JOC308XD4 Series

Rev.A.1.1

DESCRIPTION:

The JOC308XD4 series combine an AIGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon zero-crossing photo triac in a plastic DIP4 package with different lead forming options. The products are widely used in solenoid/valve controls, lighting controls, motor controls, temperature controls, static AC power switches, solid state relays, interfacing microprocessors up to 265 V_{AC} peripherals.

MAIN FEATURES

High isolation 5000 VRMS
DC input with zero-crossing photo triac output
Operating temperature range -55 to 100
REACH & RoHS compliance
HBM: H3A ; MM: M4
CQC approved
VDE approved
UL approved

ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	60	mA
	Reverse Voltage	V_R	6	V
	Junction Temperature	T_j	125	
	Input Power Dissipation	P_I	100	mW
	Power Dissipation Derating ($T_a \geq 25$)	ΔP_D/	-1.33	mW/
	Off-state Output Terminal Voltage	V_{OFF}	800	V
	Peak On−state Current (100μs pulse, 120 pps)	I_{TP}	2	A
Output	On-state RMS Current	$I_{T(RMS)}$	100	mA
	Peak Repetitive Surge Current (P_W=10 ms)	I_{TSM}	1	A
	Junction Temperature	T_j	125	

	Power Dissipation Derating ($T_a \geq 25$)	ΔP_D/	-3.33	mW/
Total Power Dissipation		P_{tot}	350	mW
Isolation Voltage		V_{iso}	5000	Vrms
Operating Temperature		T_{opr}	-55~100	
Storage Temperature		T_{stg}	-55~125	
Soldering Temperature		T_{sol}	260	

NOTE1:

NOTE2:

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

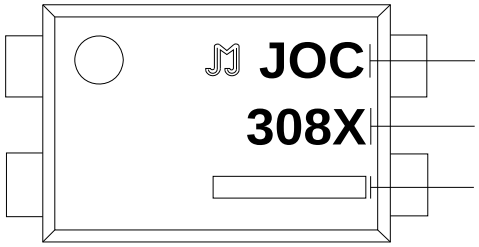
Parameter			Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage		V_F	I_F=10mA	-	1.27	2.2	V
	Reverse Current		I_R	V_R=6V	-	-	1	μA
	Input Capacitance		C_{in}	V=0, f=1kHz	-	10	-	pF
Output	Peak Off-state Current, Either Direction		I_{OFF}	V_{OFF}=800V, I_F=0	-	-	100	nA
	Peak On-state Voltage, Either Direction		V_{TM}	I_{TM}=100mA	-	1.7	2.5	V
	Critical Rate of Rise of Off-state voltage		dV/dt	V_{PEAK}=800V, I_F=0	1000	-	-	V/μs
Transfer Characteristics	LED Trigger Current	JOC3081D4	I_{FT}	Terminal Voltage=3V I_{TM}=100mA	-	-	15	mA
		JOC3082D4			-	-	10	
		JOC3083D4			-	-	5	
	Holding Current		I_H	I_{TM}=2mA, I_F=Rated I_{FT}	-	250	-	μA
	Isolation Resistance		R_{ISO}	DC500V 40~60%R.H.	10^{12}	10^{14}	-	Ω
	Floating Capacitance		C_{IO}	V=0, f=1MHz	-	10	-	pF
	Response Time		t_{on}	V_D=6V, R_L=100Ω, I_F=20mA	-	15	50	μs
Zero-crossing Characteristics	Inhibit Voltage		V_{IH}	I_F=Rated I_{FT}	-	-	20	V
	Leakage in Inhibited State		I_{OFF2}	I_F=Rated $I_{FT,}$ V_{OFF}=Rated V_{OFF}	-	-	1	mA

NOTE3:

NOTE4:

ORDERING AND MARKING INFORMATION

MARKING INFORMATION



: Company Abbr.
: Part Number & Rank
Production Information Code

Packing Quantity

Option	Quantity	Quantity – Inner box	Quantity –Outer box

Characteristics Curves

FIG.1: Forward Current vs. Ambient Temperature

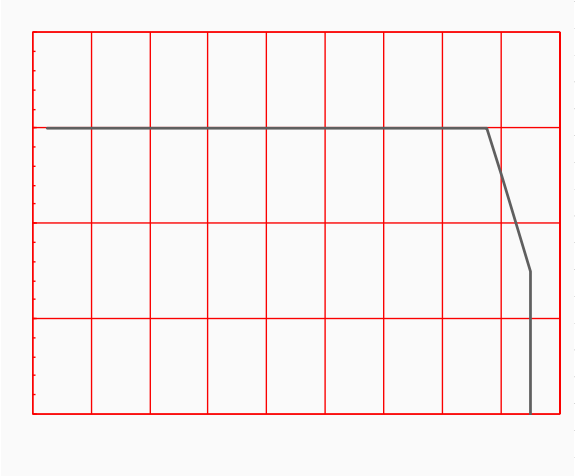


FIG.2: On-state Terminal Current vs. Ambient Temperature

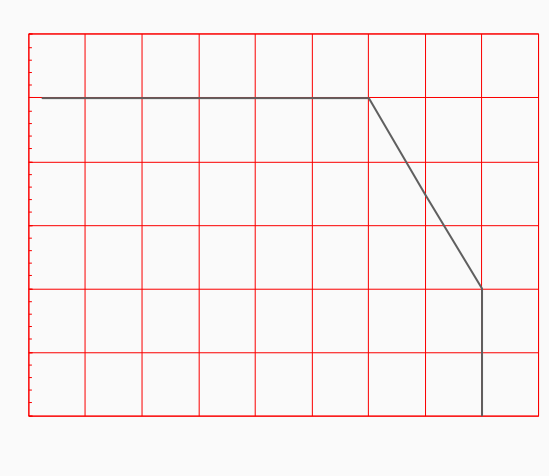


FIG.3: Forward Current vs. Forward Voltage

FIG.4: Normalized Off-state Terminal Current vs. Ambient Temperature

JOC308XD4

TEST CIRCUITS

FIG.12: Test Circuits of Turn On Time

FIG.13: Waveforms of Turn On Time

Fig.14: Test Circuits of dV/dt

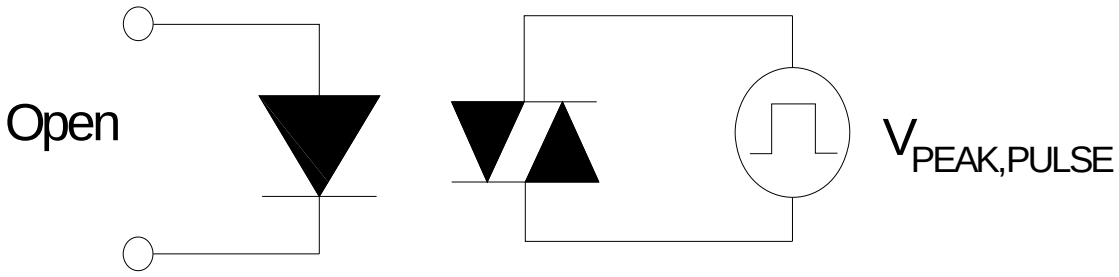
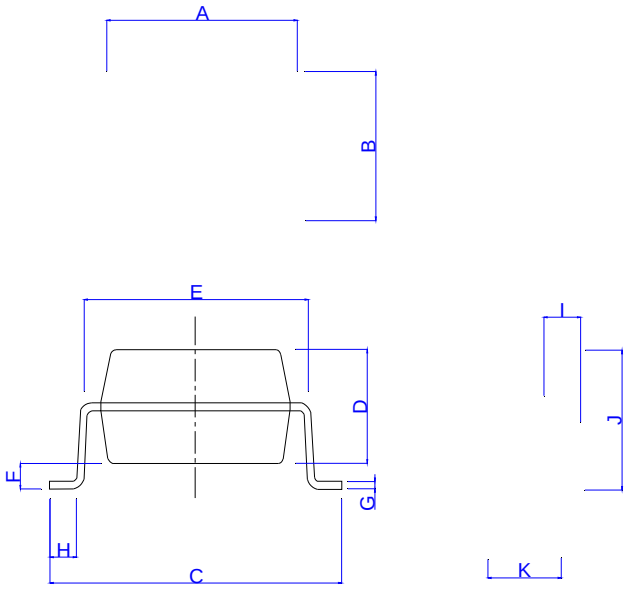


Fig.15: Waveforms of dV/dt



: mm

Option S Type:

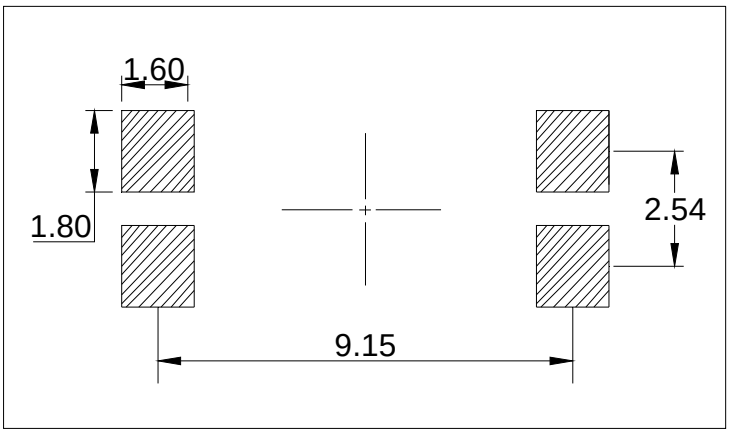


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.30		6.70	0.249		
B	4.38		4.78	0.173		
C	9.85		10.45	0.389		
E	7.32		7.92	0.289		
G				y'	94	0Y' 00Y'
I						
K				I		

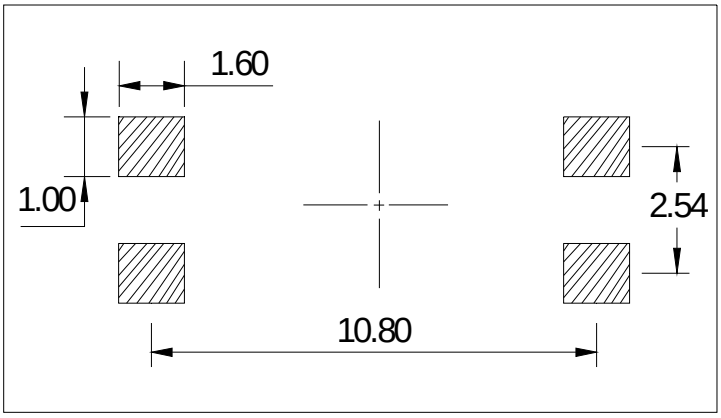
Option SLM Type:

RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

Option S/SL

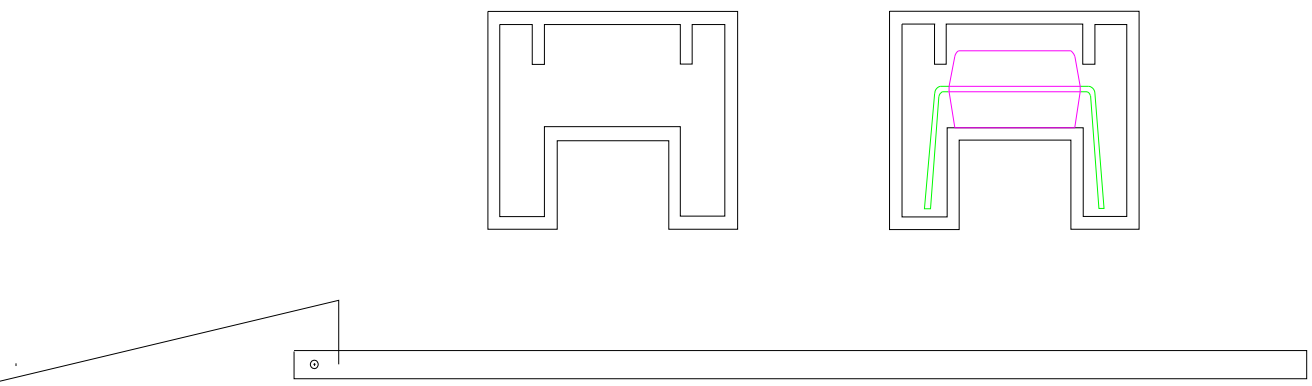


Option SLM

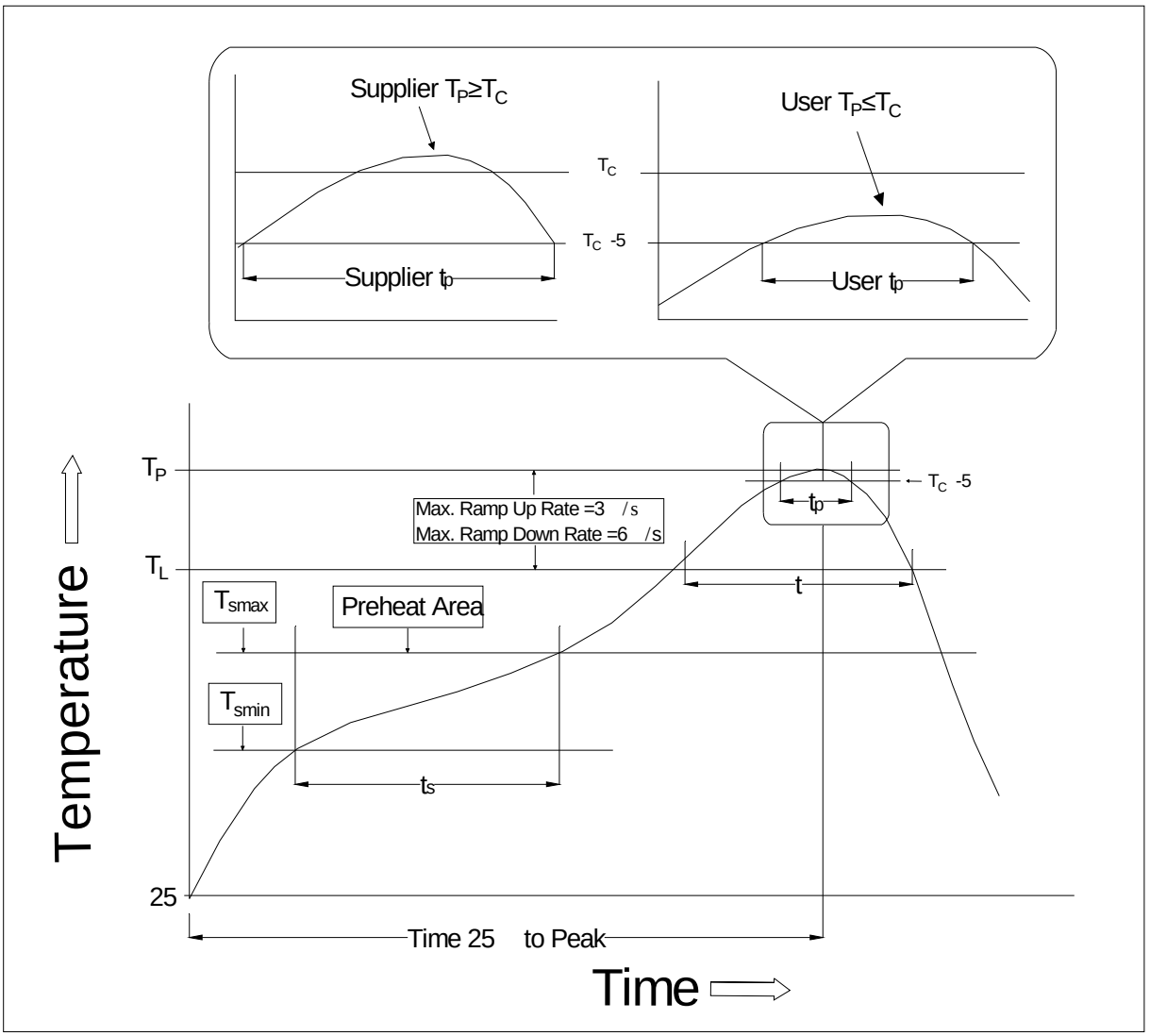


TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP



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 (t EŸ 8 ṅ n mbb D " 60-12 ʿ 60-; nds

WAVE SOLDERING

HAND SOLDERING BY SOLDERING IRON	
Soldering Temperature	360 ± 5
Soldering Time	3s 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 surfaces exceeding its maximum storage temperature.

3. Application of pressure on the epoxy body is prohibited at elevated temperatures. In specific scenarios, any applied force must not exceed 2.5N.

4. Ensure the component has cooled to ambient temperature before proceeding with any subsequent manufacturing steps.

5. The component has a shelf life of one year when stored under standard conditions.

6. Recommend storage Temp.: 0~40°C;

Recommend storage humidity: <60%;

MSL level: MSL 1

Information furnished in this document is believed to be accurate and reliable. However,
Jiangsu JieJie Microelectronics Co., Ltd. sjeleldlovJiarng-e éent noros, ndeonC;d fwhelose'quac