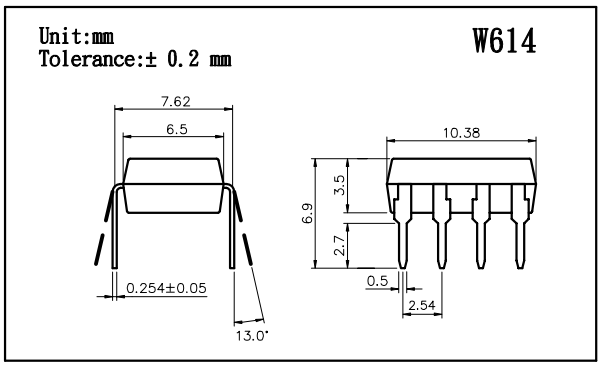
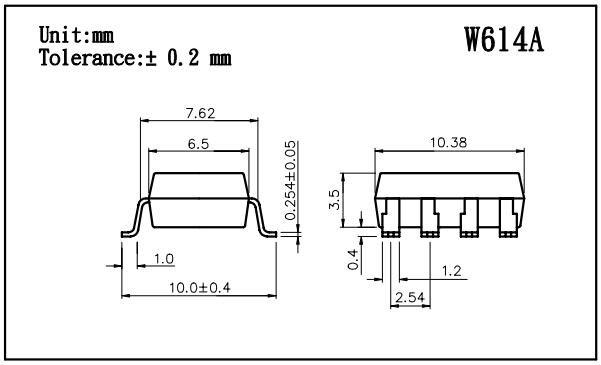
W614/W614A

HIGH VOLTAGE, PHOTO $^{E}_{D}$MOS RELAY

COSMO





FEATURES

- Normally Open and Close, 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(Ta=25℃)

Emitter(Input)

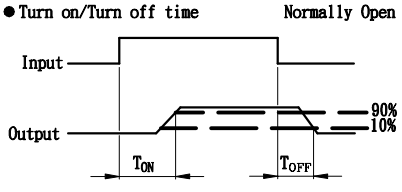
Reverse Voltage 5.0V
Continuous Forward Current 50mA
Peak Forward Current 1A
Power Dissipation 100mW
Derate Linearly from 25℃ ..... 1.3mW/℃

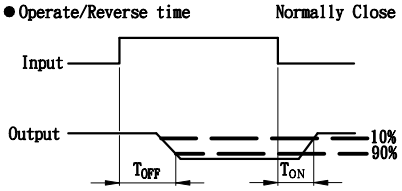
Detector(Output)

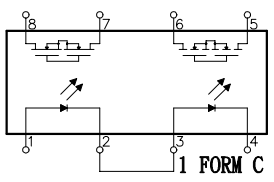
Output Breakdown Voltage ..... ± 400V
Continuous Load Current ..... ± 130mA
Power Dissipation 500mW

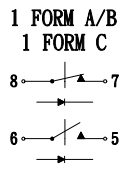
General Characteristics

Isolation Test Voltage 3750VACrms
Isolation Resistance Vio=500V, Ta=25℃ ..... $\geqq 10^{10}\Omega$
Total Power Dissipation 550mW
Derate Linearly from 25℃ ..... 2.5mW/℃
Storage Temperature Range ..... -40℃ to +125℃
Operating Temperature Range ..... -30℃ to +85℃
Junction Temperature ..... 100℃
Soldering Temperature, 2mm from case, 10 sec ..... 260℃









W614/W614A

HIGH VOLTAGE, PHOTO MOS RELAY

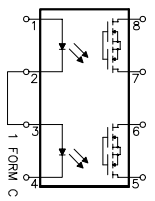
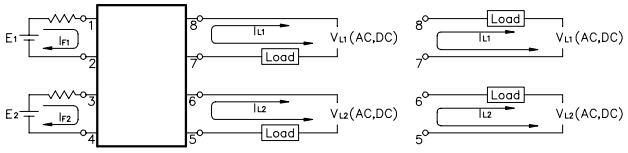
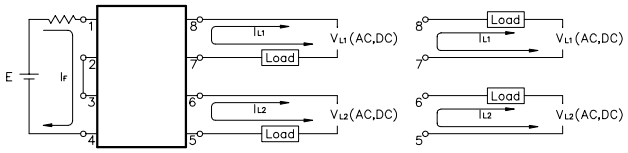
Characterisitcs (Ta=25℃)

Description	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Emitter(Input)						
Forward Voltage	VF		1.8	2.0	V	IF=10mA
Operation Input Current	IFON(N.O) IFOFF(N.C)			5	mA	VL=± 20V, IL=100mA(N.O) VL=± 20V, IL≦5uA(N.C) t=10mS
Recovery Input Current	IFOFF(N.O) IFON(N.C)	0.2			mA	VL=± 20V, IL≦5uA(N.O) VL=± 20V, IL=100mA(N.C) t=10mS

Detector (output) normally open						
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	RON		20	30	Ω	IL=100mA, IF=10mA
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

Detector (output) normally close						
Output Breakdown Voltage	VB	400			V	IB=50uA
Output Off-State Leakage	IT(OFF)		0.2	2	uA	VT=100V, IF=10mA
I/O Capacitance	CISO		6		pF	IF=0, f=1MHz
ON Resistance	RON		40	50	Ω	IL=100mA, IF=0mA
Reverse(ON) Time	TON		0.6	1.5	ms	IF=10mA, VL=± 20V
Operate(OFF) Time	TOFF		0.3	1.0	ms	t=10ms, IL=± 100mA

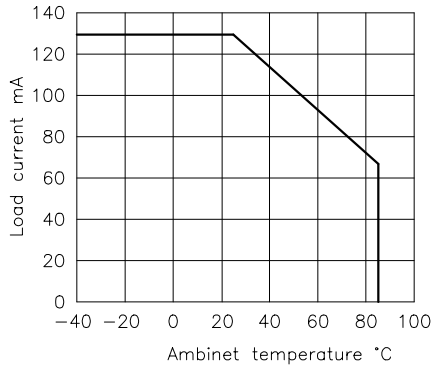
Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configur-ation	Load	Con-nection	Wiring Diagrams
W614 & W614A		1a1b	AC/DC	-	(1)Two independent 1 Form A & 1 Form B use  (2)1 Form A 1 Form B use 

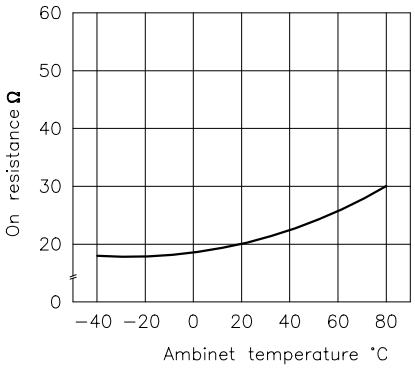
W614/W614A Normally Open Characteristics

DATA CURVE

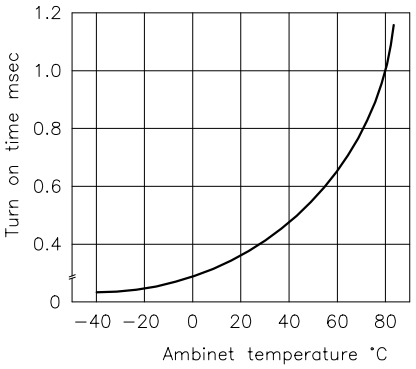
Load current vs. ambient temperature
Allowable ambient temperature:
−40℃ to +85℃



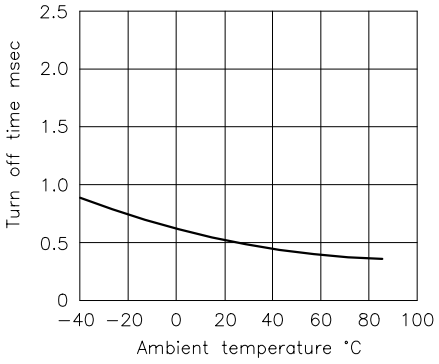
On resistance vs. ambient temperature
Across terminals 5 and 6 pin
LED current: 5mA
Continuouse load current: 130mA(DC)



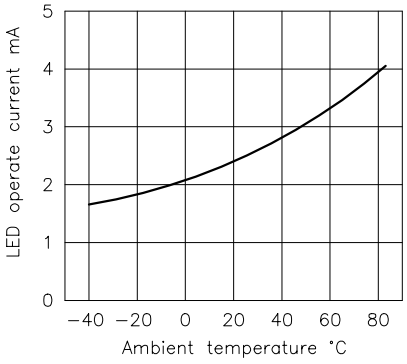
Turn on time vs. ambient temperature
LED current: 5mA;Load voltage 400V(DC)
Continuouse load current: 130mA(DC)



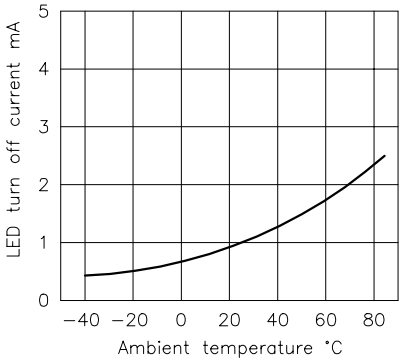
Turn off time vs. ambient temperature
LED current: 5mA;Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



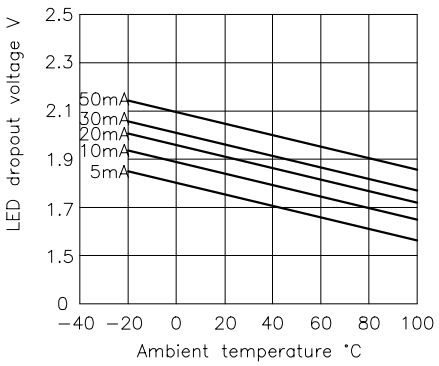
LED operate vs. ambient temperature
Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



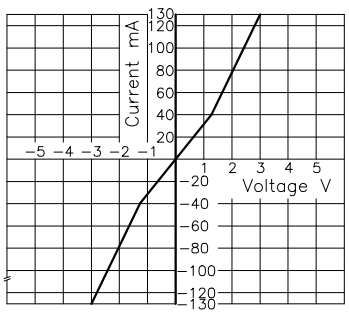
LED turn off current vs. ambient temperature
Load voltage: 400V(DC)
Continuons load current: 130mA(DC)



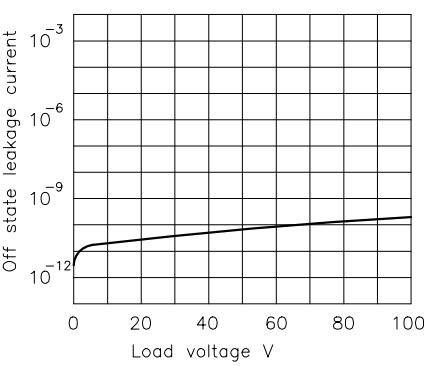
LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA



Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 5 and 6 pin
Ambient temperature: 25°C

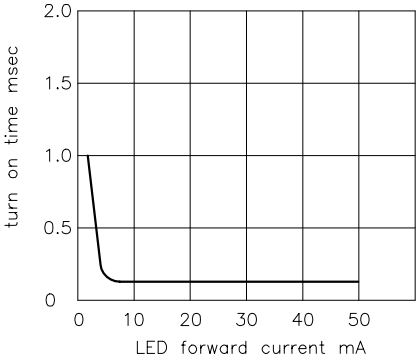


Off state leakage current
Across terminals 5 and 6 pin
Ambient temperature: 25°C

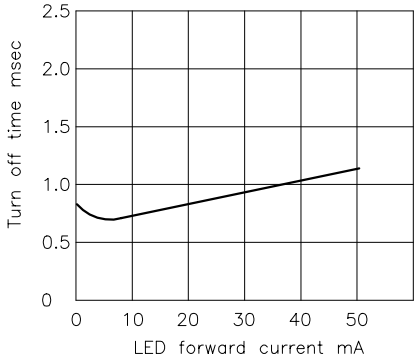


W614/W614A Normally Open Characteristics

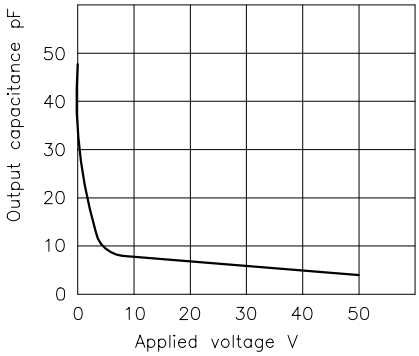
LED forward current vs. turn on time
Across terminals 5 and 6 pin;Load voltage: 400V(DC);Continuous load current: 130mA(DC);Ambient temperature: 25°C



LED forward current vs. turn off time
Across terminals 5 and 6 pin;Load voltage: 400V(DC);Continuous load current: 130mA(DC);Ambient temperature: 25°C



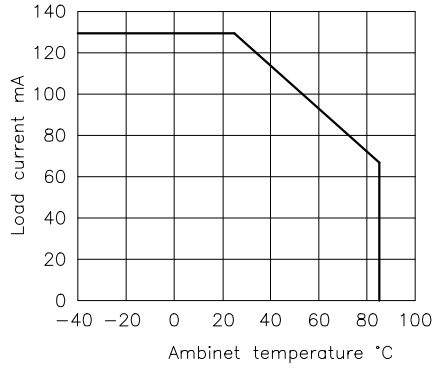
Applied voltage vs. output capacitance
Across terminals 5 and 6 pin
Frequency: 1MHz;Ambient temperature: 25°C



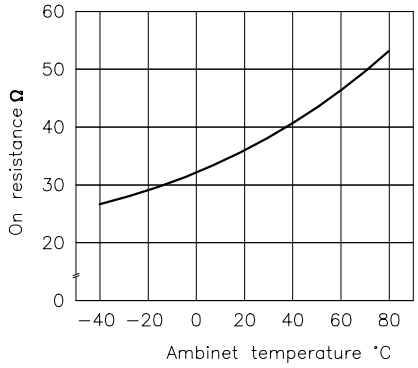
W614/W614A Normally Close Characteristics

DATA CURVE

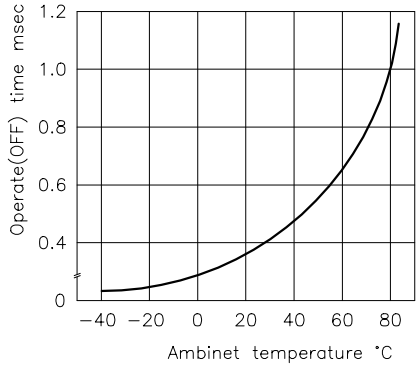
Load current vs. ambient temperature
Allowable ambient temperature:
−40℃ to +85℃



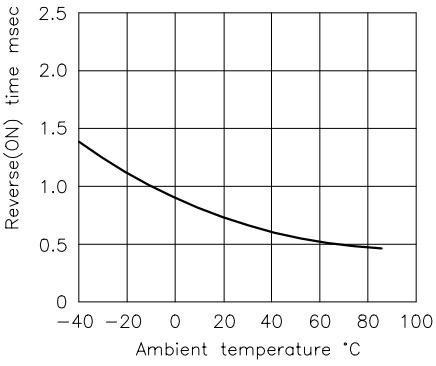
On resistance vs. ambient temperature
Across terminals 7 and 8 pin
LED current: 0mA
Continuouse load current: 130mA(DC)



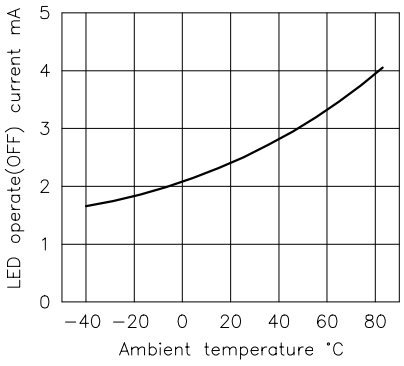
Operate(OFF) time vs. ambient temperature LED current: 5mA;Load voltage 400V(DC) Continuouse load current: 130mA(DC)



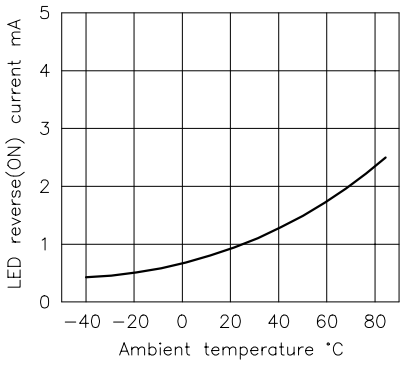
Reverse(ON) time vs. ambient temperature
LED current: 5mA;Load voltage: 400V(DC)
Continuous load current: 130mA(DC)



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

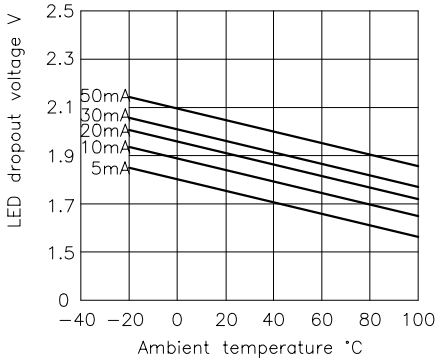


LED reverse(ON) current vs. ambient temperature
Load voltage: 400V(DC)
Continuons load current: 130mA(DC)

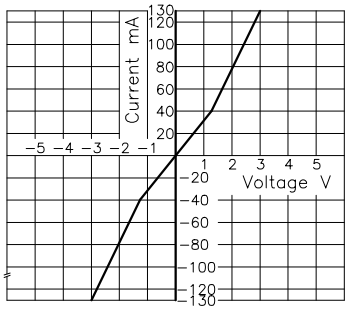


W614/W614A Normally Close Characteristics

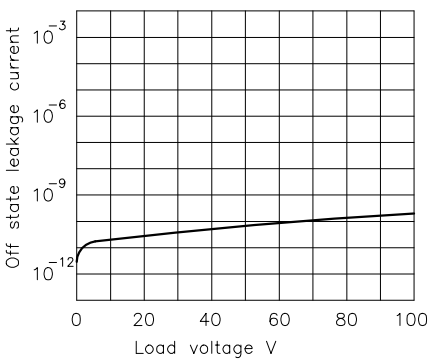
LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA



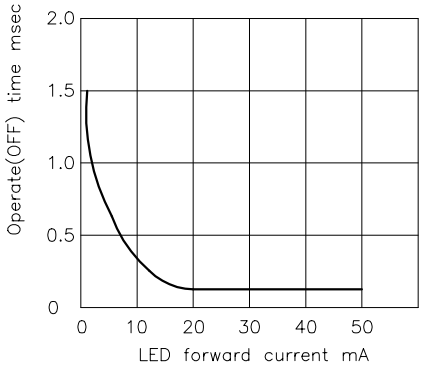
Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 7 and 8 pin
Ambient temperature: 25°C



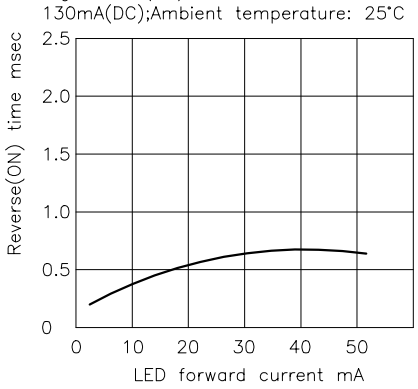
Off state leakage current
Across terminals 7 and 8 pin
Ambient temperature: 25°C



LED forward current vs. operate(OFF) time
Across terminals 7 and 8 pin;Load voltage: 400V(DC);Continuous load current: 130mA(DC);Ambient temperature: 25°C



LED forward current vs. reverse(ON) time
Across terminals 7 and 8 pin;Load voltage: 400V(DC);Continuous load current: 130mA(DC);Ambient temperature: 25°C



Applied voltage vs. output capacitance
Across terminals 7 and 8 pin
Frequency: 1MHz;Ambient temperature: 25°C