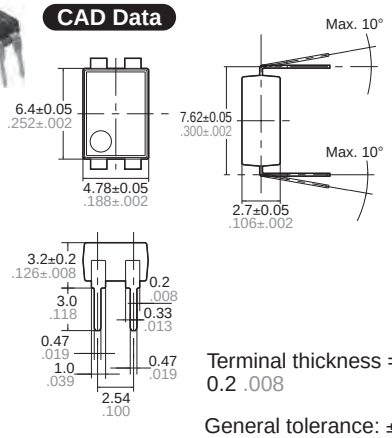
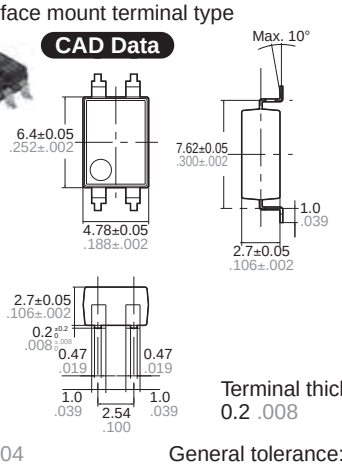
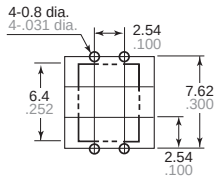
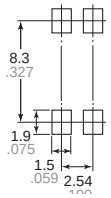
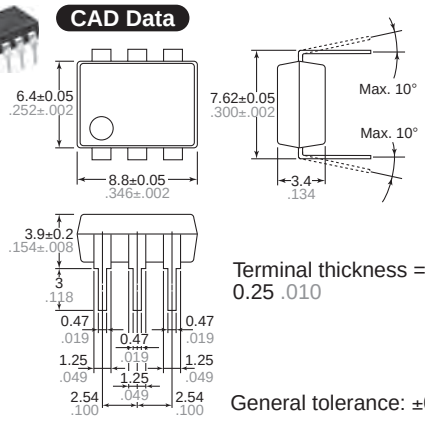
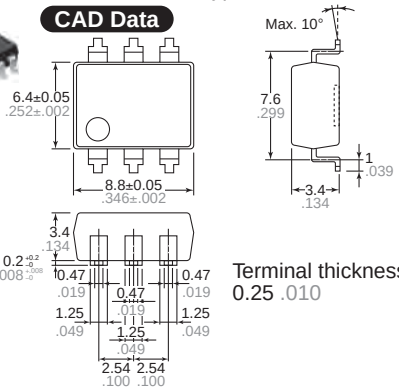
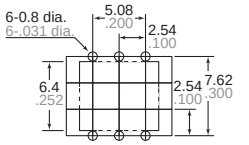
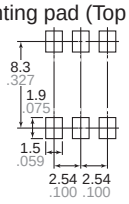
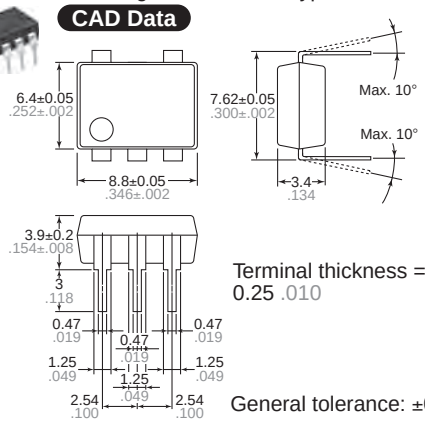
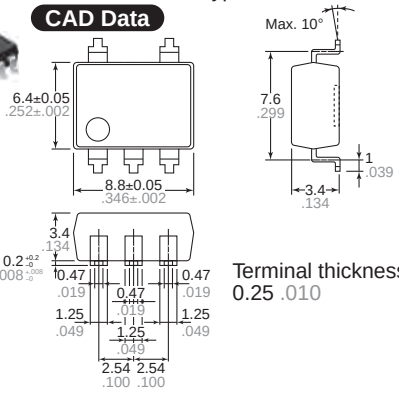
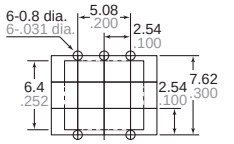
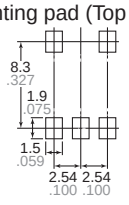
PhotoMOS Relay Dimensions

mm inch

Type	Dimensions
AQY21(DIP) AQY41(DIP) Series	Through hole terminal type  CAD Data  Terminal thickness = 0.2 .008 General tolerance: ±0.1 ±.004
	Surface mount terminal type  CAD Data  Terminal thickness = 0.2 .008 General tolerance: ±0.1 ±.004
	PC board pattern (Bottom view)  Tolerance: ±0.1 ±.004 Mounting pad (Top view)  Tolerance: ±0.1 ±.004
AQV10(DIP) AQV11(DIP) AQV20(DIP) AQV21(DIP) AQV22(DIP) AQV23(DIP) AQV25(DIP) AQV41(DIP) AQV45(DIP) Series	Through hole terminal type  CAD Data  Terminal thickness = 0.25 .010 General tolerance: ±0.1 ±.004
	Surface mount terminal type  CAD Data  Terminal thickness = 0.25 .010 General tolerance: ±0.1 ±.004
	PC board pattern (Bottom view)  Tolerance: ±0.1 ±.004 Recommended mounting pad (Top view) 
APV1122(DIP) Series	Through hole terminal type  CAD Data  Terminal thickness = 0.25 .010 General tolerance: ±0.1 ±.004
	Surface mount terminal type  CAD Data  Terminal thickness = 0.25 .010 General tolerance: ±0.1 ±.004
	PC board pattern (Bottom view)  Tolerance: ±0.1 ±.004 Recommended mounting pad (Top view) 

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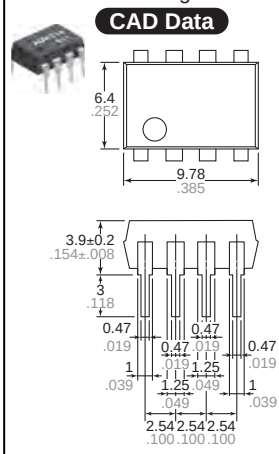
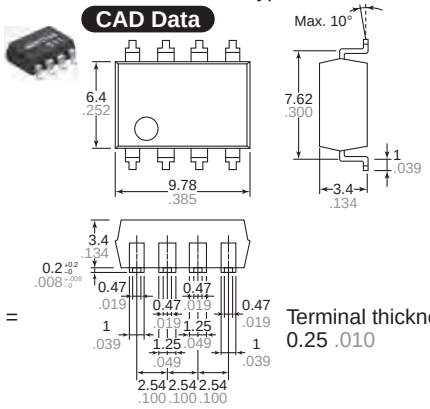
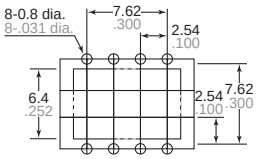
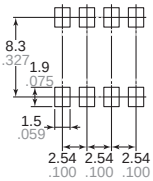
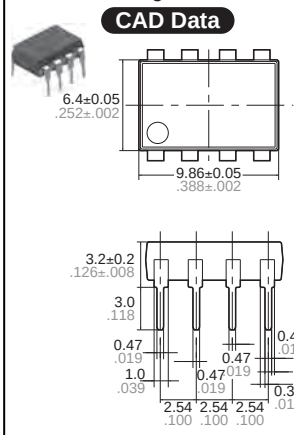
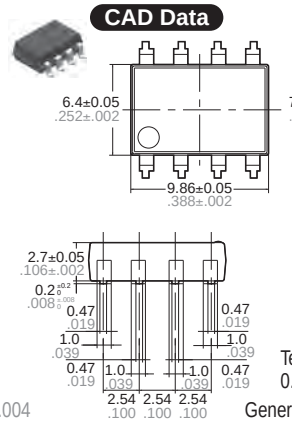
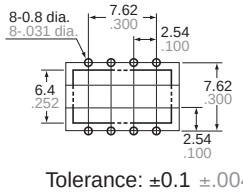
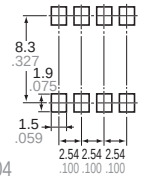
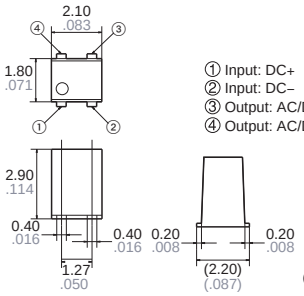
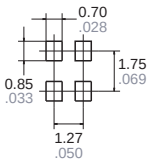
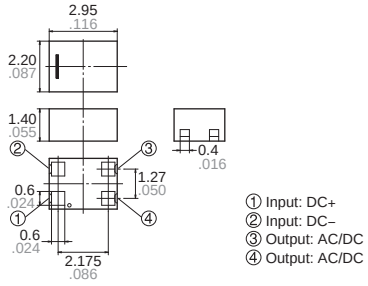
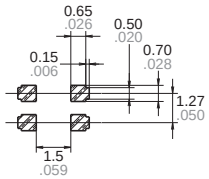
mm inch

Type	Dimensions
AQW21(DIP) AQW22(DIP) AQW25(DIP) AQW41(DIP) AQW45(DIP) AQW61(DIP) AQW65(DIP) Series	Through hole terminal type  Terminal thickness = 0.25 .010 General tolerance: ±0.1 ±.004 Surface mount terminal type  Terminal thickness = 0.25 .010 General tolerance: ±0.1 ±.004 PC board pattern (Bottom view)  Tolerance: ±0.1 ±.004 Recommended mounting pad (Top view) 
AQW21❍EH (DIP) AQW21❍HL (DIP) AQW41❍EH (DIP) AQW61❍EH (DIP) Series	Through hole terminal type  Terminal thickness = 0.2 .008 General tolerance: ±0.1 ±.004 Surface mount terminal type  Terminal thickness = 0.2 .008 General tolerance: ±0.1 ±.004 PC board pattern (Bottom view)  Tolerance: ±0.1 ±.004 Mounting pad (Top view)  Tolerance: ±0.1 ±.004
AQY22 (VSSOP) Series	  ① Input: DC+ ② Input: DC– ③ Output: AC/DC ④ Output: AC/DC General tolerance: ±0.2 Recommended mounting pad (Top view)  Tolerance : ±0.1
AQY22(SON) Series	  ① Input: DC+ ② Input: DC– ③ Output: AC/DC ④ Output: AC/DC General tolerance: ±0.2.008 Recommended mounting pad (Top view)  Tolerance: ±0.1±.004

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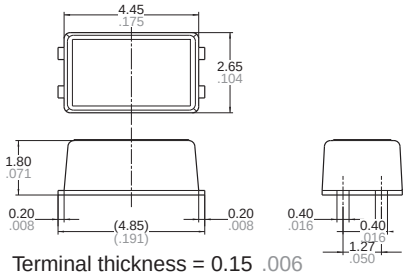
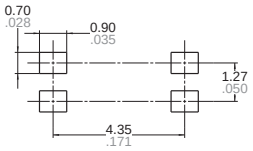
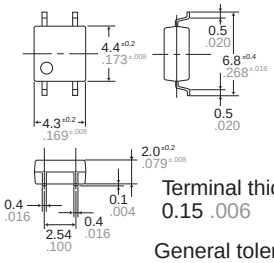
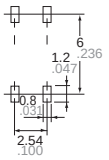
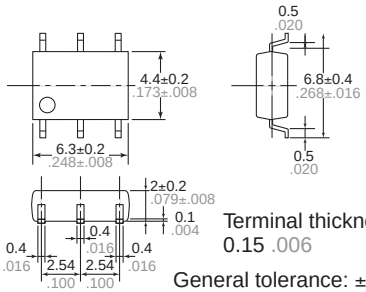
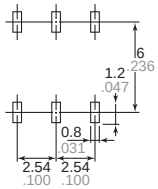
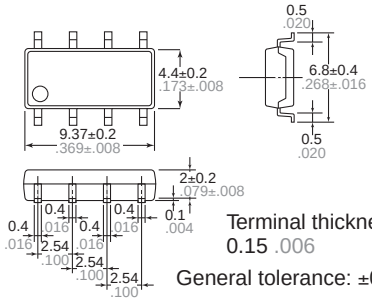
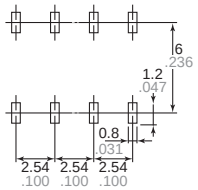
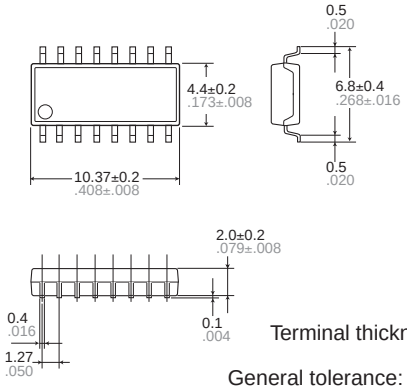
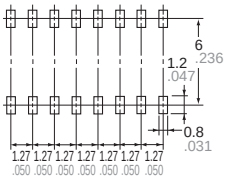
mm inch

Type	Dimensions
APV21(SSOP) AQY22(SSOP) Series	 CAD Data  Terminal thickness = 0.15 .006 General tolerance: ±0.5 ±.020 Recommended mounting pad (Top view)  Tolerance: ±0.1 ±.004
APV11(SOP) APV21(SOP) AQY2 (SOP) AQY21(SOP) AQY22(SOP) AQY41(SOP) Series	 CAD Data  Terminal thickness = 0.15 .006 General tolerance: ±0.1 ±.004 Recommended mounting pad (Top view)  Tolerance: ±0.1 ±.004
AQV21(SOP) AQV22(SOP) AQV25(SOP) AQV41(SOP) Series	 CAD Data  Terminal thickness = 0.15 .006 General tolerance: ±0.1 ±.004 Recommended mounting pad (Top view)  Tolerance: ±0.1 ±.004
AQW21(SOP) AQW22(SOP) AQW61(SOP) Series	 CAD Data  Terminal thickness = 0.15 .006 General tolerance: ±0.1 ±.004 Recommended mounting pad (Top view)  Tolerance: ±0.1 ±.004
AQS22(SOP) Series	 CAD Data  Terminal thickness = 0.15 .006 General tolerance: ±0.1 ±.004 Recommended mounting pad (Top view)  Tolerance: ±0.1 ±.004

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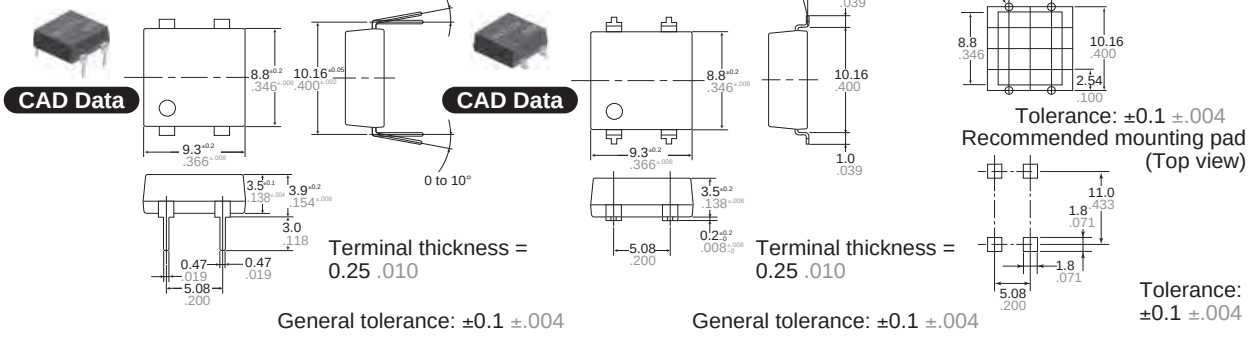
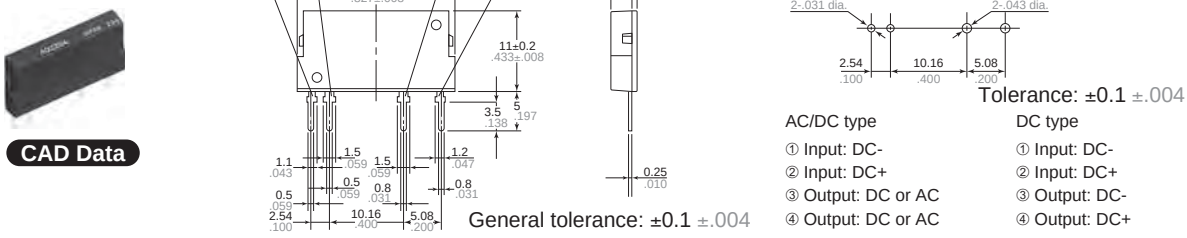
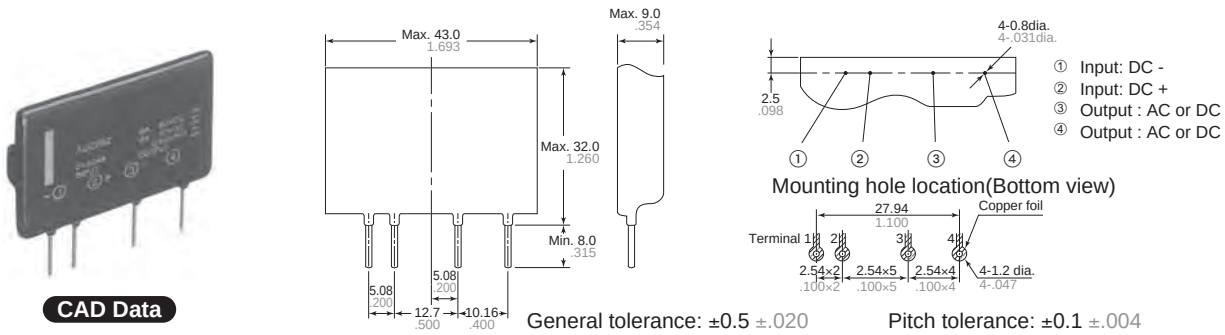
mm inch

Type	Dimensions
AQY27 Power DIP) Series	Through hole terminal type / Surface mount terminal type / PC board pattern (Bottom view)
AQZ10(SIL) AQZ20(SIL) AQZ40(SIL) Series	PC board pattern (Bottom view)
AQZ26(SIL) Series	







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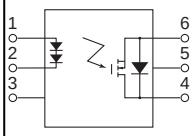
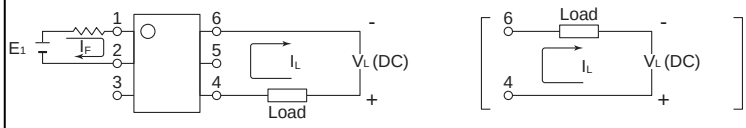
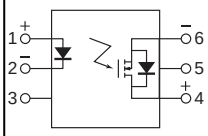
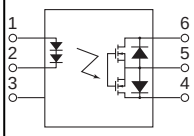
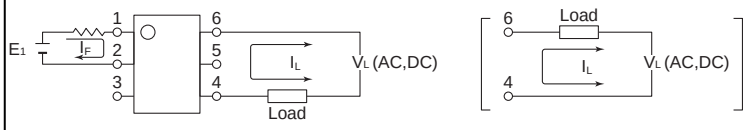
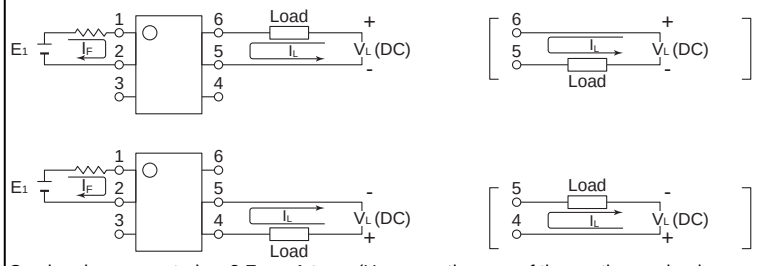
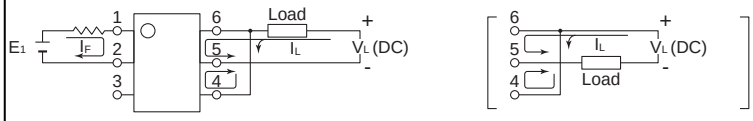
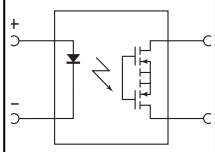
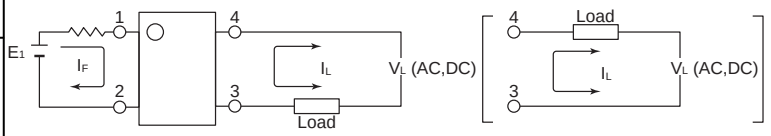
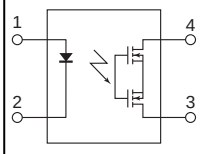
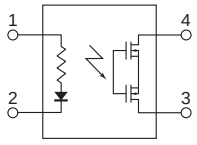
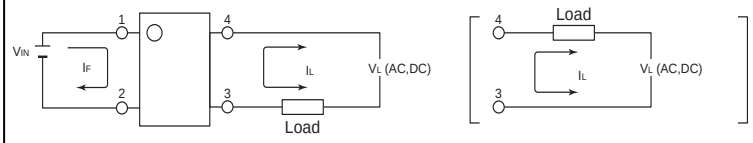
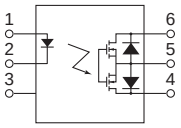
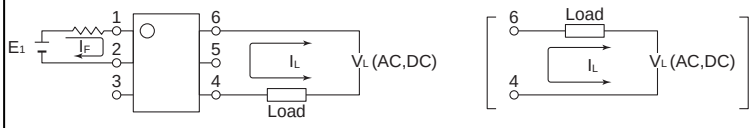
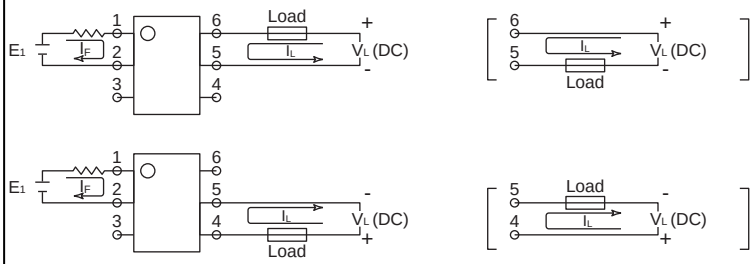
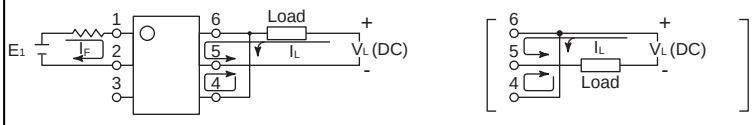
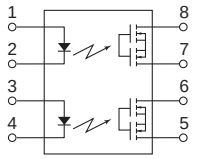
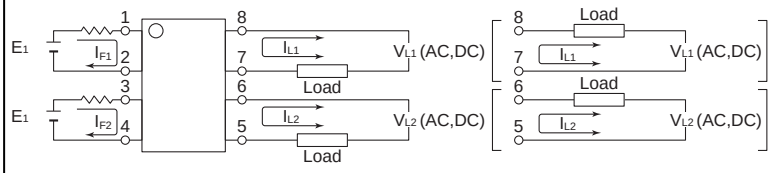
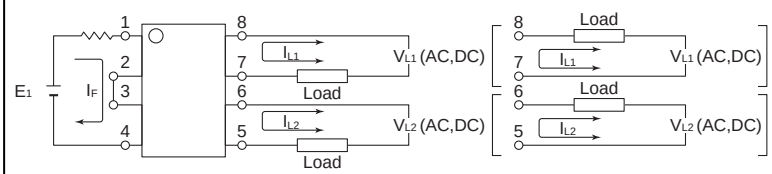
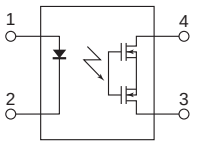
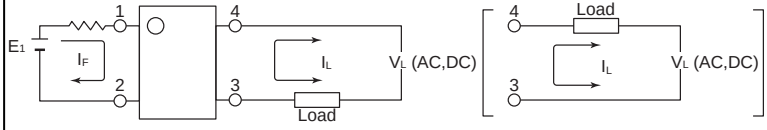
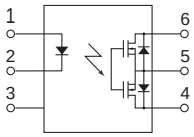
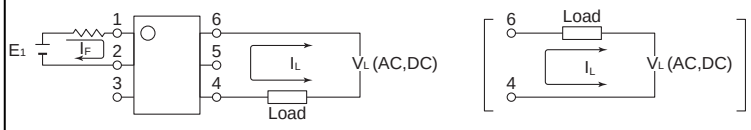
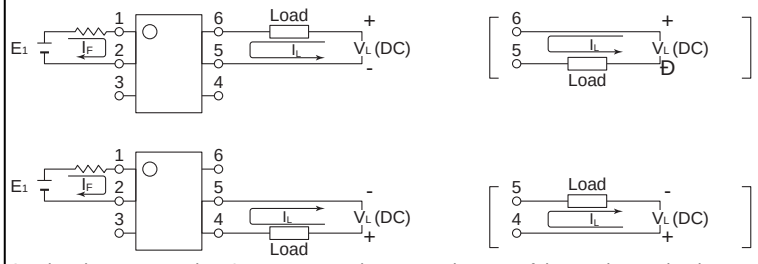
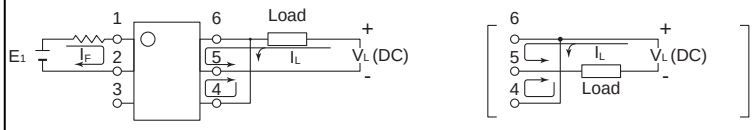
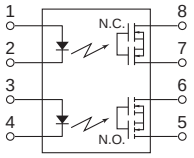
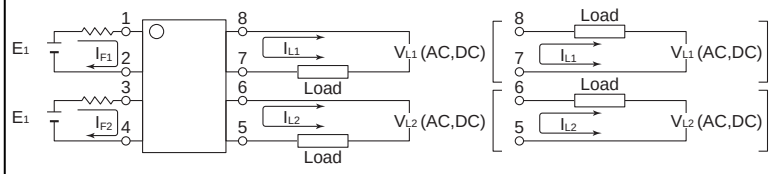
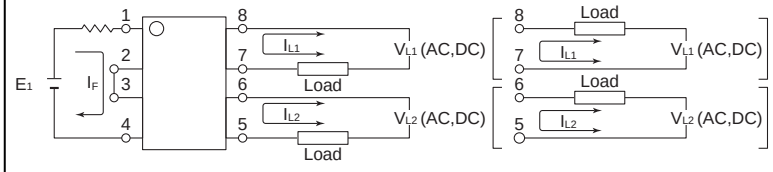
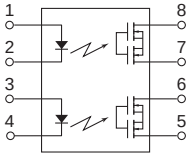
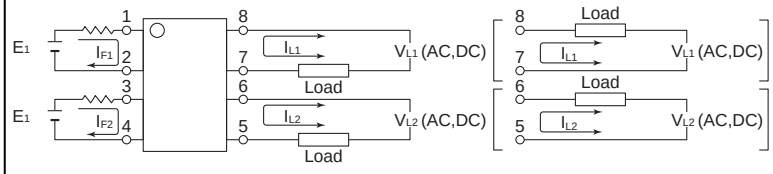
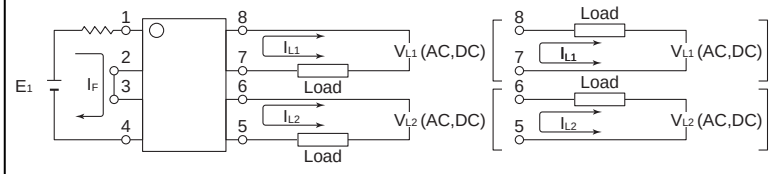
PhotoMOS Relay Schematic and Wiring Diagrams

	Schematic	Output configuration	Load type	Connection	Wiring diagram
AQV10(DIP) Series		1a	DC	A	
AQV11(DIP) Series					
AQV20(DIP) Series		1a	AC/DC	A	
			DC	B	 Can be also connected as 2 Form A type. (However, the sum of the continuous load current should not exceed the absolute maximum rating.)
			DC	C	
AQY22 (VSSOP)		1a	AC/DC	—	
AQY2 (SOP) AQY21 (DIP, SOP) AQY22(SOP, SSOP, SON) AQY27 (Power-DIP) Series		1a	AC/DC	—	

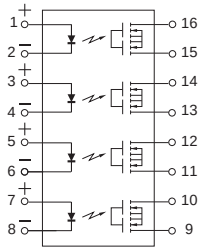
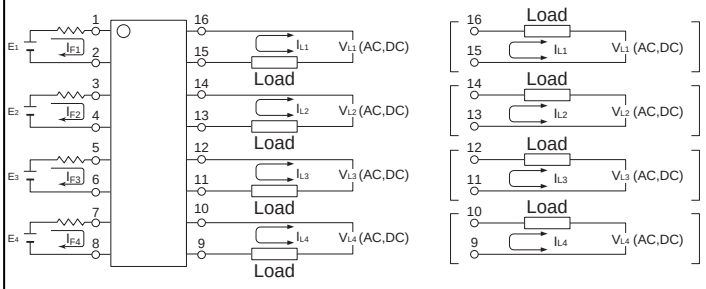
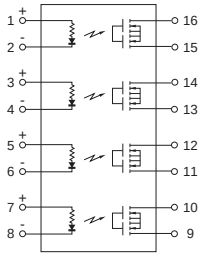
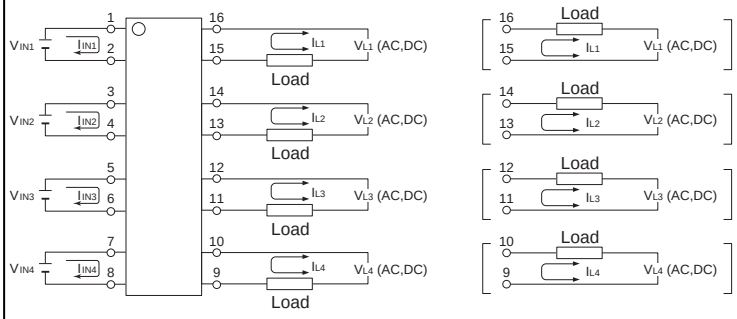
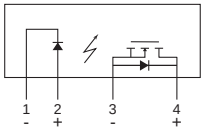
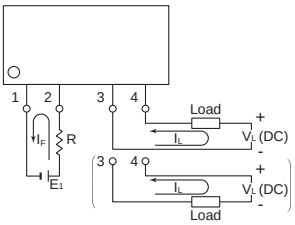
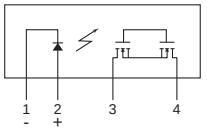
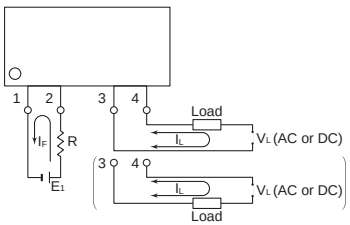
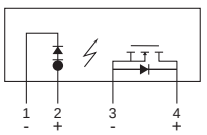
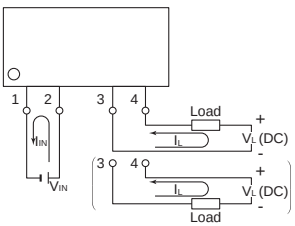
Notes: 1. E_1: Power source at input side; V_{IN}: Input voltage; I_F: LED forward current; I_{IN}: Input current; V_L: Load voltage; I_L: Load current; R: Current limit resistor.
2. Method of connecting the load at the output is divided into 3 types.
*Terminal 3 cannot be used, since it is in the internal circuit of the relay.

	Schematic	Output configu-ration	Load type	Con-nection	Wiring diagram
AQY22○F AQY21○F Series		1a	AC/DC	—	
AQV21 (DIP, SOP) AQV22 (DIP, SOP) AQV23(DIP)* AQV25 (DIP, SOP) Series	 Terminal 3 cannot be used, since it is in the internal circuit of the relay.	1a	AC/DC	A	
			DC	B	 Can be also connected as 2 Form A type. (However, the sum of the continuous load current should not exceed the absolute maximum rating.)
			DC	C	
AQW21 (DIP, SOP) AQW22 (DIP, SOP) AQW25 Series		2a	AC/DC	—	(1) Two independent 1 Form A use  (2) 2 Form A use 
AQY41 (DIP, SOP) Series		1b	AC/DC	—	

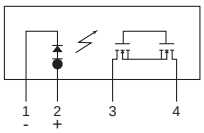
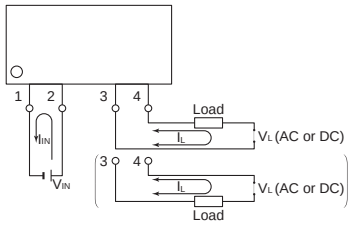
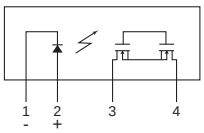
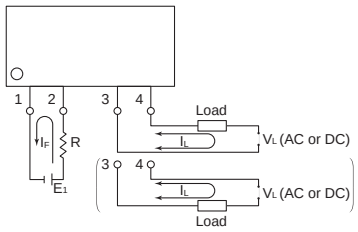
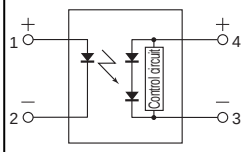
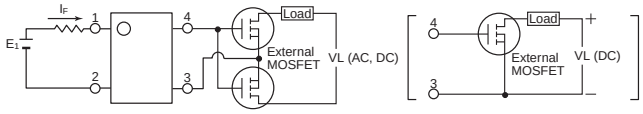
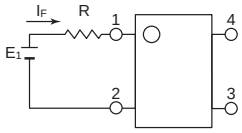
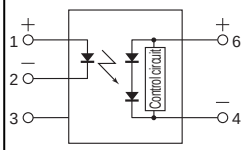
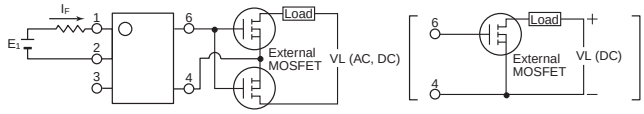
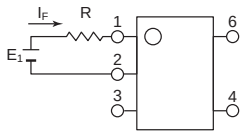
Notes: 1. E_1: Power source at input side; V_{IN}: Input voltage; I_F: LED forward current; I_{IN}: Input current; V_L: Load voltage; I_L: Load current; R: Current limit resistor.
2. Method of connecting the load at the output is divided into 3 types.
* AQV23 series in SOP is also possible. Please inquire.

	Schematic	Output configu-ration	Load type	Con-nection	Wiring diagram
AQV41 (DIP, SOP) AQV45 (DIP) Series	 Terminal 3 cannot be used, since it is in the internal circuit of the relay.	1b	AC/DC	A	
			DC	B	 Can be also connected as 2 Form B type. (However, the sum of the continuous load current should not exceed the absolute maximum rating.)
			DC	C	
AQW61 (DIP, SOP) AQW65 (DIP) Series		1a1b	AC/DC	—	(1) Two independent 1 Form A & 1 Form B use  (2) 1 Form A 1 Form B use 
AQW41 (DIP) AQW45 (DIP) Series		2b	AC/DC	—	(1) Two independent 1 Form B use  (2) 2 Form B use 

Notes: 1. E_1: Power source at input side; V_{IN}: Input voltage; I_F: LED forward current; I_{IN}: Input current; V_L: Load voltage; I_L: Load current; R: Current limit resistor.
2. Method of connecting the load at the output is divided into 3 types.

	Schematic	Output configu-ration	Load type	Con-nection	Wiring diagram
AQS22(SOP) Series		4a	AC/DC	—	
AQS22❍F (SOP) Series		4a	AC/DC	—	
AQZ10(SIL) Series		1a	DC	—	
AQZ20(SIL) AQZ26(SIL) Series		1a	AC/DC	—	
AQZ10❍D (SIL) Series		1a	DC	—	

Notes: 1. E_1: Power source at input side; V_{IN}: Input voltage; I_F: LED forward current; I_{IN}: Input current; V_L: Load voltage; I_L: Load current; R: Current limit resistor.
2. Method of connecting the load at the output is divided into 3 types.

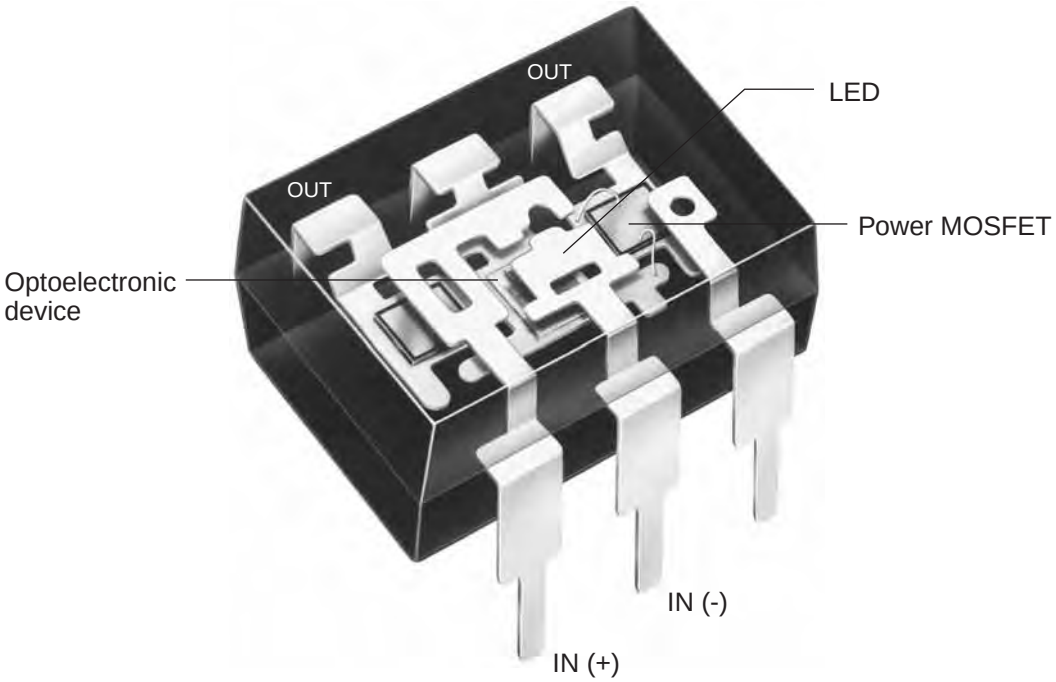
	Schematic	Output configu-ration	Load type	Con-nection	Wiring diagram
AQZ20❍D (SIL) Series		1a	AC/DC	—	
AQZ40(SIL) Series		1b	AC/DC	—	
APV1121S (SOP) APV2121S (SOP) APV2111V (SSOP)		1a	DC	—	Power MOSFET drive wiring diagram  Example of each input power supply and current limit resistors (I_F = 10mA) 
APV1122(DIP)		1a	AC/DC	—	Power MOSFET drive wiring diagram  Example of each input power supply and current limit resistors (I_F = 10mA) 

E_1	R
5V	Approx. 380Ω
15V	Approx. 1.4kΩ
24V	Approx. 2.3kΩ

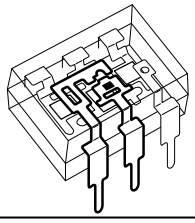
Notes: 1. E_1: Power source at input side; V_{IN}: Input voltage; I_F: LED forward current; I_{IN}: Input current; V_L: Load voltage; I_L: Load current; R: Current limit resistor.
2. Method of connecting the load at the output is divided into 3 types.

PhotoMOS Relay Technical Information

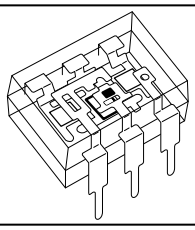
How PhotoMOS Relays Operate



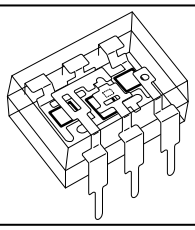
When operated



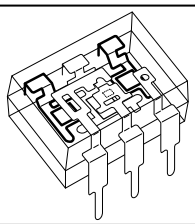
When a signal current flows to the input terminals the LED on the input side emits light.



The emitted light passes through transparent silicon and reaches the photoelectric element (solar cell) which is mounted opposite the LED.

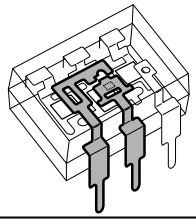


The photoelectric element converts the received light to a voltage corresponding to the quantity of light. This voltage passes through a control circuit and charges the MOSFET gate on the output side.

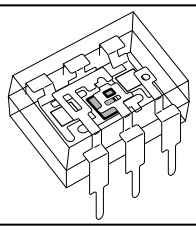


When the MOSFET gate voltage supplied from the photoelectric element reaches a preset voltage value, the MOSFET begins to conduct and turns on the load.

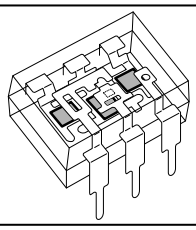
When turned off



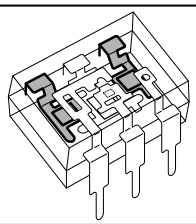
When the signal current at the input terminal is cut off, the LED stops emitting light.



When the emitted light from the LED stops, the voltage of the photoelectric element decreases.



When the voltage supplied from photoelectric element decrease, the control circuit rapidly discharges the gate charge of MOSFET.



This control circuit makes MOSFET stop conducting and immediately turns off the load.

Note: The explanation above applies to the current driving method. Products using the voltage driving method employ a different internal structure and operating principle.