZ10 AQZ20 AQZ40 Series	<p>General tolerance: ±0.1</p>	<p>PC board pattern (Bottom view)</p> <p>Tolerance: ±0.1</p> <p>AC/DC type</p> <p>① Input: DC - ② Input: DC+ ③ Output: DC or AC ④ Output: DC or AC</p> <p>DC type</p> <p>① Input: DC - ② Input: DC+ ③ Output: DC - ④ Output: DC+</p>	
AQZ26 Series	<p>General tolerance: 0.5</p>	<p>Mounting hole location (Bottom view)</p> <p>Pitch tolerance: 0.1</p>	<p>① Input: DC - ② Input: DC + ③ Output: AC or DC ④ Output: AC or DC</p>

PhotoMOS 1 Form A Signal Relays













PhotoMOS Selector Chart











Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
★ AQY212GS	 <p>1:1 4.3 x 4.4 x 2.1mm</p>	High capacity type	60V	• 1.0A / 3.0A 
★ AQY212G2S		High capacity type	60V	• 1.25A / 3.0A 
★ AQY212S			60V	• 0.5A / 1.0A 
AQY210LS		Current limiting	350V	• 0.12A / - 0.18A (Output limit current [typ.]) 
★ AQY210S		PSpice	350V	• 0.12A / 0.3A 
★ AQY210KS		Short circuit protected	350V	• 0.12A / - 0.2A (Cut off current [typ.]) 
★ AQY214S		PSpice	400V	• 0.1A / 0.24A 

Output		Input		Switching speed (I LED = 5mA)		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.34/0.7Ω	220pF	3.0mA	0.3mA	5.0ms	0.5ms	1,500V AC	C-UL, TÜV, UL, VDE 
0.2/0.5Ω	220pF	3.0mA	0.3mA	5.0ms	0.5ms	1,500V AC	— 
0.83/2.5Ω	80pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	BSI, CSA, C-UL, TÜV, UL 
20/25Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	1,500V AC	BSI, CSA, C-UL, TÜV, UL 
17/25Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	BSI, CSA, C-UL, TÜV, UL 
23.5/35Ω	42pF	3.0mA	0.3mA	2.0ms	1.0ms	1,500V AC	BSI, CSA, C-UL, TÜV, UL 
25/35Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	BSI, CSA, C-UL, TÜV, UL 

PhotoMOS 1 Form A Signal Relays


PhotoMOS Selector Chart














Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
★ AQY232S	 1:1 4.3 x 4.4 x 2.1mm	Sensitive type	60V	• 0.5A / 1.5A 
★ AQY230S		Sensitive type	350V	• 0.12A / 0.3A 
★ AQY234S		Sensitive type	400V	• 0.1A / 0.24A 
★ AQY211EH	 1:1 DIP : 4.78 x 6.4 x 3.2mm SMD: 4.78 x 6.4 x 2.9mm		30V	• 1.0A / 3.0A 
★ AQY212EH			60V	• 0.55A / 1.5A 
★ AQY212GH		High capacity type	60V	• 1.1A / 3.0A 
★ AQY214EH			400V	• 0.12A / 0.3A 
★ AQY210EH			350V	• 0.13A / 0.4A 
AQY210HL		Current limiting	350V	• 0.12A / - 0.18A (Output limit current [typ.]) 
★ AQY216EH			600V	• 0.05A / 0.15A 

Output		Input		Switching speed (I LED = 5mA)		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.85/2.5Ω	0.8pF	0.5mA	0.1mA	5.0ms	2.0ms	1,500V AC	— 
19/25Ω	0.8pF	0.5mA	0.1mA	5.0ms	2.0ms	1,500V AC	— 
27/35Ω	0.8pF	0.5mA	0.1mA	5.0ms	2.0ms	1,500V AC	— 
0.25/0.5Ω	240pF	3.0mA	0.4mA	5.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
0.85/2.5Ω	80pF	3.0mA	0.4mA	4.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL 
0.34/0.7Ω	220pF	3.0mA	0.3mA	5.0ms	0.5ms	5,000V AC	C-UL, UL, VDE 
26/35Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
18/25Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
20/25Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL 
52/120Ω	35pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 

PhotoMOS 1 Form A Signal Relays









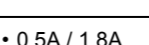
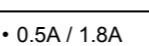
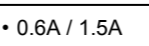
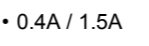
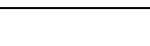
PhotoMOS Selector Chart













Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
★ Aqv212S	 1:1 6.3 x 4.4 x 2.1mm	PSpice	60V	• 0.5A / 1.0A 
Aqv215S		PSpice	100V	• 0.3A / 0.9A 
Aqv217S		PSpice	200V	• 0.16A / 0.48A 
Aqv210S		PSpice	350V	• 0.12A / 0.3A 
Aqv214S		PSpice	400V	• 0.1A / 0.3A 
Aqv216S		PSpice	600V	• 0.04A / 0.12A 
★ Aqv212	 1:1	PSpice	60V	• 0.55A / 1.2A 
★ Aqv252G		High capacity type	60V	• 2.5A / 6.0A 
★ Aqv251G		High capacity type	30V	• 3.5A / 6.0A 
★ Aqv255GS	 1:1 6.3 x 4.4 x 2.0mm	High capacity type	80V	• 1.25A / 2.5A 
Aqv215	 1:1	PSpice	100V	• 0.32A / 0.96A 
Aqv217		PSpice	200V	• 0.18A / 0.54A 
Aqv210		PSpice	350V	• 0.13A / 0.4A 

Output		Input		Switching speed (I LED = 5mA)		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.83/2.5Ω	150pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
2.3/4.0Ω	110pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
11/15Ω	70pF	3.0mA	0.4mA	1.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
23/35Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
30/50Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
70/120Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
0.83/2.5Ω	150pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
0.08/0.12Ω	240pF	3.0mA	0.2mA	5.0ms	0.5ms	1,500V AC	CSA, C-UL, TÜV, UL, VDE 
0.035/0.08Ω	350pF	3.0mA	0.2mA	5.0ms	0.5ms	1,500V AC	— 
0.09/0.15Ω	300pF	3.0mA	0.2mA	5.0ms	0.5ms	1,500V AC	— 
2.3/4.0Ω	110pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
11/15Ω	70pF	3.0mA	0.4mA	1.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
23/35Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 

PhotoMOS 1 Form A Signal Relays

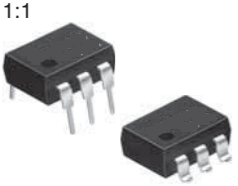







PhotoMOS Selector Chart




Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
AQV210E	 <p>DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm</p>		350V	• 0.13A / 0.4A 
★AQV210EH			350V	• 0.13A / 0.4A 
AQV214		PSpice	400V	• 0.12A / 0.3A 
AQV214E			400V	• 0.12A / 0.3A 
★AQV214EH			400V	• 0.12A / 0.3A 
AQV214H			400V	• 0.12A / 0.3A 
AQV216		PSpice	600V	• 0.05A / 0.15A 
AQV101			40V DC	• 0.7A / 1.8A 
AQV201			40V	• 0.5A / 1.8A 
AQV251			40V	• 0.5A / 1.8A 
AQV102			60V DC	• 0.6A / 1.5A 
AQV202			60V	• 0.4A / 1.5A 

Output		Input		Switching speed (I LED = 5mA)		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
23/35Ω	45pF	3.0mA	1.0mA	2.0ms	1.0ms	1,500V AC	CSA, C-UL, TÜV, UL 
23/35Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
30/50Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
30/50Ω	45pF	3.0mA	0.3mA	2.0ms	1.0ms	1,500V AC	CSA, C-UL, TÜV, UL 
30/50Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
30/50Ω	45pF	3.0mA	0.4mA	0.8ms	0.2ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
70/120Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
0.3/0.5Ω	600pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
0.6/1Ω	350pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
0.6/1.0Ω	350pF	3.0mA	0.4mA	3.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
0.37/0.7Ω	600pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
0.74/1.4Ω	350pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 

PhotoMOS 1 Form A Signal Relays










PhotoMOS Selector Chart









Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
AQV252	 <p>DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm</p>		60V	• 0.4A / 1.5A 
★AQV112KL		Short circuit protected	60V DC	• 0.5A / - 
AQV255			100V	• 0.35A / 1.0A 
AQV257			200V	• 0.25A / 0.75A 
AQV103			250V DC	• 0.3A / 0.6A 
AQV203			250V	• 0.2A / 0.6A 
AQV253			250V	• 0.2A / 0.6A 

Output		Input		Switching speed (I LED = 5mA)		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.74/1.4Ω	350pF	3.0mA	0.4mA	1.4ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
0.55/2Ω	300pF	10mA	0.3mA	2.0ms	1.0ms	1,500V AC	CSA, C-UL, TÜV, UL, VDE 
1.8/2.5Ω	350pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
2.6/4.0Ω	170pF	3.0mA	0.4mA	3.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
2.7/4Ω	300pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
5.5/8Ω	170pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
5.5/8.0Ω	170pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 

PhotoMOS 1 Form A Signal Relays

PhotoMOS Selector Chart

Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output		
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)	
AQV253H	 <p>DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm</p>		250V	• 0.2A / 0.6A 	
AQV104			400V DC	• 0.18A / 0.5A 	
AQV204			400V	• 0.15A / 0.5A 	
AQV234		Sensitive type	400V	• 0.12A / 0.3A 	
AQV254			400V	• 0.15A / 0.5A 	
AQV254H			400V	• 0.15A / 0.5A 	
★ AQV259				1,000V	• 0.03A / 0.09A 
★ AQV258				1,500V	• 0.02A / 0.06A 

Output		Input		Switching speed (I LED = 5mA)		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
5.5/8Ω	170pF	3.0mA	0.4mA	4.0ms	0.2ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
6.3/8Ω	300pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
12.4/16Ω	170pF	5.0mA	0.8mA	1.0ms	1.0ms	1,500V AC	C-UL, TÜV, UL 
30/50Ω	45pF	0.31mA	0.1mA	2.0ms	1.0ms	1,500V AC	CSA, C-UL, TÜV, UL 
12.4/16Ω	170pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
12.4/16Ω	170pF	3.0mA	0.4mA	3.0ms	0.2ms	5,000V AC	BSI, CSA, C-UL, TÜV, UL, VDE 
80/200Ω	80pF	3.0mA	0.4mA	1.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 
345/500Ω	80pF	3.0mA	0.4mA	1.0ms	0.2ms	1,500V AC	CSA, C-UL, TÜV, UL 

PhotoMOS 1 Form A Power Relays








PhotoMOS Selector Chart



Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
★ AQZ102	<p>1:1</p> <p>21 x 3.5 x 12.5mm</p>		60V DC	• 4.0A / 9.0A
AQZ105		100V DC	• 2.6A / 6.0A 	
AQZ107		200V DC	• 1.3A / 3.0A 	
AQZ104		400V DC	• 0.7A / 1.5A 	
AQZ262	<p>1:1</p> <p>43 x 9 x 32mm</p>		60V	• 6.0A / 10.0A
★ AQZ202	<p>1:1</p> <p>21 x 3.5 x 12.5mm</p>		60V	• 3.0A / 9.0A
★ AQZ205		100V	• 2.0A / 6.0A 	
AQZ207		200V	• 1.0A / 3.0A 	
★ AQZ204		400V	• 0.5A / 1.5A 	
AQY212FG2S	<p>1:1</p> <p>4.30 x 4.40 x 2.10mm</p>	Built-in resistor	60V	• 1.25A / 3.0A

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.05/0.09Ω	1700pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
0.081/0.17Ω	1700pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
0.34/0.55Ω	900pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
1.06/1.6Ω	900pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
0.036/0.05Ω	1400pF	3.0mA	0.4mA	10.0ms	3.0ms	1,500V AC	CSA, UL
0.11/0.18Ω	1400pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
0.23/0.34Ω	1400pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
07/11Ω	600pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
2.1/3.2Ω	600pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, TÜV, UL
0.2/0.5Ω	150pF	Operate volt- age V _{Fon} (max.) 4.0V	Turn off volt- age V _{Foff} (min.) 0.8V	5.0ms	0.5ms	500V AC	—

PhotoMOS 1 Form A Power Relays
















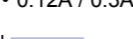
PhotoMOS Selector Chart








Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
AQZ264	1:1  43 x 9 x 32mm		400V	• 1.0A / 3.0A 
AQY272	1:1  DIP : 9.3 x 8.8 x 3.9mm SMD: 9.3 x 8.8 x 3.7mm		60V	• 2.0A / 6.0A 
AQY275			100V	• 1.3A / 4.0A 
AQY277			200V	• 0.65A / 2.0A 
AQY274			400V	• 0.35A / 1.0A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
1.0/1.4Ω	600pF	3.0mA	0.4mA	10.0ms	3.0ms	1,500V AC	CSA, UL 
0.11/0.18Ω	1400pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, UL 
0.23/0.34Ω	1400pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, UL 
0.7/1.1Ω	600pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, UL 
2.1/3.2Ω	600pF	3.0mA	0.4mA	5.0ms	3.0ms	2,500V AC	CSA, C-UL, UL 

PhotoMOS 1 Form A Low CxR










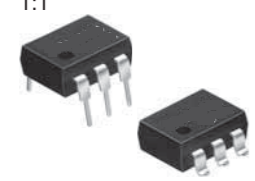




PhotoMOS Selector Chart

Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
★ AQY221R2T	1:1  1.8 x 2.1 x 2.9mm	Low CxR	40V	• 0.25A 
★ AQY221N2T		Low CxR	40V	• 0.12A 
★ AQY221N3T		Low CxR	25V	• 0.15A 
★ AQY221N3M	1:1  2.2 x 2.95 x 1.4mm	Low CxR	25V	• 0.15A / - 
★ AQY221R2M		Low CxR	40V	• 0.25A / 0.75A 
★ AQY221N2M		Low CxR	40V	• 0.12A / - 
★ AQY221N3V	1:1  2.65 x 4.45 x 1.8mm	Low CxR	25V	• 0.15A / 0.4A 
★ AQY221R4V		Low CxR	40V	• 0.5A / 1.0A 
★ AQY221N2V		Low CxR PSpice	40V	• 0.12A / 0.3A 
★ AQY221R2V		Low CxR PSpice	40V	• 0.25A / 0.75A 
AQY221FR2V		Built-in resistor	40V	• 0.25A / 0.75A 
AQY221FN2V		Built-in resistor	40V	• 0.12A / 0.2A 
AQY225R2V		Low CxR	80V	• 0.12A / 0.3A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.8/1.25Ω	14pF	3.0mA	0.1mA	0.5ms	0.2ms	200V AC	— 
9.5/12.5Ω	1.1pF	3.0mA	0.2mA	0.2ms	0.2ms	200V AC	— 
5.5/7.5Ω	1.1pF	3.0mA	0.2mA	0.2ms	0.2ms	200V AC	— 
5.5/7.5Ω	1.1pF	3.0mA	0.2mA	0.2ms	0.2ms	200V AC	— 
0.8/1.25Ω	14pF	3.0mA	0.2mA	0.5ms	0.2ms	200V AC	— 
9.5/12.5Ω	1.1pF	3.0mA	0.2mA	0.2ms	0.2ms	200V AC	— 
5.5/7.5Ω	1pF	3.0mA	0.2mA	0.2ms	0.2ms	1,500V AC	— 
0.55/1.0Ω	24pF	3.0mA	0.1mA	0.75ms	0.2ms	1,500V AC	— 
9.5/12.5Ω	1.0pF	3.0mA	0.2mA	0.5ms	0.2ms	1,500V AC	— 
0.75/1.25Ω	12.5pF	3.0mA	0.1mA	0.5ms	0.2ms	1,500V AC	— 
0.75/1.25Ω	12.5pF	Operate volt- age V _{Fon} (max.) 4.0V	Turn off volt- age V _{Foff} (min.) 0.8V	0.5ms	0.2ms	500V AC	— 
9.5/12.5Ω	1pF	Operate volt- age V _{Fon} (max.) 4.0V	Turn off volt- age V _{Foff} (min.) 0.8V	0.5ms	0.2ms	500V AC	— 
10.5/15Ω	4.5pF	3.0mA	0.1mA	0.5ms	0.2ms	1,500V AC	— 

PhotoMOS 1 Form A Low CxR









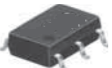
PhotoMOS Selector Chart




Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
★ AQY221N2S	1:1  4.3 x 4.4 x 2.1mm	Low CxR	40V	• 0.12A / 0.3A 
★ AQY221R2S		Low CxR	40V	• 0.25A / 0.75A 
AQY222R1S		Low CxR	60V	• 0.5A / 1.0A 
AQY225R1S		Low CxR	80V	• 0.35A / 0.7A 
★ AQY225R2S		Low CxR	80V	• 0.15A / 0.45A 
AQV227NS	1:1  6.3 x 4.4 x 2.1mm		200V	• 0.05A / 0.15A 
AQV224NS			400V	• 0.04A / 0.12A 
AQV221	1:1  DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm		40V	• 0.08A / 0.18A 
AQV225			80V	• 0.05A / 0.15A 
AQV227N			200V	• 0.07A / 0.21A 
AQV224N			400V	• 0.05A / 0.15A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
9.5/12.5Ω	1.0pF	3.0mA	0.2mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
0.8/1.25Ω	13pF	3.0mA	0.1mA	0.5ms	0.2ms	500V AC	CSA, TÜV, UL 
0.8/1.2Ω	24.5pF	3.0mA	0.1mA	0.5ms	0.2ms	1,500V AC	— 
0.8/1.2Ω	37.5pF	3.0mA	0.1mA	0.75ms	0.2ms	1,500V AC	— 
10.5/15Ω	4.5pF	3.0mA	0.1mA	0.5ms	0.2ms	1,500V AC	— 
30/50Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
70/100Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
22/35Ω	5.6pF	3.0mA	0.4mA	0.3ms	0.1ms	1,500V AC	CSA, TÜV, UL 
36/50Ω	4.8pF	3.0mA	0.4mA	0.3ms	0.1ms	1,500V AC	CSA, TÜV, UL 
30/50Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
70/100Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 

PhotoMOS 1 Form B












PhotoMOS Selector Chart










Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
1 Form B Signal Relays				
★ AQY412S	1:1  4.3 x 4.4 x 2.1mm		60V	• 0.5A / 1.5A 
★ AQY410S			350V	• 0.12A / 0.3A 
★ AQY414S			400V	• 0.1A / 0.24A 
AQY412EH	1:1  DIP : 4.78 x 6.4 x 3.2mm SMD: 4.78 x 6.4 x 2.9mm		60V	• 0.55A / 1.5A 
★ AQY410EH			350V	• 0.13A / 0.4A 
AQY414EH			400V	• 0.12A / 0.3A 
AQV414S		1:1  6.3 x 4.4 x 2.1mm		400V

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
1/2.5Ω	450pF	3.0mA	0.4mA	3.0ms	1.0ms	1,500V AC	CSA, UL, VDE 
18/25Ω	110pF	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	BSI, CSA, TÜV, UL 
26/35Ω	100pF	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	BSI, CSA, TÜV, UL 
1/2.5Ω	480pF	3.0mA	0.4mA	10.0ms	1.0ms	5,000V AC	CSA, UL, VDE 
18/25Ω	110pF	3.0mA	0.4mA	3.0ms	1.0ms	5,000V AC	BSI, CSA, UL 
26/35Ω	100pF	3.0mA	0.4mA	3.0ms	1.0ms	5,000V AC	BSI, CSA, UL 
26/50Ω	100pF	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 

PhotoMOS 1 Form B











PhotoMOS Selector Chart







Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
AQV410EH	 <p>1:1 DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm</p>		350V	• 0.13A / 0.4A 
AQV412EH			60V	• 0.55A / 1.5A 
AQV414E			400V	• 0.12A / 0.3A 
AQV414EH			400V	• 0.12A / 0.3A 
AQV453			250V	• 0.2A / 0.6A 
AQV414			400V	• 0.12A / 0.3A 
AQV454			400V	• 0.15A / 0.5A 
AQV454H			400V	• 0.15A / 0.5A 
1 Form B Power Relays				
AQZ404	 <p>1:1 21 x 3.5 x 12.5mm</p>		400V	• 0.5A / 1.5A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
18/35Ω	110pF	3.0mA	0.4mA	3.0ms	1.5ms	5,000V AC	BSI, CSA, TÜV, UL, VDE 
1/2.5Ω	480pF	3.0mA	0.4mA	10.0ms	1.5ms	5,000V AC	CSA, TÜV, UL, VDE 
26/50Ω	100pF	3.0mA	0.3mA	2.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 
26/50Ω	100pF	3.0mA	0.4mA	3.0ms	1.5ms	5,000V AC	BSI, CSA, TÜV, UL, VDE 
5.5/8.0Ω	350pF	3.0mA	0.4mA	3.0ms	1.0ms	1,500V AC	CSA, UL 
26/50Ω	100pF	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 
10.5/16Ω	170pF	3.0mA	0.4mA	2.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 
10.5/16Ω	170pF	3.0mA	0.4mA	3.0ms	1.0ms	5,000V AC	CSA, TÜV, UL 
2.8/4.0Ω	2000pF	3.0mA	0.4mA	7.5ms	3.0ms	2,500V AC	CSA, UL 

PhotoMOS 2 Form A Signal Relays









PhotoMOS Selector Chart




Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output		
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)	
★ AQW210S	 1:1 9.37 x 4.4 x 2.1mm		350V	• 0.1A / 0.3A 	
AQW212S			60V	• 0.4A / 1.5A 	
★ AQW214S			400V	• 0.08A / 0.24A 	
★ AQW212EH	 1:1 DIP : 9.86 x 6.4 x 3.2mm SMD: 9.86 x 6.4 x 2.9mm		60V	• 0.5A / 1.5A 	
★ AQW210EH			350V	• 0.12A / 0.36A 	
AQW210HL		Current limiting	350V	• 0.1A / - 0.18A (Output limit current [typ.]) 	
AQW214EH			400V	• 0.1A / 0.3A 	
★ AQW216EH				600V	• 0.04A / 0.12A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
16/35Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
0.83/2.5Ω	-	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, TÜV, UL 
30/50Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
0.83/2.5Ω	80pF	3.0mA	0.4mA	4.0ms	1.0ms	5,000V AC	CSA, TÜV, UL 
18/25Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	CSA, TÜV, UL 
20/25Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	CSA, TÜV, UL 
26/35Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	CSA, TÜV, UL 
52/120Ω	45pF	3.0mA	0.4mA	2.0ms	1.0ms	5,000V AC	CSA, TÜV, UL 

PhotoMOS 2 Form A Signal Relays




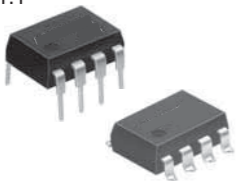




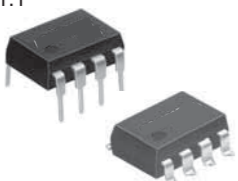


PhotoMOS Selector Chart








Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
AQW212	 <p>DIP : 9.78 x 6.4 x 3.9mm SMD: 9.78 x 6.4 x 3.6mm</p>		60V	• 0.6A / 1.0A 
AQW215			100V	• 0.3A / 0.9A 
AQW217			200V	• 0.16A / 0.48A 
AQW210			350V	• 0.12A / 0.36A 
AQW214			400V	• 0.1A / 0.3A 
AQW254			400V	• 0.12A / 0.36A 
AQW216			600V	• 0.04A / 0.12A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
0.83/2.5Ω	150pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, TÜV, UL 
2.3/4.0Ω	110pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, TÜV, UL 
11/15Ω	70pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, TÜV, UL 
23/35Ω	45pF	3.0mA	0.4mA	0.5ms	0.05ms	1,500V AC	CSA, TÜV, UL 
30/50Ω	45pF	3.0mA	0.4mA	0.5ms	0.05ms	1,500V AC	CSA, TÜV, UL 
12.4/16Ω	170pF	3.0mA	0.4mA	2.0ms	0.2ms	1,500V AC	CSA, TÜV, UL 
70/120Ω	45pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 

PhotoMOS Other Types





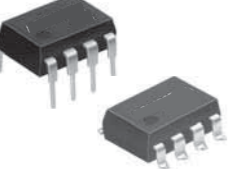








PhotoMOS Selector Chart




Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
2 Form A Low CxR				
AQW227NS	1:1  9.37 x 4.4 x 2.1mm	Low CxR	200V	• 0.04A / 0.15A 
AQW223R2S			250V	• 0.14A / 0.42A 
AQW227N	1:1  DIP : 9.78 x 6.4 x 3.9mm SMD: 9.78 x 6.4 x 3.6mm		200V	• 0.05A / 0.15A 
AQW224N			400V	• 0.04A / 0.12A 
2 Form B				
★ AQW414EH	1:1  DIP : 9.86 x 6.4 x 3.2mm SMD: 9.86 x 6.4 x 2.9mm		400V	• 0.1A / 0.3A 
AQW414	1:1  DIP : 9.78 x 6.4 x 3.9mm SMD: 9.78 x 6.4 x 3.6mm		400V	• 0.1A / 0.3A 
AQW454			400V	• 0.12A / 0.36A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
30/50Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	C-UL, TÜV, UL 
10/15Ω	33pF	3.0mA	0.1mA	0.5ms	0.2ms	1,500V AC	C-UL 
30/50Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
70/100Ω	10pF	3.0mA	0.4mA	0.5ms	0.2ms	1,500V AC	CSA, TÜV, UL 
26/35Ω	100pF	3.0mA	0.4mA	3.0ms	1.0ms	5,000V AC	BSI, CSA, TÜV, UL 
26/50Ω	100pF	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 
11/16Ω	170pF	3.0mA	0.4mA	2.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 

PhotoMOS Other Types

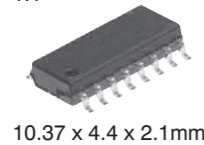




PhotoMOS Selector Chart





Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
1 Form A / 1 Form B				
AQW612S	1:1  9.4 x 4.4 x 2.1mm		60V	• 0.45A / 1.5A 
★ AQW610S	1:1  9.37 x 4.4 x 2.1mm		350V	• 0.1A / 0.3A 
AQW612EH	1:1  DIP : 9.78 x 6.4 x 3.9mm SMD: 9.78 x 6.4 x 3.6mm		60V	• 0.5A / 1.5A 
★ AQW610EH	1:1  DIP : 9.86 x 6.4 x 3.2mm SMD: 9.86 x 6.4 x 2.9mm		350V	• 0.12A / 0.36A 
★ AQW614EH			400V	• 0.1A / 0.3A 
AQW614	1:1 		400V	• 0.1A / 0.3A 
AQW654	 DIP : 9.78 x 6.4 x 3.9mm SMD: 9.78 x 6.4 x 3.6mm		400V	• 0.12A / 0.36A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
1/2.5Ω	80pF (N.O.) 450pF (N.C.)	3.0mA	0.4mA	3.0ms	1.0m	1,500V AC	CSA, TÜV, UL, VDE 
18/25Ω	45pF (N.O.) 100pF (N.C.)	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	BSI, CSA, TÜV, UL 
1/2.5Ω	80pF (N.O.) 480pF (N.C.)	3.0mA	0.4mA	4.0ms (N.O.) 10.0ms (N.C.)	1.0ms	5,000V AC	CSA, TÜV, UL, VDE 
18/25Ω	45pF (N.O.) 100pF (N.C.)	3.0mA	0.4mA	3.0ms	1.0ms	5,000V AC	BSI, CSA, TÜV, UL 
26/35Ω	45pF (N.O.) 100pF (N.C.)	3.0mA	0.4mA	3.0ms	1.0ms	5,000V AC	BSI, CSA, TÜV, UL 
27/50Ω	45pF (N.O.) 100pF (N.C.)	3.0mA	0.4mA	1.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 
• N.O.: 10/16Ω • N.C.: 11/16Ω	170pF	3.0mA	0.4mA	3.0ms	1.0ms	1,500V AC	CSA, TÜV, UL 

PhotoMOS Other Types


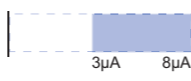





PhotoMOS Selector Chart

Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Peak load V DC/AC	Continuous load current/ Peak load current (100ms)
Multichannel				
AQS221N2S	 <p>1:1 10.37 x 4.4 x 2.1mm</p>	Low CxR	40V	• 0.06A / 0.12A 
★ AQS225R2S		Low CxR	80V	• 0.07A / 0.2A 
AQS221FR2S		Built-in resistor	40V	• 0.16A / 0.2A 
AQS221FN2S		Built-in resistor	40V	• 0.06A / 0.12A 

Output		Input		Switching speed		I/O isolation voltage	Approvals Data sheet
ON resistance (typical/max.)	Output capacitance (typical)	LED operate current(max.)	LED turn-off current (min.)	Turn-on time (max.)	Turn-off time (max.)		
9.5/12.5Ω	1pF	3.0mA	0.1mA	0.2ms	0.2ms	500V AC	— 
10.5/15.0Ω	4.5pF	3.0mA	0.3mA	0.3ms	0.2ms	1,500V AC	CSA, TÜV, UL 
0.5/1.5Ω	12.5pF	Operate volt- age V_{Fon} (max.) 4.0V	Turn off volt- age V_{Foff} (min.) 0.8V	0.5ms	0.2ms	500V AC	— 
9.5/12.5Ω	1pF	Operate volt- age V_{Fon} (max.) 4.0V	Turn off volt- age V_{Foff} (min.) 0.8V	0.5ms	0.2ms	500V AC	— 

Photovoltaic MOSFET drivers

PhotoMOS Selector Chart

Type ★ = Popular Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output	
			Drop-out voltage (typical/min.)	Short circuit current (typical/min.)
★ APV2111V	1:1  2.65 x 4.45 x 1.8mm	Ultra small SSOP housing	8.2/5.0V	• 8 / 3μA 
★ APV1121S	1:1  4.3 x 4.4 x 2mm	Ultra small SMD (SOP) housing	8.7/6.0V	• 14 / 5μA 
APV2121S		Ultra small SMD (SOP) housing	8.2/5.0V	• 8 / 3μA 
APV1122	1:1  DIP : 8.8 x 6.4 x 3.6mm SMD: 8.8 x 6.4 x 3.9mm	5000V breakdown voltage	8.7/6.0V	• 14 / 5μA 









Input		Switching speed		I/O isolation voltage	Approvals Data sheet
LED operate current (max.)	LED turn-off current (min.)	Turn-on time (typical)	Turn-off time (typical)		
3.0mA	0.2mA	0.8ms	0.1ms	1,500V AC	C-UL 
3.0mA	0.2mA	0.4ms	0.1ms	2,500V AC	C-UL 
3.0mA	0.2mA	0.8ms	0.1ms	2,500V AC	C-UL 
3.0mA	0.2mA	0.4ms	0.1ms	5,000V AC	C-UL 

Photo-Triac Couplers

Solid State Relays Selector Chart

Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output			
			Repetitive peak OFF-state voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	Peak ON-state voltage (max.)	Peak OFF-state current (max.)
APT1211S	 1:1 4.3 x 4.4 x 2.1mm	<ul style="list-style-type: none"> Zero-cross SOP 4 pin 	• 600V	<ul style="list-style-type: none"> 0.05A / 0.6A 	2.5V	1μA
APT1221S		<ul style="list-style-type: none"> Random SOP 4 pin 				
APT1231S		<ul style="list-style-type: none"> Low zero-cross SOP 4 pin 				
APT1211	 1:1 DIP : 4.78 x 6.4 x 3.2mm SMD: 4.78 x 6.4 x 2.9mm	<ul style="list-style-type: none"> Zero-cross DIP 4 pin 	• 600V	<ul style="list-style-type: none"> 0.1A / 1.2A 	2.5V	1μA
APT1221		<ul style="list-style-type: none"> Random DIP 4 pin 				
APT1231		<ul style="list-style-type: none"> Low zero-cross DIP 4 pin 				

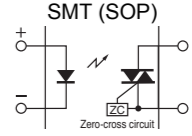

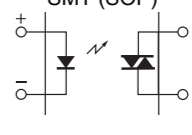
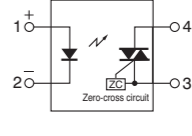
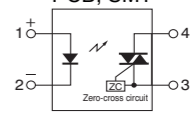

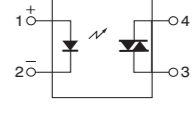
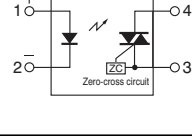
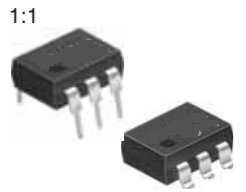
Input			Zero-cross voltage (max.)	I/O isolation voltage	Connection type Switching diagram	Approvals Data sheet
LED trigger current (max.)	LED drop-out voltage (max.)	Turn-on time (max.)				
10mA	1.3V	0.1ms	50V	3,750V AC	SMT (SOP) 	C-UL, UL, VDE 
			—		SMT (SOP) 	
			15V		SMT (SOP) 	
10mA	1.3V	0.1ms	50V	5,000V AC	PCB, SMT 	C-UL, UL, VDE 
			—		PCB, SMT 	
			15V		PCB, SMT 	

Photo-Triac Couplers

Solid State Relays Selector Chart

Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output			
			Repetitive peak OFF-state voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	Peak ON-state voltage (max.)	Peak OFF-state current (max.)
APT1212	 <p>1:1</p> <p>DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm</p>	<ul style="list-style-type: none"> • Zero-cross • DIP 6 pin 	• 600V	• 0.1A / 1.2A	2.5V	1μA
APT1222		<ul style="list-style-type: none"> • Random • DIP 6 pin 				
APT1232		<ul style="list-style-type: none"> • Low zero-cross • DIP 6 pin 			2.0V	

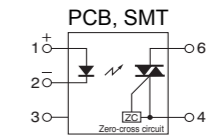
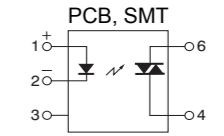
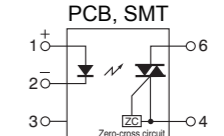
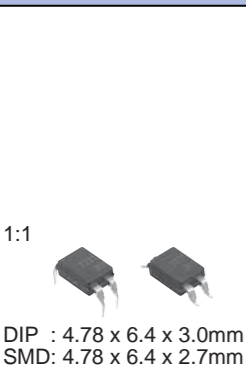

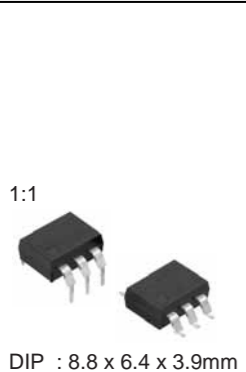

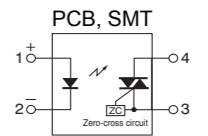

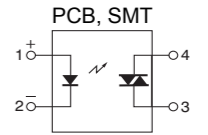
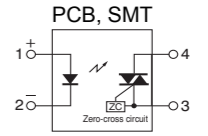
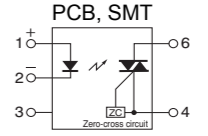

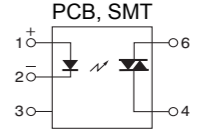
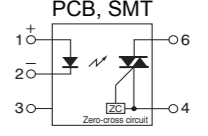
Input			Zero-cross voltage (max.)	I/O isolation voltage	Connection type Switching diagram	Approvals Data sheet
LED trigger current (max.)	LED drop-out voltage (max.)	Turn-on time (max.)				
10mA	1.3V	0.1ms	50V	5,000V AC	PCB, SMT 	C-UL, UL, VDE
			—		PCB, SMT 	
			15V		PCB, SMT 	

Photo-Triac Couplers Wide Terminal






Solid State Relays Selector Chart

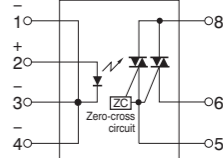
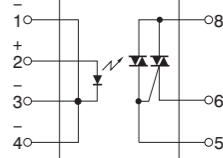

Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output			
			Repetitive peak OFF-state voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	Peak ON-state voltage (max.)	Peak OFF-state current (max.)
APT1211W	 <p>1:1 DIP : 4.78 x 6.4 x 3.0mm SMD: 4.78 x 6.4 x 2.7mm</p>	<ul style="list-style-type: none"> Zero-cross DIP 4 pin wide terminal 	• 600V	<ul style="list-style-type: none"> 0.1A / 1.2A 	2.5V	1μA
APT1221W		<ul style="list-style-type: none"> Random DIP 4 pin wide terminal 			2.0V	
APT1231W		<ul style="list-style-type: none"> Low zero-cross DIP 4 pin wide terminal 				
APT1212W	 <p>1:1 DIP : 8.8 x 6.4 x 3.9mm SMD: 8.8 x 6.4 x 3.6mm</p>	<ul style="list-style-type: none"> Zero-cross DIP 6 pin wide terminal 	• 600V	<ul style="list-style-type: none"> 0.1A / 1.2A 	2.5V	1μA
APT1222W		<ul style="list-style-type: none"> Random DIP 6 pin wide terminal 			2.0V	
APT1232W		<ul style="list-style-type: none"> Low zero-cross DIP 6 pin wide terminal 				

Input			Zero-cross voltage (max.)	I/O isolation voltage	Connection type Switching diagram	Approvals Data sheet
LED trigger current (max.)	LED drop-out voltage (max.)	Turn-on time (max.)				
10mA	1.3V	0.1ms	50V	5,000V AC	PCB, SMT 	C-UL, UL, VDE 
			—		PCB, SMT 	
			15V		PCB, SMT 	
10mA	1.3V	0.1ms	50V	5,000V AC	PCB, SMT 	C-UL, UL, VDE 
			—		PCB, SMT 	
			15V		PCB, SMT 	

AQH Relays





Solid State Relays Selector Chart

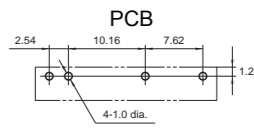
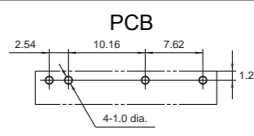
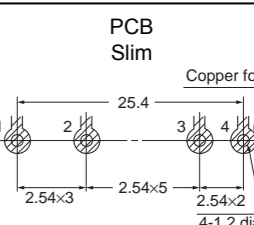
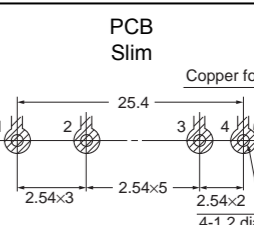
Type	Photo with Dimensions (Picture scale: DIN A4)	Features	Output			
			Repetitive peak OFF-state voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	Peak ON-state voltage (max.)	Peak OFF-state current (max.)
AQH0213		• Photo-Triac • Zero-cross	• 600V	• 0.3A / 3A 	2.5V	100μA
AQH0223		• Photo-Triac • Random				
AQH1213		• Photo-Triac • Zero-cross	• 600V	• 0.6A / 6A 	2.5V	100μA
AQH1223		• Photo-Triac • Random				
AQH2213		• Photo-Triac • Zero-cross	• 600V	• 0.9A / 9A 	2.5V	100μA
AQH2223		• Photo-Triac • Random				
AQH3213		• Photo-Triac • Zero-cross	• 600V	• 1.2A / 12A 	2.5V	100μA
AQH3223		• Photo-Triac • Random				

Input			Zero-cross voltage (max.)	I/O isolation voltage	Connection type Switching diagram	Approvals Data sheet
LED trigger current (max.)	LED drop-out voltage (max.)	Turn-on time (max.)				
10mA	1.3V	0.1ms	50V	5,000V	PCB, SMT With zero-cross switch:  Without zero-cross switch: 	C-UL, UL, VDE 
			—			
10mA	1.3V	0.1ms	50V	5,000V		
			—			
10mA	1.3V	0.1ms	50V	5,000V		
			—			
10mA	1.3V	0.1ms	50V	5,000V		
			—			

Solid State SIL and DIL Types







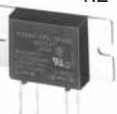



Solid State Relays Selector Chart

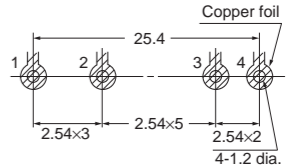
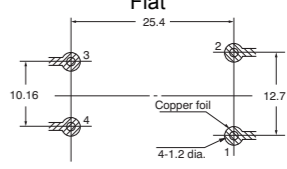
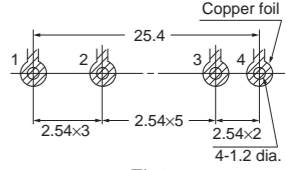
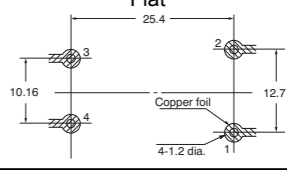
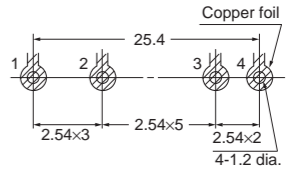
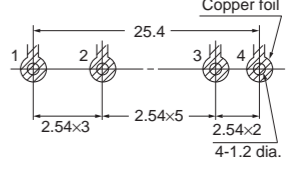
Type	Features	Output		
		Load voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	OFF-state leakage current (max.)
AQG 1A 1:1  24.5 x 4.5 x 13.5mm	<ul style="list-style-type: none"> • Photo-Triac • Zero-cross • Integrated snubber circuit 	• 75 - 264V AC	• 1A / 8A	1.5mA
	<ul style="list-style-type: none"> • Photo-Triac • Random • Integrated snubber circuit 	• 75 - 264V AC	• 1A / 8A	1.5mA
AQG 2A 1:1  24.5 x 4.5 x 20.5mm	<ul style="list-style-type: none"> • Photo-Triac • Zero-cross • Integrated snubber circuit 	• 75 - 264V AC	• 2A / 30A	1.5mA
	<ul style="list-style-type: none"> • Photo-Triac • Random • Integrated snubber circuit 	• 75 - 264V AC	• 2A / 30A	1.5mA
AQ1 1A (DC output) 1:2  33 x 10 x 25.1mm	• Photo-Transistor	• 10 - 200V DC	• 1A / 5A (1s)	1mA
AQ1 2A (DC output) 1:2  33 x 10 x 25.1mm	• Photo-Transistor	• 3 - 60V DC	• 2A / 5A (1s)	1mA

Input					Breakdown voltage	Connection type Terminal layout	Approvals Data sheet
Input voltage	Input impedance	Drop-out voltage (min.)	Operate time	Release time			
4 - 6V DC	0.3kΩ	1V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	3,000V AC		C-UL, UL, VDE
9.6 - 14.4V DC	0.8kΩ						
19.2 - 28.8V DC	1.6kΩ						
4 - 6V DC	0.3kΩ	1V	1ms	½ cycle of voltage sine wave + 1ms	3,000V AC		C-UL, UL, VDE
9.6 - 14.4V DC	0.8kΩ						
19.2 - 28.8V DC	1.6kΩ						
4 - 6V DC	0.3kΩ	1V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	3,000V AC		CSA, TÜV, UL
9.6 - 14.4V DC	0.8kΩ						
19.2 - 28.8V DC	1.6kΩ						
3 - 28V DC	1.6kΩ	0.8V	0.5ms	2ms	3,000V AC		CSA, TÜV, UL
3 - 28V DC	1.6kΩ	0.8V	0.5ms	2ms	3,000V AC		

Solid State SIL and DIL Types









Solid State Relays Selector Chart

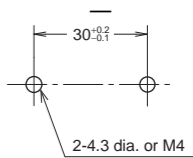

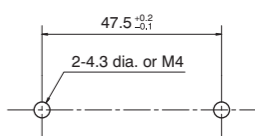

Type	Features	Output		
		Load voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	OFF-state leakage current (max.)
AQ1 2A (AC output) 1:2  33 x 10 x 25.1mm  33 x 25 x 12mm	<ul style="list-style-type: none"> Photo-Transistor Zero-cross 	• 75 - 250V AC	• 2A / 80A 	5mA
AQ1 3A (AC output) 1:2  33 x 10 x 25.1mm  33 x 25 x 12mm	<ul style="list-style-type: none"> Photo-Triac Zero-cross and random type available 	• 75 - 250V AC	• 3A / 100A 	5mA
AQ1 5A (AC output) 1:2  54 x 26mm	<ul style="list-style-type: none"> Photo-Transistor Zero-cross 	• 75 - 250V AC	• 5A (3A without heat sink) / 100A 	5mA
AQ1 10A (AC output) 1:2  54 x 26mm	<ul style="list-style-type: none"> Photo-Triac Zero-cross and random type available 	• 75 - 250V AC	• 10A (5A without heat sink) / 100A 	5mA

Input					Breakdown voltage	Connection type Terminal layout	Approvals Data sheet
Input voltage	Input impedance	Drop-out voltage (min.)	Operate time	Release time			
3 - 28V DC	1.6kΩ	0.8V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	3,000V AC	PCB Slim  Flat 	CSA, TÜV, UL
4 - 32V DC	— (Input current, max. 20mA)	1.0V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	• 4,000V AC (between input and output) • 2,500V AC (between input, output and case)	PCB Slim  Flat 	VDE
3 - 28V DC	1.6kΩ	0.8V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	• 3,000V AC (between input and output) • 1,500V AC (between input, output and case)	PCB 	CSA, TÜV, UL
4 - 32V DC	— (Input current, max. 20mA)	1.0V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	• 4,000V AC (between input and output) • 2,500V AC (between input, output and case)	PCB 	VDE

Solid State SIL and DIL Types

Solid State Relays Selector Chart

Type	Features	Output		
		Load voltage	Max. load current/ Non-repetitive surge current (1 cycle, 60Hz)	OFF-state leakage current (max.)
Solid State Hockey Puck Types				
AQ-J 1:2  38 x 28 x 17mm	<ul style="list-style-type: none"> • Photo-Triac • Zero-cross • Ultra-compact size • Built-in varistor 	• 75 - 264V AC	• 10A / 100A 	5mA
			• 15A / 150A 	
			• 25A / 250A 	
AQ-A 1:2  58 x 40 x 25.5mm	<ul style="list-style-type: none"> • Photo-Triac • Zero-cross and random type available • Built-in varistor and LED indication 	• 75 - 250V AC	• 15A / 150A 	10mA
			• 25A / 250A 	
			• 40A / 400A 	

Input					Breakdown voltage	Connection type Terminal layout	Approvals Data sheet
Input voltage	Input impedance	Drop-out voltage (min.)	Operate time	Release time			
4 - 6V DC	260Ω	1V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	<ul style="list-style-type: none"> • 3,000V AC (between input and output) • 2,500V AC (between input, output and case) 	 30 ^{+0.1} 2-4.3 dia. or M4	C-UL, TÜV 
10 - 18V DC	800Ω						
18 - 28V DC	1.6kΩ						
4 - 6V DC	260Ω						
10 - 18V DC	800Ω						
18 - 28V DC	1.6kΩ						
4 - 6V DC	260Ω						
10 - 18V DC	800Ω						
18 - 28V DC	1.6kΩ						
4 - 32V DC	— (Input current, max. 20mA)	1V	½ cycle of voltage sine wave + 1ms	½ cycle of voltage sine wave + 1ms	<ul style="list-style-type: none"> • 4,000V AC (between input and output) • 2,500V AC (between input, output and case) 	 47.5 ^{+0.2} 2-4.3 dia. or M4	— 

Alphabetical List of Relays

Further Panasonic Products

Mechanical Relays

CA	46
CB	40
CJ	38
CJ	44
CM	40
CN-H	40
CN-M	42
CP (SMD)	42
CP POWER	42
CP	42
CQ	44
CT POWER	38
CT POWER	44
CT	38
CT	44
CV	40
CW	48
DE	12
DJ	14
DK	12
DQ	14
DQM	14
DS	10
DS2Y	10
DSP	12
DW	12
DY	14
EB	48
EP	30
EV QUIET	48
EV	48
GN (SMD)	6
GQ (SMD)	6
HC	28
HE/ HE PV	30
HJ	28
HL	28
HN	28
HY	10
JJM	46
JJM-DM	46
JM	22
JQ	20
JS	20
JS-M	46
JT-V	22
JV-N	22
JW	22
LA	18
LD	18
LD-P	18
LE	24
LF	24
LF-G1/LF-G2	24
LK-G	26
LK-P	26
LK-Q	26
LK-T	26
LZ	24
PA	18
PF	20
PQ	20
RA	36
RD SP6T	34
RD SPDT	32
RD TRANSFER	32

RE	36
RJ	34
RN	34
RS	36
RV SPDT	32
S	16
SF2D	50
SF3	50
SF4D	50
SFN4D	50
SFS	52
SF-Y	52
SP	16
ST	12
TQ (SMD)	6
TQ (THT)	6
TX (SMD)	8
TX-D (SMD)	8
TX-S (SMD)	8
TX-TH (SMD)	8

Semiconductor Relays

APT1211	98
APT1211S	98
APT1211W	102
APT1212	100
APT1212W	102
APT1221	98
APT1221S	98
APT1221W	102
APT1222	100
APT1222W	102
APT1231	98
APT1231S	98
APT1231W	102
APT1232	100
APT1232W	102
APV1121S	96
APV1122	96
APV2111V	96
APV2121S	96
AQ1	106
AQ-A	110
AQG	106
AQH0213	104
AQH0223	104
AQH1213	104
AQH1223	104
AQH2213	104
AQH2223	104
AQH3213	104
AQH3223	104
AQ-J	110
AQS221FN2S	94
AQS221FR2S	94
AQS221N2S	94
AQS225R2S	94
AQV101	68
AQV102	68
AQV103	70
AQV104	72
AQV112KL	70
AQV201	68
AQV202	68
AQV203	70
AQV204	72
AQV210	66

AQV210E	68
AQV210EH	68
AQV210S	66
AQV212	66
AQV212S	66
AQV214	68
AQV214E	68
AQV214EH	68
AQV214H	68
AQV214S	66
AQV215	66
AQV215S	66
AQV216	68
AQV216S	66
AQV217	66
AQV217S	66
AQV221	80
AQV224N	80
AQV224NS	80
AQV225	80
AQV227N	80
AQV227NS	80
AQV234	72
AQV251	68
AQV251G	66
AQV252	70
AQV252G	66
AQV253	70
AQV253H	72
AQV254	72
AQV254H	72
AQV255	70
AQV255GS	66
AQV257	70
AQV258	72
AQV259	72
AQV410EH	84
AQV412EH	84
AQV414	84
AQV414E	84
AQV414EH	84
AQV414S	82
AQV453	84
AQV454	84
AQV454H	84
AQW210	88
AQW210EH	86
AQW210HL	86
AQW210S	86
AQW212	88
AQW212EH	86
AQW212S	86
AQW214	88
AQW214EH	86
AQW214S	86
AQW215	88
AQW216	88
AQW216EH	86
AQW217	88
AQW223R2S	90
AQW224N	90
AQW227N	90
AQW227NS	90
AQW254	88
AQW414	90
AQW414EH	90
AQW454	90

AQW610EH	92
AQW610S	92
AQW612EH	92
AQW612S	92
AQW614	92
AQW614EH	92
AQW654	92
AQY210EH	64
AQY210HL	64
AQY210KS	62
AQY210LS	62
AQY210S	62
AQY211EH	64
AQY212EH	64
AQY212FG2S	74
AQY212G2S	62
AQY212GH	64
AQY212GS	62
AQY212S	62
AQY214EH	64
AQY214S	62
AQY216EH	64
AQY221FN2V	78
AQY221FR2V	78
AQY221N2M	78
AQY221N2S	80
AQY221N2T	78
AQY221N2V	78
AQY221N3M	78
AQY221N3T	78
AQY221N3V	78
AQY221R2M	78
AQY221R2S	80
AQY221R2T	78
AQY221R2V	78
AQY221R4V	78
AQY222R1S	80
AQY225R1S	80
AQY225R2S	80
AQY230S	64
AQY232S	64
AQY234S	64
AQY272	76
AQY274	76
AQY275	76
AQY277	76
AQY410EH	82
AQY410S	82
AQY412EH	82
AQY412S	82
AQY414EH	82
AQY414S	82
AQZ102	74
AQZ104	74
AQZ105	74
AQZ107	74
AQZ202	74
AQZ204	74
AQZ205	74
AQZ207	74
AQZ262	74
AQZ264	76
AQZ404	84



Connectors

Today's electronic components are expected to meet stringent demands: They have to be as compact as possible and provide maximum reliability. To fulfill these requirements, Panasonic engineers have developed narrow-pitch connectors that utilize TOUGH CONTACT technology. In addition to their excellent shock and vibration resistance, these connectors feature an ultra-slim profile, which makes them ideally suited to applications where space is at a premium. Our versatile board-to-board and board-to-FPC connector product range offers the appropriate solution for practically any scenario.



Switches

The immense portfolio includes switches in all common sizes and with various IP degrees of protection, and are guaranteed to cover all standard requirements. Our switches are characterized by a large switching capacity range, long lifetime and exceptional reliability. A wide selection of supplemental actuators coupled with various terminal styles, e.g. solder, quick connect, PC board terminal and cable connections, maximize flexibility and ease application design.



PaPIRS motion sensors

Intelligent automation solutions help increase energy efficiency, cost effectiveness and comfort significantly. With a power consumption as low as 1µA and a height of just 6mm, PaPIRS open up a diverse range of possibilities to the lighting and building technology as well as battery-driven applications.



NaPiOn motion sensors

NaPiOn motion sensors are ideal for efficient lighting and energy management.

- Small size: Ø10x13.5mm (thimble size)
- Integrated amplifier
- 2 lens colors: white and black



Pressure sensors

Panasonic's pressure sensors contain built-in amplification and temperature compensation circuits.

Users need not be concerned with circuit design or customization. State-of-the-art technology allows us to achieve high-level precision and reliability, yet without compromising compactness.

- Footprint 7.0mm (W) x 7.2mm (D)
- 10.4mm (W) x 10.4mm (D) (low pressure type)

1 EMC Directive

The EMC Directive concerns primarily the finished products. In applying the Directive to components, the Guidelines¹ should be consulted to determine whether the component in question has a “direct function”. Electric motors, power supply units or temperature controls represent examples of such components with “direct function”. These types of components must be provided with a CE marking.

Components which are integrated into a device, such as relays, do not have an independent function of their own. A given relay may perform differing functions in different devices. Consequently, all-or-nothing relays must be considered components without “direct function” which are not subject to the EMC Directive.

All-or-nothing - be they electro-mechanical relays or solid state relays - shall not be labeled with a CE marking nor shall a declaration of conformity be issued within the scope of the EMC Directive.

2 Low Voltage Directive

Relays with terminals for printed boards/plug-and-socket connections do not come within the purview of the Low Voltage Directive.

The Low Voltage Directive concerns electrical equipment intended for incorporation into a device as well as equipment intended for direct use. In the case of electrical equipment which is considered a basic component intended for incorporation into other electrical equipment, the properties and safety of the final product will be largely dependent on how it is integrated: as such, these components do not fall within the Low Voltage Directive and shall not be CE marked. The Guidelines² specifically cite electro-mechanical basic components such as connectors, relays with terminals for printed circuit boards and micro switches. They are therefore not subject to the scope of the Low Voltage Directive.

Except for larger relays which may, for example, find application in switching cabinets, the same considerations apply to common-place relays with plug-in connections available also with printed board terminals. Here again, safety is a function of the individual application. In evaluating these relays' performance from the perspective of the Low Voltage Directive, the same conclusion is reached as with the printed board relay. As such, CE marking is not mandatory for this type of relay.

3 Machinery Directive

The Machinery Directive differentiates between machines, machine parts and safety components. Relays are not part of any of these categories. The listing of safety components in Appendix IV is conclusive and does not include relays.

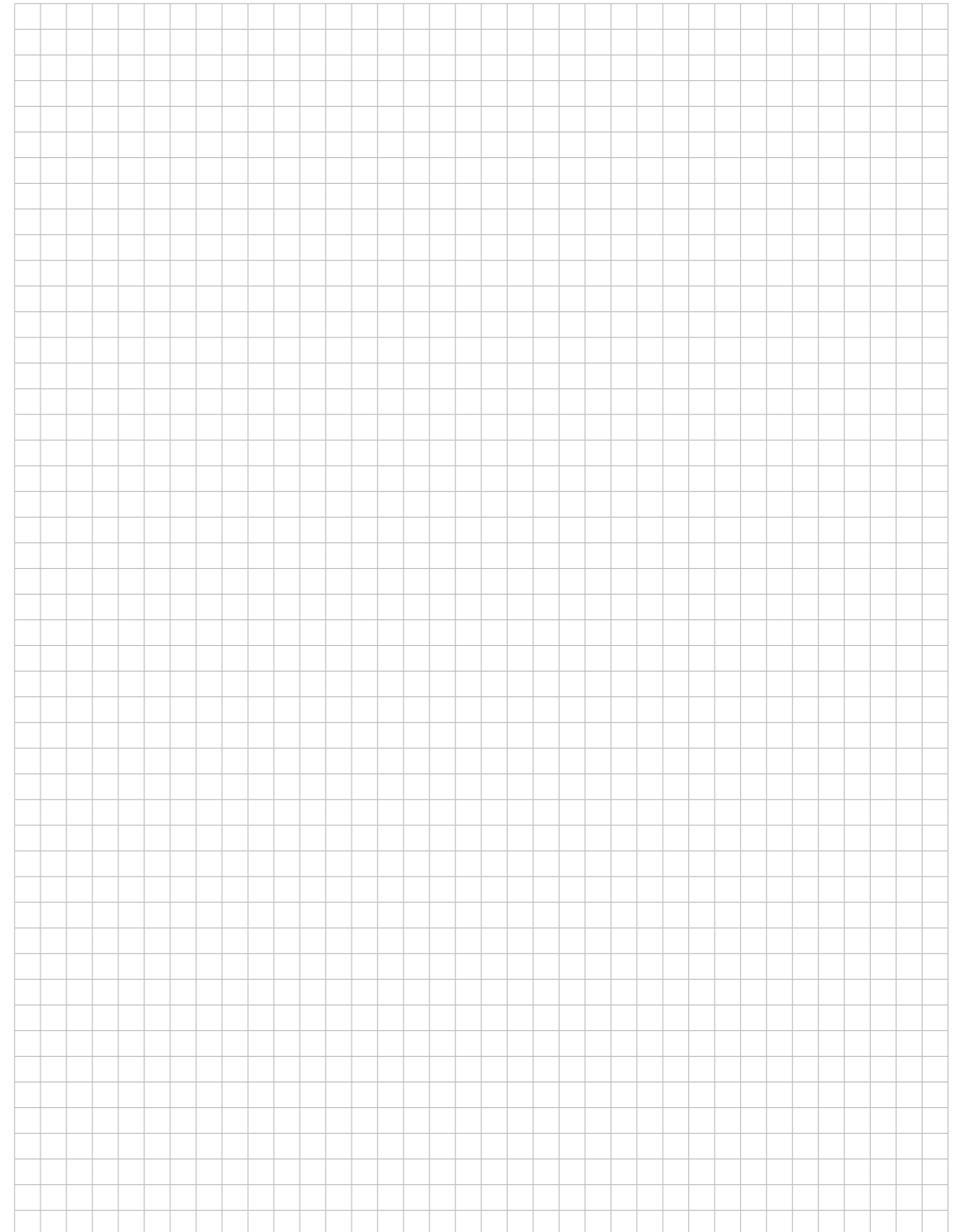
Consequently, a CE marking shall not be affixed nor shall a declaration of conformity or manufacturer's declaration be issued under the Machinery Directive.

As of this moment, none of the aforementioned directives require CE marking for all-or-nothing relays³.

4 RoHS Directive

The substances prohibited by the RoHS Directive (Pb, Hg, Cd, Cr⁺⁶, PBB, PBDE) concern 10 categories of devices that are mostly, but not entirely, intended for private use. Components such as relays are not listed in these categories. Therefore they do not directly fall within the scope of this directive. However, if the user employs relays in devices that fall within the scope of this directive, the user must also acknowledge the substances prevented. In order to adapt to this situation in good time, all Panasonic relays are generally RoHS compliant.

1. Guidelines (version dated March 22, 2007) for the Application of the Council Directive 2004/108/EC.
2. Guidelines (version dated August 2007) for the Application of the Council Directive 2006/95/EC.
3. This writing deals exclusively with “non-specified-time all-or-nothing relays”. The abbreviated term “all-or-nothing relay” has been introduced merely for purposes of convenience. The term includes solid state all-or-nothing relays.



Global Network

North America

Europe

Asia Pacific

China

Japan

Panasonic Electric Works

Please contact our Global Sales Companies in:

Europe

▶ Headquarters	Panasonic Electric Works Europe AG	Rudolf-Diesel-Ring 2, 83607 Holzkirchen, Tel. +49 (0) 8024 648-0, Fax +49 (0) 8024 648-111, www.panasonic-electric-works.com
▶ Austria	Panasonic Electric Works Austria GmbH	Josef Madersperger Str. 2, 2362 Biedermannsdorf, Tel. +43 (0) 2236-26846, Fax +43 (0) 2236-46133 www.panasonic-electric-works.at
	Panasonic Industrial Devices Materials Europe GmbH	Ennsshafenstraße 30, 4470 Enns, Tel. +43 (0) 7223 883, Fax +43 (0) 7223 88333, www.panasonic-electronic-materials.com
▶ Benelux	Panasonic Electric Works Sales Western Europe B.V.	De Rijn 4, (Postbus 211), 5684 PJ Best, (5680 AE Best), Netherlands, Tel. +31 (0) 499 372727, Fax +31 (0) 499 372185, www.panasonic-electric-works.nl
▶ Czech Republic	Panasonic Electric Works Czech s.r.o.	Sales Office Brno, Administrative centre PLATINIUM, Veveri 111, 616 00 Brno, Tel. +420 541 217 001, Fax +420 541 217 101, www.panasonic-electric-works.cz
▶ France	Panasonic Electric Works Sales Western Europe B.V.	Succursale française, 10, rue des petits ruisseaux, 91370 Verrières Le Buisson, Tél. +33 (0) 1 6013 5757, Fax +33 (0) 1 6013 5758, www.panasonic-electric-works.fr
▶ Germany	Panasonic Electric Works Europe AG	Rudolf-Diesel-Ring 2, 83607 Holzkirchen, Tel. +49 (0) 8024 648-0, Fax +49 (0) 8024 648-111, www.panasonic-electric-works.de
▶ Hungary	Panasonic Electric Works Europe AG	Magyarországi Közvetlen Kereskedelmi Képviselet, 1117 Budapest, Neumann János u. 1., Tel. +36 1 999 89 26 www.panasonic-electric-works.hu
▶ Ireland	Panasonic Electric Works UK Ltd.	Irish Branch Office, Dublin, Tel. +353 (0) 14600969, Fax +353 (0) 14601131, www.panasonic-electric-works.co.uk
▶ Italy	Panasonic Electric Works Italia srl	Via del Commercio 3-5 (Z.I. Ferlina), 37012 Bussolengo (VR), Tel. +39 0456752711, Fax +39 0456700444, www.panasonic-electric-works.it
▶ Nordic Countries	Panasonic Electric Works Europe AG Panasonic Eco Solutions Nordic AB	Filial Nordic, Knarrarnäsgatan 15, 164 40 Kista, Sweden, Tel. +46 859476680, Fax +46 859476690, www.panasonic-electric-works.se
▶ Poland	Panasonic Electric Works Polska sp. z o.o	Jungmansgatan 12, 21119 Malmö, Tel. +46 40 697 7000, Fax +46 40 697 7099, www.panasonic-fire-security.com
▶ Portugal	Panasonic Electric Works España S.A.	ul. Wołoska 9A, 02-583 Warszawa, Tel. +48 (0) 22 338-11-33, Fax +48 (0) 22 338-12-00, www.panasonic-electric-works.pl
▶ Spain	Panasonic Electric Works España S.A.	Portuguese Branch Office, Avda Adelino Amaro da Costa 728 R/C J, 2750-277 Cascais, Tel. +351 214812520, Fax +351 214812529
▶ Switzerland	Panasonic Electric Works Schweiz AG	Barajas Park, San Severo 20, 28042 Madrid, Tel. +34 913293875, Fax +34 913292976, www.panasonic-electric-works.es
▶ United Kingdom	Panasonic Electric Works UK Ltd.	Grundstrasse 8, 6343 Rotkreuz, Tel. +41 (0) 41 7997050, Fax +41 (0) 41 7997055, www.panasonic-electric-works.ch
		Sunrise Parkway, Linford Wood, Milton Keynes, MK14 6LF, Tel. +44 (0) 1908 231555, Fax +44 (0) 1908 231599, www.panasonic-electric-works.co.uk

North & South America

▶ USA	PEW Corporation of America	629 Central Avenue, New Providence, N.J. 07974, Tel. 1-908-464-3550, Fax 1-908-464-8513, www.pewa.panasonic.com
--------------	-----------------------------------	---

Asia Pacific/China/Japan

▶ China	Panasonic Electric Works (China) Co., Ltd.	Level 2, Tower W3, The Towers Oriental Plaza, No. 2, East Chang An Ave., Dong Cheng District, Beijing 100738, Tel. (010) 5925-5988, Fax (010) 5925-5973
▶ Hong Kong	Panasonic Electric Works (Hong Kong) Co., Ltd.	RM1205-9, 12/F, Tower 2, The Gateway, 25 Canton Road, Tsimshatsui, Kowloon, Hong Kong, Tel. (0852) 2956-3118, Fax (0852) 2956-0398
▶ Japan	Panasonic Corporation	1048 Kadoma, Kadoma-shi, Osaka 571-8686, Japan, Tel. (06) 6908-1050, Fax (06) 6908-5781, www.panasonic.net
▶ Singapore	Panasonic Electric Works Asia Pacific Pte. Ltd.	101 Thomson Road, #25-03/05, United Square, Singapore 307591, Tel. (06255) 5473, Fax (06253) 5689

Panasonic®