JOCMA38D-M4 Series

Rev.A.1.0

DESCRIPTION:

The products are 4-pin optical relays. The device consists of an AlGaAs infrared emitting diode input stage optically coupled to a high-voltage output detector circuit in a plastic SOP4 package. The detector consists of a high-speed photovoltaic diode array and driver circuitry. The products are widely used in measuring and testing equipment, security and disaster prevention market, industrial machinery and equipment.

MAIN FEATURES

High isolation 3750 Vrms
Operating temperature range -40°C to 110°C
REACH & RoHS compliance
HBM: H3A; MM: M4; CDM: C3
CQC approved
VDE approved
UL approved

ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

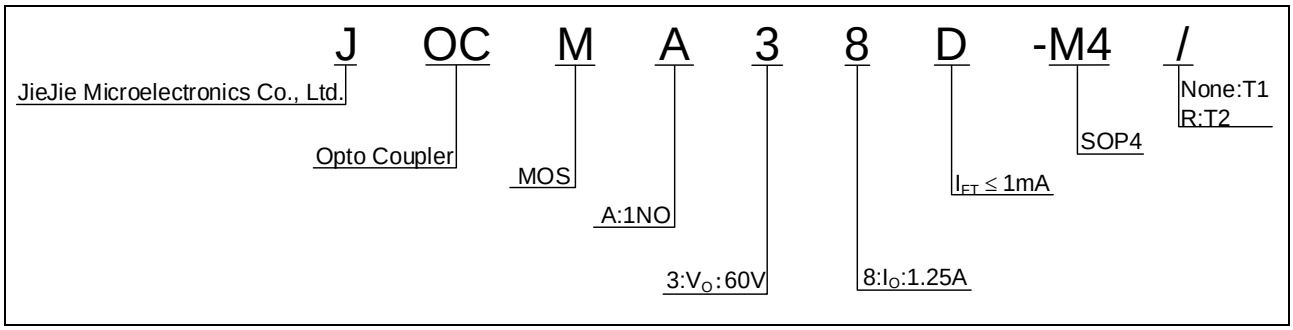
	Forward Current	I_F	50	mA
Input	ΰ ΠM ö φ` P ⅈ D Ϭ m0 p ę m			

NOTE1: 100μs pulse, 100Hz frequency
NOTE2: AC for 1minute, R.H.=40~60%

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

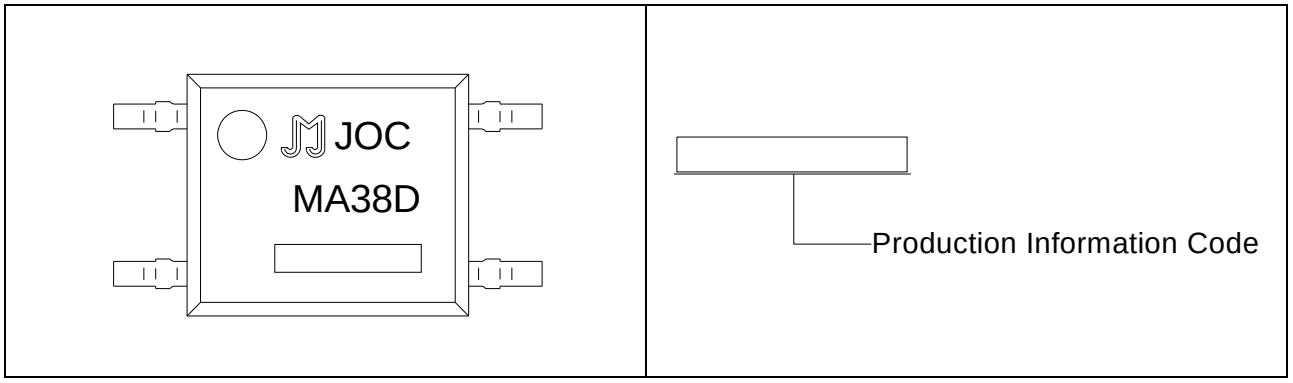
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=10mA	-	1.3	1.5	V
	Reverse Current	I_R	V_R=6V	-	-	1	μA
	Action Current	$I_{F(ON)}$	I_O=$I_{O(MAX)}$	-	-	1	mA
	Reset Current	$I_{F(OFF)}$	I_O=$I_{O(MAX)}$	0.4	0.8	-	mA
Output	On Resistance	R_{on}	I_F=5mA I_O=Max. Within 1s on time	-	0.2	0.4	Ω
	Off State Leakage Current	I_{Leak}	I_F=0mA, V_O=Max.	-	-	1	μA
	Output Capacitance	C_{OFF}	V_{OFF}=0V, f_o=1MHz	10	-	1000	pF
Switching Characteristics	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	10^{12}	-	-	Ω
	Floating Capacitance	C_{IO}	V=0, f=1MHz	-	0.8	-	pF
	Turn On Time	t_{on}	I_F=5mA, I_O=Max.	-	0.6	2	ms
	Turn Off Time	t_{off}	I_F=5mA, I_O=Max.	-	0.2	1	ms

ORDERING INFORMATION



Packing Quantity			
Option	**Quantity**	**Quantity – Inner box**	**Quantity –Outer box**
SOP4	3000 Units/Reel	2 Reels/Inner box	5 Inner box/Outer box =30k Units

MARKING



Characteristics Curves

FIG.1: LED Dropout Voltage vs. Ambient Temperature

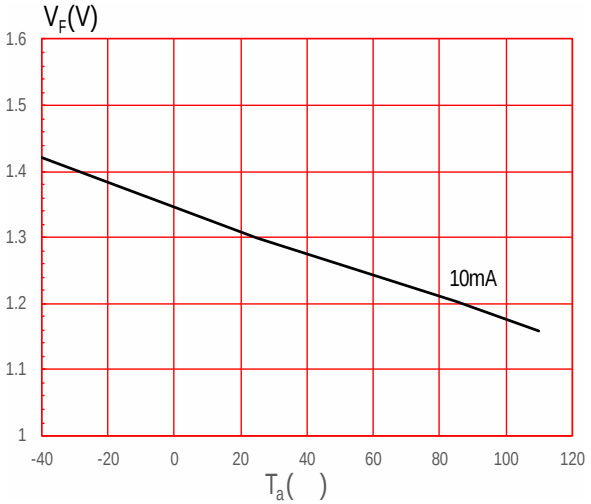


FIG.2: Output Current vs. Output Voltage

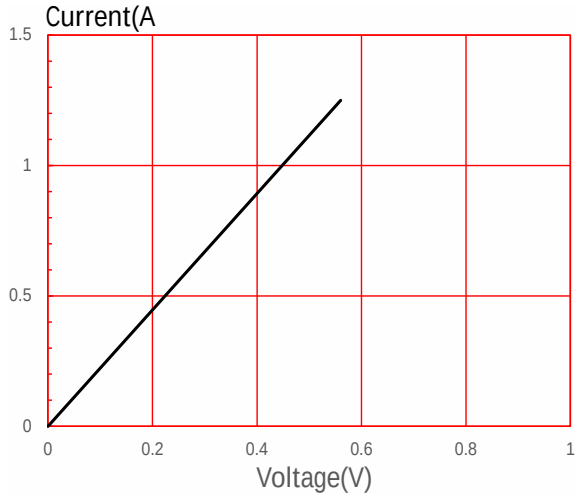


FIG.3: On Resistance vs. Ambient Temperature

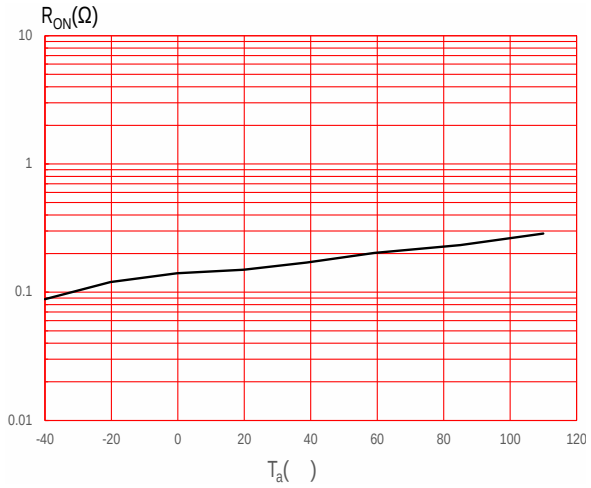


FIG.4: Load Current vs. Ambient Temperature

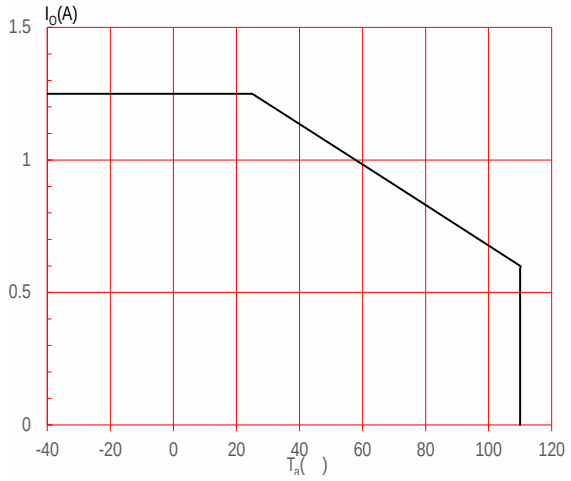


FIG.5: LED Operate Current vs. Ambient Temperature

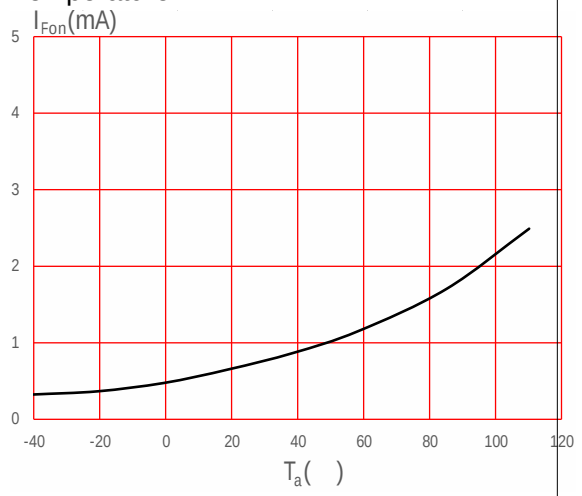


FIG.6: LED Turn Off Current vs. Ambient Temperature

FIG.7: Turn On Time vs. Ambient Temperature

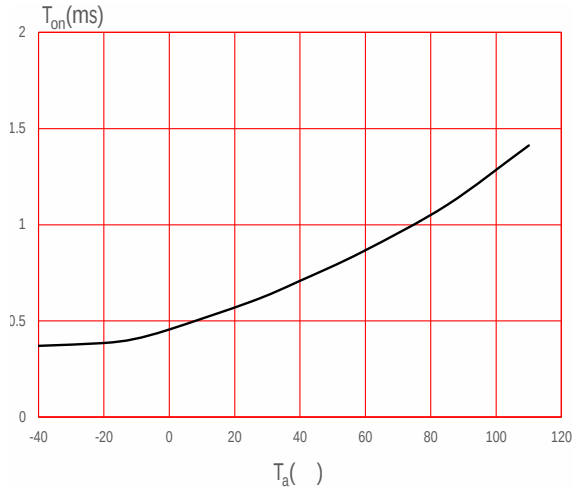


FIG.8: Turn Off Time vs. Ambient Temperature

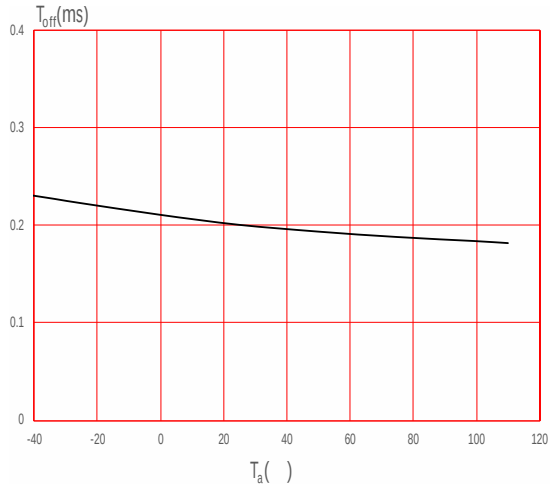


FIG.9: Turn On Time vs. LED Forward Current

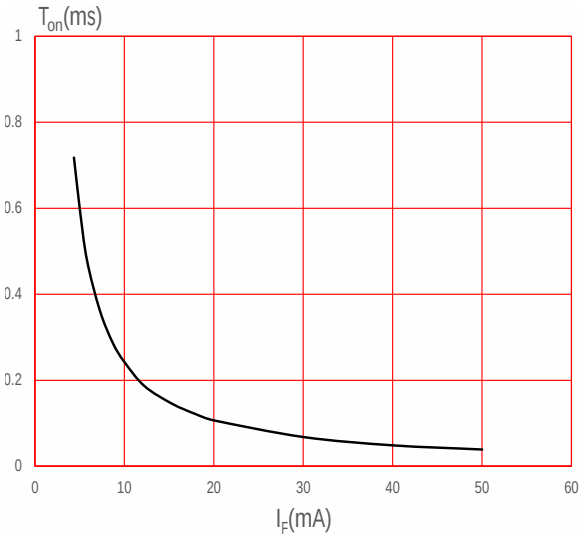


FIG.10: Turn Off Time vs. LED Forward Current

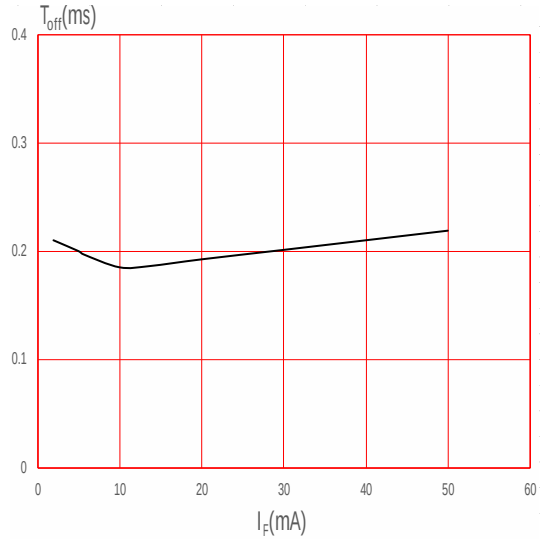


FIG.11: Off State Leakage Current vs. Load Voltage

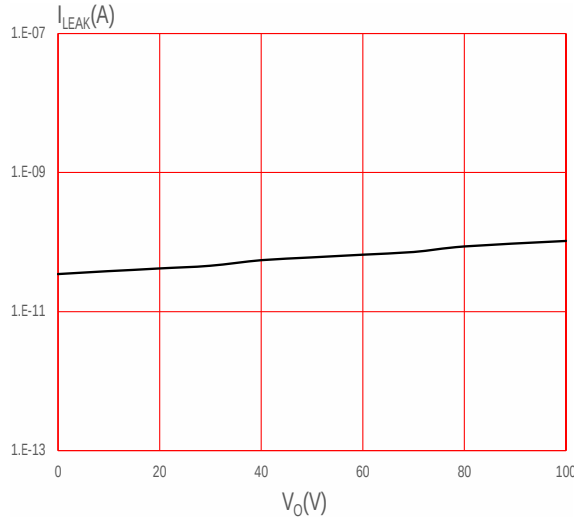
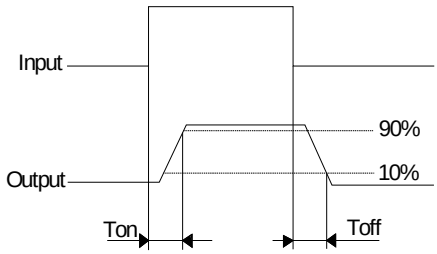
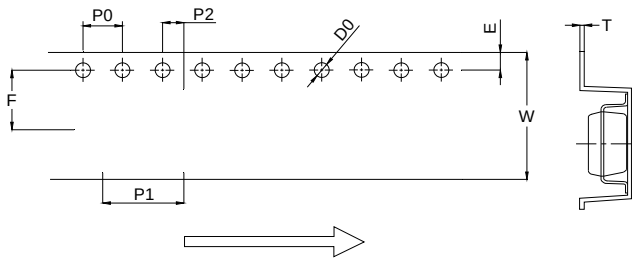


Fig.12: Turn on/Turn off time

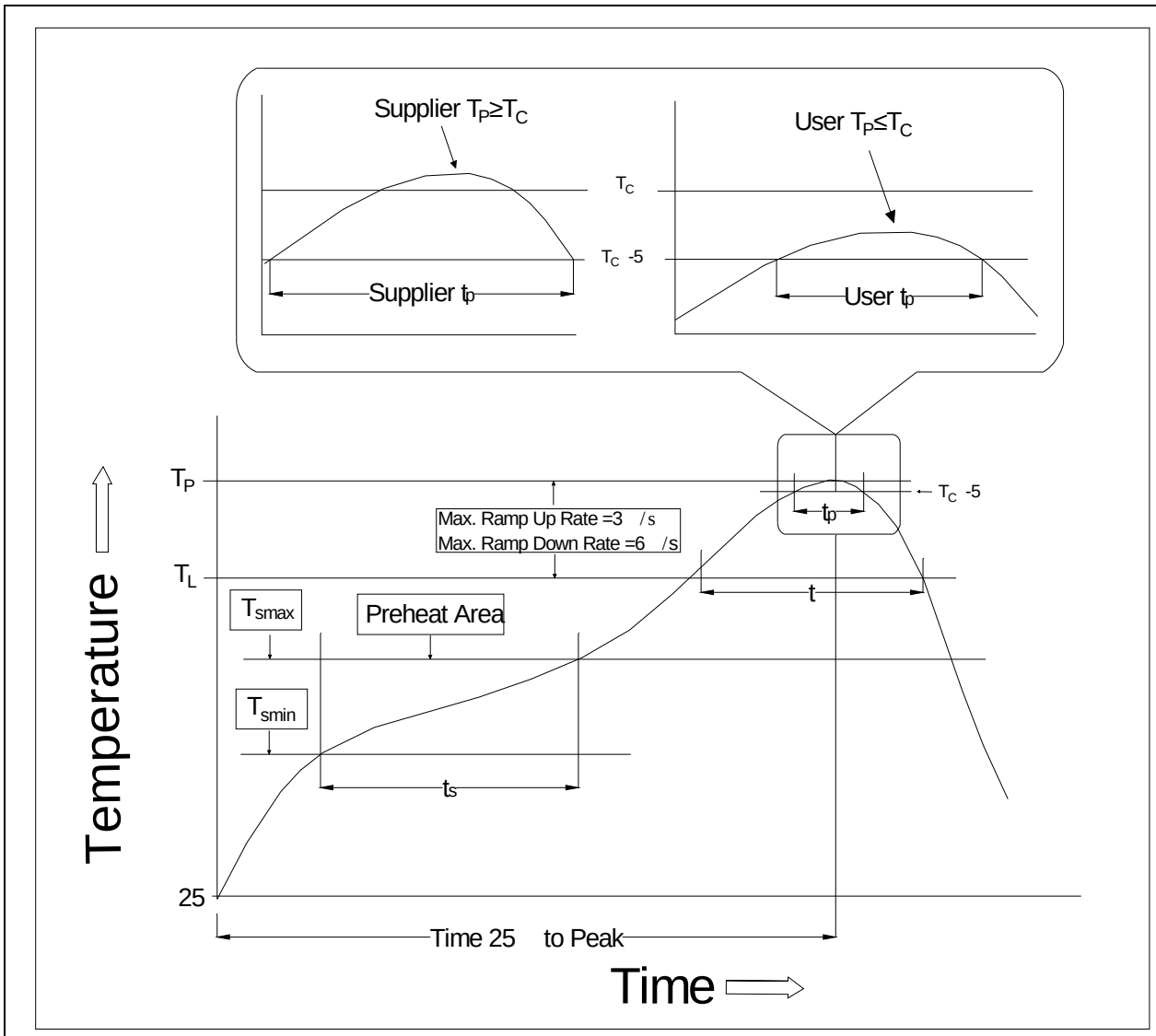


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option None



REFLOW INFORMATION



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	100	150
Temperature Max. (Tsmax)	150	200
Time (ts) from (Tsmin to Tsmax)	60-120 seconds	60-120 seconds
Ramp-up Rate (tL to tP)	3 /second max.	3 /second max.
Liquidus Temperature (TL)	183	217
Time (tL) Maintained Above (TL)	60-150 seconds	60-150 seconds
Peak Body Package Temperature	235 +0 /-5	260 +0 /-5
Time (tP) within 5 of 260	10 seconds	10 seconds
Ramp-down Rate (TP to TL)	3-6 /second	3-6 /second
Time 25 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