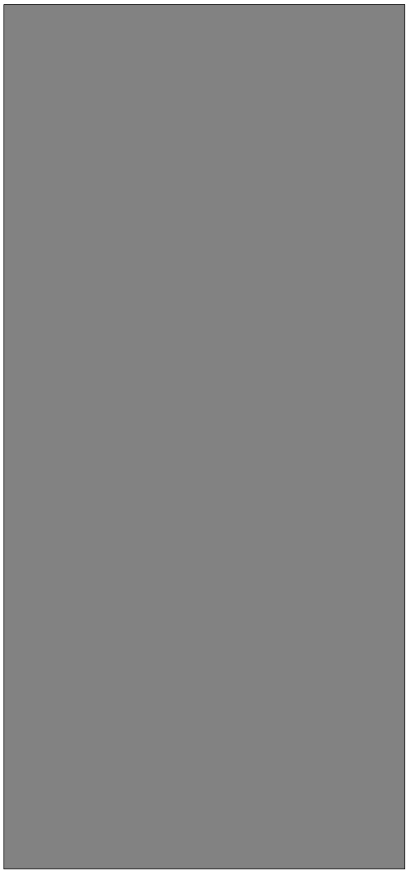
JOCMA1BC-D6P/S Series

Rev.A.1.0

DESCRIPTION:

The products are 6-pin optical relays. The device combines an AlGaAs infrared emitting diode input stage optically coupled to a high-voltage output detector circuit. The detector consists of a high-speed photovoltaic diode array and driver circuitry. The products are widely used in accumulation, automotive battery management system, automobile battery and power system insulation testing, industrial controls and EMR/reed relay replacement.



MAIN FEATURES:

High isolation 5000 Vrms
Single channel normally on Single-Pole-Single-Throw Relay
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)

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	50	mA
	Peak Forward Current	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	75	mW
Output	Switching Voltage	V_O	20	V
	Continuous Load Current	I_O	6	A
	Power Dissipation	P_C	360	mW
Operating Temperature		T_{opr}	-40~110	
Junction Temperature		T_j	125	
Storage Temperature		T_{stg}	-55~125	
Total Power Dissipation		P_{tot}	450	mW
Isolation Voltage		V_{iso}	5000	Vrms

Soldering Temperature	T_{sol}	260	

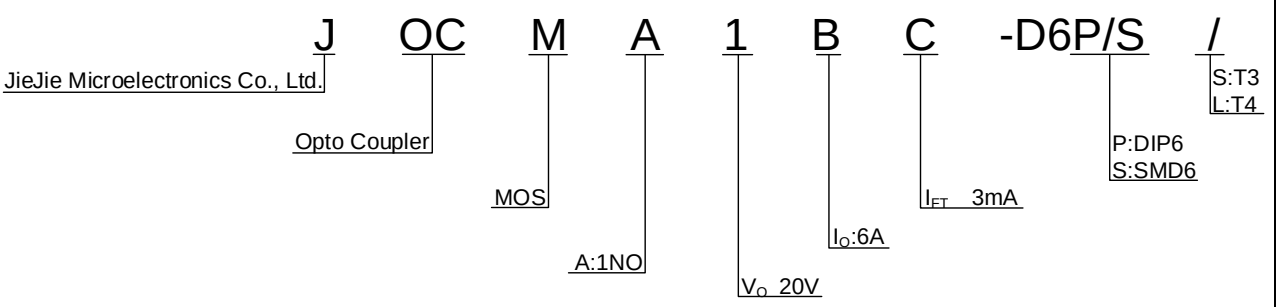
NOTE1 100μs pulse, 100Hz frequency

NOTE2 AC for 1minute, R.H.=40~60%

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

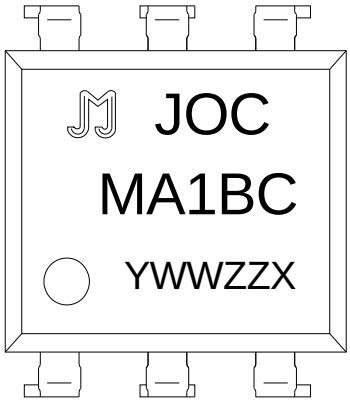
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=10mA	-	1.2	1.5	V
	Reverse Current	I_R	V_R=6V	-	-	1	μA
	Terminal Capacitance	C_t	V=0,f=1MHz	-	70	-	pF
	Reset Current	$I_{F(OFF)}$	I_O=$I_{O(MAX)}$	0.1	-	-	mA
Output	Open-circuit leakage current	I_{Leak}	V_O=20V	-	-	1	μA
	ON Resistance	R_{ON}	I_O=$I_{O(MAX)}$, I_F=5mA	-	5	50	mΩ
Transfer Characteristics	LED Trigger Current	I_{FT}	I_O=$I_{O(MAX)}$	-	-	3	mA
	Floating Capacitance	C_{IO}	V=0, f=1MHz	-	3	-	pF
	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	10^9	10^{14}	-	Ω
	Turn On Time	t_{on}	I_O=6A, I_F=5mA	-	2.5	5	ms
	Turn Off Time	t_{off}	I_O=6A, I_F=5mA	-	0.1	1	ms

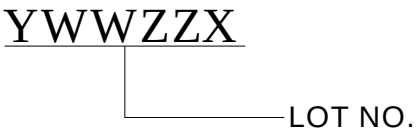
ORDERING INFORMATION



Packing Quantity	
Option	**Quantity**
DIP	60 Units/Tube
SMD	1200 Units/Reel

MARKING





Characteristics Curves

FIG.1: Forward Current vs. Forward Voltage

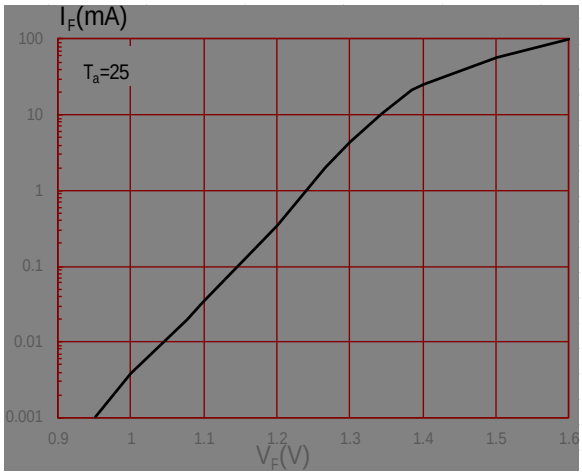


FIG.2: Max. Allowable LED Forward Current vs. Ambient Temperature

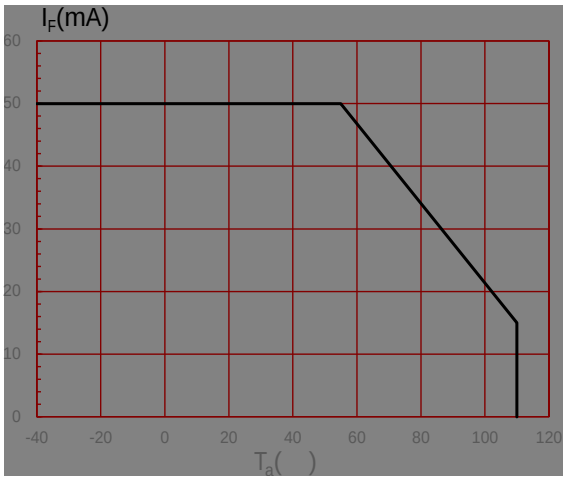


FIG.3: LED Operate Current vs. Ambient Temperature

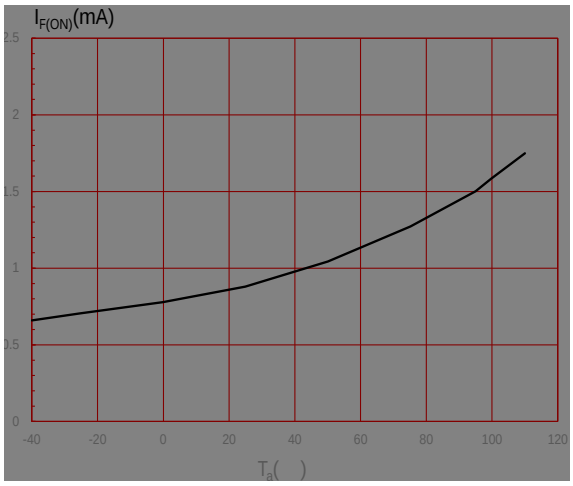


FIG.4: On Resistance vs. Ambient Temperature

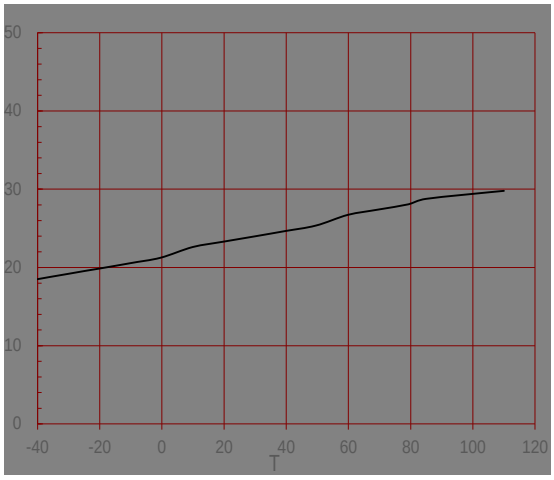
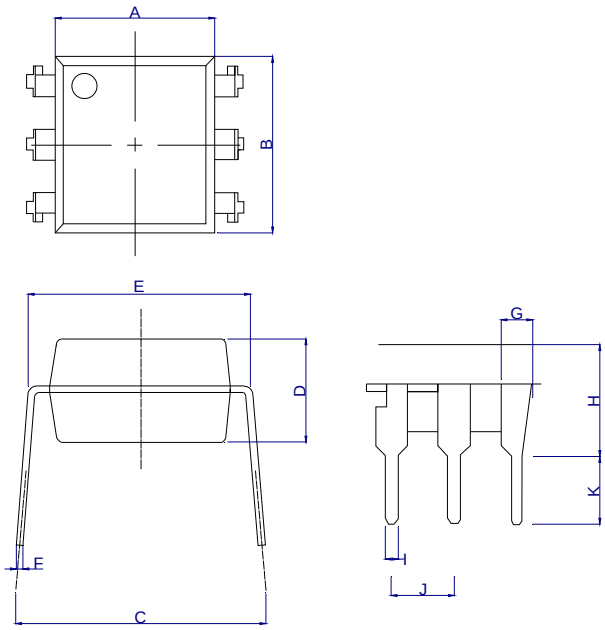


FIG.7: Output Current vs. Output Voltage

FIG.8: Output Current vs. Ambient Temperature

Package Dimension (Unit: mm)

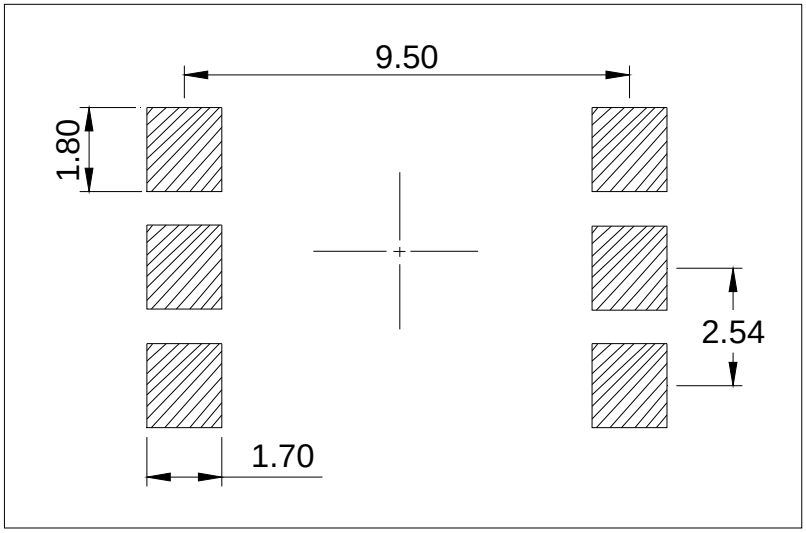
Standard DIP Type:



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.20		6.60	0.244		0.260
B	6.92		7.32	0.272		0.288
C	7.15		8.95	0.281		0.352
D	3.20		3.60	0.126		0.142
E	7.32		7.92	0.288		0.312
F						
G	1.15		1.35	0.045		0.053
H	3.90		4.50	0.154		0.177
I						
J						
K						

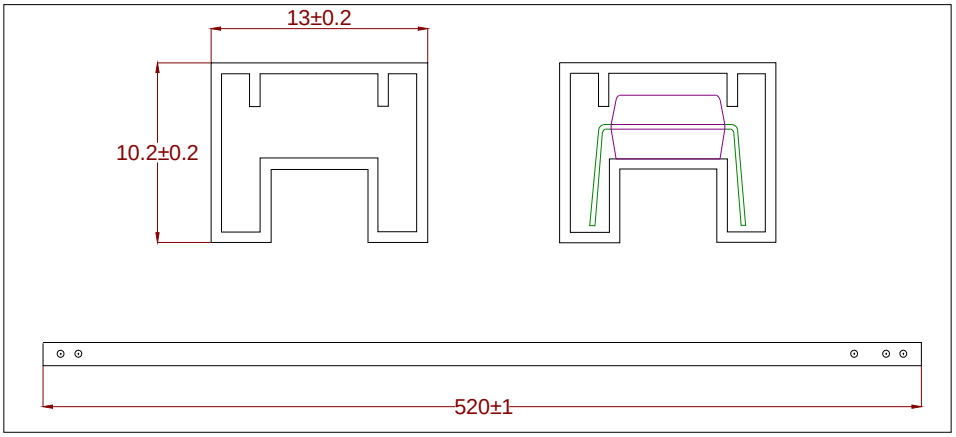
RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

Option SMD



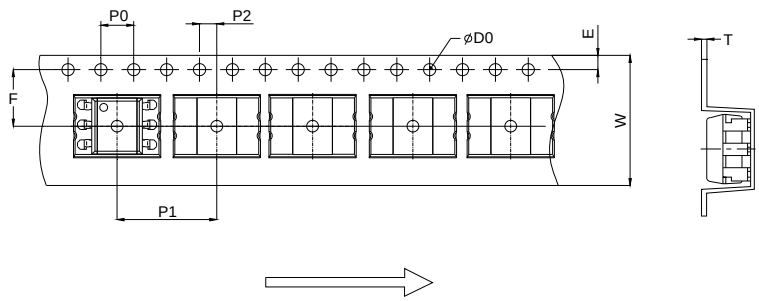
TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP



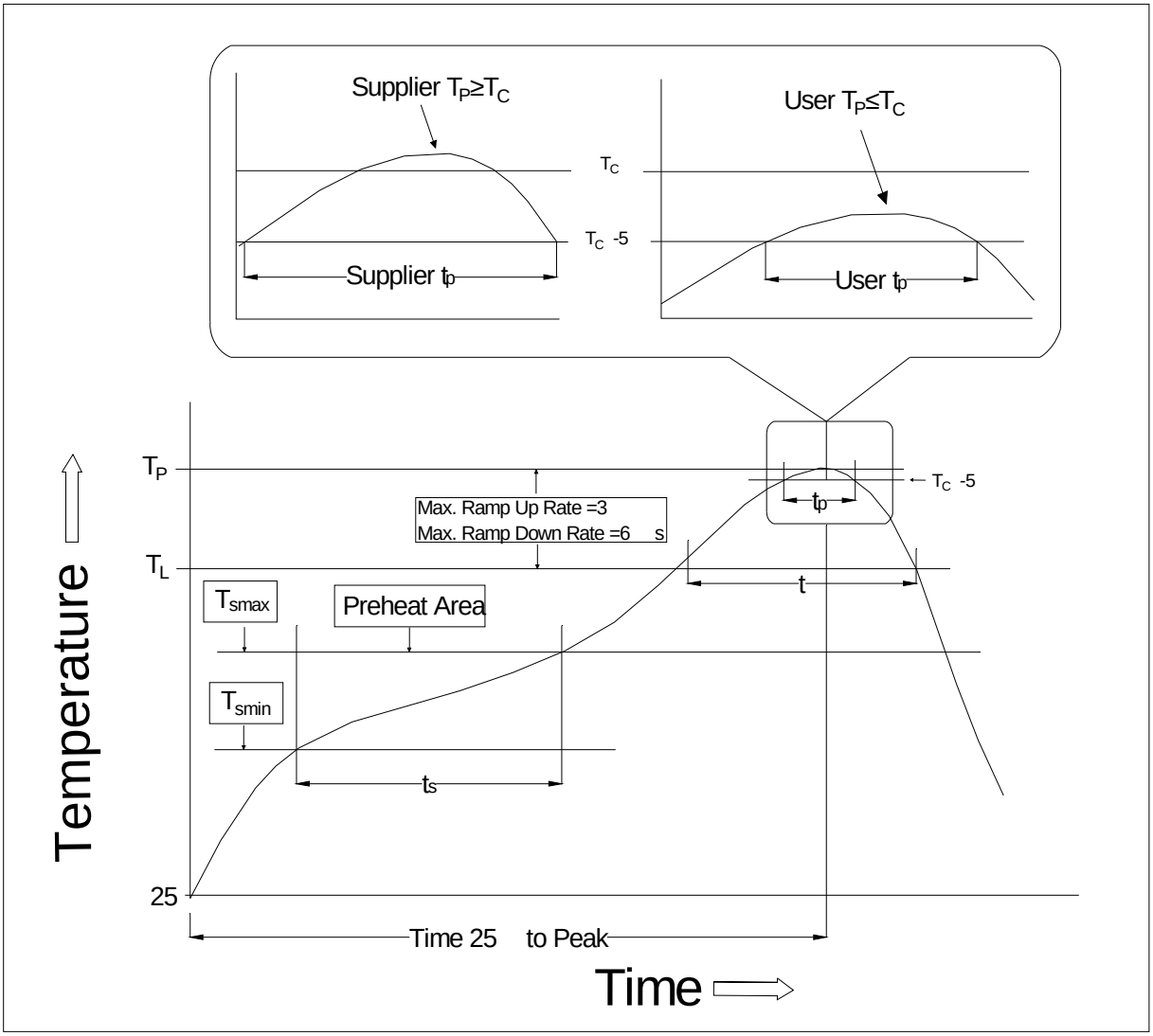
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S/L



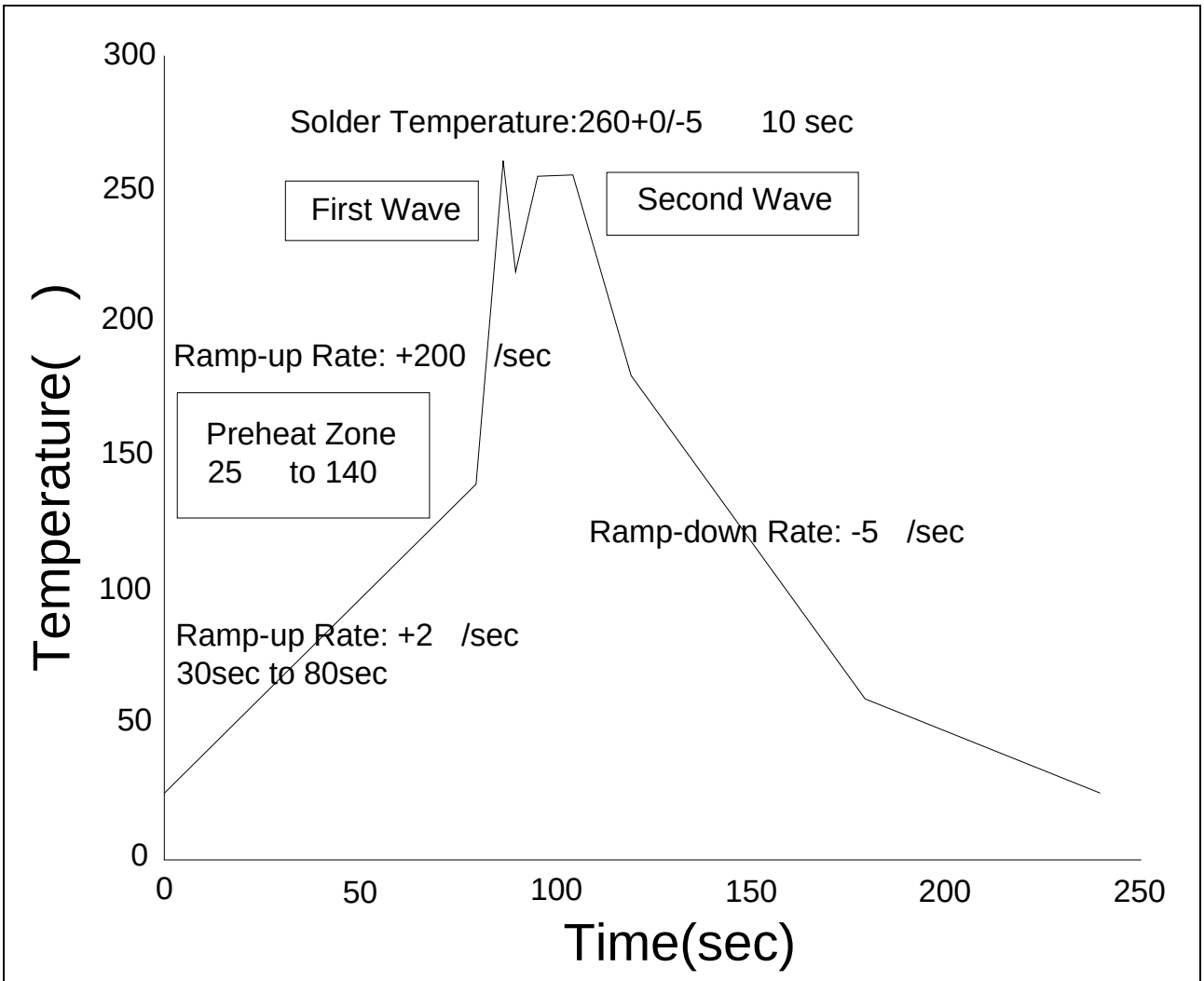
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0		1.50	1.60		0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	11.90	12.00	12.10	0.469	0.472	0.476
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
T	0.35	0.40	0.45	0.014	0.016	0.018
W	15.70	16.00	16.30	0.618	0.630	0.642

REFLOW INFORMATION



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

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