

V214/V214A

HIGH VOLTAGE, PHOTO MOS RELAY

COSMO

FEATURES

- Normally Open, Single Pole Single Throw
- Control 400VAC or DC Voltage
- Switch 130mA Loads
- LED control Current, 5mA
- Low ON-Resistance
- $dv/dt, >500V/ms$
- Isolation Test Voltage, 3750VACrms

Absolute Maximum Ratings($T_a=25^\circ C$)

Emitter(Input)

| | |
|----------------------------------|----------|
| Reverse Voltage | 5.0V |
| Continuous Forward Current | 50mA |
| Peak Forward Current | 1A |
| Power Dissipation | 100mW |
| Derate Linearly from 25°C | 1.3mW/°C |

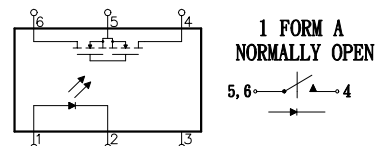
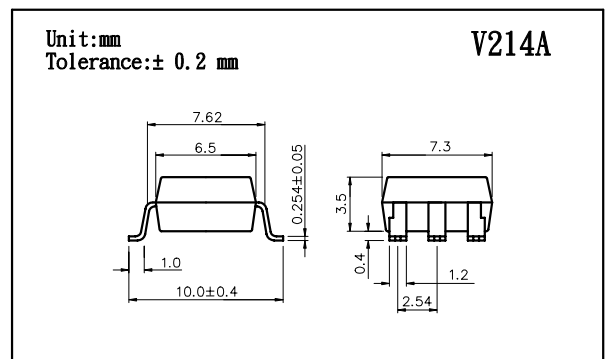
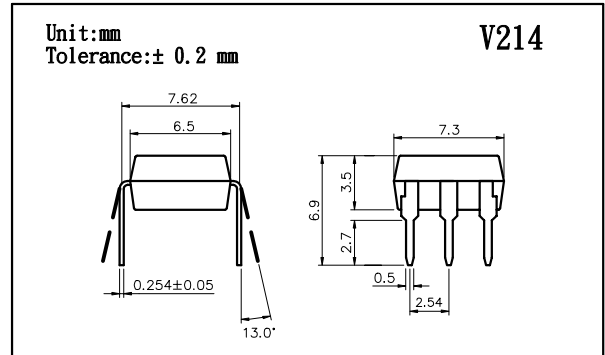
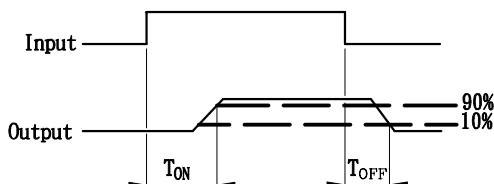
Detector(Output)

| | |
|--------------------------------|-------------|
| Output Breakdown Voltage | $\pm 400V$ |
| Continuous Load Current | $\pm 130mA$ |
| Power Dissipation | 500mW |

General Characteristics

| | |
|--|-----------------------|
| Isolation Test Voltage | 3750VACrms |
| Isolation Resistance $V_{io}=500V, T_a=25^\circ C$ | $\geq 10^{10} \Omega$ |
| 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 |

- Turn on/Turn off time



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Characterisitcs

(Ta=25°C)

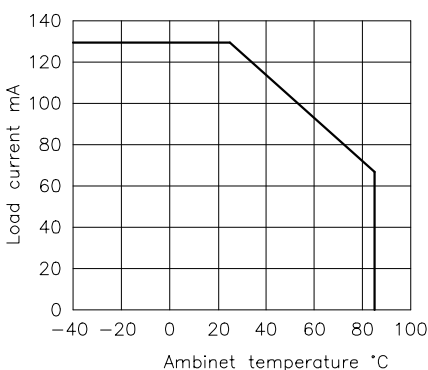
| Description | | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|--------------------------|-----------------|---------|------|------|------|------|------------------------------|
| Emitter(Input) | | | | | | | |
| Forward Voltage | | VF | | 1.2 | 1.5 | V | IF=10mA |
| Operation Input Current | | IFON | | | 5 | mA | VL=± 20V, IL=100mA t=10mS |
| Recovery Input Current | | IFOFF | 0.2 | | | mA | VL=± 20V, IL≤5uA |
| Detector (output) | | | | | | | |
| Output Breakdown Voltage | | VB | 400 | | | V | IB=50uA |
| Output Off-State Leakage | | IT(OFF) | | 0.2 | 1 | uA | VT=100V, IF=0mA |
| I/O Capacitance | | CISO | | 6 | | pF | IF=0, f=1MHz |
| ON Resistance | Con- nection | A | | 20 | 30 | Ω | IL=100mA, IF=10mA |
| | | B | RON | 10 | 15 | | |
| | | C | | 5 | 7.5 | | |
| Turn-on Time | | TON | | 0.3 | 1.0 | ms | IF=10mA, VL=± 20V |
| Turn-off Time | | TOFF | | 0.7 | 1.5 | ms | t=10ms, IL=± 100mA |

Mos Relay Schematic and Wiring Diagrams

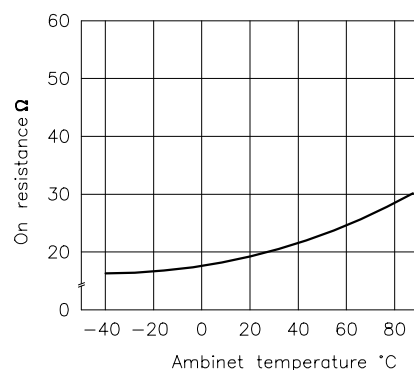
| Type | Schematic | Output configuration | Load | Con- nection | Wiring Diagrams |
|--------------------|-----------|----------------------|-------|-----------------|-----------------|
| V214 & V214A | | 1a | AC/DC | A | |
| | | | DC | B | |
| | | | | | |
| DC | C | | | | |

DATA CURVE

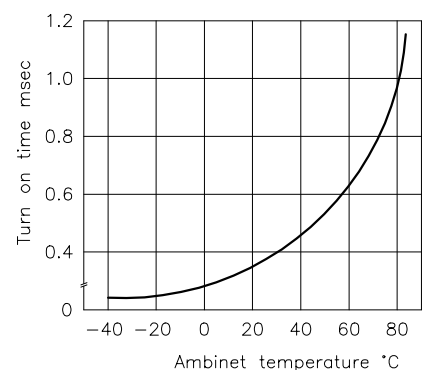
Load current vs. ambient temperature
Allowable ambient temperature:
-40°C to +85°C



On resistance vs. ambient temperature
Across terminals 4 and 6 pin
LED current: 5mA
Continuous load current: 130mA(DC)



Trun on time vs. ambient temperature
Load voltage 400V(DC)
LED current: 5mA
Continuous load current: 130mA(DC)

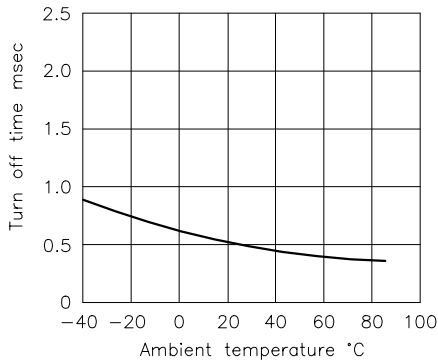


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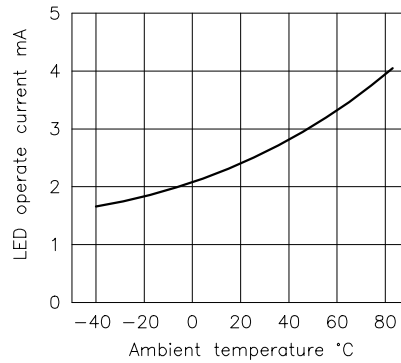
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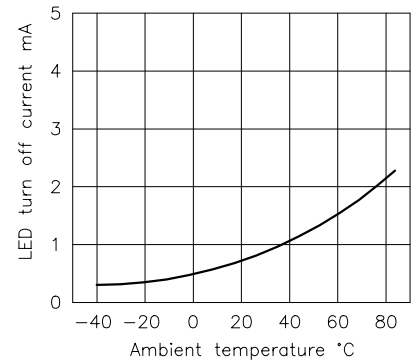
Turn off time vs. ambient temperature
LED current: 5mA; Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



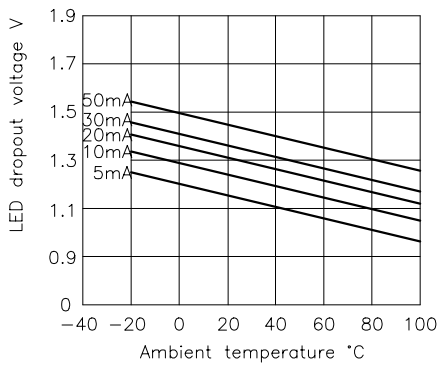
LED operate vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



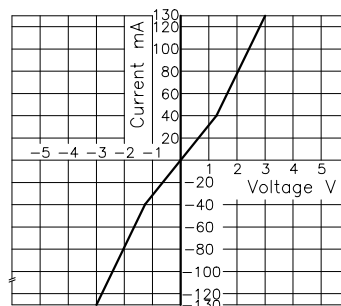
LED turn off current vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



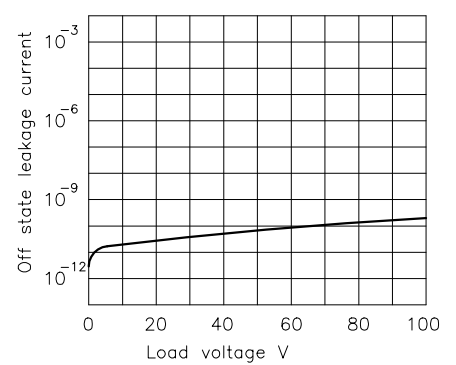
LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA



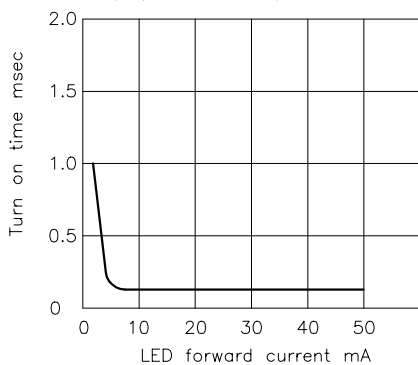
Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 4 and 6 pin
Ambient temperature: 25°C



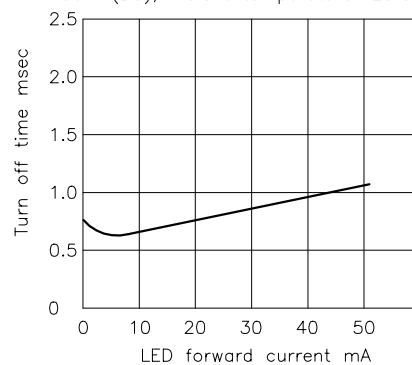
Off state leakage current
Across terminals 4 and 6 pin
Ambient temperature: 25°C



LED forward current vs. turn on time
Across terminals 4 and 6 pin; Load voltage: 400V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25°C



LED forward current vs. turn off time
Across terminals 4 and 6 pin; Load voltage: 400V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25°C



Applied voltage vs. output capacitance
Across terminals 4 and 6 pin
Frequency: 1MHz; Ambient temperature: 25°C

