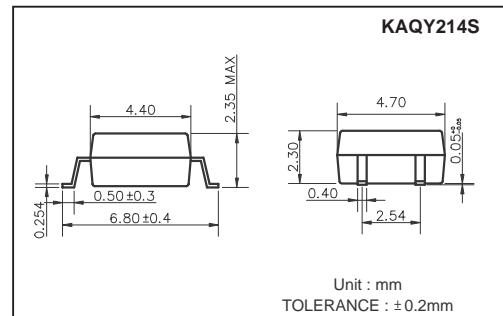


Features

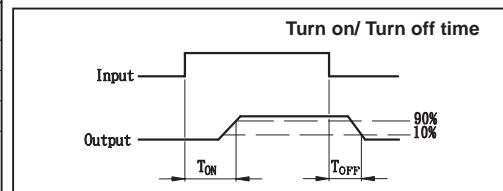
1. Normally Open, Single Pole Single Throw
2. Control 400VAC or DC Voltage
3. Switch 130mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 1500VACrms



Absolute Maximum Ratings

(Ta=25°C)

Emitter (Input)	Detector (Output)
Reverse Voltage	5.0V
Continuous Forward Current	50mA
Peak Forward Current	1A
Power Dissipation	100mW
Derate Linearly from 25°C	1.3mW/°C
General Characteristics	
Isolation Test Voltage	1500VACrms
Isolation Resistance	$\geq 10^{10} \Omega$
Vio=500V, Ta=25°C	
Total Power Dissipation	550mW
Derate Linearly from 25°C	2.5mW/°C
Storage Temperature Range	-40°C to +125°C
Operating Temperature Range	-30°C to +85°C
Junction Temperature	100°C
Soldering Temperature,	
2mm from case, 10 sec	260°C



Electro-optical Characteristics

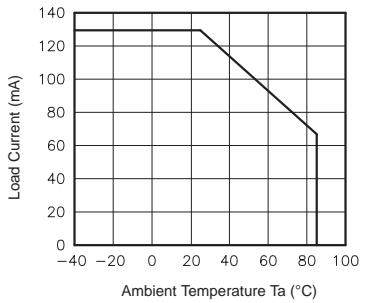
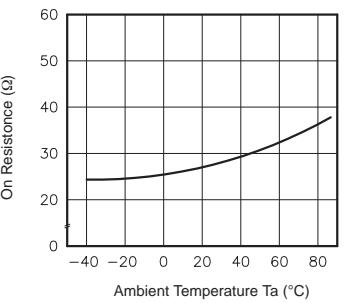
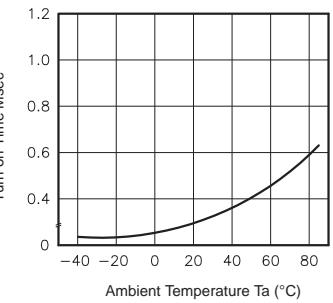
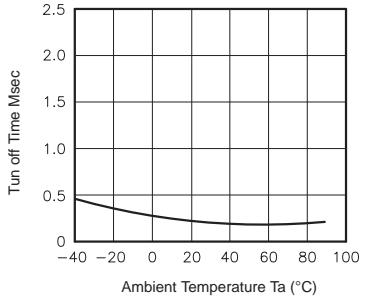
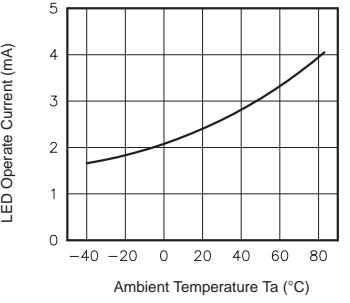
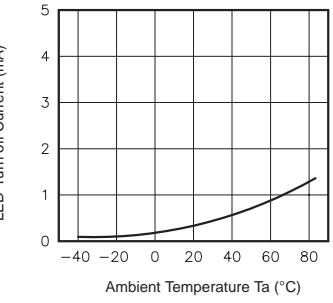
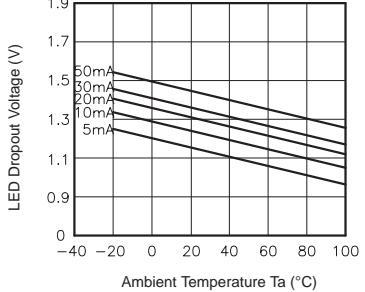
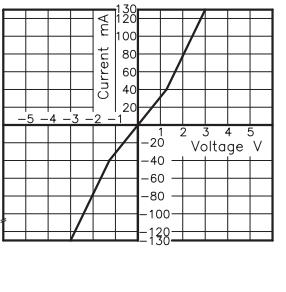
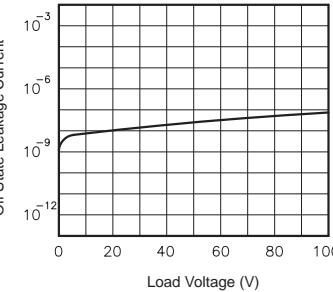
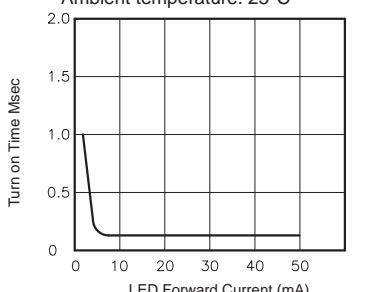
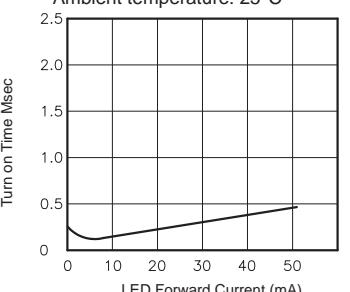
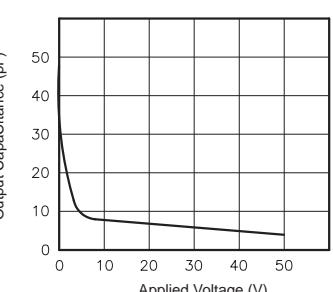
(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Emitter (Input)							
Forward Voltage	VF	IF =10mA		1.2	1.5	V	
Operation Input Current	IFON	VL =±20V, IL =100mA, t =10ms			5	mA	
Recovery Input Current	IOFF	VL =±20V, IL ≤5uA	0.2			mA	
Detector (Output)							
Output Breakdown Voltage	VB	IB=50uA	400			V	
Output Off-State Leakage	IOFF	VT =100V, IF =0mA		0.2	1	uA	
I/O Capacitance	CISO	IF =0, f =1MHz		6		p F	
ON Resistance	RON	IL =100mA, IF =10mA		20	30	Ω	
Turn-On Time	TON	IF =10mA, VL =±20V		0.3	1.0	ms	
Turn-Off Time	TOFF	t =10ms, IL =±100mA			0.7	1.5	ms

Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQY214S		1a	AC/DC	A	

Data Curve

<p>Fig.1 Load current vs. ambient temperature Allowable ambient temperature: -40°C to +85°C</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>Load Current (mA)</th> </tr> </thead> <tbody> <tr><td>-40</td><td>130</td></tr> <tr><td>0</td><td>130</td></tr> <tr><td>25</td><td>130</td></tr> <tr><td>40</td><td>120</td></tr> <tr><td>60</td><td>80</td></tr> <tr><td>80</td><td>70</td></tr> <tr><td>85</td><td>65</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	Load Current (mA)	-40	130	0	130	25	130	40	120	60	80	80	70	85	65	<p>Fig.2 On resistance vs. ambient temperature Across terminals 3 and 4 pin LED current: 5mA Continuous load current: 130mA(DC)</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>On Resistance (Ω)</th> </tr> </thead> <tbody> <tr><td>-40</td><td>25</td></tr> <tr><td>0</td><td>28</td></tr> <tr><td>20</td><td>32</td></tr> <tr><td>40</td><td>35</td></tr> <tr><td>60</td><td>38</td></tr> <tr><td>80</td><td>40</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	On Resistance (Ω)	-40	25	0	28	20	32	40	35	60	38	80	40	<p>Fig.3 Turn on time vs. ambient temperature Load voltage: 400V(DC) LED current: 5mA Continuous load current: 130mA(DC)</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>Turn on Time Msec</th> </tr> </thead> <tbody> <tr><td>-40</td><td>1.0</td></tr> <tr><td>0</td><td>0.2</td></tr> <tr><td>20</td><td>0.1</td></tr> <tr><td>40</td><td>0.15</td></tr> <tr><td>60</td><td>0.2</td></tr> <tr><td>80</td><td>0.4</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	Turn on Time Msec	-40	1.0	0	0.2	20	0.1	40	0.15	60	0.2	80	0.4																																				
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<p>Fig.7 LED dropout voltage vs. ambient temperature LED current: 5 to 50mA</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>5mA</th> <th>10mA</th> <th>20mA</th> <th>30mA</th> <th>50mA</th> </tr> </thead> <tbody> <tr><td>-40</td><td>1.1</td><td>1.1</td><td>1.1</td><td>1.1</td><td>1.1</td></tr> <tr><td>0</td><td>1.2</td><td>1.2</td><td>1.2</td><td>1.2</td><td>1.2</td></tr> <tr><td>20</td><td>1.3</td><td>1.3</td><td>1.3</td><td>1.3</td><td>1.3</td></tr> <tr><td>40</td><td>1.4</td><td>1.4</td><td>1.4</td><td>1.4</td><td>1.4</td></tr> <tr><td>60</td><td>1.5</td><td>1.5</td><td>1.5</td><td>1.5</td><td>1.5</td></tr> <tr><td>80</td><td>1.6</td><td>1.6</td><td>1.6</td><td>1.6</td><td>1.6</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	5mA	10mA	20mA	30mA	50mA	-40	1.1	1.1	1.1	1.1	1.1	0	1.2	1.2	1.2	1.2	1.2	20	1.3	1.3	1.3	1.3	1.3	40	1.4	1.4	1.4	1.4	1.4	60	1.5	1.5	1.5	1.5	1.5	80	1.6	1.6	1.6	1.6	1.6	<p>Fig.8 Voltage vs. current characteristics of output at MOS FET portion Measured portion: across terminals 3 and 4 pin Ambient temperature: 25°C</p>  <table border="1"> <thead> <tr> <th>Voltage (V)</th> <th>Current (mA)</th> </tr> </thead> <tbody> <tr><td>-5</td><td>20</td></tr> <tr><td>-4</td><td>40</td></tr> <tr><td>-3</td><td>60</td></tr> <tr><td>-2</td><td>80</td></tr> <tr><td>-1</td><td>100</td></tr> <tr><td>0</td><td>130</td></tr> <tr><td>1</td><td>180</td></tr> <tr><td>2</td><td>250</td></tr> <tr><td>3</td><td>350</td></tr> <tr><td>4</td><td>500</td></tr> <tr><td>5</td><td>700</td></tr> </tbody> </table>	Voltage (V)	Current (mA)	-5	20	-4	40	-3	60	-2	80	-1	100	0	130	1	180	2	250	3	350	4	500	5	700	<p>Fig.9 Off state leakage current Across terminals 3 and 4 pin Ambient temperature: 25°C</p>  <table border="1"> <thead> <tr> <th>Load Voltage (V)</th> <th>Off State Leakage Current (mA)</th> </tr> </thead> <tbody> <tr><td>0</td><td>1.2e-9</td></tr> <tr><td>20</td><td>1.5e-9</td></tr> <tr><td>40</td><td>1.8e-9</td></tr> <tr><td>60</td><td>2.0e-9</td></tr> <tr><td>80</td><td>2.2e-9</td></tr> <tr><td>100</td><td>2.5e-9</td></tr> </tbody> </table>	Load Voltage (V)	Off State Leakage Current (mA)	0	1.2e-9	20	1.5e-9	40	1.8e-9	60	2.0e-9	80	2.2e-9	100	2.5e-9
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