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

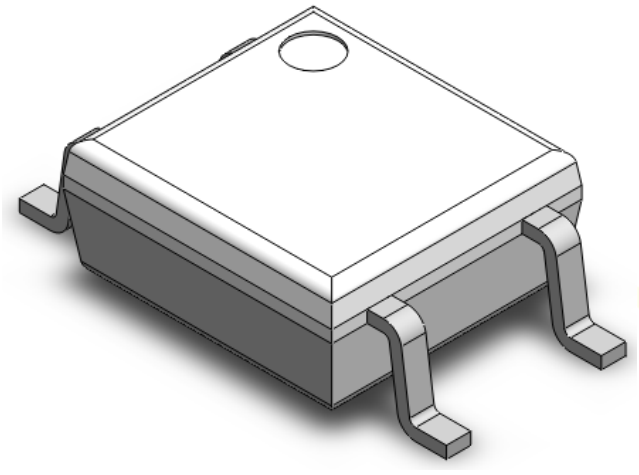
Description

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.

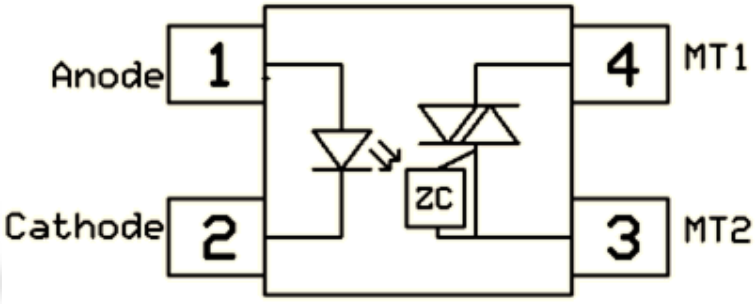
Applications

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

Package Outline



Schematic



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	

Electrical Characteristics T_A = 25°C (unless otherwise specified)

Emitter Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V_F	Forward voltage	I_F=10mA	-	-	1.5	V	
I_R	Reverse Current	V_R = 6V	-	-	5	μA	
C_{IN}	Input Capacitance	f= 1MHz	-	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= 0mA, V_{DRM}= Rated V_{DRM}	-	-	500	nA	
I_{DRM2}	Inhibit Leakage Current		I_F= Rated $I_{FT,}$ V_{DRM}= Rated V_{DRM}	-	-	500	μA	
V_{INH}	Inhibit Voltage		I_F= Rated $I_{FT,}$	-	-	20	V	
V_{TM}	Peak On-State Voltage		I_F= Rated I_{FT}, I_{TM}= 100mA	-	-	3	V	
dv/dt	Critical Rate of Rise off-State Voltage	CTM3061,62,63	V_{PEAK}= Rated V_{DRM}	1000	-	-	V/μs	
		CTM3081,82,83		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}= 500V_{DC}	$1x10^{11}$	-	-	Ω	
C_{IO}	Isolation Capacitance		f= 1MHz	-	0.25	-	pF	

Typical Characteristic Curve

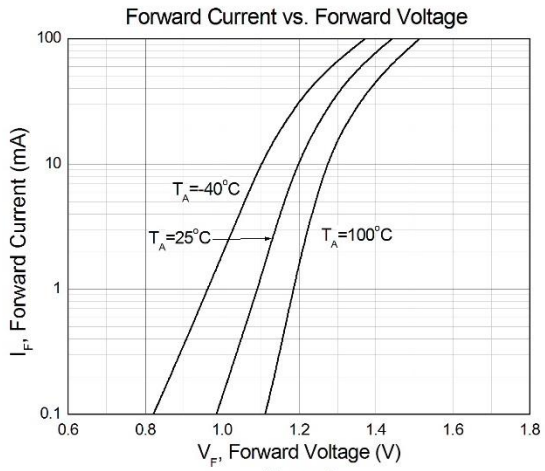


Figure 1

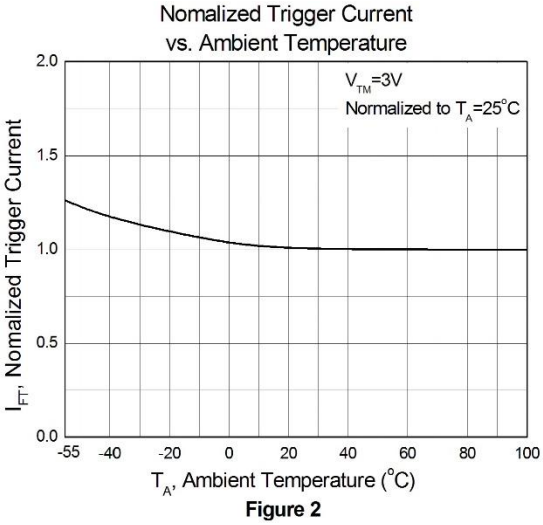


Figure 2

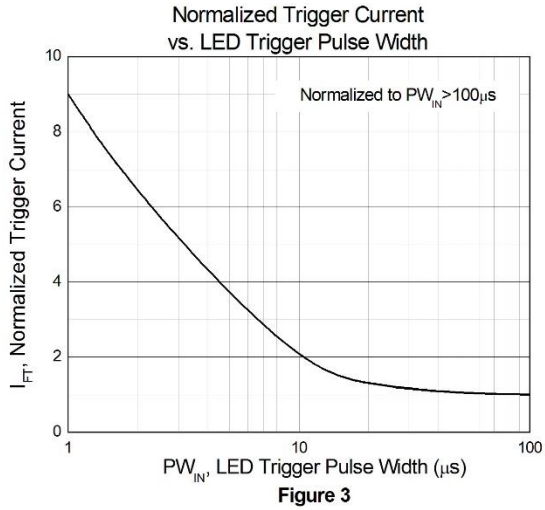


Figure 3

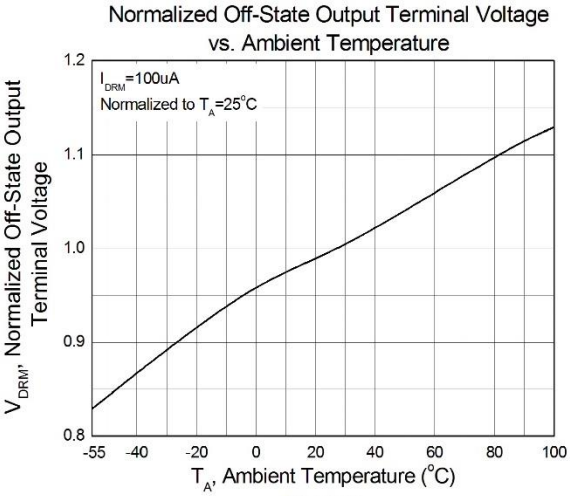


Figure 4

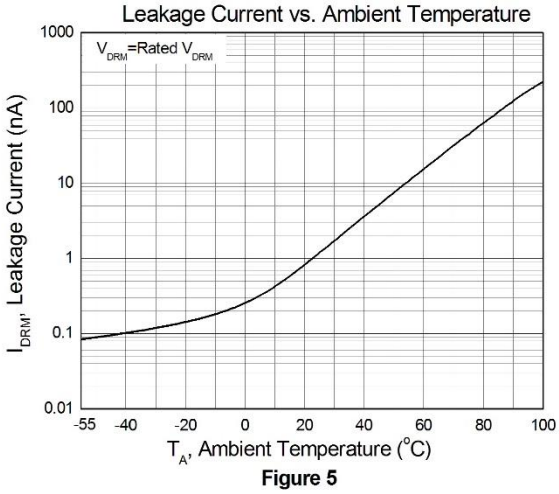


Figure 5

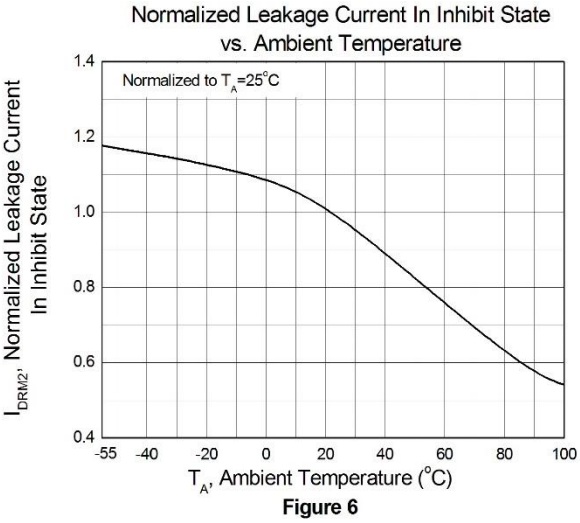


Figure 6

Typical Characteristic Curve

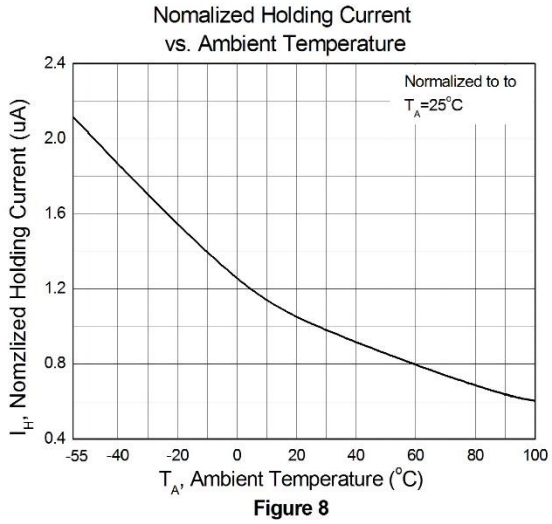


Figure 8

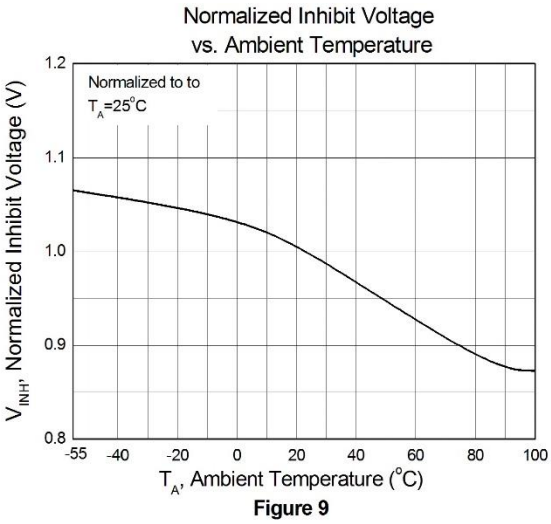


Figure 9

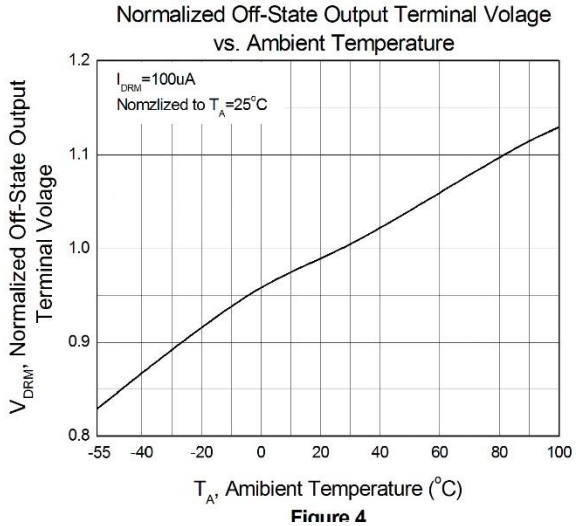


Figure 4

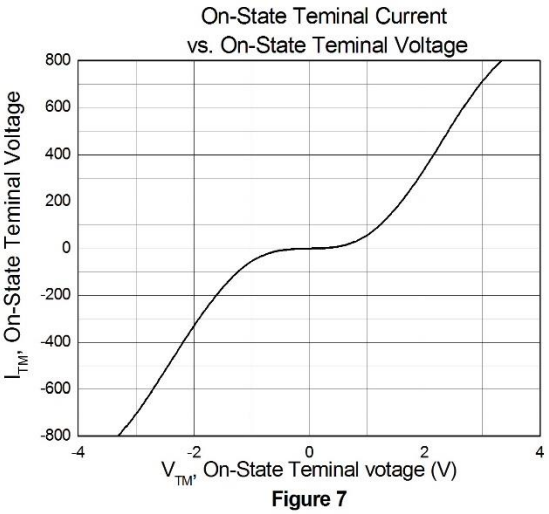
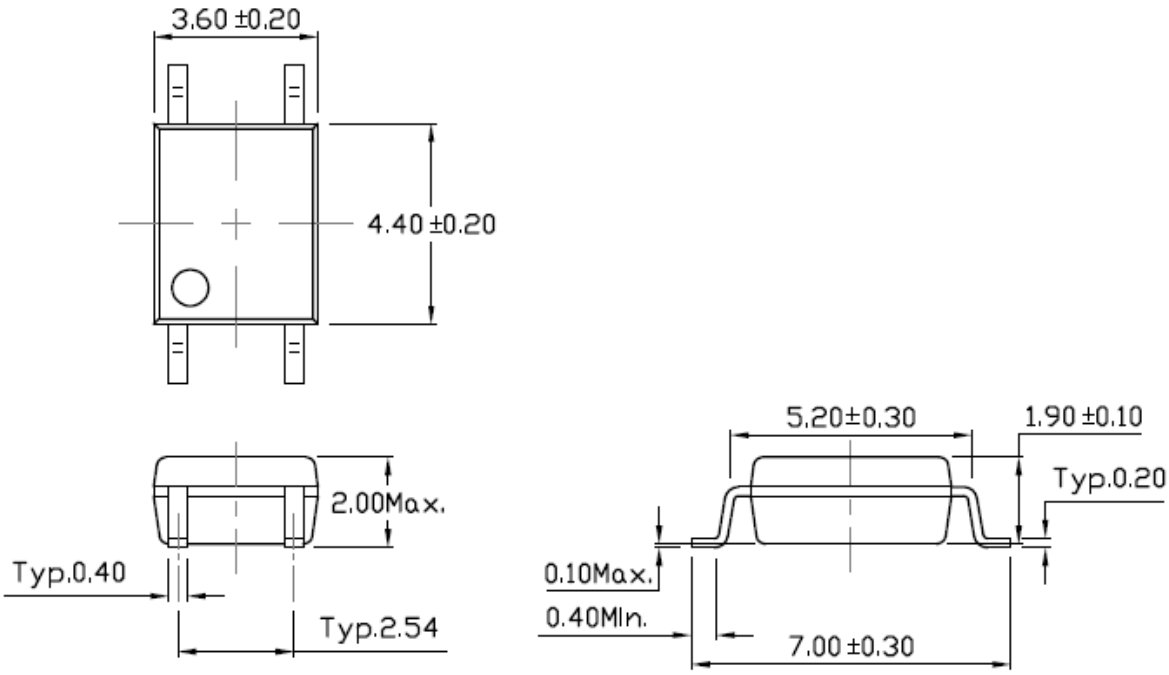
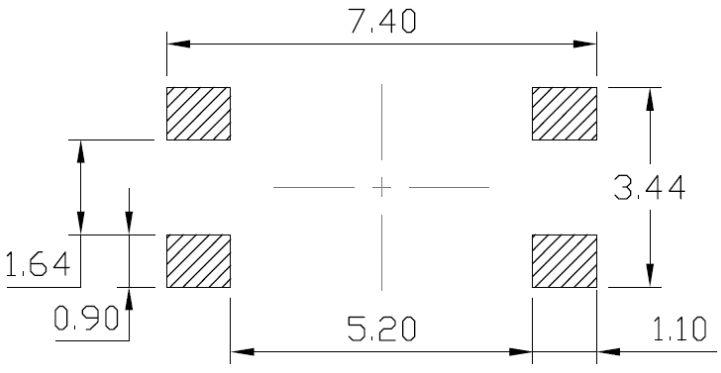


Figure 7

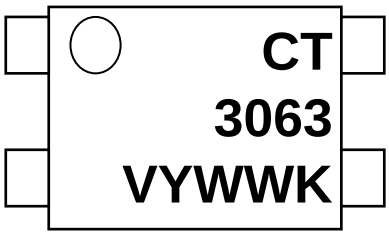
Package Dimension *Dimensions in mm unless otherwise stated*



Recommended Solder Mask *Dimensions in mm unless otherwise stated*



Marking Information



Note:

CT : Denotes “CT Micro”
3063 : Product Number
V : VDE Option
Y : Fiscal Year
WW : Work Week
K : Manufacturing Code

Ordering Information

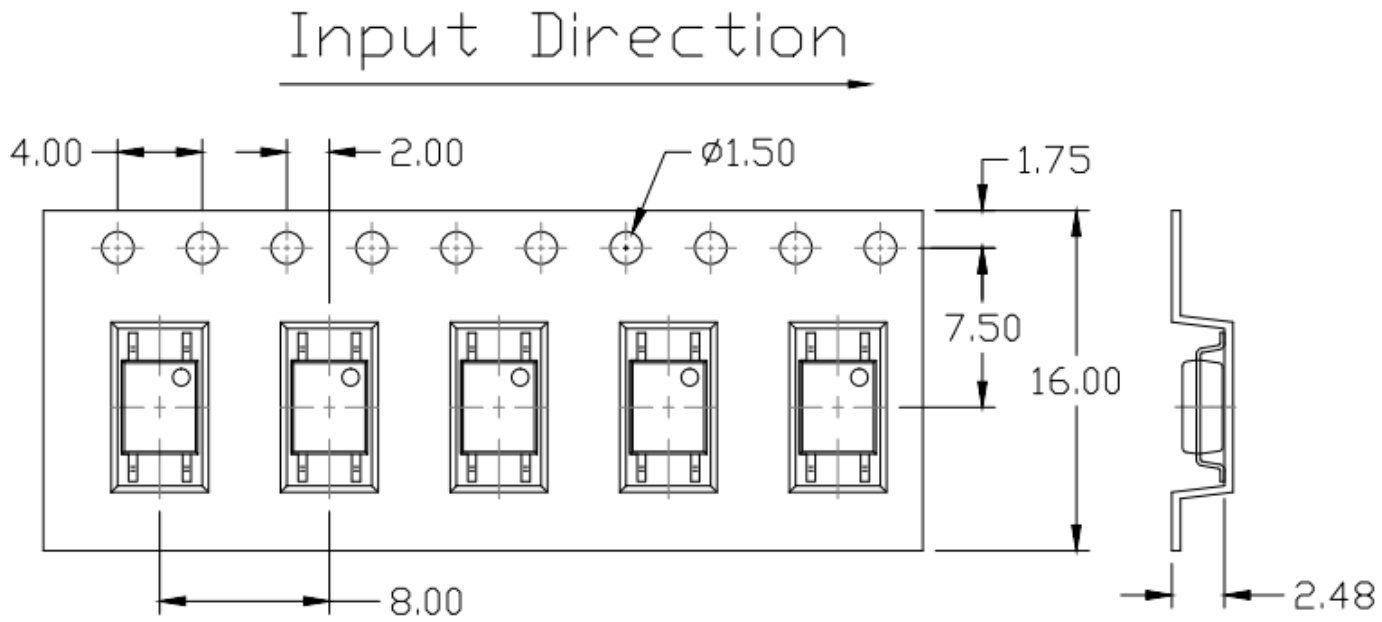
CTM30XX(V)(Z)

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)

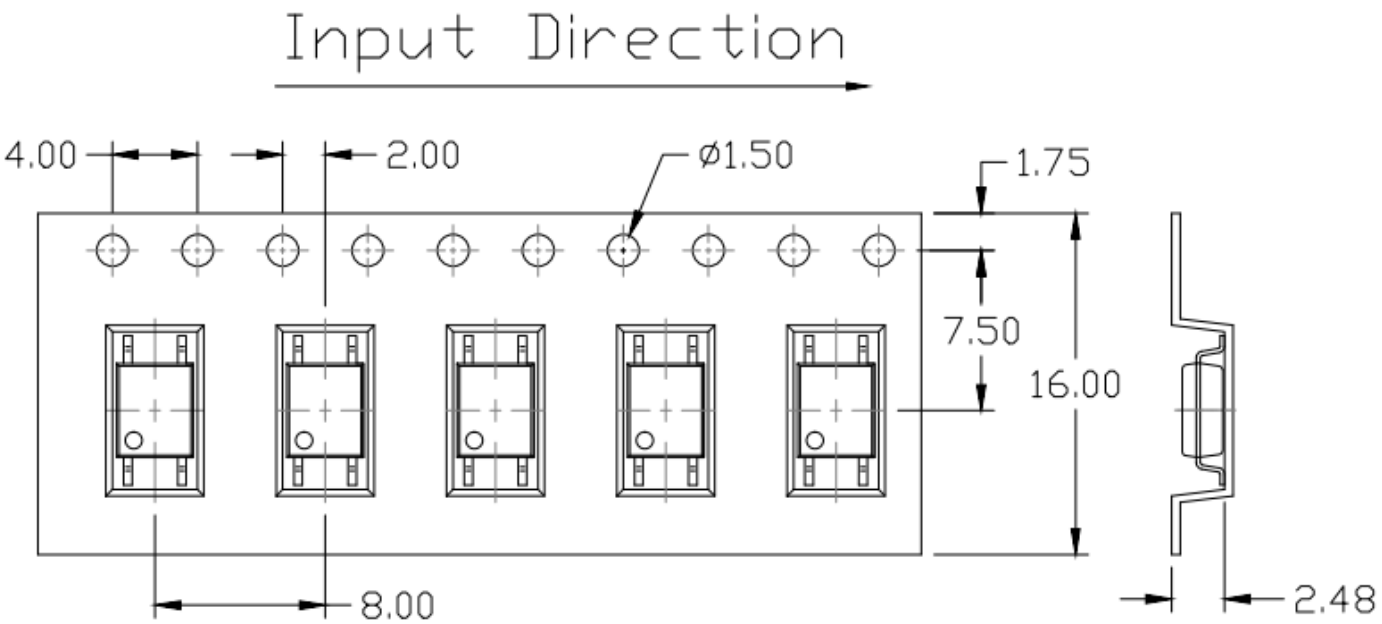
Option	***Description***	***Quantity***
T1	Surface Mount Lead Forming – With Option 1 Taping	3000 Units/Reel
T2	Surface Mount Lead Forming – With Option 2 Taping	3000 Units/Reel

Carrier Tape Specifications *Dimensions in mm unless otherwise stated*

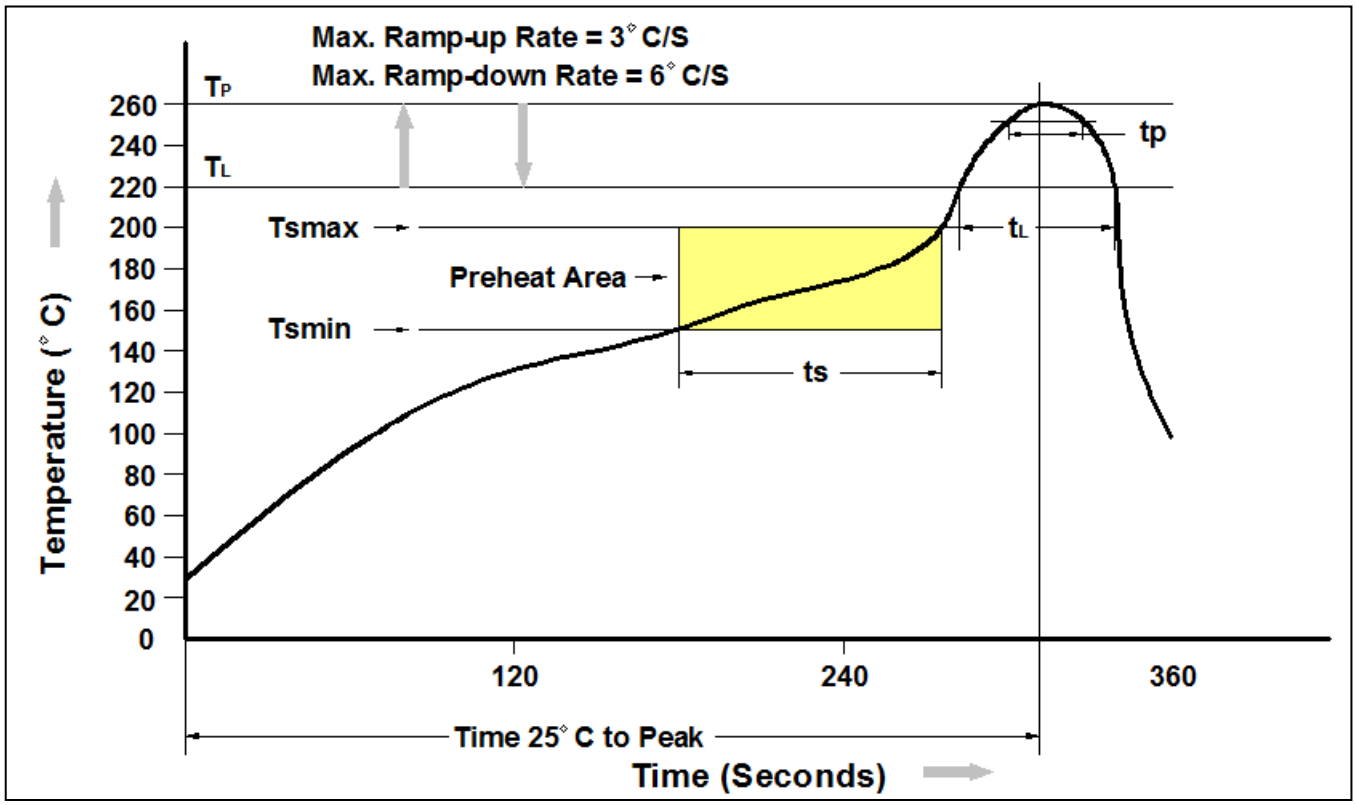
Option T1



Option T2



Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	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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