



CTM3083, CTM3082, CTM3081

CTM3063, CTM3062, CTM3061

600V/800V Zero Cross 4-Pin Mini-Flat Phototriac Optocoupler

Features

- High isolation 3750 VRMS
- Peak Breakdown Voltage
 - 600V – CTM3061,3062,3063
 - 800V – CTM3081,3082,3083
- Temperature range - 55 °C to 100 °C
- Regulatory Approvals
 - UL - UL1577 (E364000)
 - VDE - EN60747-5-5(VDE0884-5)
 - CQC – GB4943.1, GB8898
 - IEC60065, IEC60950
- Green Package

Description

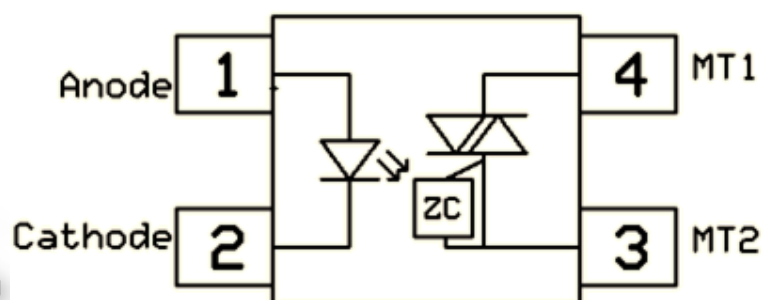
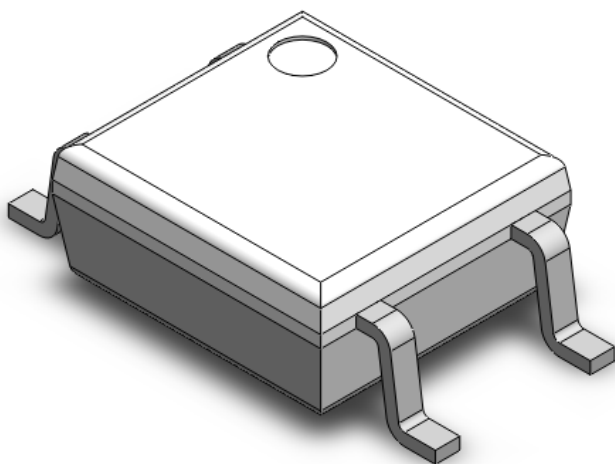
The CTM3061, CTM3062, CTM3063, CTM3081, CTM3082 and CTM3083 series consists of a Zero Cross Photo Triac optically coupled to a gallium arsenide Infrared-emitting diode in a 4-lead Mini Flat package.

Applications

- Motor Controls
- Lamp ballasts
- Static AC Power Switch
- Solenoid/ Valve Control

Package Outline

Schematic





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Absolute Maximum Rating at 25°C

Symbol	Parameters	Ratings	Units	Notes
V _{ISO}	Isolation voltage	3750	V _{RMS}	
T _{OPR}	Operating temperature	-55 ~ +100	°C	
T _{STG}	Storage temperature	-55 ~ +125	°C	
T _{SOL}	Soldering temperature	260	°C	
P _{TOT}	Total power dissipation	200	mW	
Emitter				
I _F	Forward current	60	mA	
I _{F(TRANS)}	Peak transient current (≤1μs P.W,300pps)	1	A	
V _R	Reverse voltage	6	V	
P _D	Power dissipation	100	mW	
Detector				
P _D	Power dissipation	300	mW	
V _{DRM}	Off-State Output Terminal Voltage	CTM3061,3062,3063	600	V
		CTM3081,3082,3083	800	V
I _{TSM}	Peak Repetitive Surge Current	1	A	



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Electrical Characteristics $T_A = 25^\circ\text{C}$ (unless otherwise specified)

Emitter Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V_F	Forward voltage	$I_F = 10\text{mA}$	-	-	1.5	V	
I_R	Reverse Current	$V_R = 6\text{V}$	-	-	5	μA	
C_{IN}	Input Capacitance	$f = 1\text{MHz}$	-	45	-	pF	

Detector Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes	
I_{DRM1}	Peak Blocking Current	CTM3061,62,63 CTM3081,82,83	$I_F = 0\text{mA}$, $V_{DRM} = \text{Rated } V_{DRM}$	-	-	500	nA	
I_{DRM2}	Inhibit Leakage Current		$I_F = \text{Rated } I_{FT}$, $V_{DRM} = \text{Rated } V_{DRM}$	-	-	500	μA	
V_{INH}	Inhibit Voltage		$I_F = \text{Rated } I_{FT}$	-	-	20	V	
V_{TM}	Peak On-State Voltage		$I_F = \text{Rated } I_{FT}$, $I_{TM} = 100\text{mA}$	-	-	3	V	
dv/dt	Critical Rate of Rise off-State Voltage	CTM3061,62,63 CTM3081,82,83	$V_{PEAK} = \text{Rated } V_{DRM}$	1000	-	-	V/ μs	
				600	-	-		

Transfer Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes	
I_{FT}	Input Trigger Current	CTM3061, CTM3081	Terminal Voltage = 3V	-	-	15	mA	
		CTM3062, CTM3082		-	-	10		
		CTM3063, CTM3083		-	-	5		
I_H	Holding Current		-	380	-	μA		
R_{IO}	Isolation Resistance	$V_{IO} = 500\text{V}_{DC}$	1×10^{11}	-	-	Ω		
C_{IO}	Isolation Capacitance	$f = 1\text{MHz}$	-	0.25	-	pF		



Typical Characteristic Curve

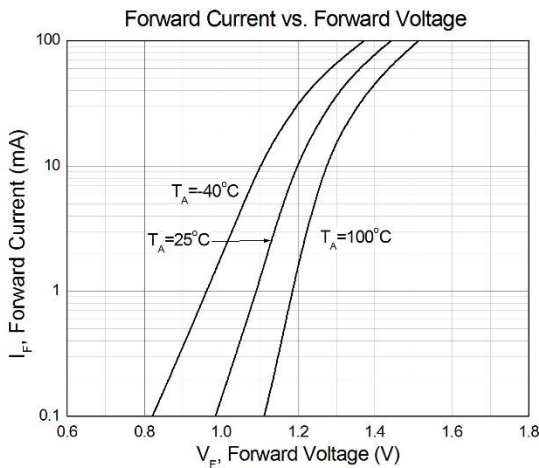


Figure 1

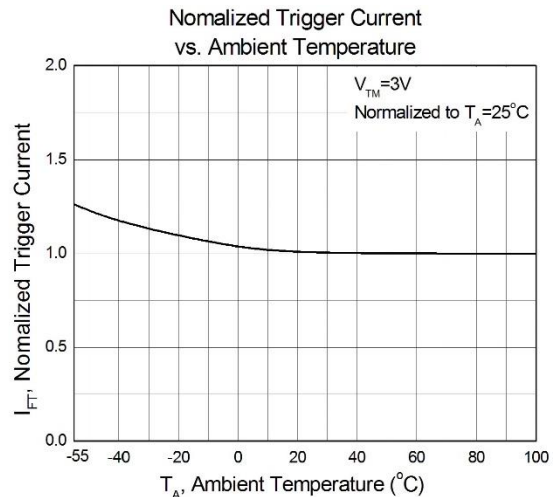


Figure 2

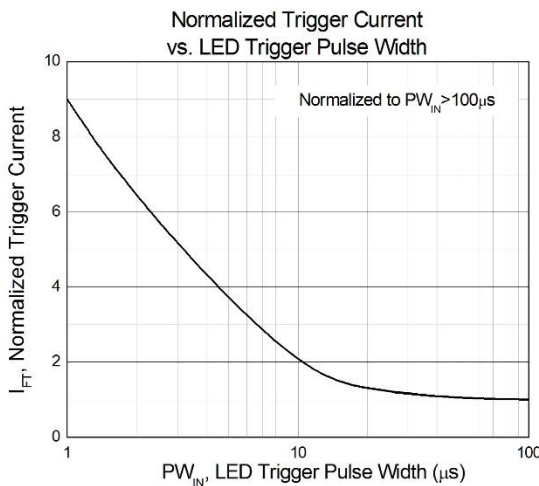


Figure 3

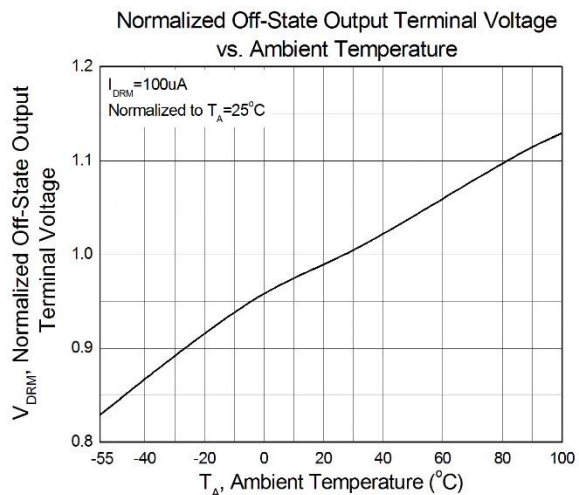


Figure 4

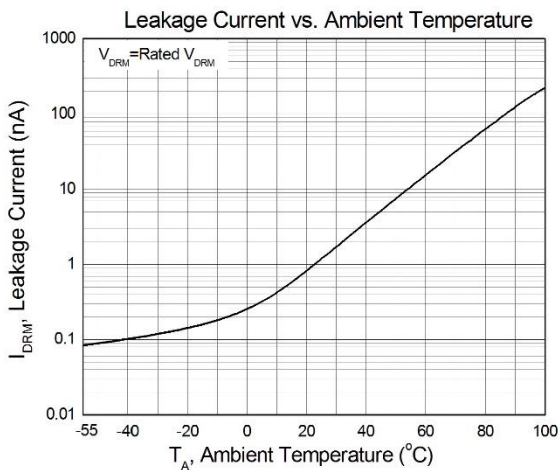


Figure 5

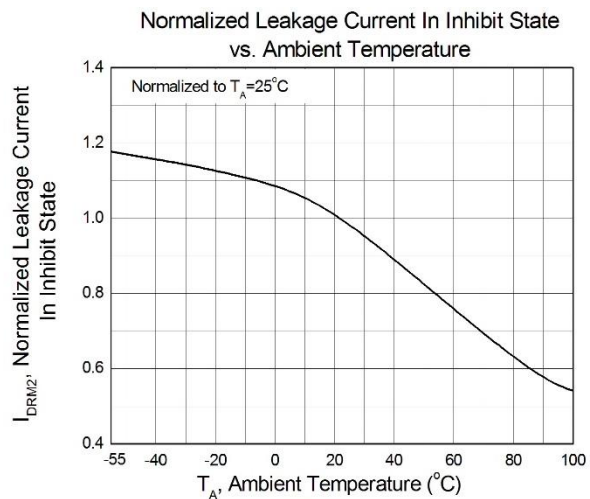


Figure 6



Typical Characteristic Curve

Normalized Holding Current vs. Ambient Temperature

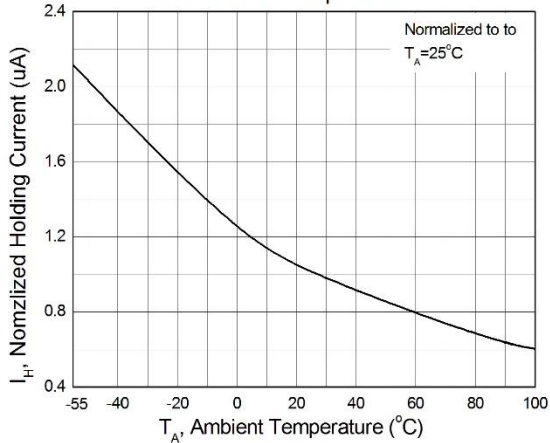


Figure 8

Normalized Inhibit Voltage vs. Ambient Temperature

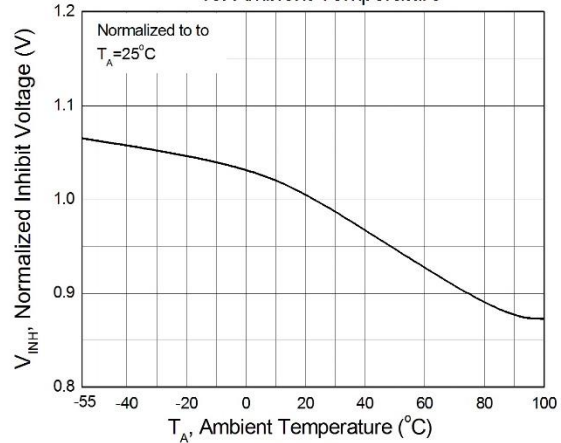


Figure 9

Normalized Off-State Output Terminal Voltage vs. Ambient Temperature

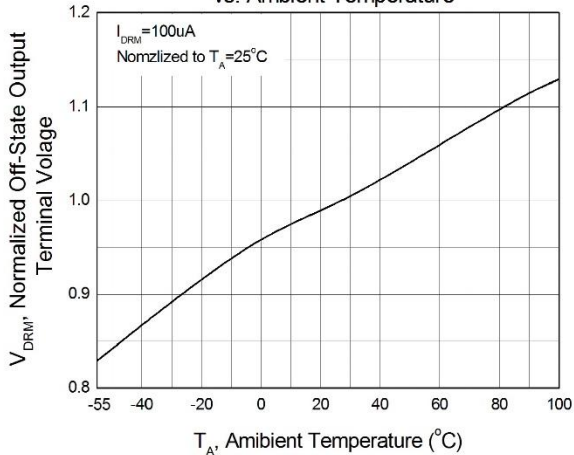


Figure 4

On-State Terminal Current vs. On-State Terminal Voltage

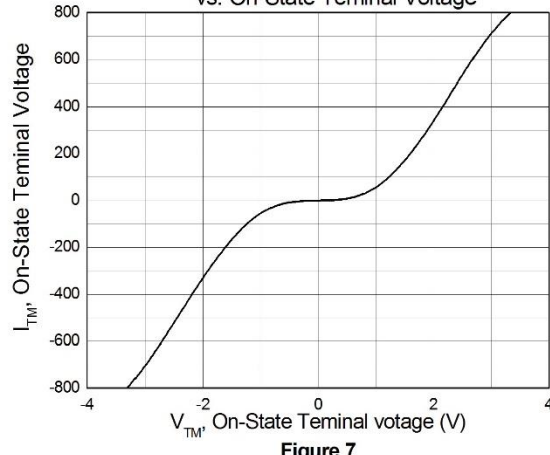


Figure 7

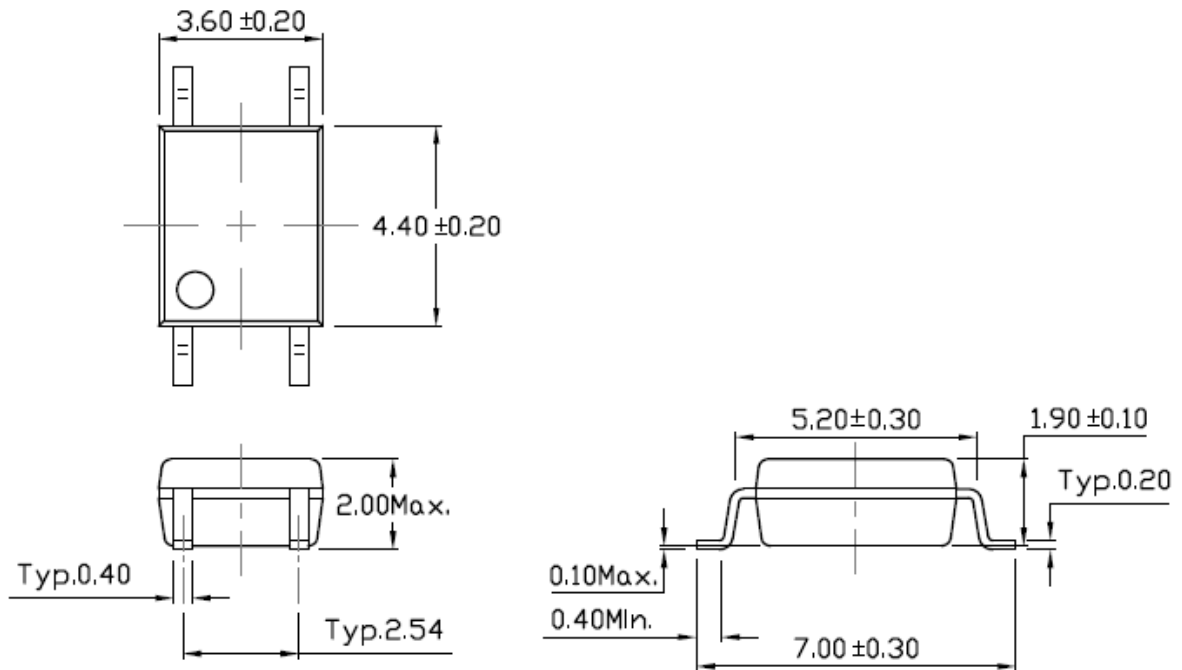


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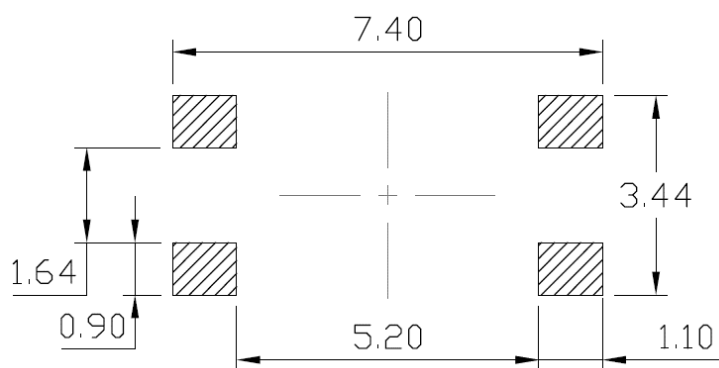
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Package Dimension *Dimensions in mm unless otherwise stated*



Recommended Solder Mask *Dimensions in mm unless otherwise stated*



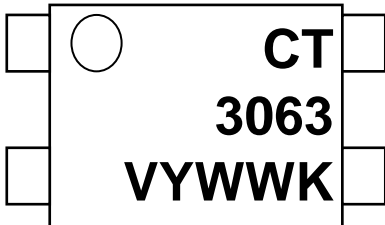


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Marking Information



Note:

CT : Denotes "CT Micro"

3063 : Product Number

V : VDE Option

Y : Fiscal Year

WW : Work Week

K : Manufacturing Code

Ordering Information

CTM30XX(V)(Z)

XX = Part No. (XX=83, 82, 81, 63, 62 and 61)

V = VDE Option (V or None)

Z = Tape and reel option (T1 or T2)

Option	Description	Quantity
T1	Surface Mount Lead Forming – With Option 1 Taping	3000 Units/Reel
T2	Surface Mount Lead Forming – With Option 2 Taping	3000 Units/Reel



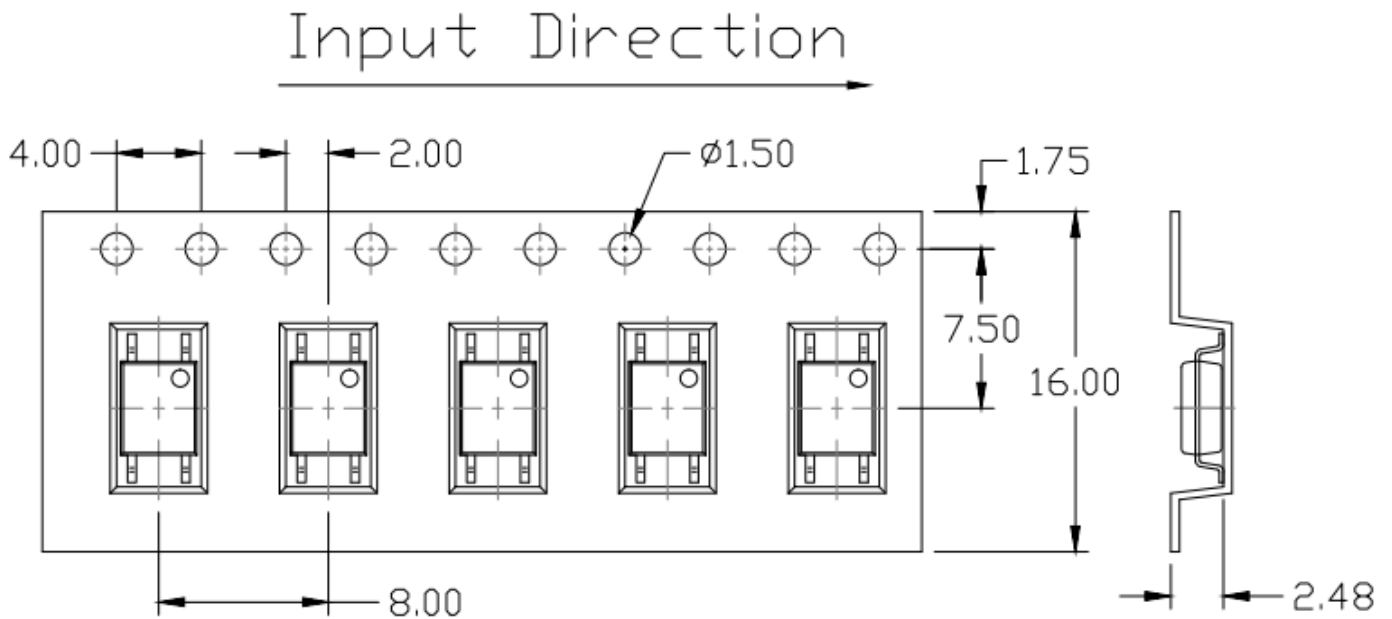
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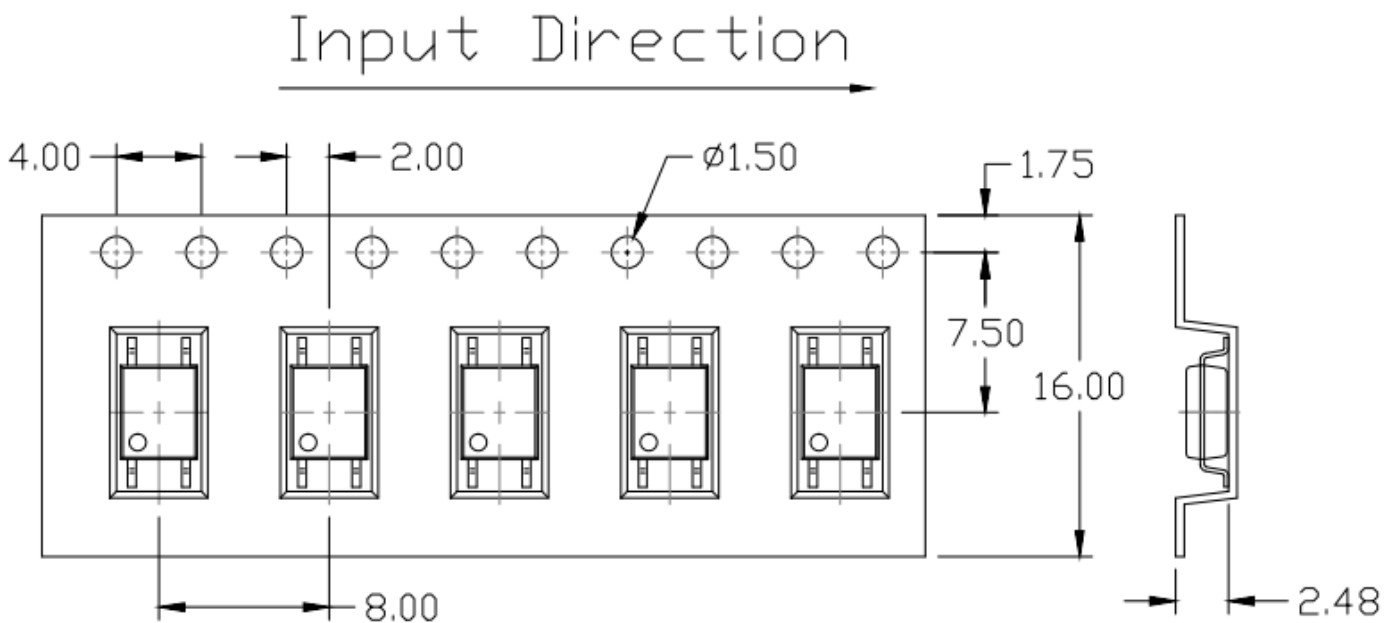
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Carrier Tape Specifications *Dimensions in mm unless otherwise stated*

Option T1

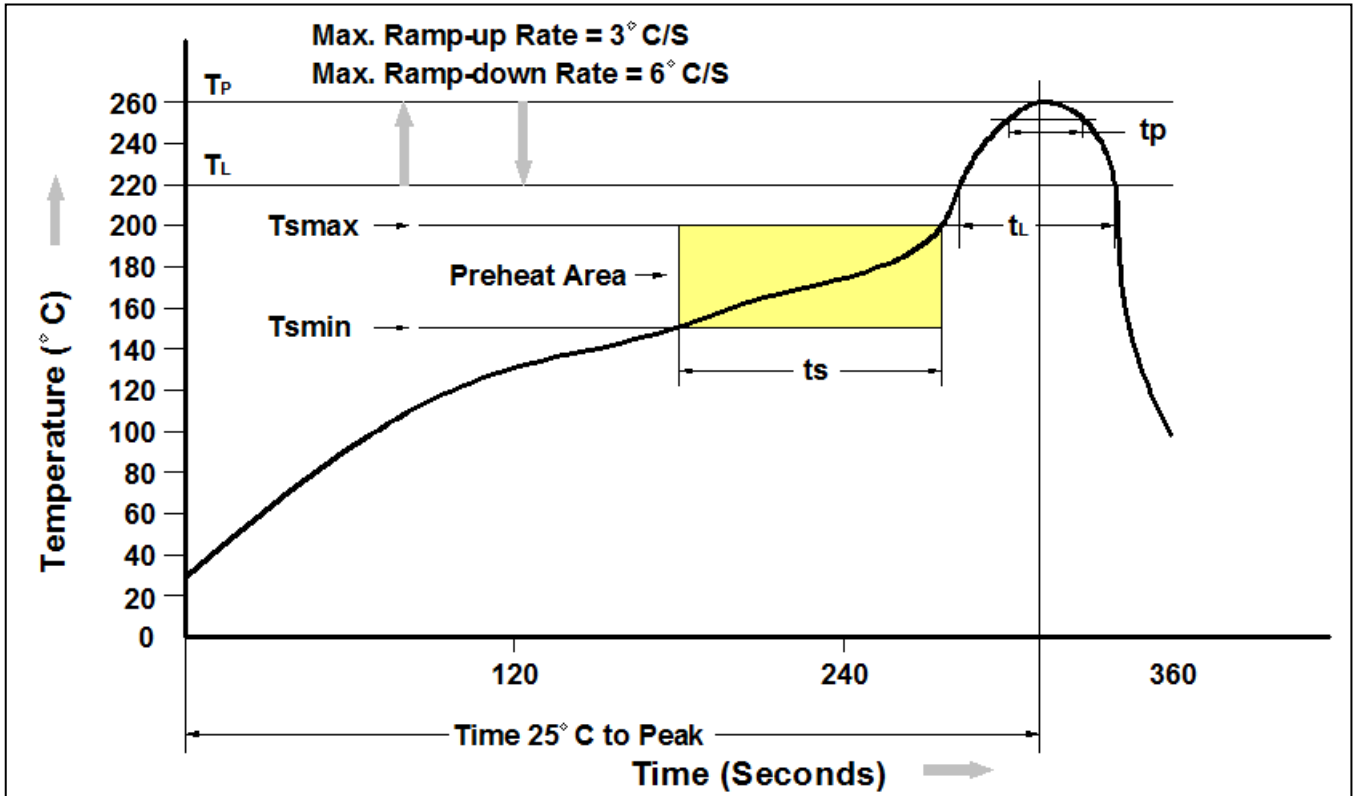


Option T2





Reflow Profile



Profile Feature	Pb-Free Assembly Profile
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.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t _P) within 5°C of 260°C	30 seconds
Ramp-down Rate (T _P to T _L)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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