

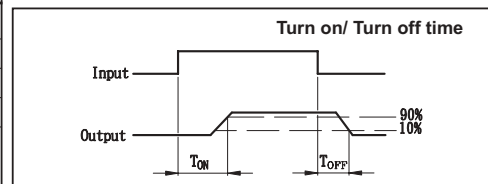
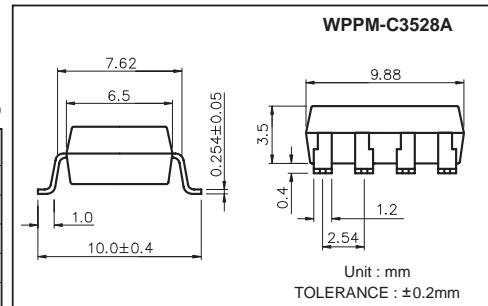
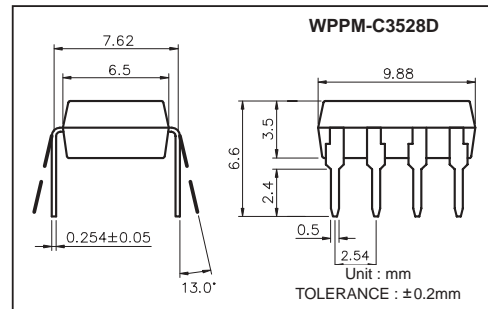
Features

1. Photo MOS relay and opto coupler in one package.
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, 3750V_{RMS}.

Part Numbering System & Part Marking System: Page 3 & 4.

MOS Relay Absolute Maximum Ratings (Ta=25°C)

Emitter (Input)		Detector (Output)	
Reverse Voltage.....	5.0V	Output Breakdown Voltage	±350V
Continuous Forward Current	50mA	Continuous Load Current	±130mA
Peak Forward Current	1A	Power Dissipation	500mW
Power Dissipation	100mW		
Derate Linearly from 25°C	1.3mW/°C		
General Characteristics			
Isolation Test Voltage.....	3750V _{RMS}	Storage Temperature Range	-40°C to +125°C
Isolation Resistance		Operating Temperature Range.....	-30°C to +85°C
V _{IO} = 500V, T _A = 25°C	≥10 ¹⁰ Ω	Junction Temperature.....	100°C
Total Power Dissipation	550mW	Soldering Temperature,	
Derate Linearly from 25°C	2.5mW/°C	2mm from case, 10 sec	260°C



MOS Relay Electro-optical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Emitter (Input)						
Forward Voltage	V _F	I _F = 10mA		1.2	1.5	V
Operation Input Current	I _{FON}	V _L = ±20V, I _L = 100mA, t = 10mS			5	mA
Recovery Input Current	I _{FOFF}	V _L = ±20V, I _L ≤ 5uA	0.2			mA
Detector (Output)						
Output Breakdown Voltage	V _B	I _B = 50uA	350			V
Output Off-State Leakage	I _{TOFF}	V _T = 100V, I _F = 0mA		0.2	1	uA
I/O Capacitance	C _{ISO}	I _F = 0, f = 1MHz		6		pF
ON Resistance	R _{ON}	I _L = 100mA, I _F = 10mA		20	30	Ω
Turn-On Time	T _{ON}	I _F = 10mA, V _L = ±20V		0.3	1.0	mS
Turn-Off Time	T _{OFF}	t = 10mS, I _L = ±100mA		0.7	1.5	mS

MOS Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Connection	Wiring Diagrams
C3528D/A		1a	AC/DC	-	



MOS Relay Data Curve

Fig.1 Load current vs. ambient temperature
Allowable ambient temperature:
-40°C to +85°C

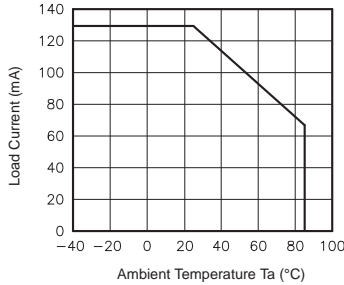


Fig.2 On resistance vs. ambient temperature
Across terminals 7 and 8 pin
LED current: 5mA
Continuous load current: 130mA(DC)

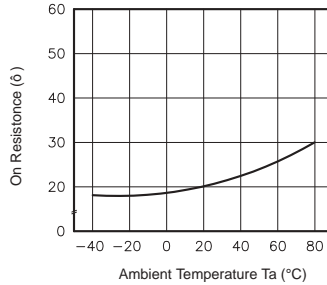


Fig.3 Turn on time vs. ambient temperature
Load voltage 350V(DC)
LED current: 5mA
Continuous load current: 130mA(DC)

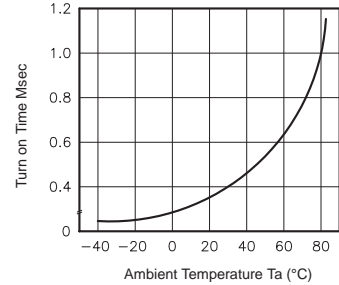


Fig.4 Turn off time vs. ambient temperature
LED current: 5mA; Load voltage:
350V(DC)
Continuous load current: 130mA(DC)

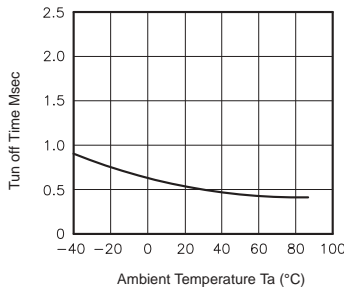


Fig.5 LED operate vs. ambient temperature
Load voltage 350V(DC)
Continuous load current: 130mA(DC)

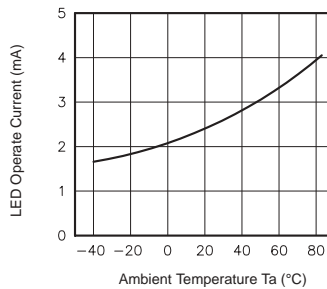


Fig.6 LED turn off current vs. ambient temperature
Load voltage 350V(DC)
Continuous load current: 130mA(DC)

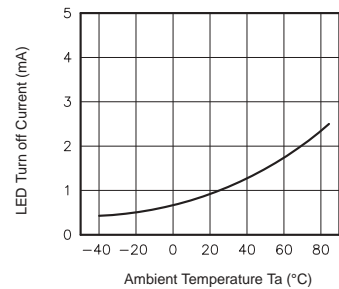


Fig.7 LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA

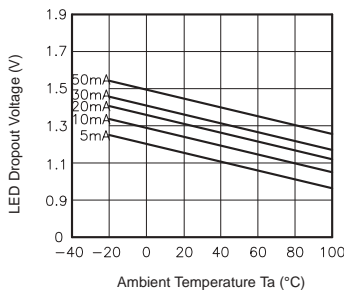


Fig.8 Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 7 and 8 pin
Ambient temperature: 25°C

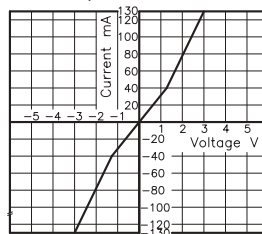


Fig.9 Off state leakage current
Across terminals 7 and 8 pin
Ambient temperature: 25°C

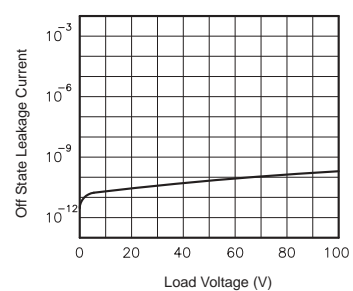


Fig.10 LED forward current vs. turn on time
Across terminals 7 and 8 pin;
Load voltage: 350V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

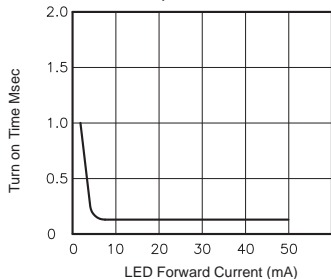


Fig.11 LED forward current vs. turn off time
Across terminals 7 and 8 pin;
Load voltage: 350V (DC);
Continuous load current: 130mA (DC);
Ambient temperature: 25°C

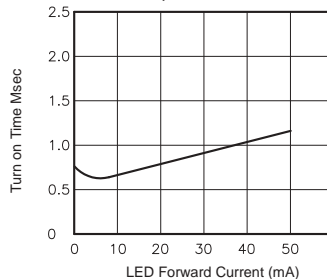


Fig.12 Applied voltage vs. output capacitance
Across terminals 7 and 8 pin
Frequency: 1MHz
Ambient temperature: 25°C

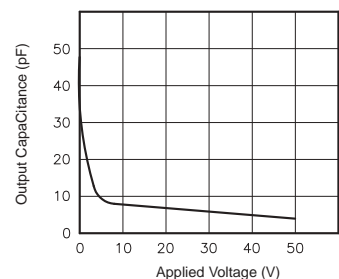




Photo Coupler Absolute Maximum Ratings

(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	IF	±50	mA
	Peak forward current	IFM	±1	A
	Power dissipation	PD	70	mW
Output	Collector-emitter voltage	VCEO	60	V
	Emitter-collector voltage	VECO	6	V
	Collector current	IC	50	mA
	Collector power dissipation	PC	150	mW
Total power dissipation		Ptot	200	mW
Isolation voltage 1 minute		Viso	1500	VRMS
Operating temperature		Topr	-30 to +100	°C
Storage temperature		Tstg	-55 to +125	°C
Soldering temperature 10 second		Tsol	260	°C

Photo Coupler Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	VF	IF =± 20mA	—	1.2	1.4	V
	Peak forward voltage	VFM	IFM =± 0.5A	—	—	3.5	V
	Terminal capacitance	Ct	V=0, f=1kHz	—	30	—	pF
Output	Collector dark current	ICEO	VCE =20V, IF =0	—	—	0.1	uA
Transfer characteristics	Current transfer ratio	CTR	IF =± 1mA, VCE =5V	30	100	—	%
	Collector-emitter saturation voltage	VCE (sat)	IF =± 20mA, IC =1mA	—	0.1	0.3	V
	Isolation resistance	Riso	DC500V	5X10 ¹⁰	10 ¹¹	—	ohm
	Floating capacitance	Cf	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency	fc	VCC =5V, IC=2mA, RL =100ohm	—	80	—	kHz
	Response time (Rise)	tr	VCE=2V, IC=2mA, RL=100ohm	—	5	20	us
Response time (Fall)	tf	—		4	20	us	

Photo Coupler Data Curve

