



JOCMA38V-SS4

Rev.A.1.0

DESCRIPTION:

The products are 4-pin optical relays. The device is a very small outline non-leaded photorelay suitable for surface-mount assembly. It consists of an infrared LED optically coupled to a photo-MOSFET and is housed in a SSON4 package. It features low output capacitance, COFF, and thus fast on/off switching of a high-frequency signal, making it ideal for switching applications in high-speed testers. The products are widely used in automatic test equipment, high-speed logic IC testers, high-speed memory testers and measuring instruments.

MAIN FEATURES

Isolation voltage 500 Vrms

Operating temperature range -40°C to 125°C

REACH & RoHS compliance

HBM: H3A; MM: M4; CDM: C3

CQC approved

VDE approved

UL approved

ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

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Soldering Temperature	T_{sol}	260	
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NOTE1: AC for 1minute, R.H.=40~60%

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=10mA$	-	2	2.5	V
	Reverse Current	I_R	$V_R=6V$	-	-	1	μA
	Input Capacitance	C_{in}	$V=0V$ $f=1MHz$	-	30	-	pF
Detector	Off-state Current	I_{OFF}	$V_{OFF}=60V$	-	-	1	nA
	Output Capacitance	C_{OFF}	$V=0V$ $f=1MHz$ $t<1s$	-	80	150	pF
Coupled	Trigger LED Current	I_{FT}	$I_{ON}=100mA$	-	0.03	0.2	mA
	Limited LED Current	I_{LIM}	$I_{ON}=100mA$	-	0.7	1	mA
	On-state Resistance	R_{ON}	$I_{ON}=1A$ $I_F=5mA$ $t<1s$	-	0.2	0.3	Ω
Switching Characteristics	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	-	10^{14}	-	Ω
	Turn On Time	t_{on}	$R_L=200\Omega$, $V_{DD}=20V$, $V_{IN}=5V$	-	0.3	2	ms
	Turn Off Time	t_{off}		-	0.05	0.2	ms

Recommended Operating Conditions

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V_{DD}	-	-	48	V
Input Forward Current	V_{IN}	-	3.3	6	V
On-state Current	I_{ON}	-	-	1	A
Operating Temperature	T_{opr}	-40	-	125	

ORDERING INFORMATION

J OC M A 3 8 V -SS4 /
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Characteristics Curves

FIG.1: Max. Allowable LED Forward Current vs. Ambient Temperature

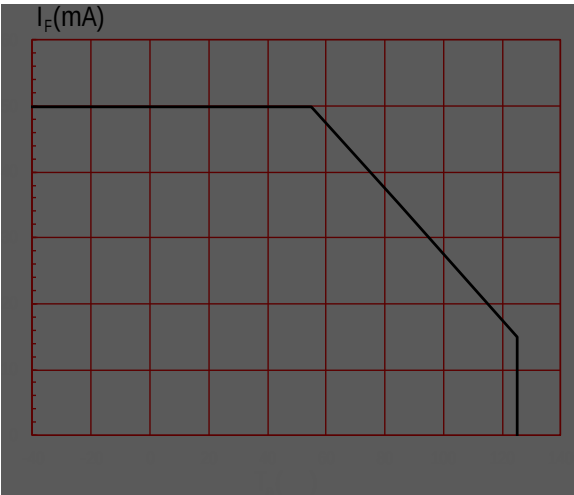


FIG.2: On-state Current vs. Ambient Temperature

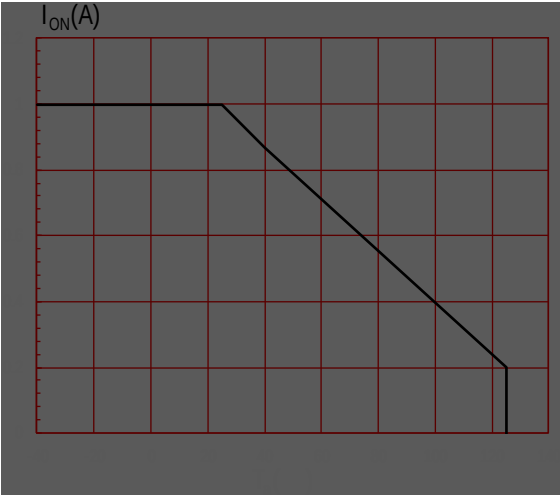


FIG.3: LED Forward Current vs. LED Dropout Voltage

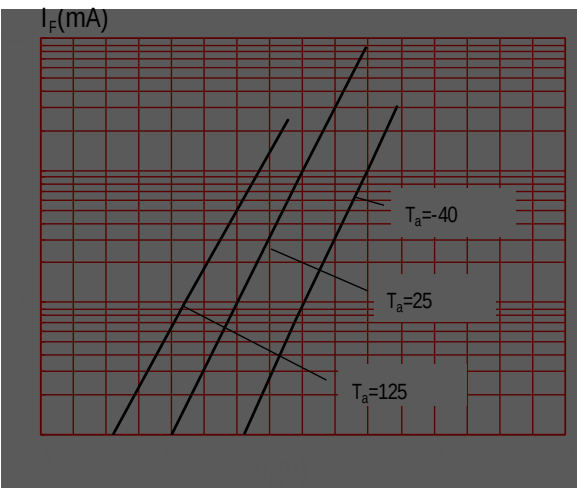


FIG.4: On-state Current vs. On-state Voltage

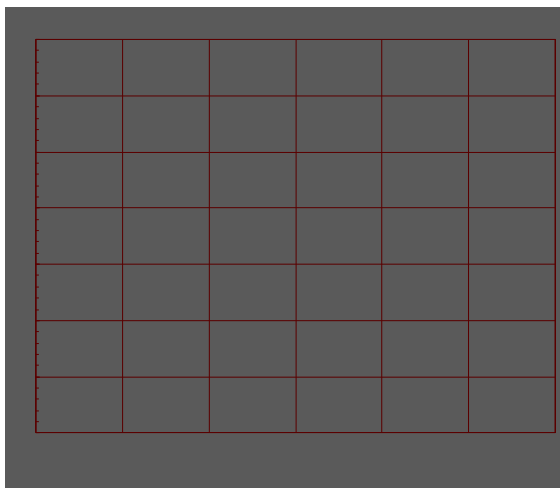




FIG.7: T_{ON} , T_{OFF} VS. LED Forward Current

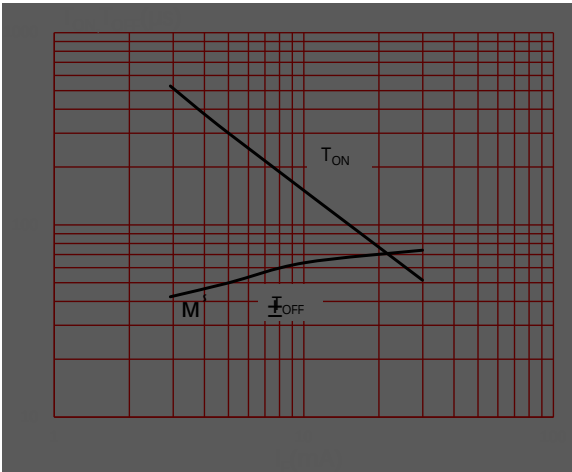


FIG.8: T_{ON} , T_{OFF} VS. Ambient Temperature

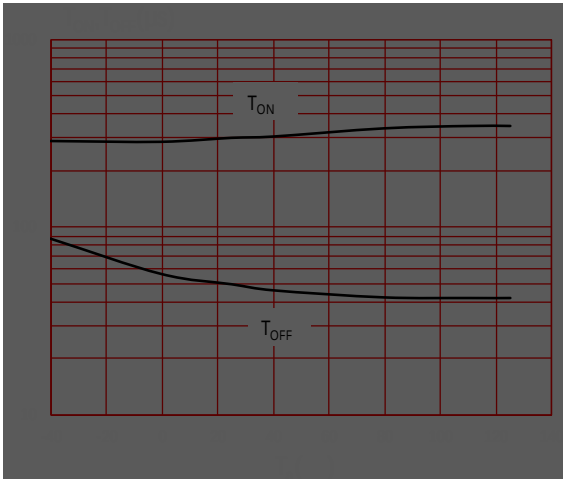
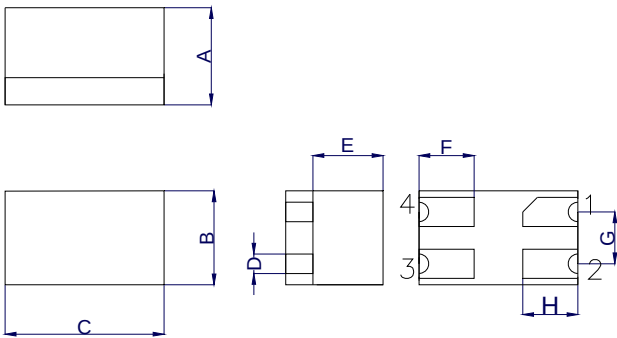


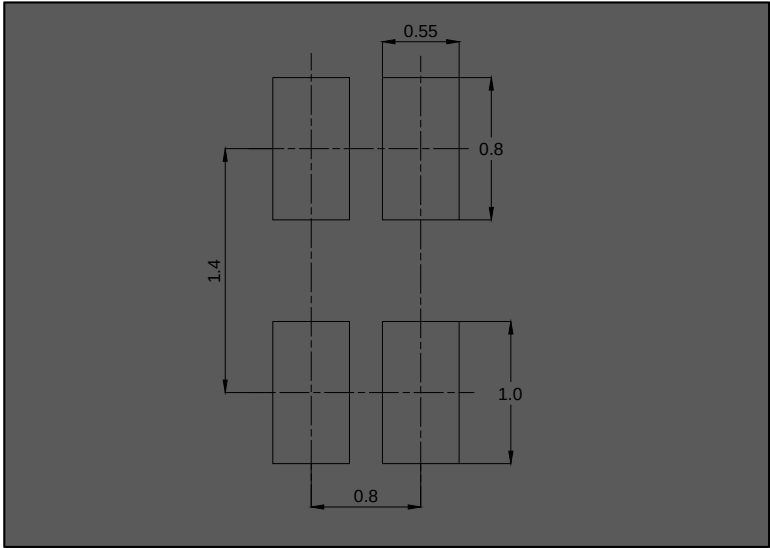
FIG.9:

Package Dimension (Unit: mm)



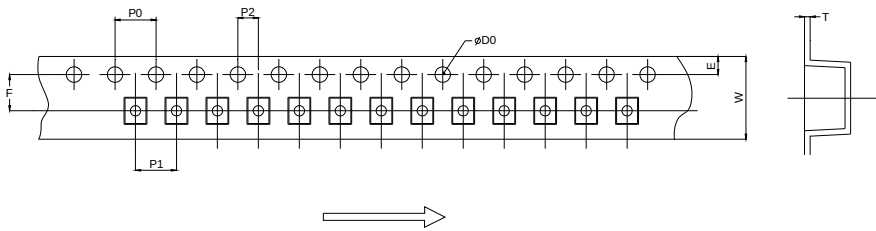
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.30		1.70	0.051		0.067
B	1.65		2.05	0.065		0.081
C	2.05		2.45	0.081		0.096
D	0.10		0.50	0.004		0.020
E	0.88		1.28	0.035		0.050
F	0.775		1.175	0.031		0.046
G	0.60		1.00	0.024		0.039
H	0.575		0.975	0.023		0.038

RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)



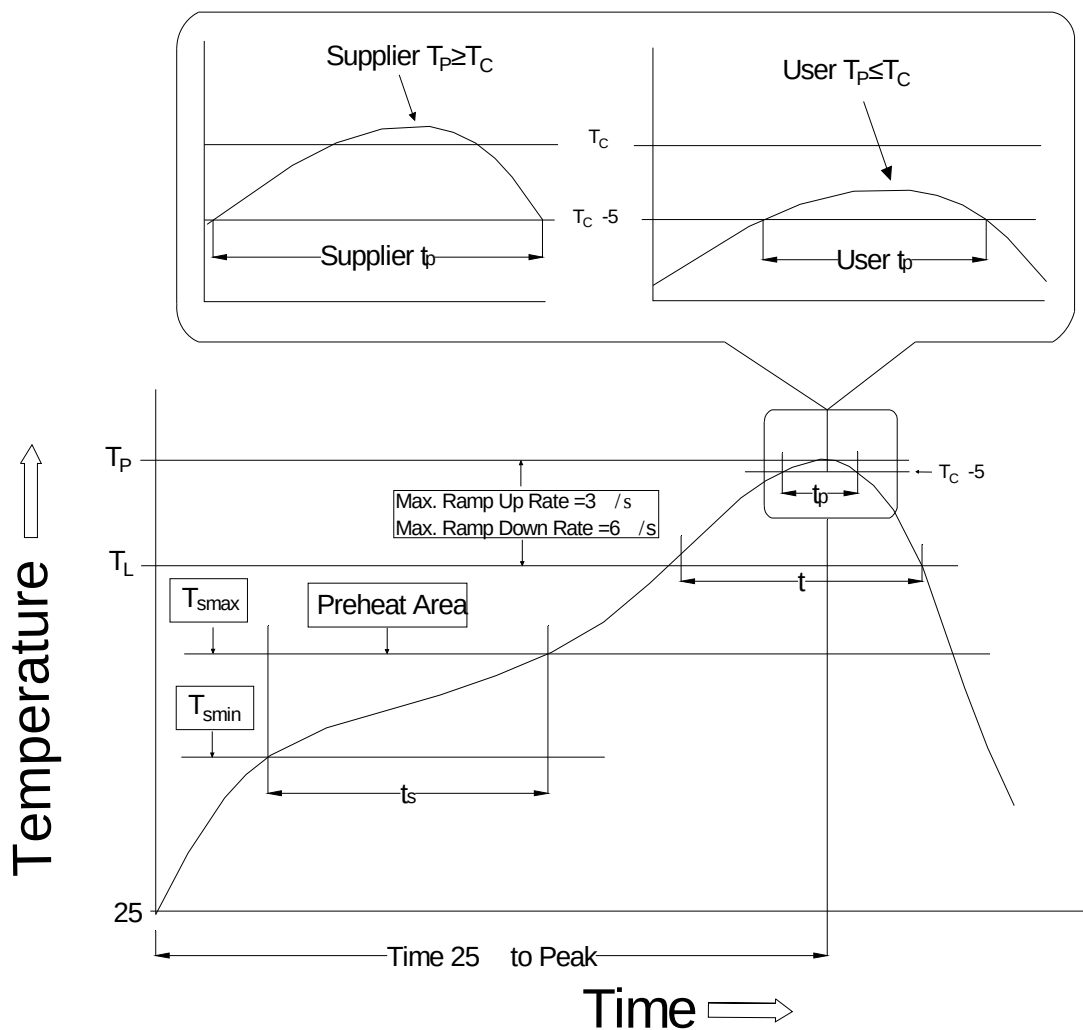


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0		1.50	1.60		0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	3.90	4.00	4.10	0.154	0.157	0.161
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	3.40	3.50	3.60	0.134	0.138	0.142
T	0.20	0.25	0.30	0.008	0.010	0.012
W	7.70	8.00	8.30	0.303	0.315	0.327

REFLOW INFORMATION



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (T_{smin})	100	150
Temperature Max. (T_{smax})	150	200
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up Rate (t_L to t_P)	3 °C/second max.	3 °C/second max.
Liquidus Temperature (T_L)	183	217
Time (t_L) Maintained Above (T_L)	60-150 seconds	60-150 seconds
Peak Body Package Temperature	235 +0 /-5	260 +0 /-5
Time (t_P) within 5 °C of 260	10 seconds	10 seconds
Ramp-down Rate (T_P to T_L)	3-6 °C/second	3-6 °C/second
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

Note:

1. Reflow soldering is recommended at the temperatures and times shown, no more than three times.
2. Avoid direct contact between the epoxy body and any tools or components.