



CYAQW21X

overview

General-purpose economical photo-MOS relay CYAQW21x, 8-pin package dual-channel SPST (2 Form A) and 4-pin package single-channel SPST

(1 Form A) is available, reinforced isolation voltage 5000V.

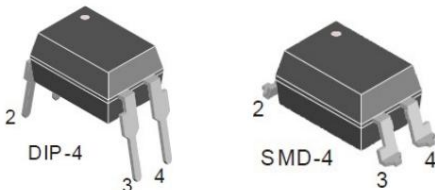
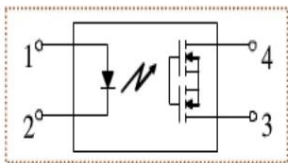
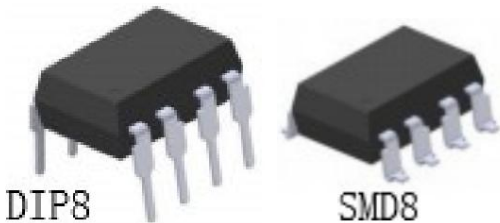
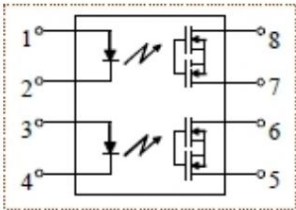
Features

- 5000V isolation voltage •
- Low voltage analog signal control •
- High sensitivity, high response speed •
- Very low turn-off leakage

typical application

- Modem • Telephone equipment • Security equipment • Touch sensor
- Office equipment • Data communication equipment
- High-speed inspection and inspection equipment

Structure Schematic and Package



type

type	I/O isolation voltage	Output Range		part number			
		Load Voltage	Load Current	DIP		Dual column patch	
AC/DC type 5000V		60V	500mA	CYAQW212EH	CYAQW212D4	CYAQW212EHAX	CYAQW212S4
		100V	300mA	CYAQW215EH	CYAQW215D4	CYAQW215EHAX	CYAQW215S4
		200V	160mA	CYAQW217EH	CYAQW217D4	CYAQW217EHAX	CYAQW217S4
		350V	130mA	CYAQW210EH	CYAQW210D4	CYAQW210EHAX	CYAQW210S4
		400V	120mA	CYAQW214EH	CYAQW214D4	CYAQW214EHAX	CYAQW214S4
		600V	40mA	CYAQW216EH	CYAQW216D4	CYAQW216EHAX	CYAQW216S4



Limit parameter (Ta=25°C)

parameter		Symbol	CYAQW212	CYAQW215	CYAQW217	CYAQW210	CYAQW214	Remarks for CYAQW216	
enter	LED forward current IF		50mA						
	LED Reverse Voltage VR Peak		5V						
	Forward Current IFP Input Power		1A						
		PIN	75mW						
output	Load Voltage (AC Peak) Continuous VL		60V	100V	200V	350V	400V	600V	
	Load Current (AC peak)	THE	0.50A (0.60A)	0.30A (0.35A)	0.16A (0.20A)	0.13A (0.16A)	0.12A (0.15A)	0.04A (0.05A)	(): Indicates a single channel
	peak load current	Ipeak	1.0A	0.9A	0.48A	0.36A	0.30A	0.12A	100 ms (1 shot), VL= DC
	output power	POUT	800mW						
overall power		PT	850mW						
I/O isolation voltage		Total	5000V AC						
limit temperature	operating temperature Topr		−40°C to +85°C						Low temperature does not freeze
	storage temperature Tstg		−40°C ~ + 100°C						

Electrical parameters (Ta=25°C)

parameter			Symbol	CYAQW212	CYAQW215	CYAQW217	CYAQW210	CYAQW214	CYAQW216	Remarks
enter	LED operating current	typical value	iPhone	1.2 mA						IL = maximum
		maximum value		3.0 mA						
	LED off current	typical value	I/OFF	0.4 mA						IL = maximum
		maximum value		1.1 mA						
	LED forward voltage drop	typical value	VF	1.14 (1.25 V at IF = 50 mA)						IF = 5 mA
		maximum value		1.5V						
output	ON resistance	typical value	Ron	0.83 \bar{y}	2.3 \bar{y}	11 \bar{y}	23 \bar{y}	30 \bar{y}	70 \bar{y}	IF=5mA, IL= maximum value, 120 \bar{y} seconds or less when energized
		maximum value		2.5 \bar{y}	4.0 \bar{y}	15 \bar{y}	35 \bar{y}	50 \bar{y}		
	Turn off leakage	Maximum ILeak	1 \bar{y} A						IF = 0, IL = max	
transmission characteristics	opening time*	typ max	TON	0.65ms	0.60 ms	0.25 ms	0.25 ms	0.31 ms	0.28 ms	IF = 5mA
		typ max		2 ms	2 ms	1.0 ms	0.5 ms	0.5 ms	0.5 ms	IL = maximum
	Off time*	typ max	TOFF	0.08 ms	0.06 ms	0.05 ms	0.05 ms	0.05 ms	0.04 ms	IF = 5mA
				0.2 ms						IL = maximum
	I/O capacitance		Ciso	0.8pF						f=1MHz
				1.5pF						
Initial I/O isolation Note: LED		Minimum RISO		1,000 M \bar{y}						500 V DC

forward current recommended value IF=5 to 10mA



*Turn on/Turn off time

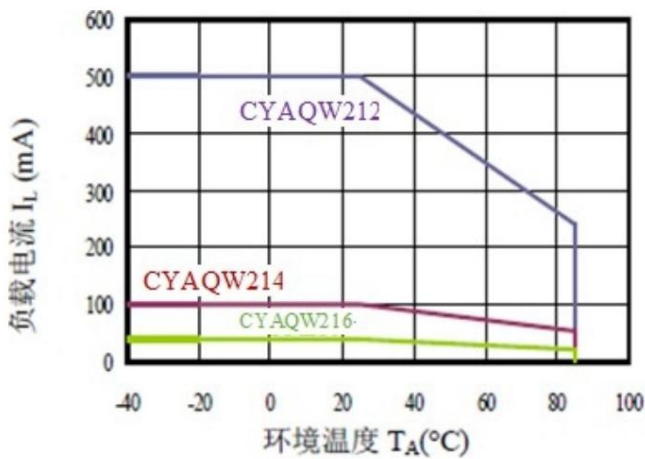
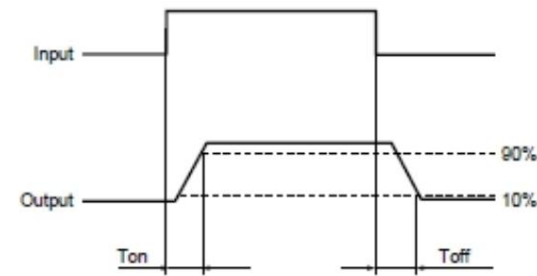


Figure 1: Load current-ambient temperature characteristics

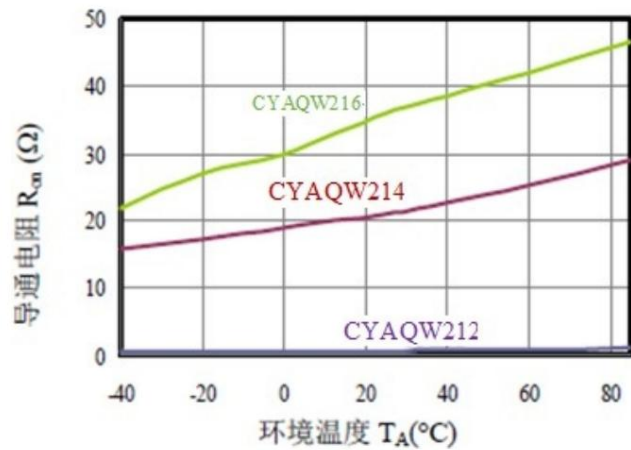


Figure 2: On-Resistance - Ambient Temperature Characteristics

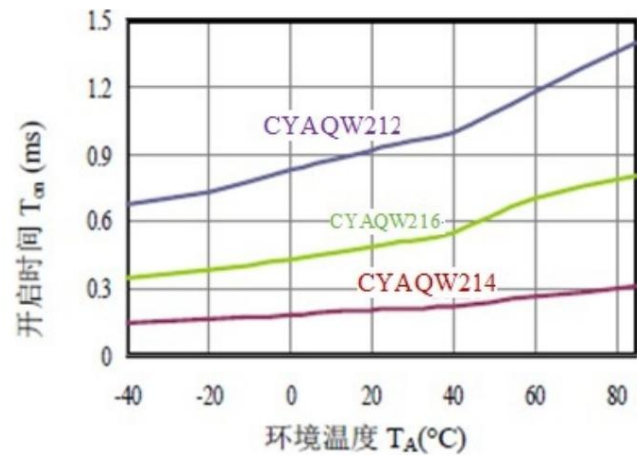


Figure 3: Turn-on time-ambient temperature characteristics

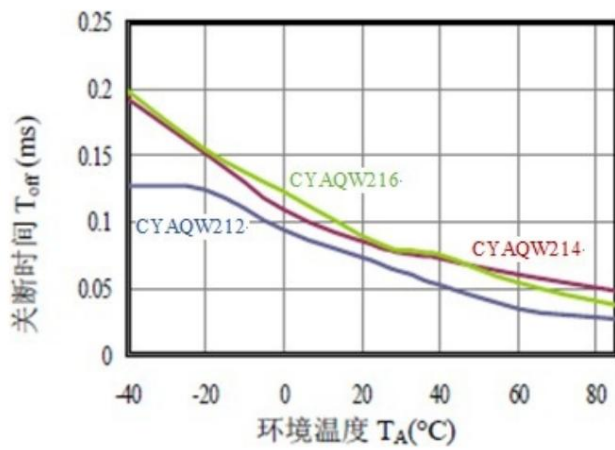


Figure 4: Off time-ambient temperature characteristics

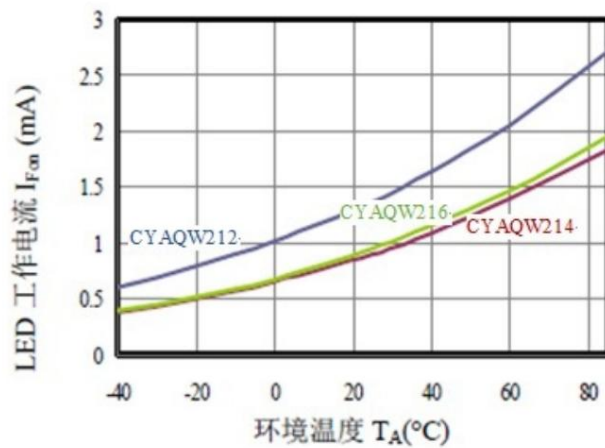


Figure 5: LED operating current - ambient temperature characteristics

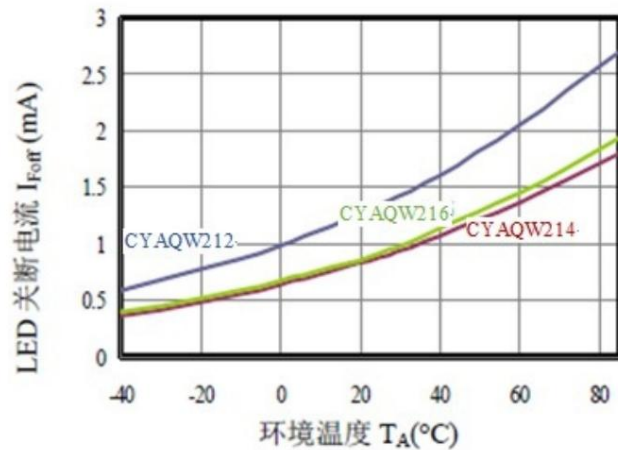


Figure 6: LED shutdown current - ambient temperature characteristics

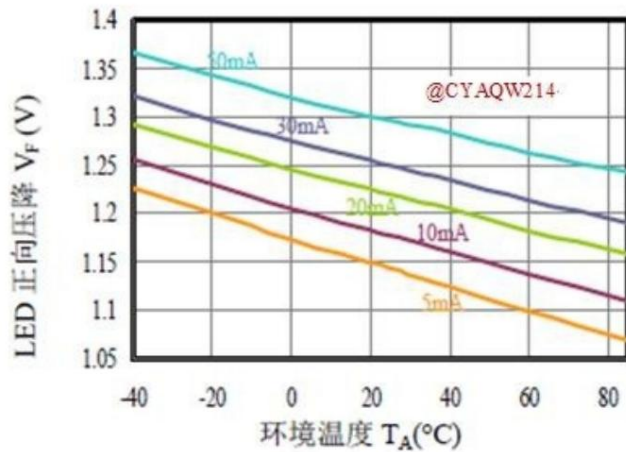


Figure 7: LED forward voltage drop - ambient temperature characteristics

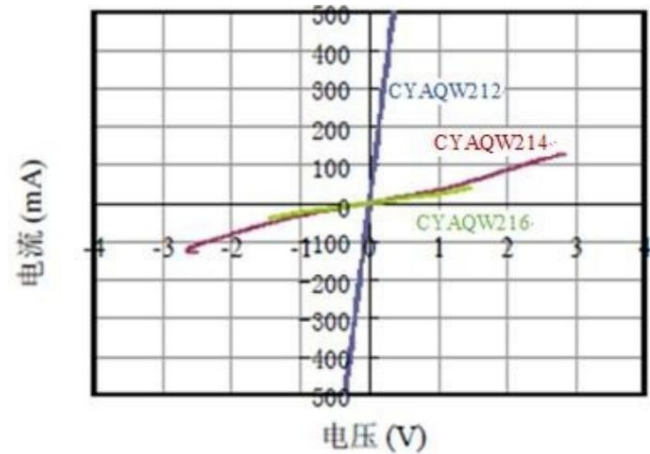


Figure 8: Output Current-Voltage Characteristics

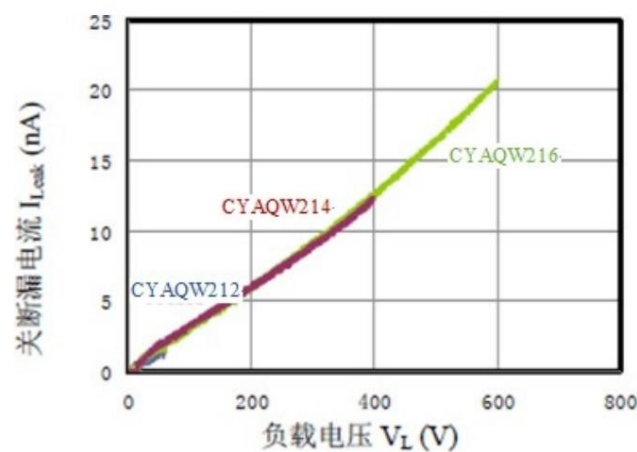


Figure 9: Off Leakage Current-Load Voltage Characteristics

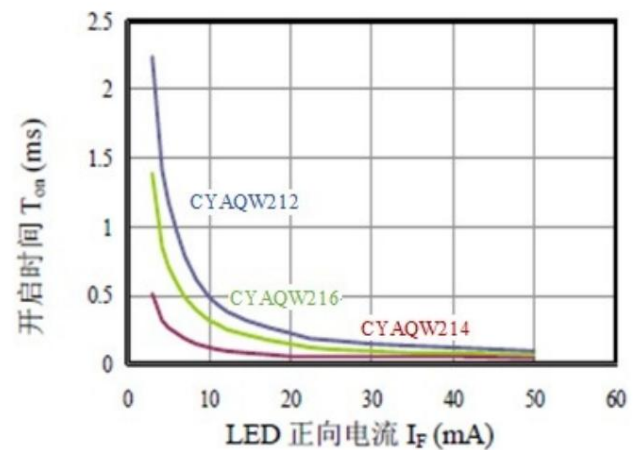


Figure 10: LED turn-on time - forward current characteristics

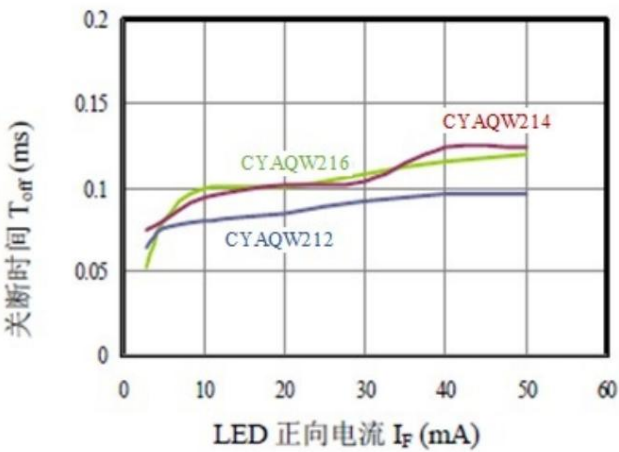
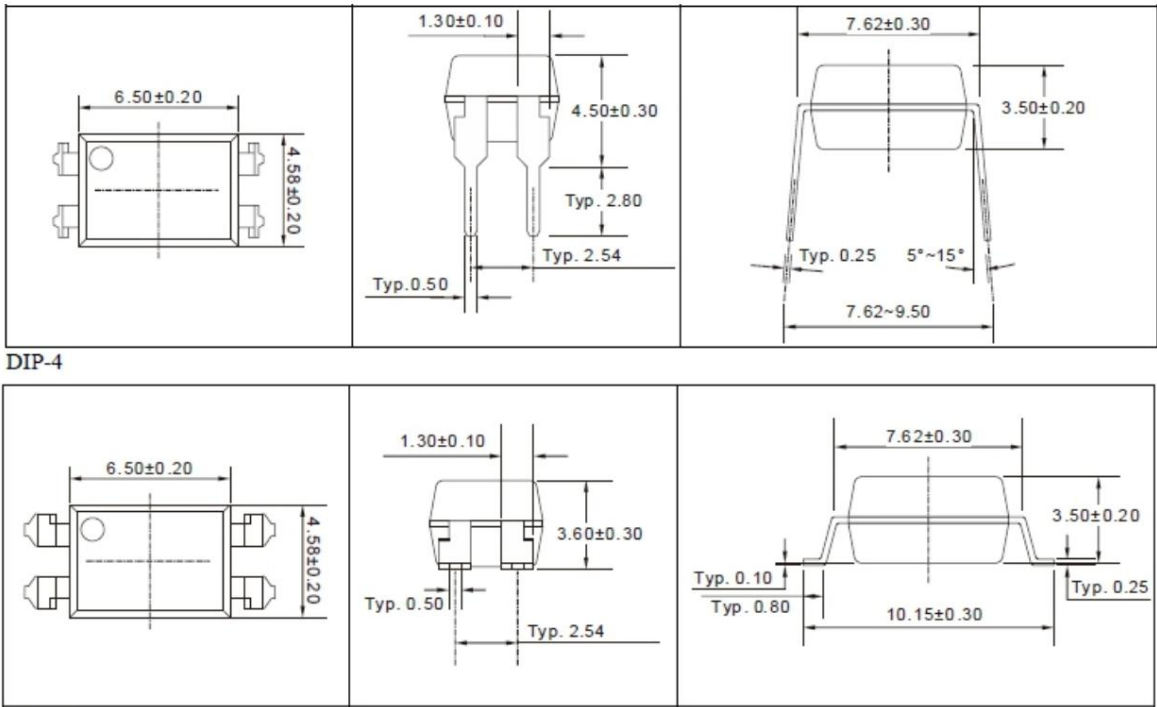
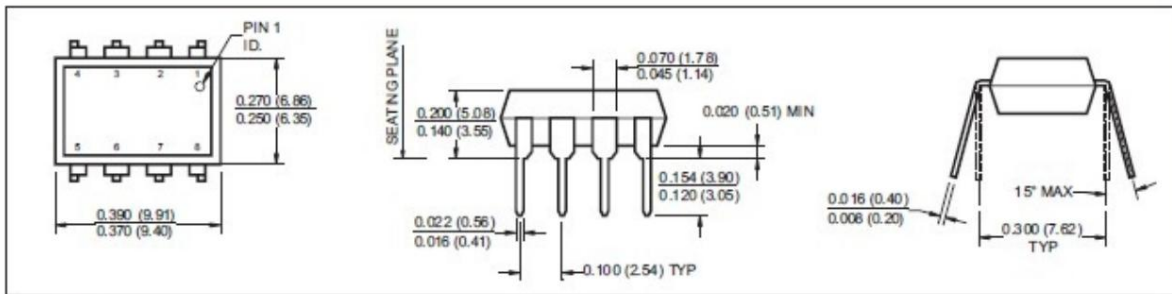
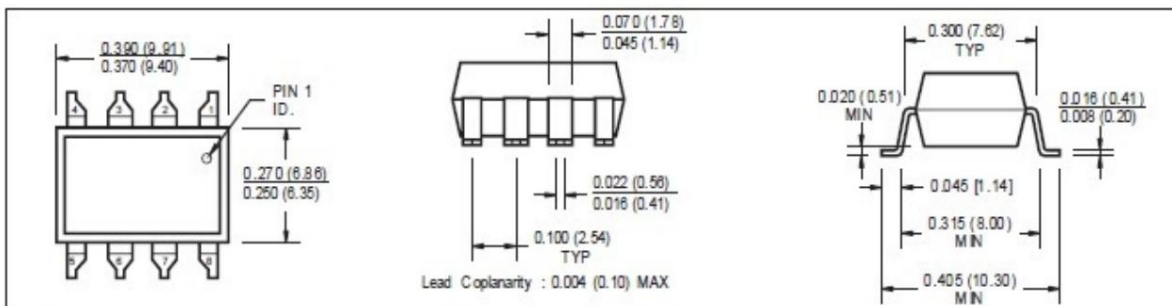


Figure 11: LED turn-off time - forward current characteristics

Dimensions:



SMD-4

**8-pin DIP****8-pin SMD****Notice:**

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