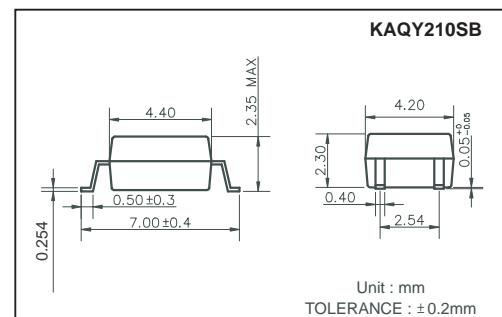


## Features

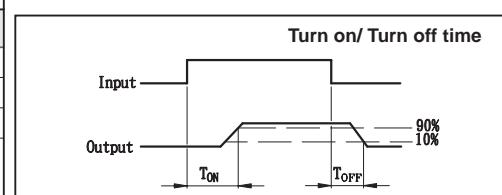
1. Normally Open, Single Pole Single Throw
2. Control 350VAC or DC Voltage
3. Switch 130mA Loads
4. LED control Current, 5mA
5. Low ON-Resistance
6. dv/dt, >500V/ms
7. Isolation Test Voltage, 1500VACrms



## 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

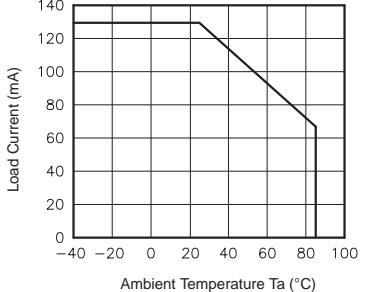
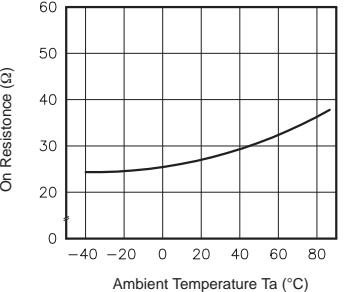
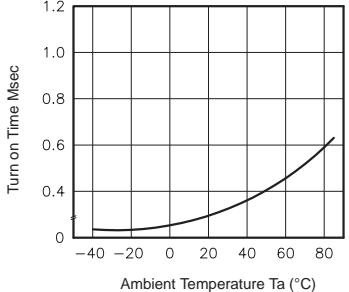
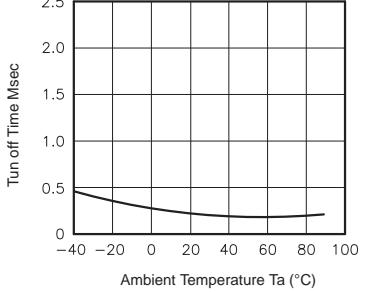
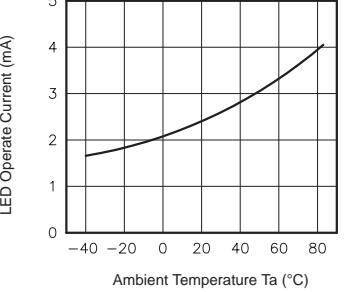
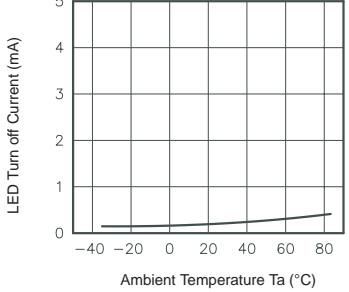
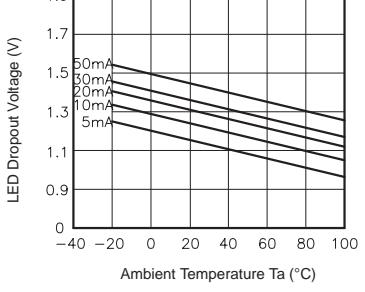
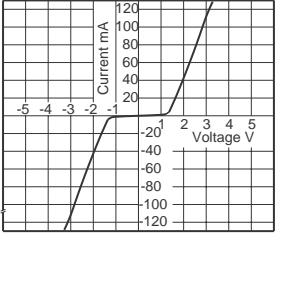
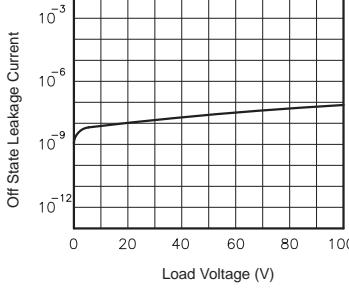
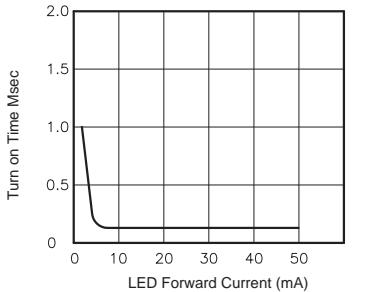
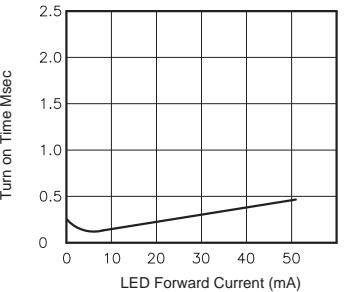
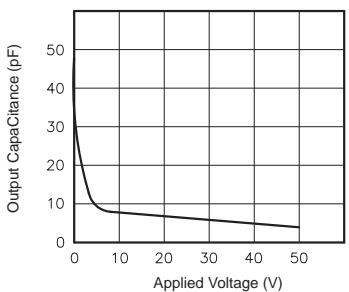
(Ta=25°C)

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	IFOFF	VL = ±20V, IL ≤ 5μA	0.05			mA
Detector (Output)						
Output Breakdown Voltage	VB	IB = 50μA	350			V
Output Off-State Leakage	IOTFF	VT = 100V, IF = 0mA		0.2	2	μA
I/O Capacitance	CISO	IF = 0, f = 1MHz	6			p F
ON Resistance	RON	IL = 100mA, IF = 10mA	28	35		Ω
Turn-On Time	TON	IF = 10mA, VL = ±20V		0.1	0.5	ms
Turn-Off Time	TOFF	t = 10ms, IL = ±100mA		0.3	0.5	ms

## Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
KAQY210SB		1a	AC/DC	—	

## Data Curve

<p><b>Fig.1</b> 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>20</td><td>125</td></tr> <tr><td>40</td><td>115</td></tr> <tr><td>60</td><td>105</td></tr> <tr><td>80</td><td>95</td></tr> <tr><td>85</td><td>65</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	Load Current (mA)	-40	130	0	130	20	125	40	115	60	105	80	95	85	65	<p><b>Fig.2</b> 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>25</td></tr> <tr><td>20</td><td>28</td></tr> <tr><td>40</td><td>32</td></tr> <tr><td>60</td><td>36</td></tr> <tr><td>80</td><td>40</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	On Resistance (Ω)	-40	25	0	25	20	28	40	32	60	36	80	40	<p><b>Fig.3</b> Turn on time vs. ambient temperature Load voltage 350V(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>0.1</td></tr> <tr><td>0</td><td>0.1</td></tr> <tr><td>20</td><td>0.2</td></tr> <tr><td>40</td><td>0.3</td></tr> <tr><td>60</td><td>0.4</td></tr> <tr><td>80</td><td>0.6</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	Turn on Time Msec	-40	0.1	0	0.1	20	0.2	40	0.3	60	0.4	80	0.6																												
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<p><b>Fig.4</b> Turn off time vs. ambient temperature LED current: 5mA; Load voltage: 350V(DC) Continuous load current: 130mA(DC)</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>Turn off Time Msec</th> </tr> </thead> <tbody> <tr><td>-40</td><td>0.5</td></tr> <tr><td>0</td><td>0.4</td></tr> <tr><td>20</td><td>0.3</td></tr> <tr><td>40</td><td>0.25</td></tr> <tr><td>60</td><td>0.2</td></tr> <tr><td>80</td><td>0.2</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	Turn off Time Msec	-40	0.5	0	0.4	20	0.3	40	0.25	60	0.2	80	0.2	<p><b>Fig.5</b> LED operate vs. ambient temperature Load voltage 350V(DC) Continuous load current: 130mA(DC)</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>LED Operate Current (mA)</th> </tr> </thead> <tbody> <tr><td>-40</td><td>1.5</td></tr> <tr><td>0</td><td>1.5</td></tr> <tr><td>20</td><td>2.0</td></tr> <tr><td>40</td><td>2.5</td></tr> <tr><td>60</td><td>3.0</td></tr> <tr><td>80</td><td>4.0</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	LED Operate Current (mA)	-40	1.5	0	1.5	20	2.0	40	2.5	60	3.0	80	4.0	<p><b>Fig.6</b> LED turn off current vs. ambient temperature Load voltage 350V(DC) Continuous load current: 130mA(DC)</p>  <table border="1"> <thead> <tr> <th>Ambient Temperature Ta (°C)</th> <th>LED Turn off Current (mA)</th> </tr> </thead> <tbody> <tr><td>-40</td><td>0.1</td></tr> <tr><td>0</td><td>0.1</td></tr> <tr><td>20</td><td>0.15</td></tr> <tr><td>40</td><td>0.2</td></tr> <tr><td>60</td><td>0.25</td></tr> <tr><td>80</td><td>0.3</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	LED Turn off Current (mA)	-40	0.1	0	0.1	20	0.15	40	0.2	60	0.25	80	0.3																														
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<p><b>Fig.7</b> 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>1.5</td><td>1.5</td><td>1.5</td><td>1.5</td><td>1.5</td></tr> <tr><td>0</td><td>1.4</td><td>1.4</td><td>1.4</td><td>1.4</td><td>1.4</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>1.2</td><td>1.2</td><td>1.2</td><td>1.2</td><td>1.2</td></tr> <tr><td>60</td><td>1.1</td><td>1.1</td><td>1.1</td><td>1.1</td><td>1.1</td></tr> <tr><td>80</td><td>1.0</td><td>1.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> </tbody> </table>	Ambient Temperature Ta (°C)	5mA	10mA	20mA	30mA	50mA	-40	1.5	1.5	1.5	1.5	1.5	0	1.4	1.4	1.4	1.4	1.4	20	1.3	1.3	1.3	1.3	1.3	40	1.2	1.2	1.2	1.2	1.2	60	1.1	1.1	1.1	1.1	1.1	80	1.0	1.0	1.0	1.0	1.0	<p><b>Fig.8</b> 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>0</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>2</td><td>100</td></tr> <tr><td>4</td><td>120</td></tr> <tr><td>5</td><td>120</td></tr> <tr><td>2</td><td>100</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>-2</td><td>20</td></tr> <tr><td>-4</td><td>10</td></tr> <tr><td>-5</td><td>0</td></tr> </tbody> </table>	Voltage V	Current mA	-5	0	0	0	2	100	4	120	5	120	2	100	0	0	-2	20	-4	10	-5	0	<p><b>Fig.9</b> 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</th> </tr> </thead> <tbody> <tr><td>0</td><td><math>10^{-9}</math></td></tr> <tr><td>10</td><td><math>10^{-9}</math></td></tr> <tr><td>100</td><td><math>10^{-8}</math></td></tr> </tbody> </table>	Load Voltage (V)	Off State Leakage Current	0	$10^{-9}$	10	$10^{-9}$	100	$10^{-8}$
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