

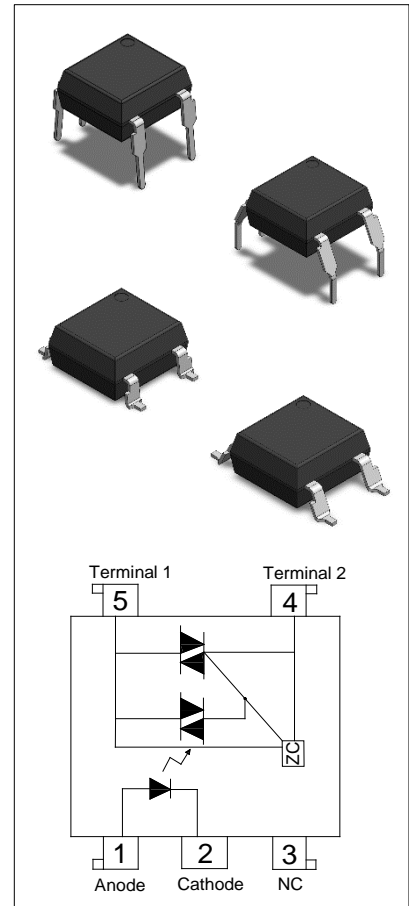


H11GXF Series

Rev.A.1.1

DESCRIPTION:

The H11GXF series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon zero-crossing photo triac to drive a power triac in a plastic DIP5 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 85 °C
- REACH & RoHS compliance
- MSL class 2
- 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	
	Peak Forward Current	I _{FP}	1 ^①	A	
	Reverse Voltage	V _R	6	V	
Output	Repetitive peak off-state voltage	V _{DRM}	600	V	
	Repetitive peak off-state voltage	V _{RRM}	600	V	
	Critical rate of rise of on-state current	di/dt	70	A/μs	
	On-state RMS Current	H11G0F	I _{T(RMS)}	0.3	A
		H11G1F		0.6	
Non repetitive surge peak on-state current (full cycle , t _p =20ms)	H11G0F	I _{TSM}	3	A	
	H11G1F		6		
Isolation Voltage		V _{iso}	5000 ^②	Vrms	

Operating Temperature	T_{opr}	-40~85	°C
Storage Temperature	T_{stg}	-40~125	°C
Soldering Temperature	T_{sol}	260 ^③	°C

NOTE1 : 100 μ s pulse, 100Hz frequency

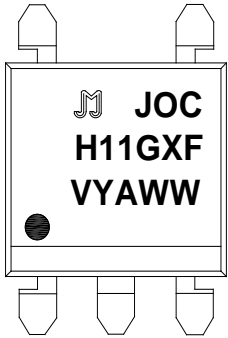
NOTE2 : AC for 1 minute, R.H.=40~60%

NOTE3 : For 10 seconds

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=20\text{mA}$	-	1.25	1.4	V
	Reverse Current	I_R	$V_R=6\text{V}$	-	-	1	μA
Output	Peak Off-state Current, Either Direction	I_{DRM}	$V_{DRM}/V_{RRM}=600\text{V}, I_F=0$	-	-	10	μA
		I_{RRM}		-	-	10	
	Peak On-state Voltage, Either Direction	V_{TM}	$I_{TM}=I_{TM}\text{ Rated}$	-	-	2	V
	Critical Rate of Rise of Off-state Voltage	dV/dt	$V_D=400\text{V},$ Gate Open $I_F=0,$ $T_j=85^\circ\text{C}$	1000	-	-	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$(dV/dt)_c$	$(dI/dt)_c=3\text{A/ms},$ $T_j=85^\circ\text{C}$	20	-	-	$\text{V}/\mu\text{s}$
Transfer Characteristics	LED Trigger Current	I_{FT}	Terminal Voltage=6V $R_L=100\Omega$	-	-	10	mA
	Holding Current	I_H	$V_D=6\text{V}$	-	-	25	mA
	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	10^{12}	10^{14}	-	Ω
	Response Time	t_{on}	$V_D=6\text{V},$ $R_L=100\Omega,$ $I_F=20\text{mA}$	-	20	100	μs
Zero Crossing	Inhibit Voltage	V_{IH}	$I_F=10\text{mA}$	-	-	20	V
	Leakage in Inhibit State	I_{OFF2}	$I_F=10\text{mA},$ $V_{OFF}=600\text{V}$	-	-	500	μA

ORDERING AND MARKING INFORMATION

MARKING INFORMATION			
		<p>JOC : Company Abbr. H11GXF : Part Number & Rank VYAWW : LOT NO.</p>	
ORDERING INFORMATION			
H11GXF(Y)(Z)-GV			
<p>H11GXF – Part Number & Rank (X=0/1) Y – Lead Form Option (None/M/SL/SLM) Z – Tape and Reel Option (T1/T2) G – Green Option (G or None) V – VDE Option (V or None)</p>			
Packing Quantity			
Option	Quantity	Quantity – Inner box	Quantity –Outer box
None/M	65 Units/Tube	32 Tubes/Inner box	10 Inner box/Outer box =20.8k Units
SL(T1/T2)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box =15k Units
SLM(T1/T2)	1000 Units/Reel	2 Reels/Inner box	5 Inner box/Outer box =10k Units

Characteristics Curves

FIG.1: Forward Current vs. Ambient Temperature

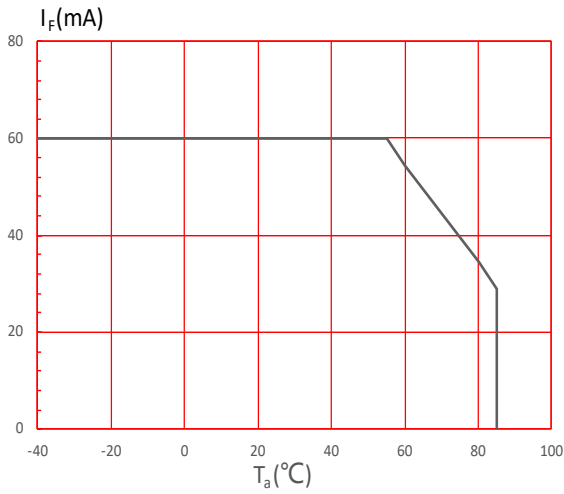


FIG.2: On-state Terminal Current vs. Ambient Temperature

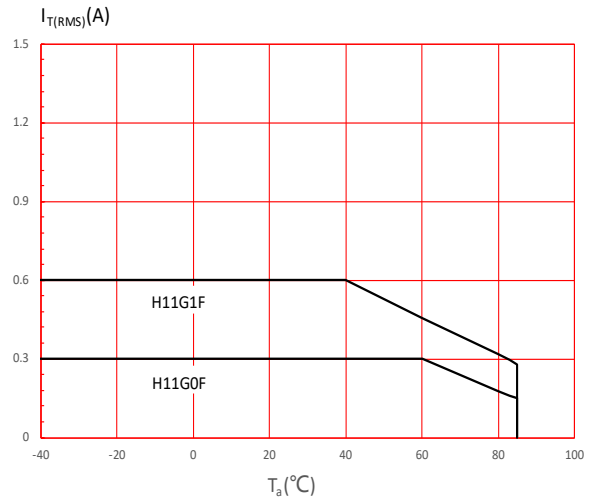


FIG.3: Forward Current vs. Forward Voltage

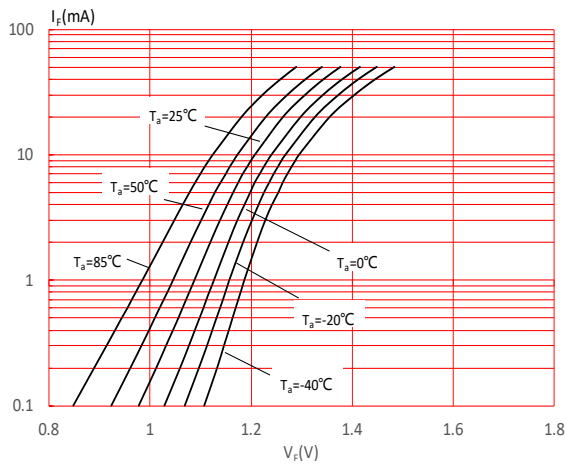


FIG.4: Forward Voltage vs. Ambient Temperature

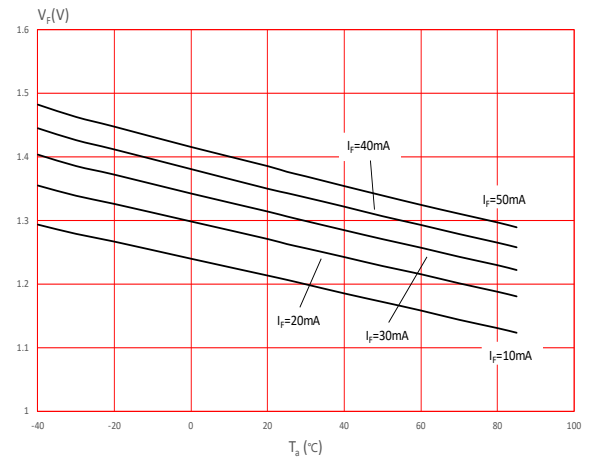


FIG.5: Off-state Terminal Current vs. Off-state Terminal Voltage

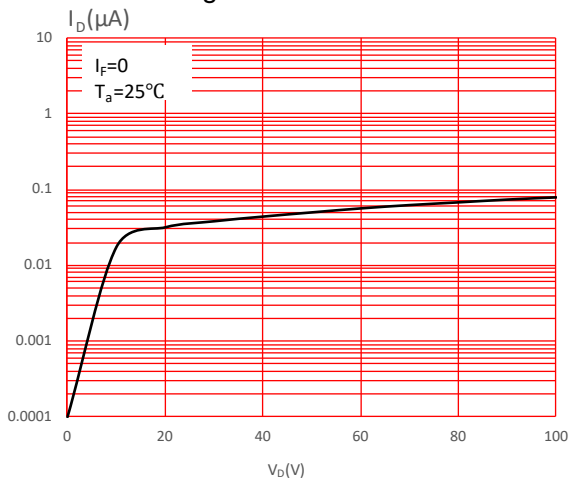


FIG.6: Normalized Trigger Current vs. Ambient Temperature

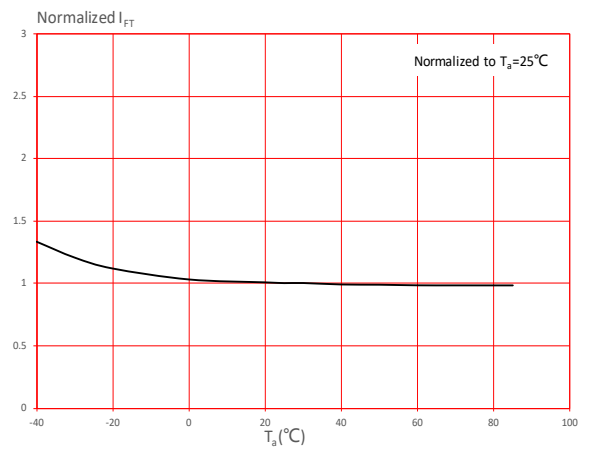


FIG.7: On-state Terminal Voltage vs. Ambient Temperature

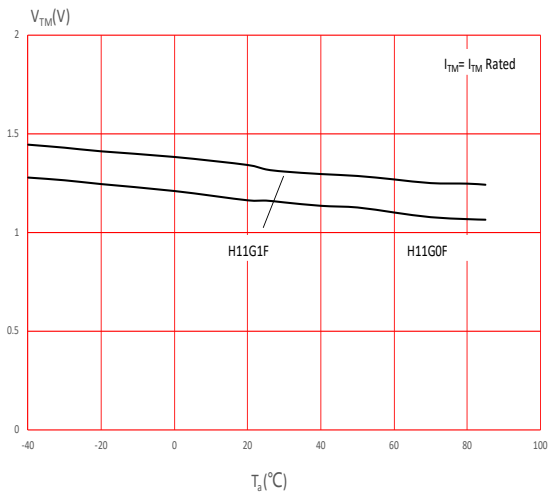


FIG.8: Normalized Holding Current vs. Ambient Temperature

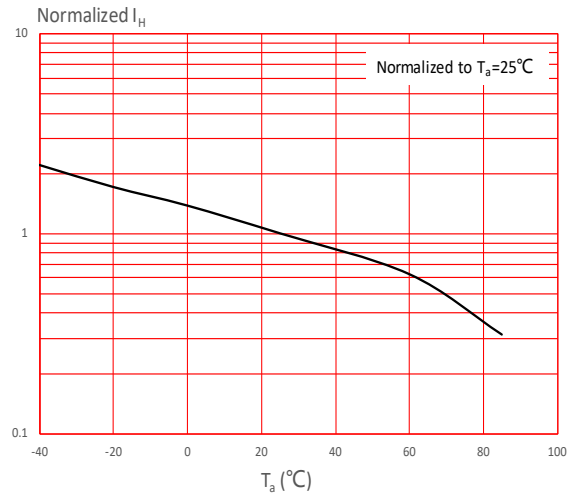


FIG.9: Turn On Time vs. Forward Current

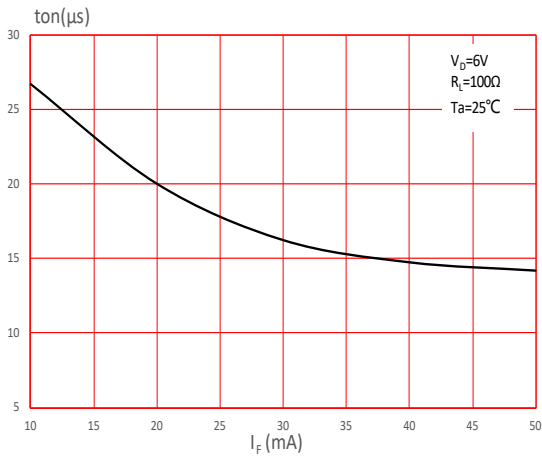
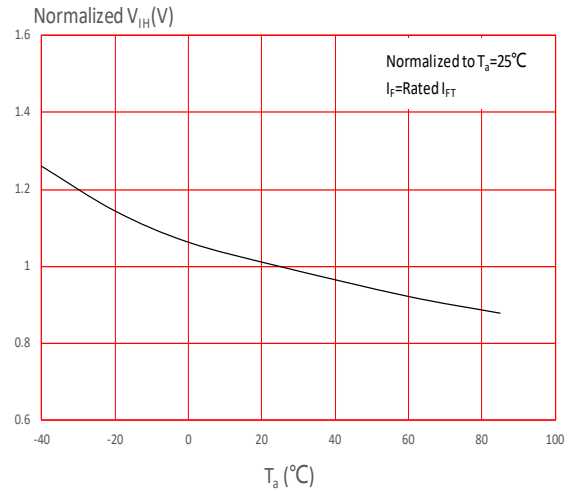


FIG.10: Normalized Inhibit Voltage vs. Ambient Temperature



TEST CIRCUITS

FIG.11: Test Circuits of Turn On Time

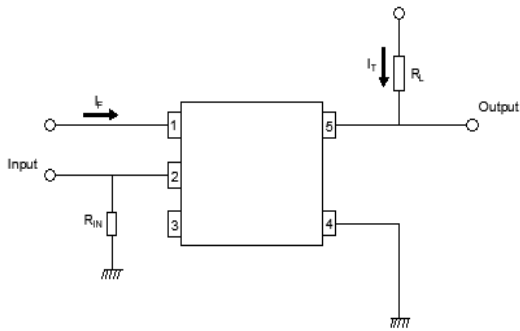
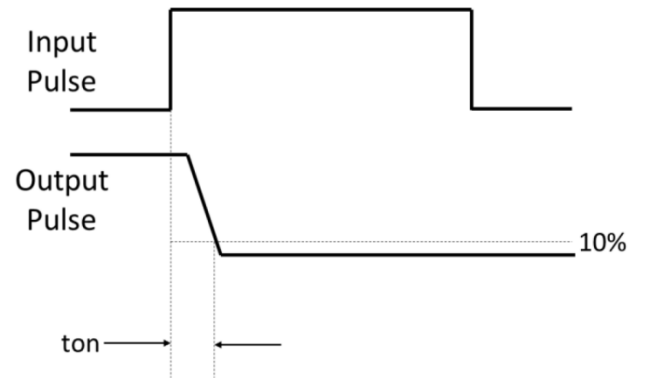
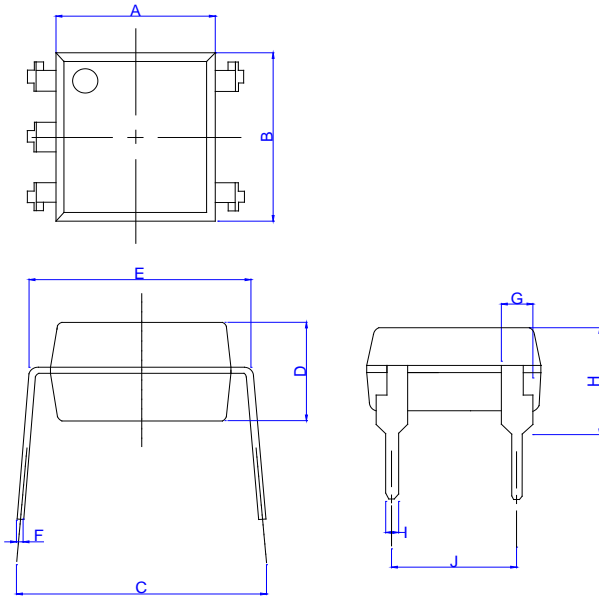


FIG.12: Waveforms of Turn On Time



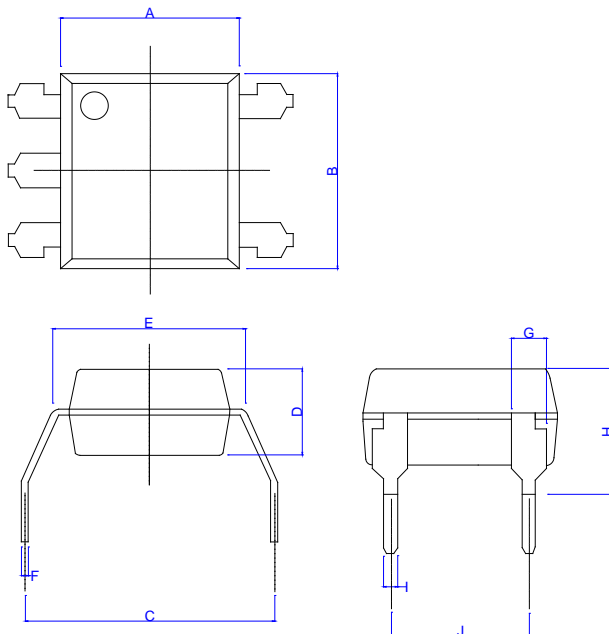
Package Dimension (Unit: mm)

Standard DIP Type:



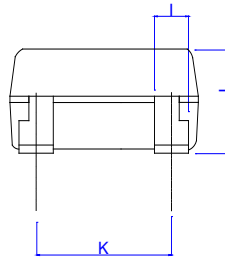
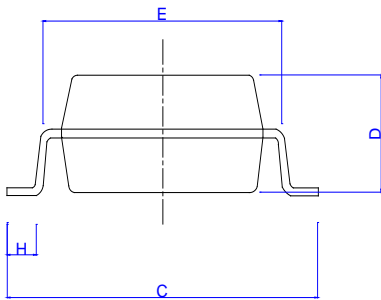
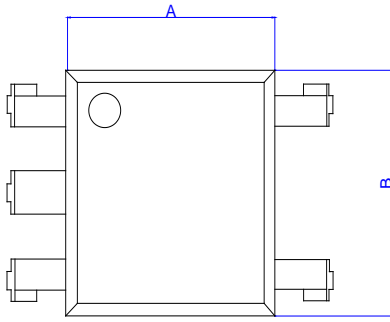
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.20		6.80	0.245		0.269
B	6.82		7.42	0.270		0.293
C	7.62		9.50	0.301		0.375
D	3.30		3.70	0.130		0.146
E	7.32		7.92	0.289		0.313
F		0.25			0.010	
G			1.30			0.051
H	4.20		4.80	0.166		0.190
I		0.50			0.020	
J		5.08			0.201	

Option M Type:



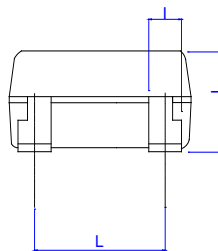
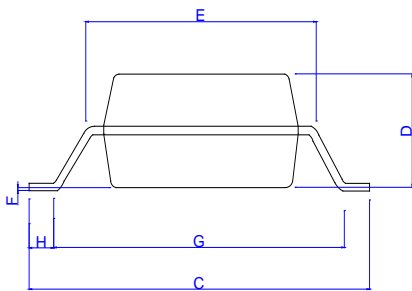
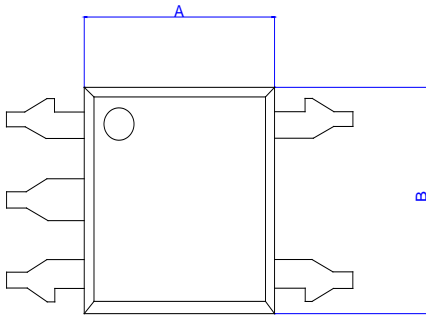
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.20		6.80	0.245		0.269
B	6.82		7.42	0.270		0.293
C	9.86		10.46	0.390		0.413
D	3.30		3.70	0.130		0.146
E	7.32		7.92	0.289		0.313
F		0.25			0.010	
G			1.30			0.051
H	4.20		4.80	0.166		0.190
I		0.50			0.020	
J		5.08			0.201	

Option SL Type:



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.20		6.80	0.245		0.269
B	6.82		7.42	0.270		0.293
C	9.85		10.45	0.389		0.413
D	3.20		3.80	0.126		0.150
E	7.32		7.92	0.289		0.313
H	0.60			0.024		
I			1.30			0.051
J	3.35		3.95	0.132		0.156
K		5.08			0.201	

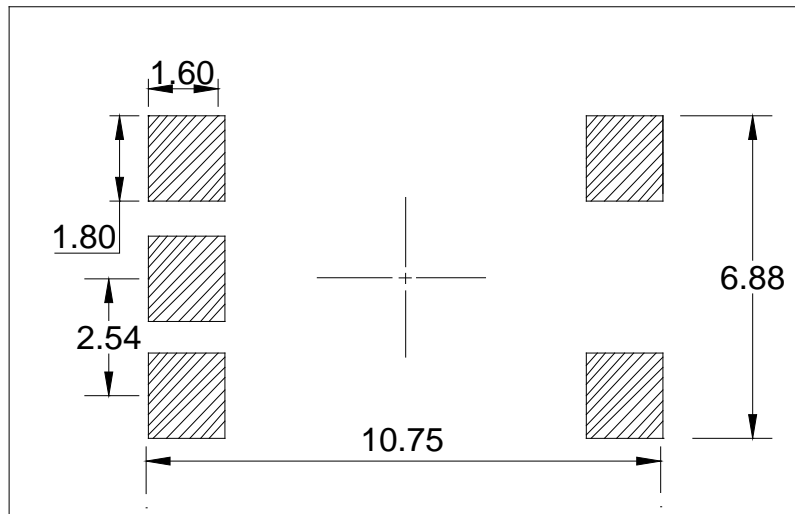
Option SLM Type:



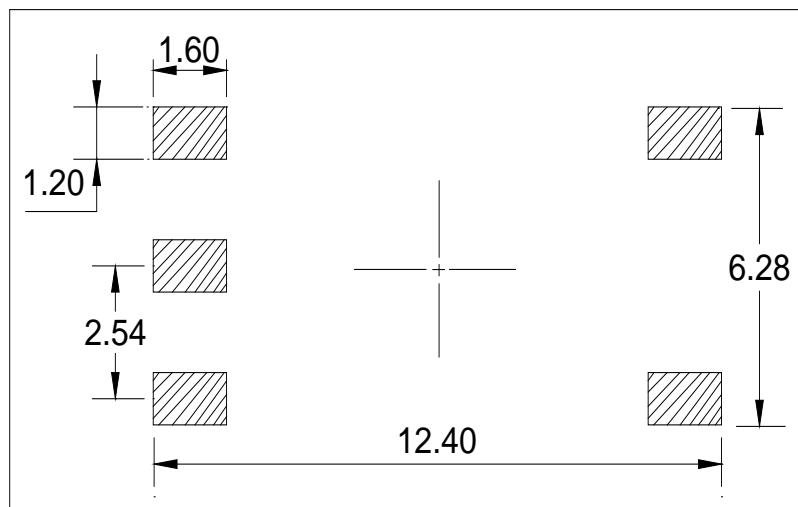
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.20		6.80	0.245		0.269
B	6.82		7.42	0.270		0.293
C	11.50		12.10	0.455		0.478
D	3.20		3.80	0.126		0.150
E	7.32		7.92	0.289		0.313
F		0.25			0.010	
G	10.20		10.80	0.403		0.427
H	0.60			0.024		
I			1.30			0.051
J	3.35		3.95	0.132		0.156
L		5.08			0.201	

RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

SL:

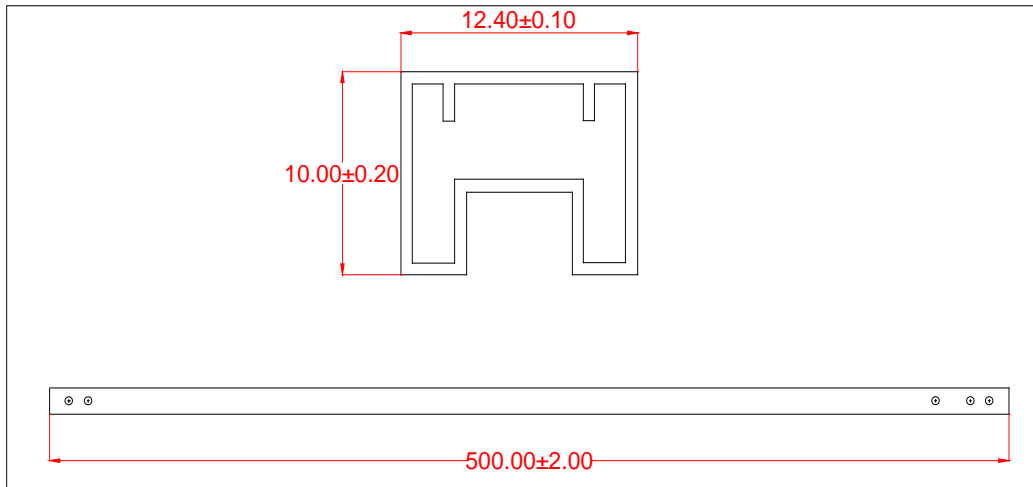


SLM:



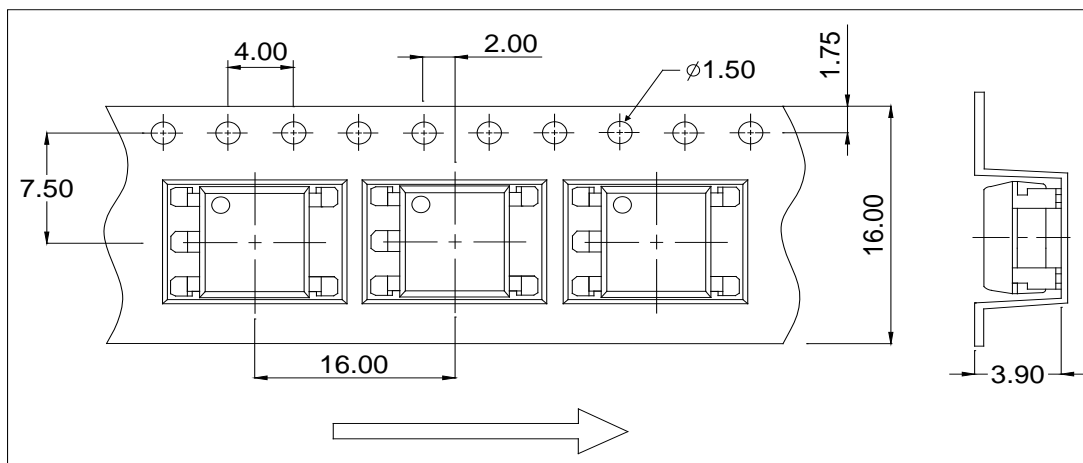
TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP/M

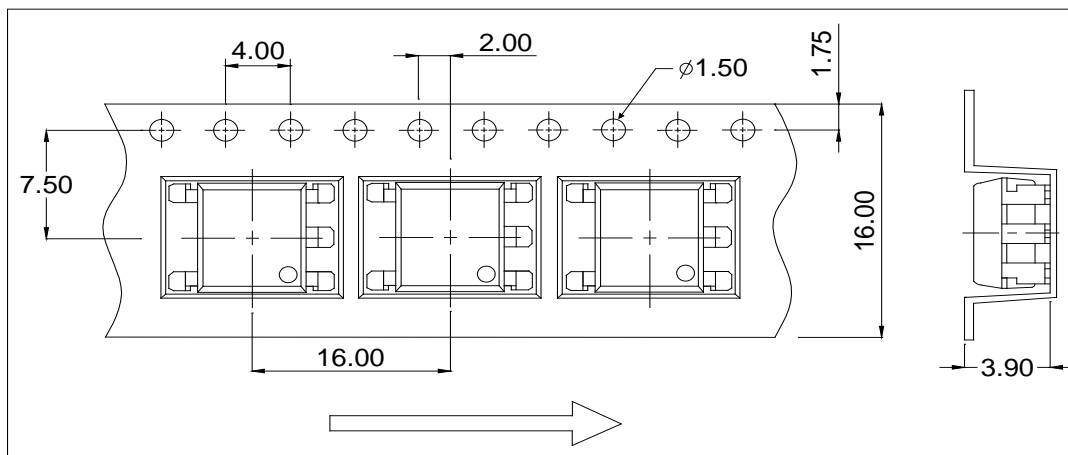


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

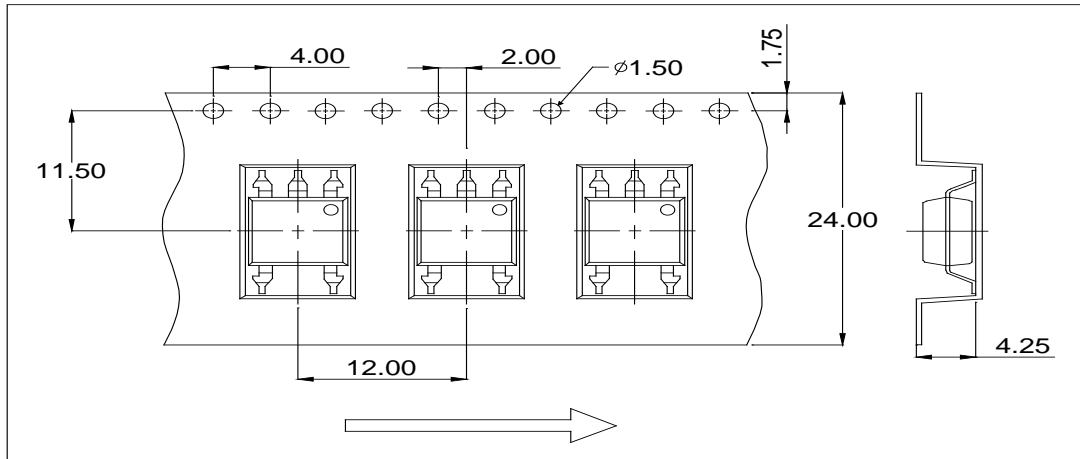
Option SL(T1)



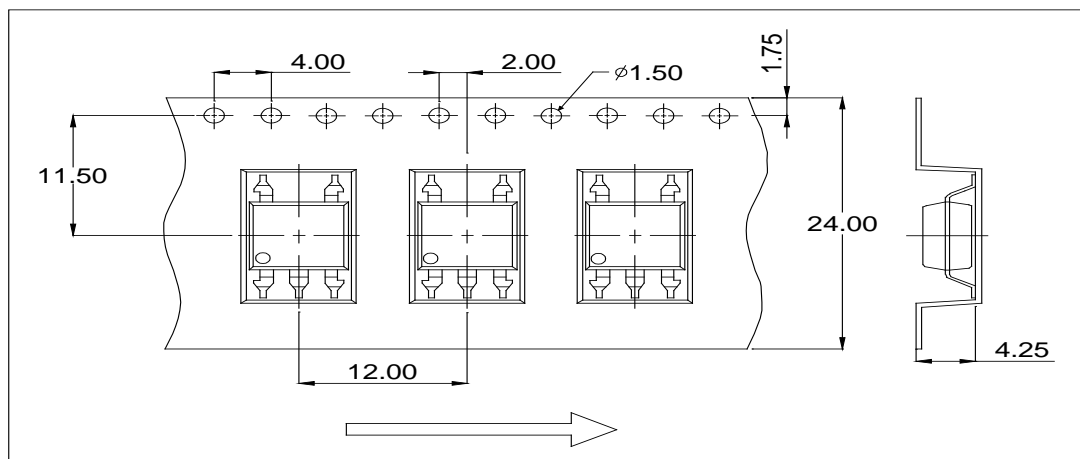
Option SL(T2)



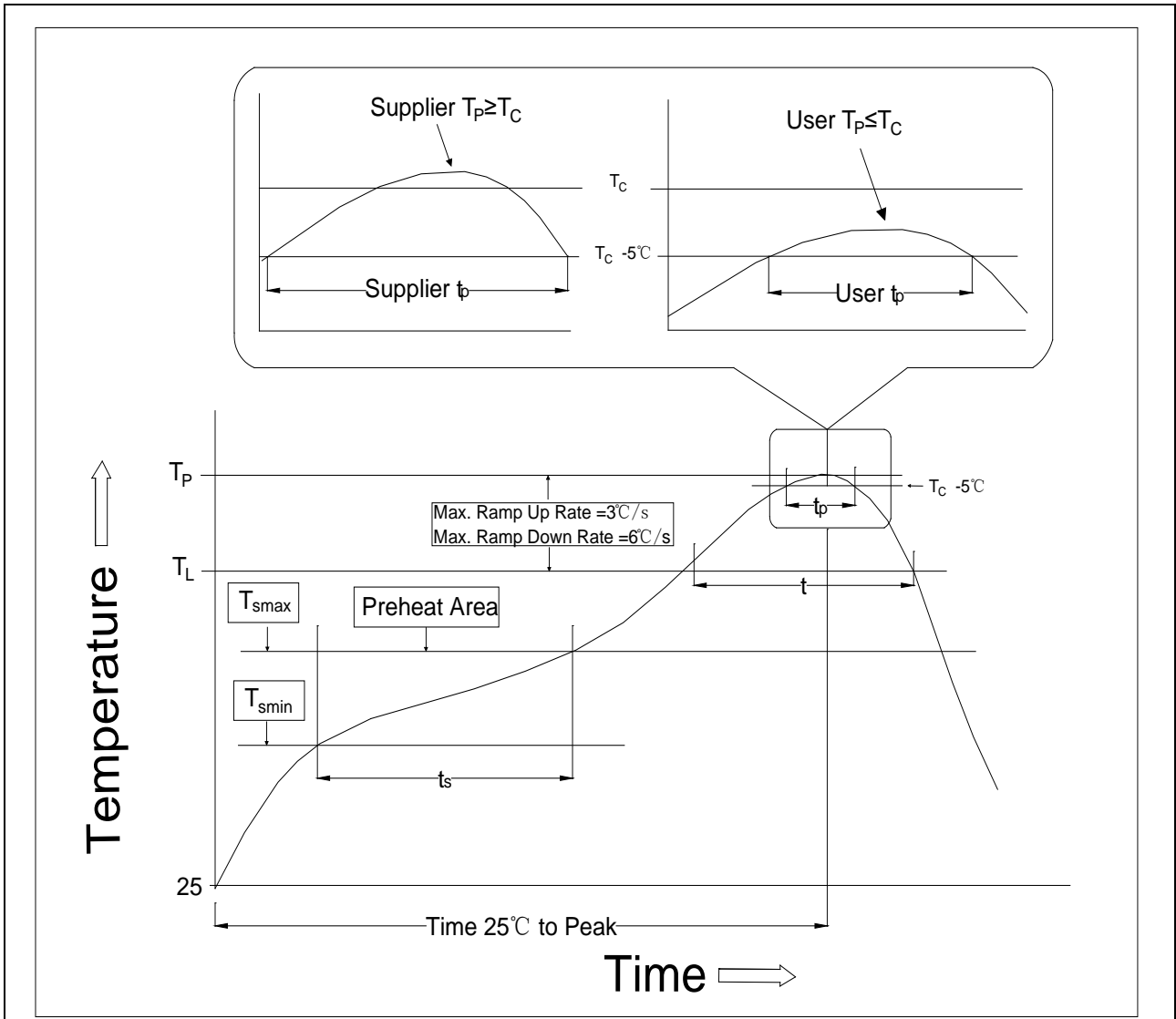
Option SLM(T1)



Option SLM(T2)

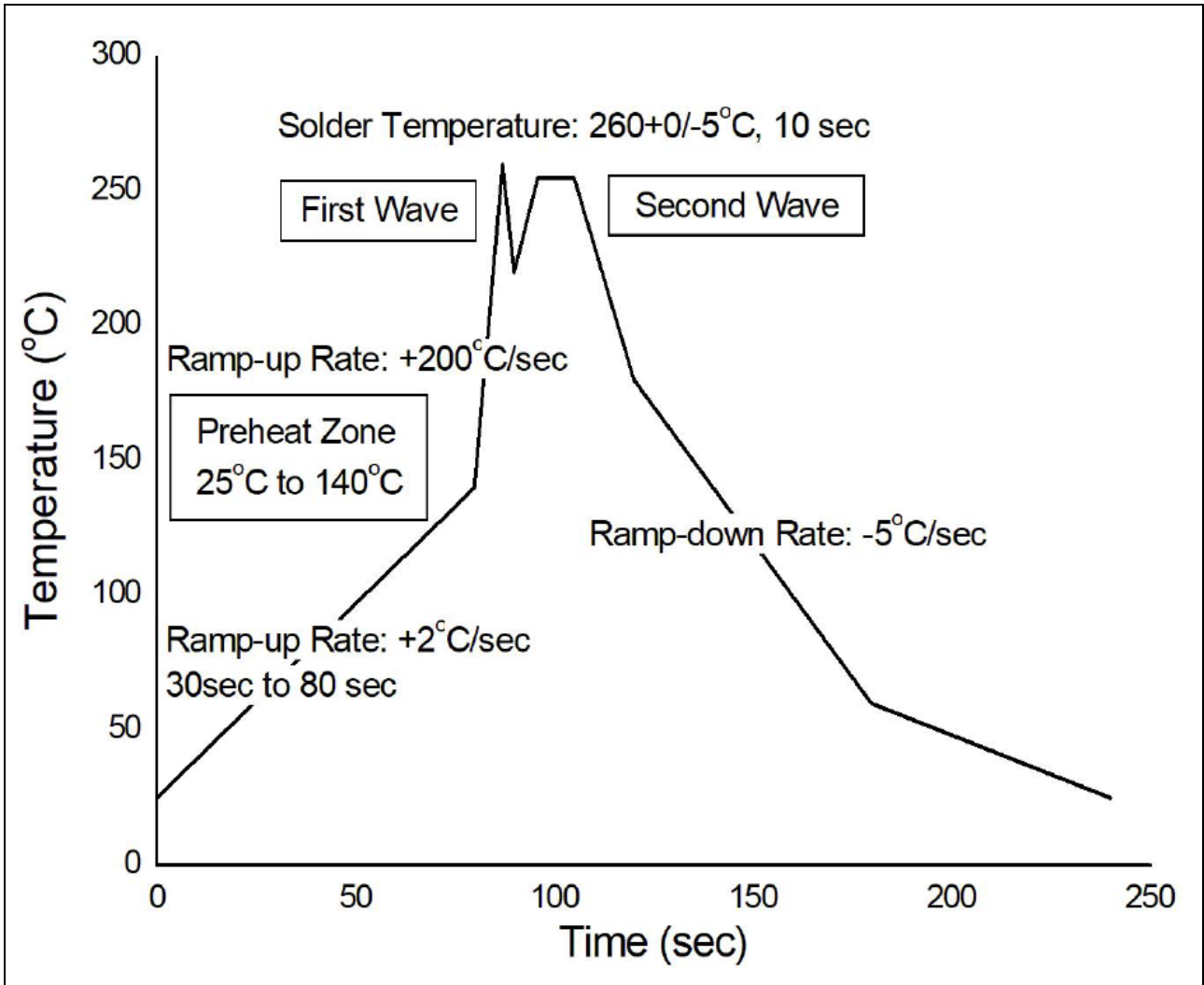


REFLOW INFORMATION



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

Document Revision History

Date	Revision	Changes
Feb.21, 2025	A.1.0	Last update
Nov.7, 2025	A.1.1	Add (dV/dt)c

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