



JOCSR2XBM-D7P/S Series

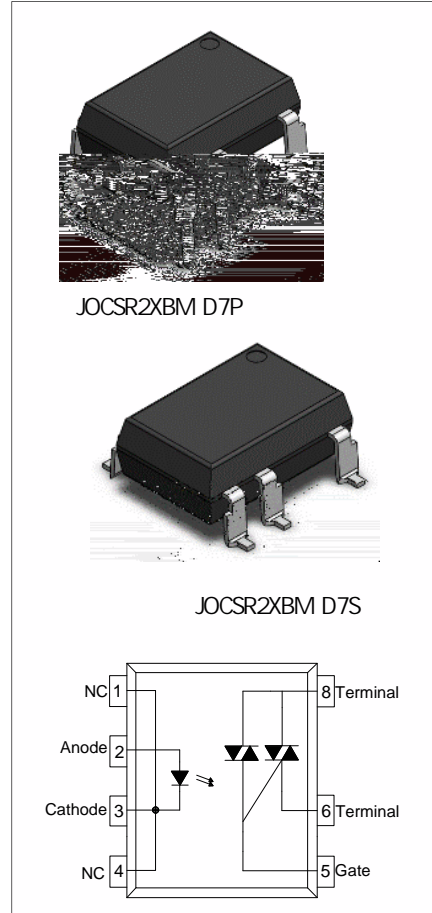
Rev.A.1.0

DESCRIPTION:

The products are 7-pin solid-state relay 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 to drive a power triac in a plastic DIP7 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 to 265 V_{AC} peripherals.

MAIN FEATURES:

- High isolation 5000 Vrms
- DC input with triac output
- Operating temperature range - 40°C to 110 °C
- REACH & RoHS compliance
- HBM: H3B; 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	Repetitive peak off-state voltage	V _{DRM}	600	V	
	Repetitive peak reverse voltage	V _{RRM}	600	V	
	Critical rate of rise of on-state current	di/dt	100	A/μs	
	On-state RMS Current	JOCSR23BM (T _a 96 °C)	I _{T(RMS)}	0.3	A
		JOCSR26BM (T _a 76 °C)		0.6	
JOCSR29BM (T _a 58 °C)		0.9			
JOCSR2BBM (T _a 40 °C)		1.2			

Non repetitive surge peak on-state current (full cycle , $t_p=20ms$)	JOCSR23BM	I_{TSM}	3	A
	JOCSR26BM		6	
	JOCSR29BM		9	
	JOCSR2BBM		12	
junction to case (AC)		$R_{th(j-c)}$	40	/W
Isolation Voltage		V_{iso}	5000	Vrms
Operating Temperature		T_{opr}	-40~110	
Junction Temperature		T_j	125	
Storage Temperature		T_{stg}	-40~125	
Soldering Temperature		T_{sol}	260	
Peak pulse voltage ($T_j=25$; non-repetitive,off-state)		V_{pp}	3	kV

NOTE1: 100 μs pulse, 100Hz frequency

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

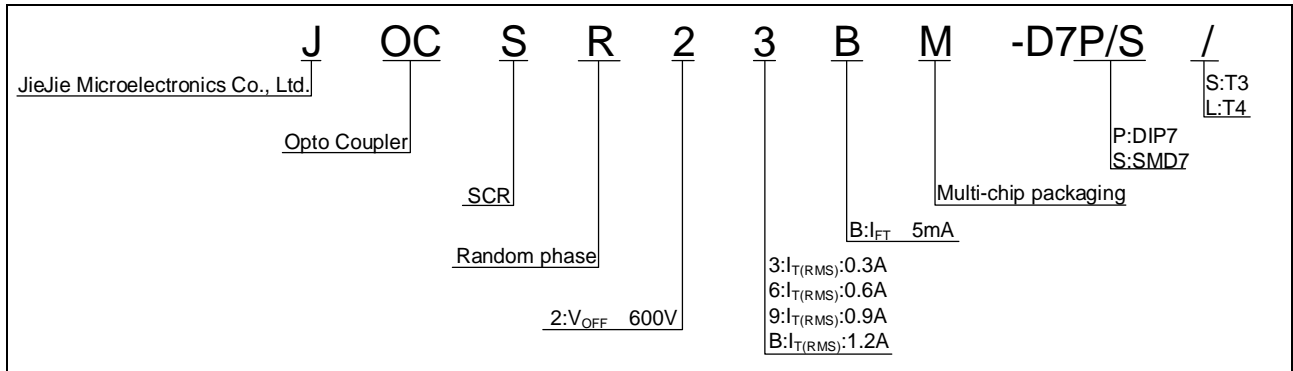
ELECTRICAL CHARACTERISTICS (Temperature=25°C)

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	
Output	Peak Off-state Current, Either Direction	I_{DRM}	$V_{DRM}/V_{RRM}=600V, I_F=0$	-	-	5	μA	
		I_{RRM}		-	-	5		
	Peak On-state Voltage, Either Direction	JOCSR23BM	V_{TM}	$I_{TM}=0.3A$	-	-	1.2	V
		JOCSR26BM		$I_{TM}=0.6A$	-	-	1.4	
		JOCSR29BM		$I_{TM}=0.9A$	-	-	1.45	
		JOCSR2BBM		$I_{TM}=1.2A$	-	-	1.5	
Critical Rate of Rise of Off-state voltage		dV/dt	$V_D=400V$, Gate Open $I_F=0$, $T_j=125$	1000	-	-	V/ μs	

Critical Rate of Rise of Commutating Voltage

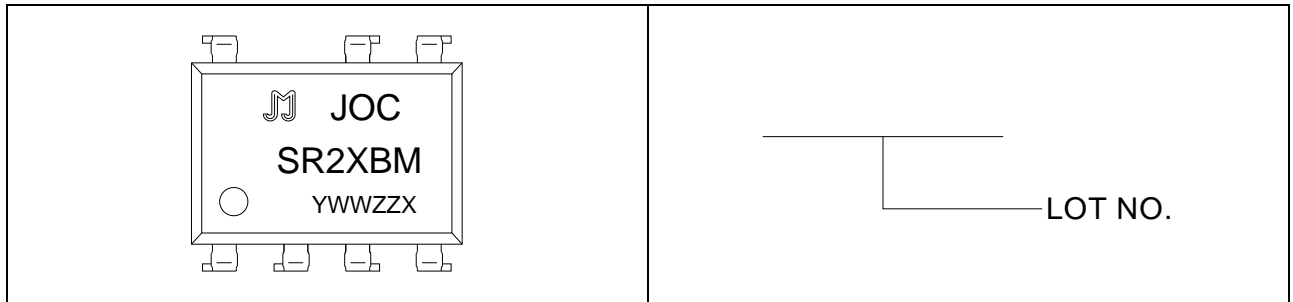
	Holding Current	I_H	$V_D=6V$	-	-	25	mA
	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	10^{12}	10^{14}	-	
	Response Time	t_{on}	$V_D=6V,$ $R_L=100 \Omega,$ $I_F=20mA$	-	20	100	μs

ORDERING INFORMATION



Packing Quantity	
Option	Quantity
DIP	0 Units/Tube
SMD	1200 Units/Reel

MARKING



Characteristics Curves

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

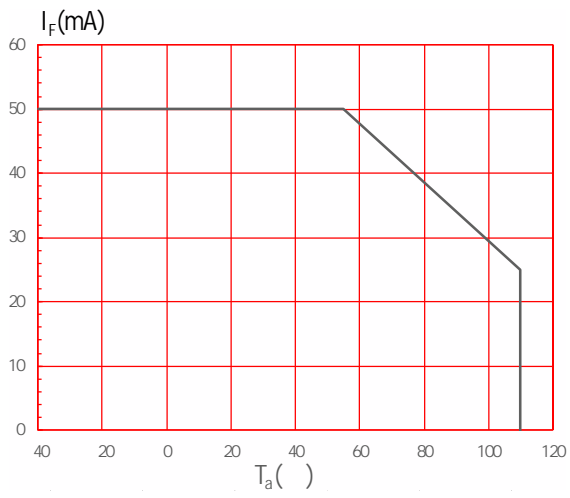


FIG.2: On-state Terminal Current vs. Ambient Temperature



FIG.7: On-state characteristics

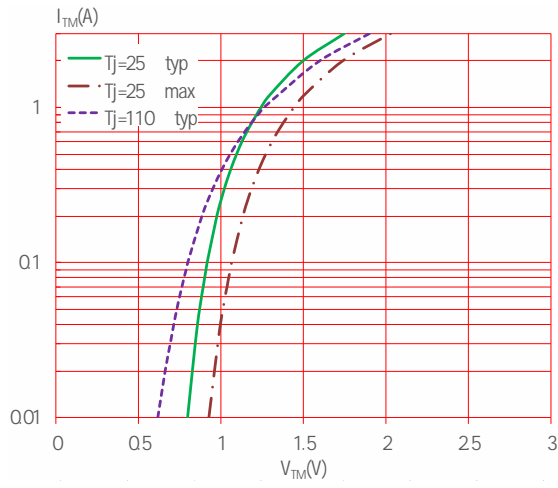
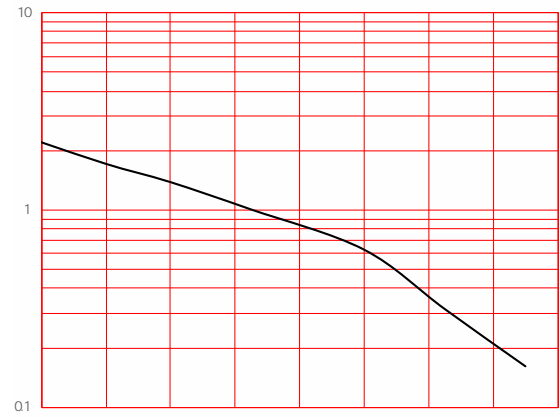


FIG.8: Normalized Holding Current vs. Ambient Temperature



TEST CIRCUITS

FIG.10: Test Circuits of Turn On Time

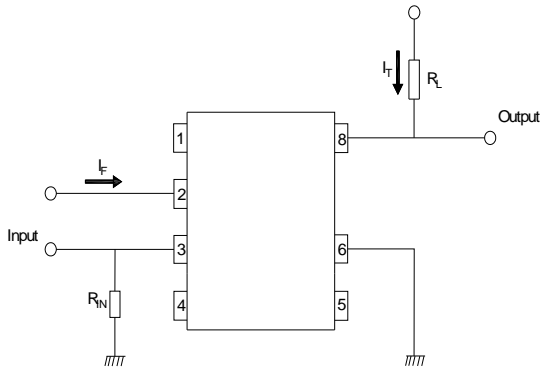
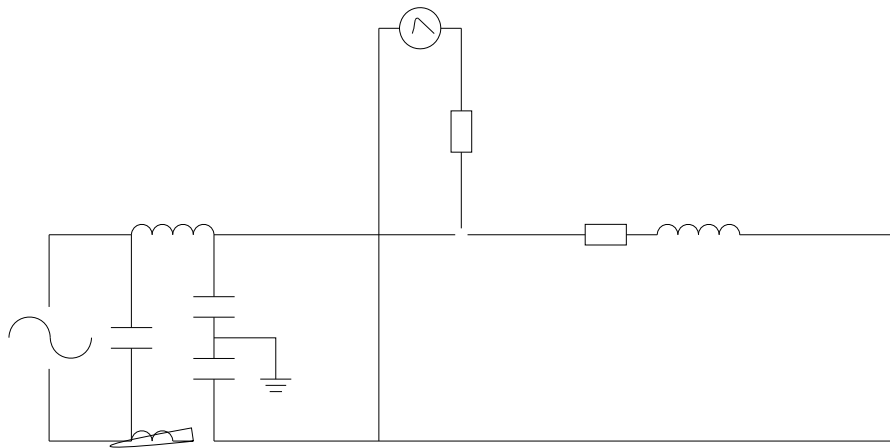
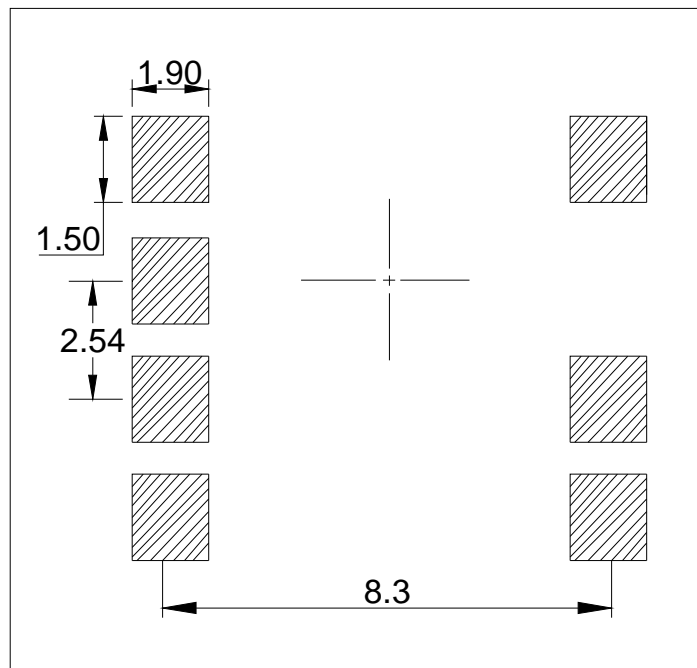


FIG.11: Waveforms of Turn On Time

FIG.12: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

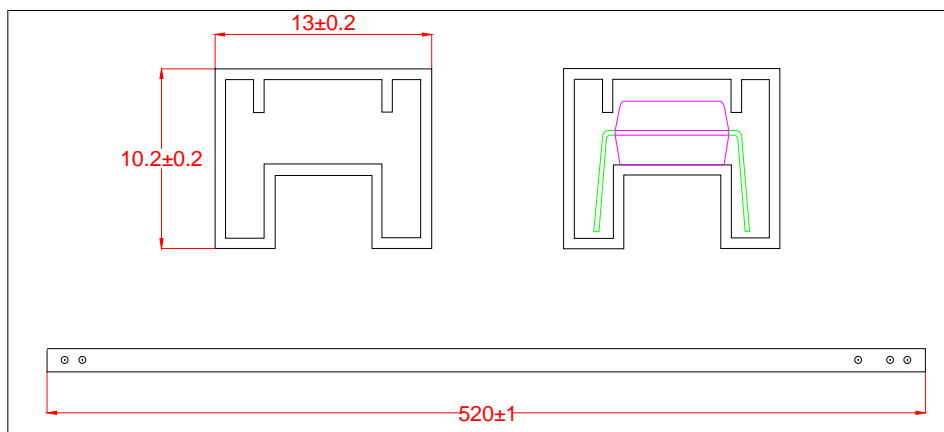


RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)



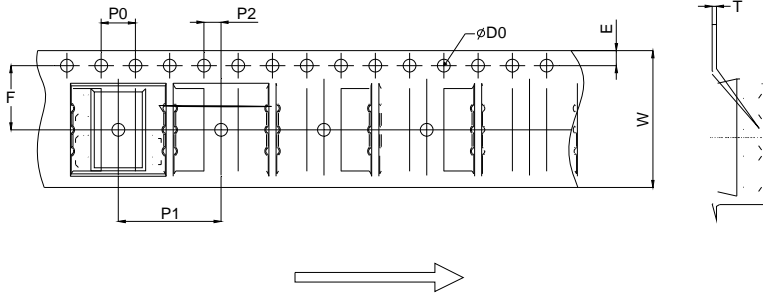
TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP



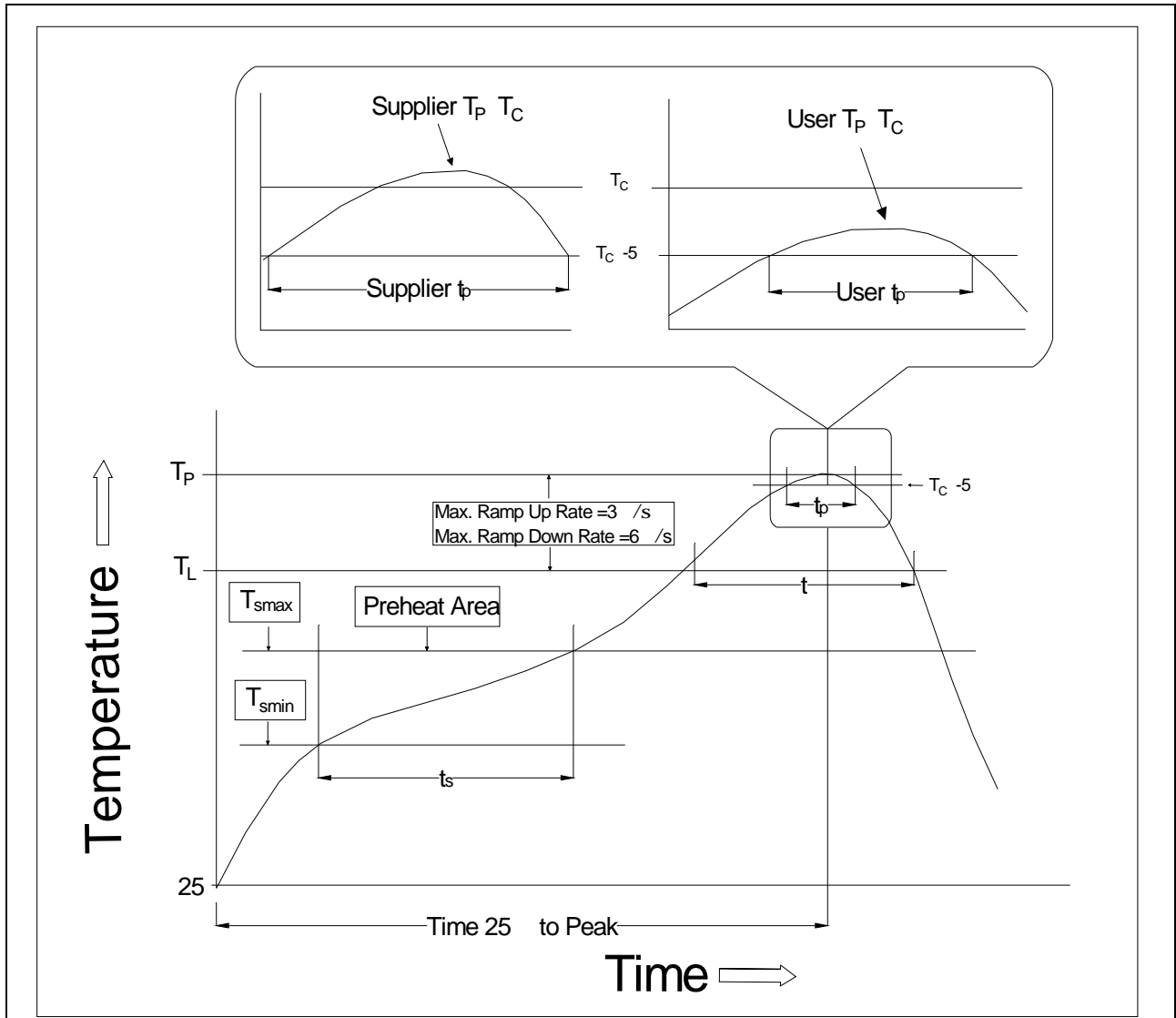
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S/L



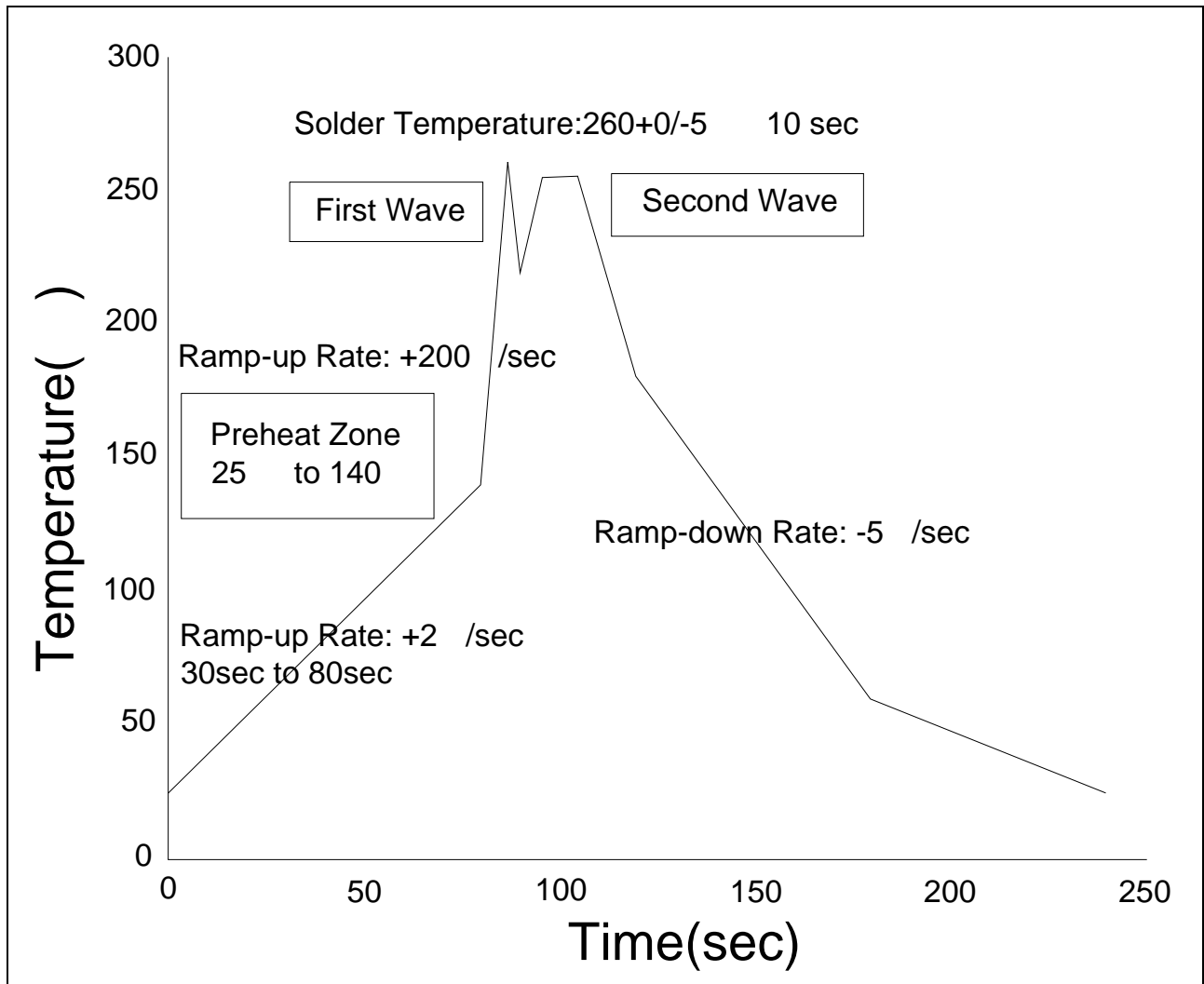
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0		1.50	1.60		0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	11.90	12.00	12.10	0.469	0.472	0.476
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
T	0.35	0.40	0.45	0.014	0.016	0.018
W	15.90	16.00	16.20	0.626	0.630	0.638

REFLOW INFORMATION



Temperature Min. (T _{smin})	150
Temperature Max. (T _{smax})	200
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds
Ramp-up Rate (t _L to t _P)	3 °C/second max.
Liquidous Temperature (T _L)	217
Time (t _L) Maintained Above (T _L)	60-120 seconds
Peak Body Package Temperature	260 +0 /-5
Time (t _P) within 5 °C of 260	10 seconds
Ramp-down Rate (T _P to T _L)	6 °C/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.