

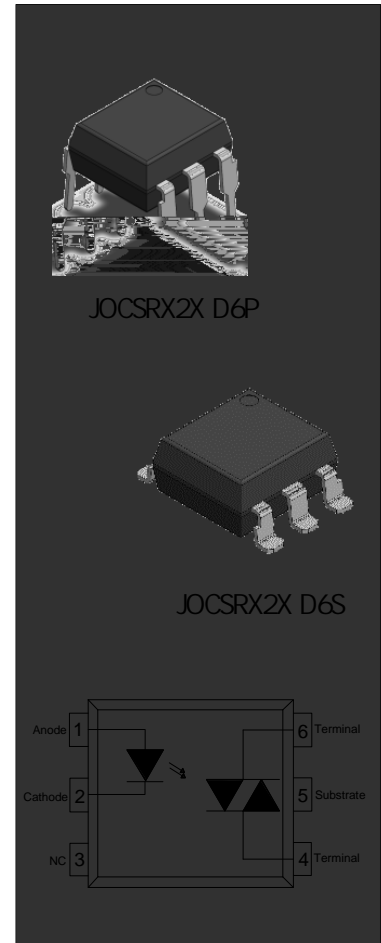


### DESCRIPTION:

The products are 6-pin thyristor opto-couplers. The device combines an AlGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon random-phase photo triac in a plastic DIP6 package with different lead forming options. With the robust coplanar double mold structure, the device provides the most stable isolation feature. 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<sub>AC</sub> peripherals.

### MAIN FEATURES

- High isolation 5000 VRMS
- DC input with random-phase photo triac output
- Operating temperature range -55
- 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 <sub>F</sub>	50	mA	
	Peak Forward Current	I <sub>FP</sub>	1 <sup>①</sup>	A	
	Reverse Voltage	V <sub>R</sub>	6	V	
	Power Dissipation	P <sub>D</sub>	75	mW	
Output	Off-state Output Terminal Voltage	V <sub>OFF</sub>	JOCSR22X	600	V
			JOCSR32X	800	
	Peak On-state Current (100μs pulse, 120 pps)	I <sub>TP</sub>	2.5	A	
	On-state RMS Current	I <sub>T(RMS)</sub>	150	mA	
	Peak Repetitive Surge Current (P <sub>w</sub> =10 ms)	I <sub>TSM</sub>	1.5	A	
Output Power Dissipation	P <sub>O</sub>	250	mW		



Total Power Dissipation	$P_{tot}$	325	mW
Isolation Voltage	$V_{iso}$	5000 <sup>②</sup>	Vrms
Operating Temperature	$T_{opr}$	-55~110	°C
Junction Temperature	$T_j$	125	°C
Storage Temperature	$T_{stg}$	-55~125	°C
Soldering Temperature	$T_{sol}$	260	°C
Peak pulse voltage ( $T_j=25^{\circ}C$ ; non-repetitive,off-state)	$V_{pp}$	1	kV

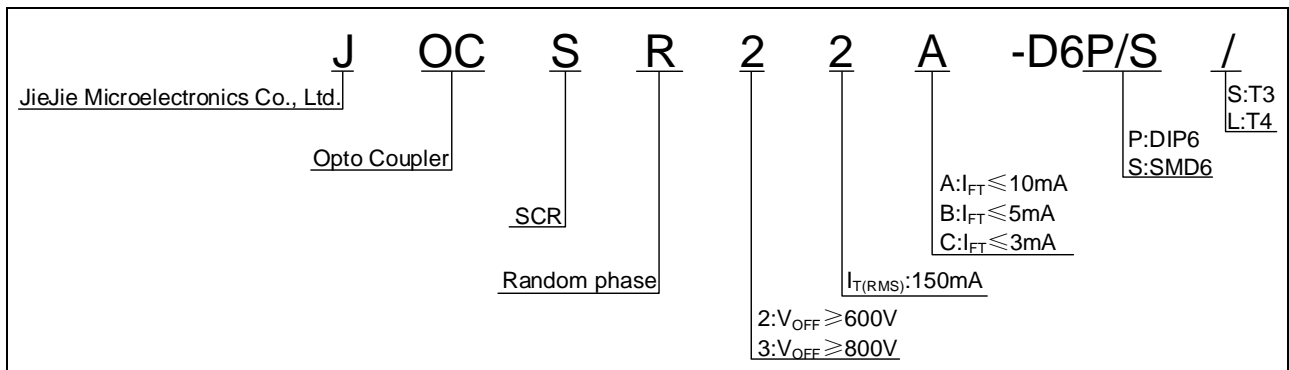
NOTE1: 100μs pulse, 100Hz frequency

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

**ELECTRICAL CHARACTERISTICS** (Temperature=25°C)

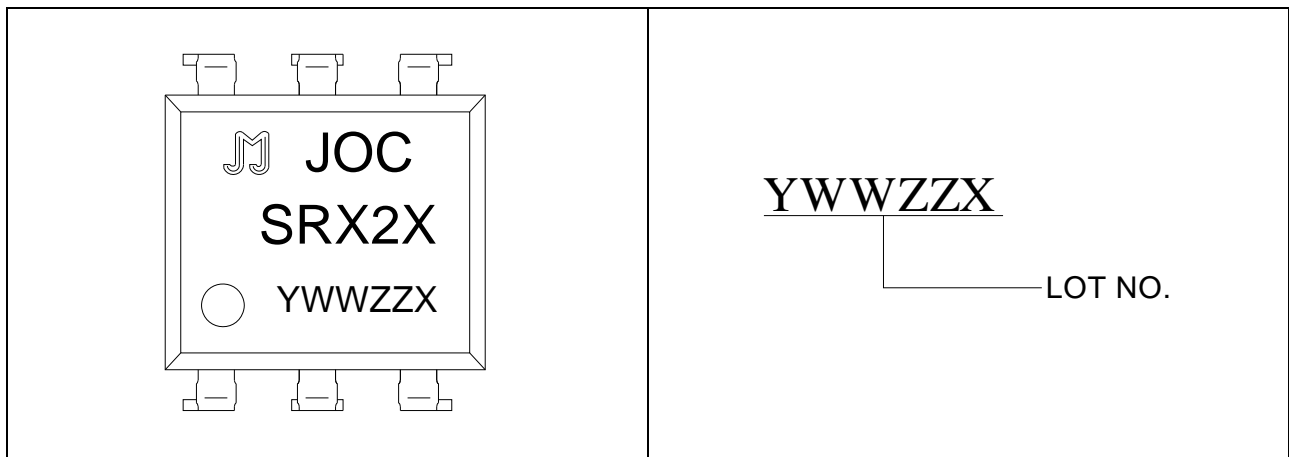
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	$V_F$	$I_F=10mA$	-	1.2	1.5	V
	Reverse Current	$I_R$					

ORDERING INFORMATION



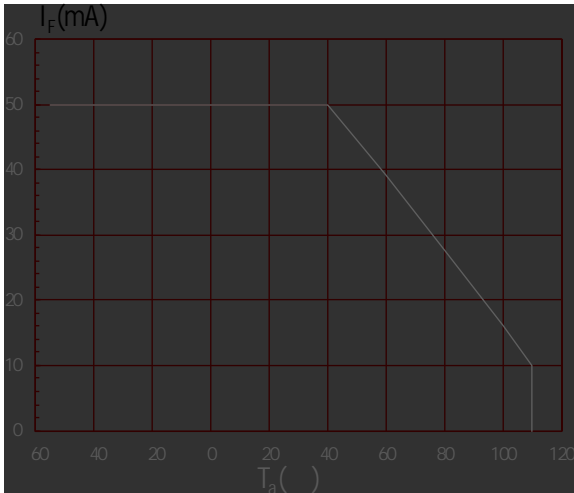
Packing Quantity	
Option	Quantity
DIP	60 Units/Tube
SMD	1200 Units/Reel

MARKING

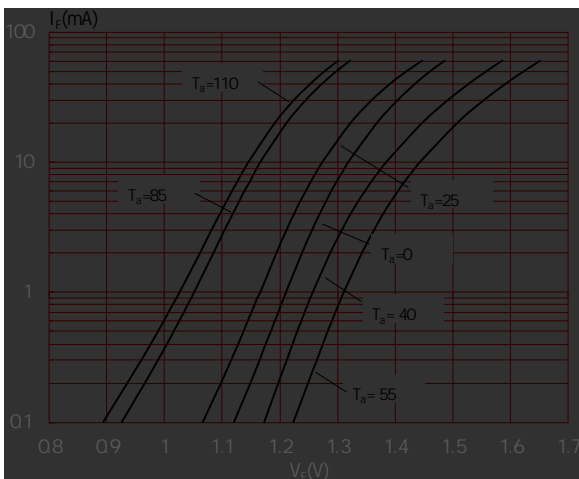


Characteristics Curves

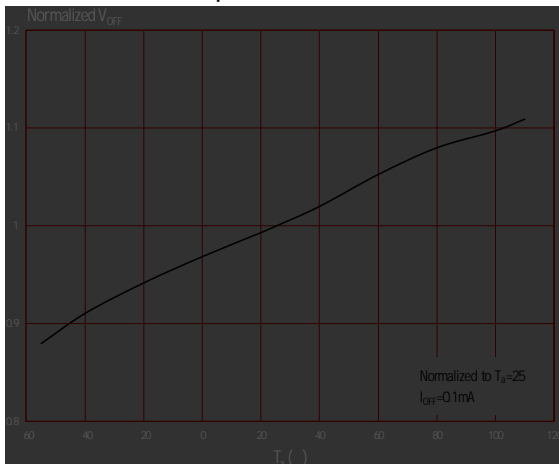
**FIG.1:** Max. Allowable LED Forward Current vs. Ambient Temperature



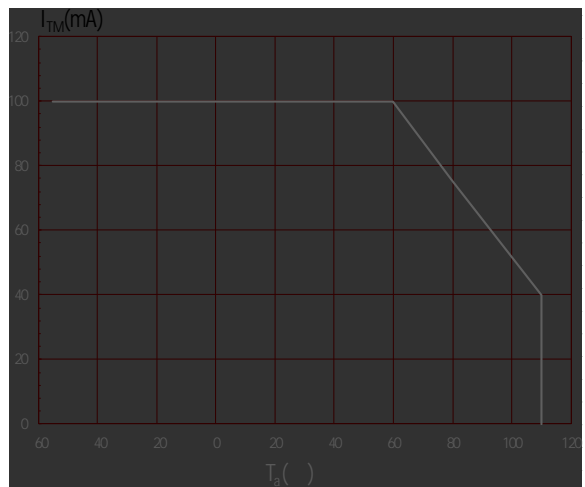
**FIG.3:** Forward Current vs. Forward Voltage



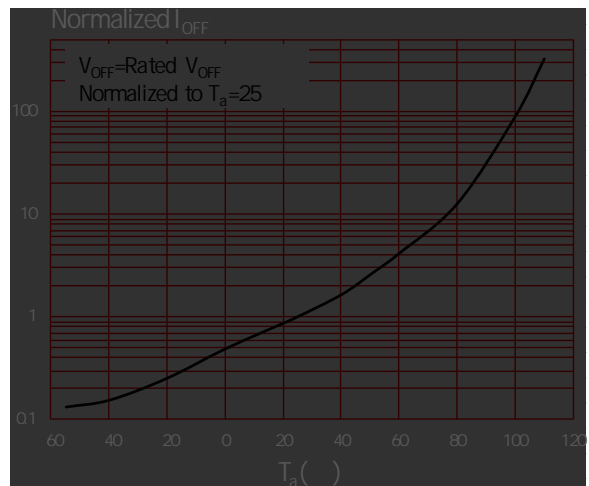
**FIG.5:** Normalized Off-state Terminal Voltage vs. Ambient Temperature



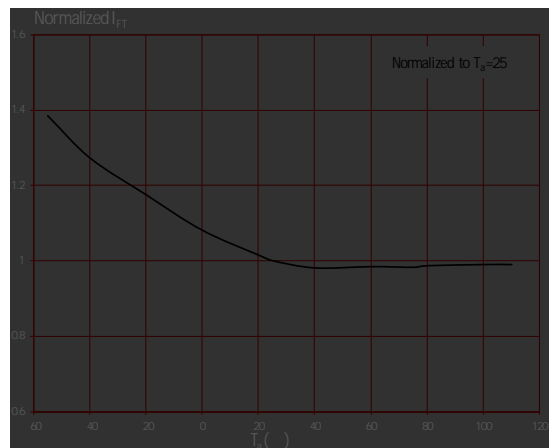
**FIG.2:** On-state Terminal Current vs. Ambient Temperature



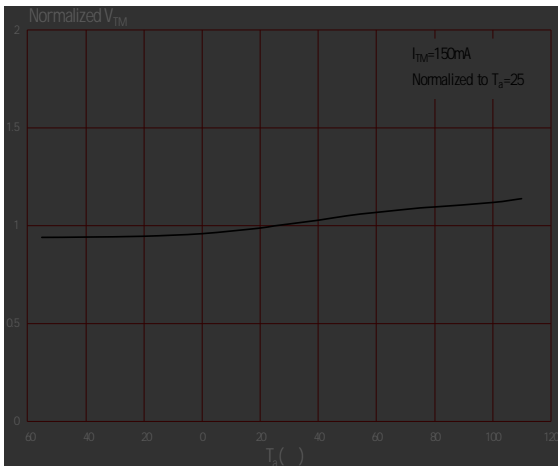
**FIG.4:** Normalized Off-state Terminal Current vs. Ambient Temperature



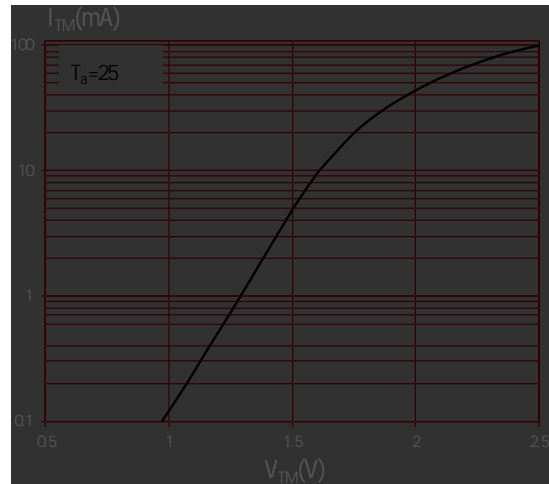
**FIG.6:** Normalized Trigger Current vs. Ambient Temperature



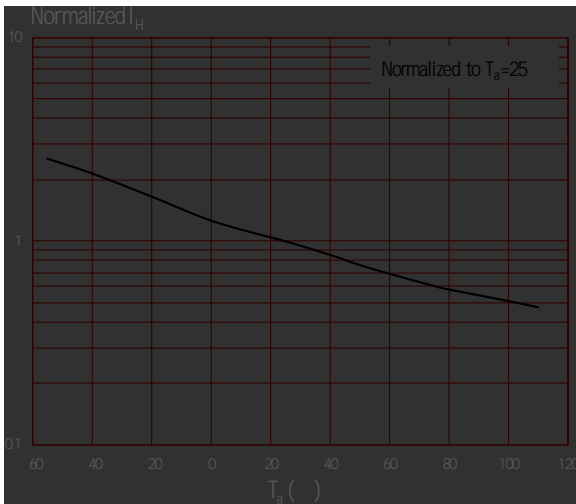
**FIG.7:** Normalized On-state Terminal Voltage vs. Ambient Temperature



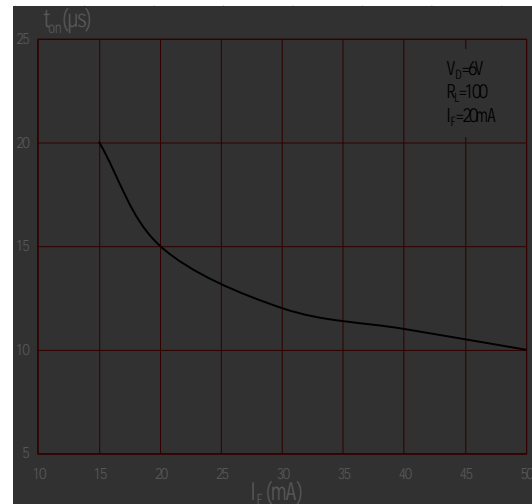
**FIG.8:** On-state Terminal Voltage vs. On-state Terminal Current



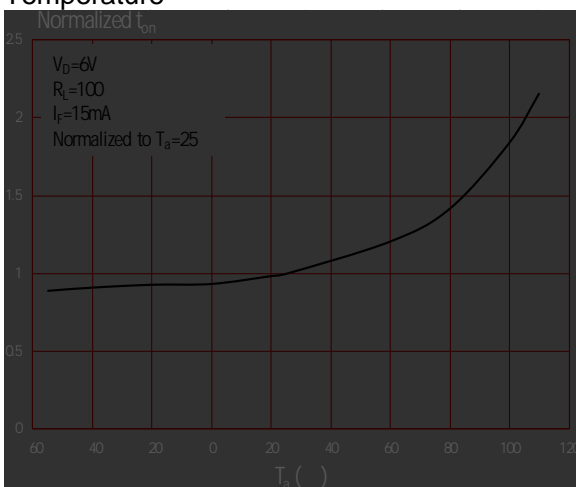
**FIG.9:** Normalized Holding Current vs. Ambient Temperature



**FIG.10:** Turn On Time vs. Forward Current



**FIG.11:** Normalized Turn On Time vs. Ambient Temperature





TEST CIRCUITS

FIG.12: Test Circuits of Turn On Time

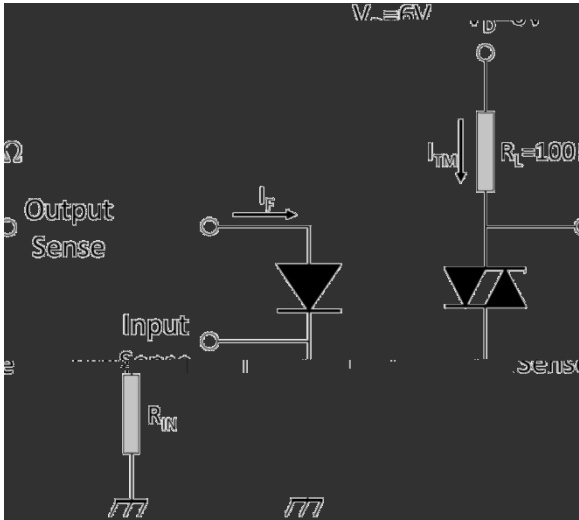


FIG.13: Waveforms of Turn On Time



Fig.14: Test Circuits of dV/dt

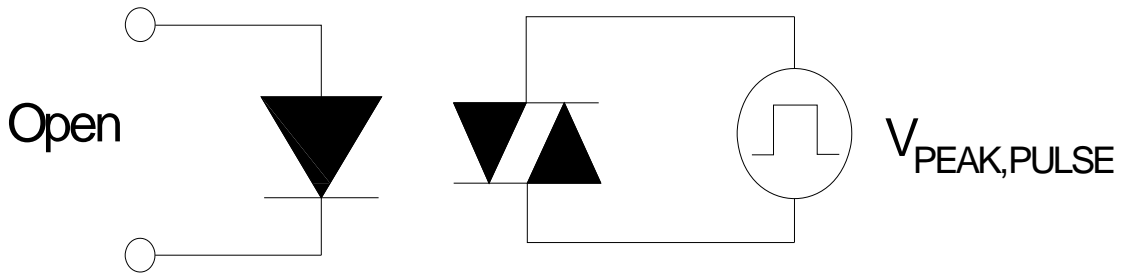


Fig.15: Waveforms of dV/dt

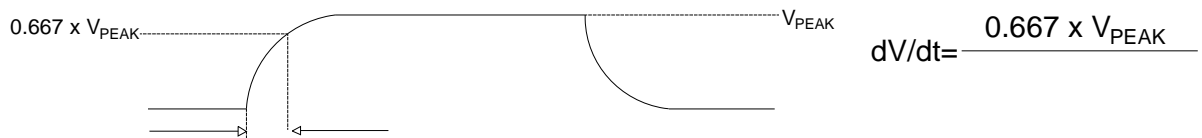
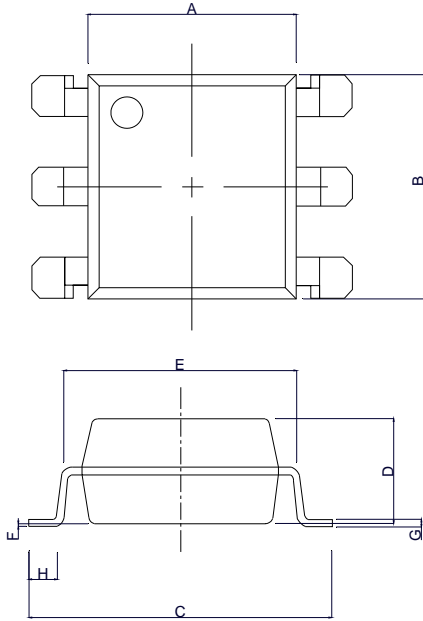


FIG.16: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



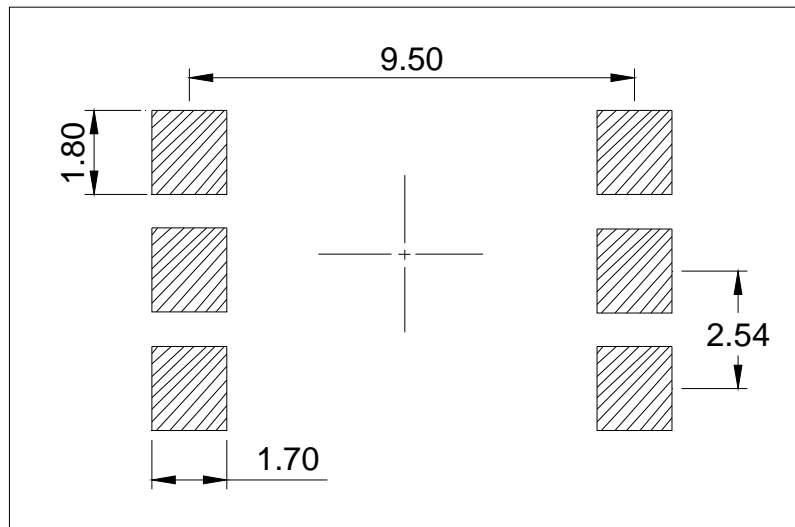
Option SMD Type:



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	9.50		10.50	0.375		0.413
D	3.20		3.60	0.126		0.142
E	7.32		7.92	0.288		0.312
F	0.05		0.35	0.002		0.014
G	0.16		0.36	0.006		0.014
H	0.60		1.40	0.024		0.055
I	0.90		1.50	0.035		0.059
J	3.30		3.90	0.130		0.154
K	2.29		2.79	0.090		0.110

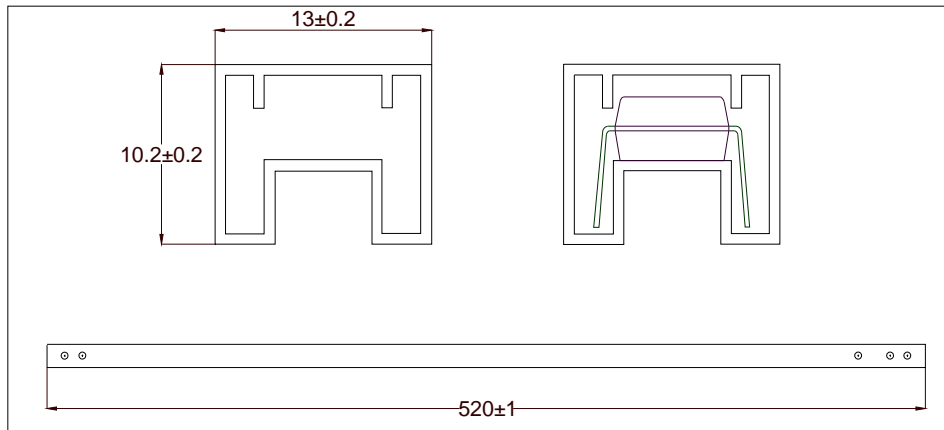
RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

Option SMD



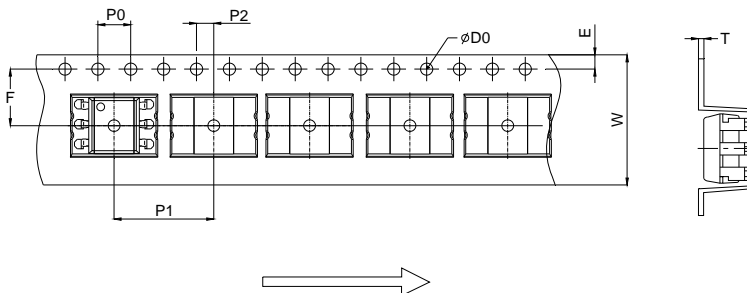
TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP



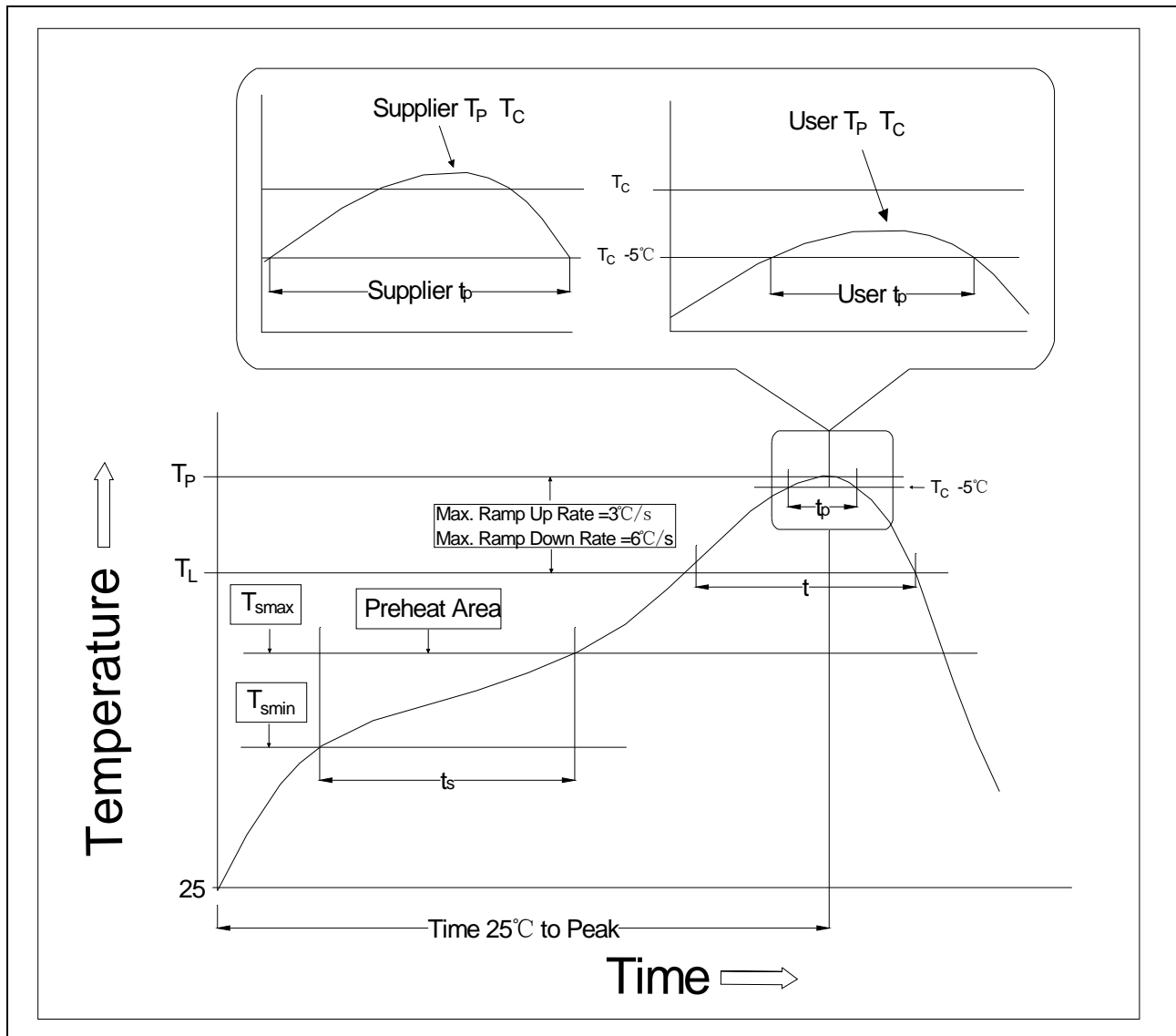
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S/L



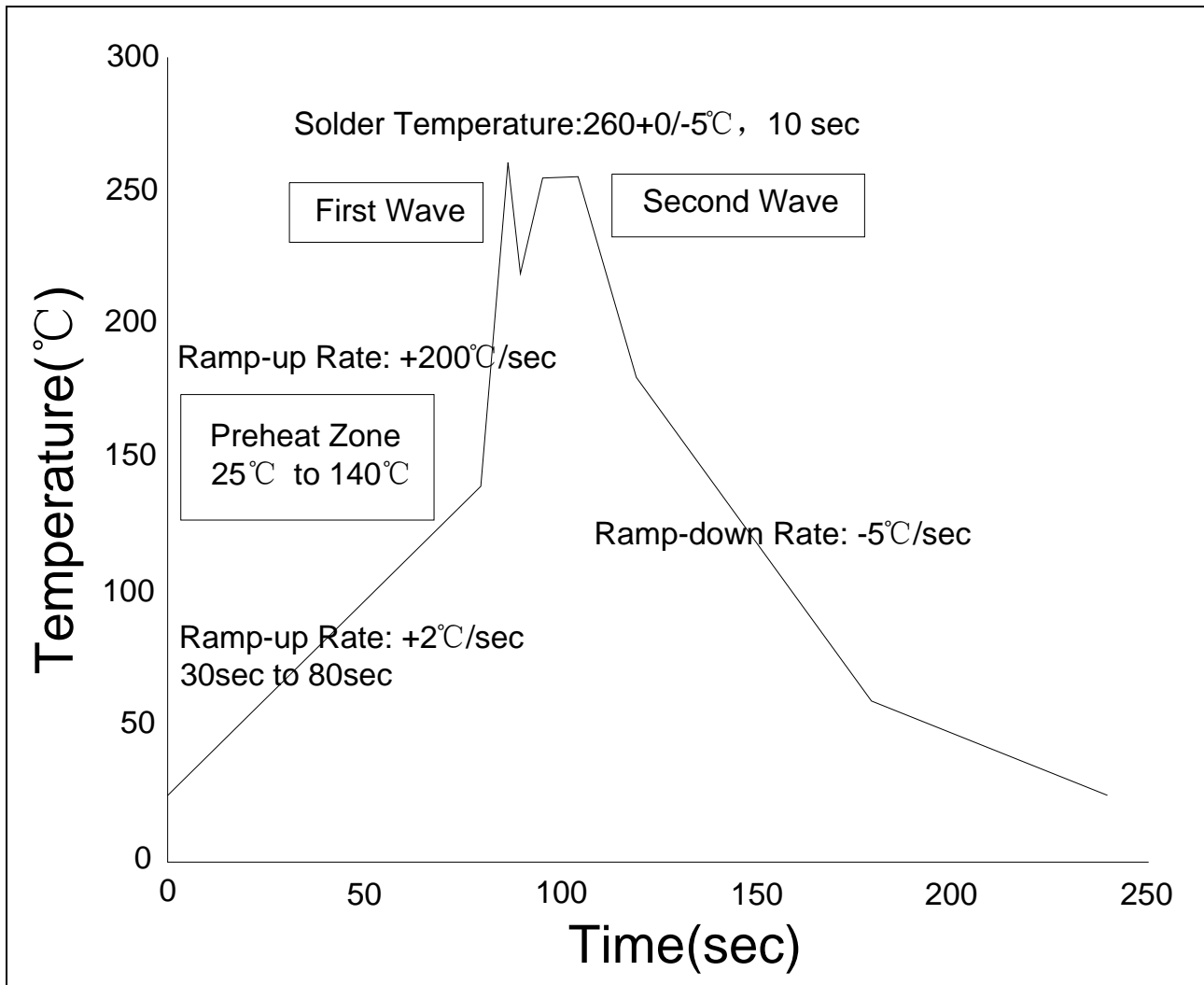
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0		1.50	1.60		0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	11.90	12.00	12.10	0.469	0.472	0.476
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
T	0.35	0.40	0.45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

REFLOW INFORMATION



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (T <sub>smin</sub> )	100	150°C
Temperature Max. (T <sub>smax</sub> )	150	200°C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds	60-120 seconds
Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.	3°C/second max.
Liquidus Temperature (T <sub>L</sub> )	183°C	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak Body Package Temperature	235°C+0°C/-5°C	260°C+0°C/-5°C
Time (t <sub>P</sub> ) within 5°C of 260°C	20 seconds	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max.	6°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

WAVE SOLDERING



HAND SOLDERING BY SOLDERING IRON

Soldering Temperature	$360 \pm 5^{\circ}\text{C}$
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

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