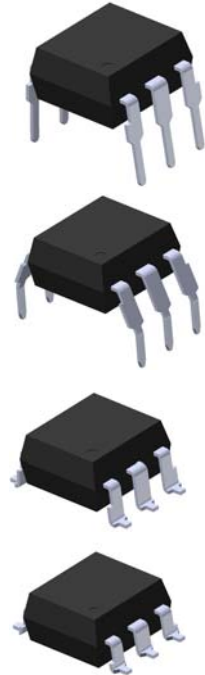


6 PIN DIP ZERO CROSS TRIAC PHOTOCOUPLER

Features:

- Peak breakdown voltage
 - 250V, EL303x
 - 400V, EL304x
 - 600V, EL306x
 - 800V, EL308x
- High isolation voltage between input and output (Viso=5000 V rms)
- Zero voltage crossing
- Pb free and RoHS compliant.
- UL approved (No. E214129)
- VDE approval (pending)
- SEMKO approval (pending)
- NEMKO approval (pending)
- DEMKO approval (pending)
- FIMKO approval (pending)
- CSA approval (pending)



Description

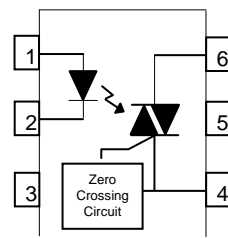
The EL303x, EL304x, EL306x and EL308x series devices consist of a GaAs infrared emitting diode optically coupled to a monolithic silicon a zero voltage crossing photo triac.

They are designed for use with a discrete power triac in the interface of logic systems to equipment powered from 110 to 240 VAC lines, such as solid-state relays, industrial controls, motors, solenoids and consumer appliances, etc.

Applications

- Solenoid/valve controls
- Light controls
- Static power switch
- AC motor drivers
- E.M. contactors
- Temperature controls
- AC Motor starters
- Solid state relays

Schematic



Pin Configuration

1. Anode
2. Cathode
3. No Connection
4. Terminal
5. No Connection
6. Terminal



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EL303x Series
EL304x Series
EL306x Series
EL308x Series

6 PIN DIP ZERO CROSS TRIAC PHOTOCOUPLER

Absolute Maximum Ratings (T_a=25°C)

| Parameter | | Symbol | Rating | Unit | |
|-------------------------------------|-----------------------------------|------------------|----------|-------|---|
| Input | Forward current | I _F | 60 | mA | |
| | Reverse voltage | V _R | 6 | V | |
| | Power dissipation | P _D | 100 | mW | |
| Output | Off-state Output Terminal Voltage | V _{DRM} | EL303x | 250 | V |
| | | | EL304x | 400 | |
| | | | EL306x | 600 | |
| | | | EL308x | 800 | |
| | Peak Repetitive Surge Current | I _{TSM} | 1 | A | |
| Power dissipation | | P _D | 300 | mW | |
| Isolation voltage ^{*1} | | V _{iso} | 5000 | V rms | |
| Total power dissipation | | P _D | 330 | mW | |
| Operating temperature | | T _{opr} | -55~+100 | °C | |
| Storage temperature | | T _{stg} | -55~+125 | °C | |
| Soldering temperature ^{*2} | | T _{sol} | 260 | °C | |

Notes

*1 AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 & 3 are shorted together, and pins 4, 5 & 6 are shorted together.

*2 For 10 seconds.

6 PIN DIP ZERO CROSS TRIAC PHOTOCOUPLER

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

Input

| Parameter | Symbol | Min. | Typ.* | Max. | Unit | Condition |
|-------------------------|----------------|------|-------|------|------|-----------------------|
| Forward voltage | V _F | - | 1.27 | 1.5 | V | I _F = 30mA |
| Reverse Leakage current | I _R | - | - | 10 | μA | V _R = 6V |

Output

| Parameter | Symbol | Min. | Typ.* | Max. | Unit | Condition |
|---|-------------------|------|-------|------|------|--|
| Peak Blocking Current | EL303x/304x | - | - | 100 | nA | V _{DRM} = Rated V _{DRM} I _F = 0mA |
| | EL306x/308x | | | 500 | | |
| Peak On-state Voltage | V _{TM} | - | - | 3 | V | I _{TM} =100mA peak, I _F =Rated I _{FT} |
| Critical Rate of Rise off-state Voltage | dv/dt | 600 | - | - | V/μs | Fig. |
| Inhibit Voltage (Thermal voltage above which device will not trigger) | V _{INH} | - | - | 20 | V | I _F = Rated I _{FT} |
| Leakage in Inhibited State | I _{DRM2} | - | - | 500 | μA | I _F = Rated I _{FT} , V _{DRM} =Rated V _{DRM} , off state |

Transfer Characteristics

| Parameter | Symbol | Min. | Typ.* | Max. | Unit | Condition | | | | |
|---------------------|--------------------------------------|------|-------|----------------|------|--------------------------|---|-----|---|----|
| LED Trigger Current | EL3031 EL3041 EL3061 EL3081 | - | - | 15 | mA | Main terminal Voltage=3V | | | | |
| | EL3032 EL3042 EL3062 EL3082 | | | 10 | | | | | | |
| | EL3033 EL3043 EL3063 EL3083 | | | 5 | | | | | | |
| | Holding Current | | | I _H | | | - | 250 | - | μA |

* Typical values at T_a = 25°C

**6 PIN DIP ZERO CROSS TRIAC
PHOTOCOUPLER**

Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

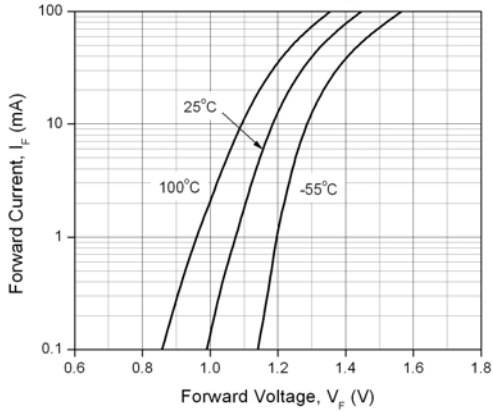


Figure 2. On-State Characteristics

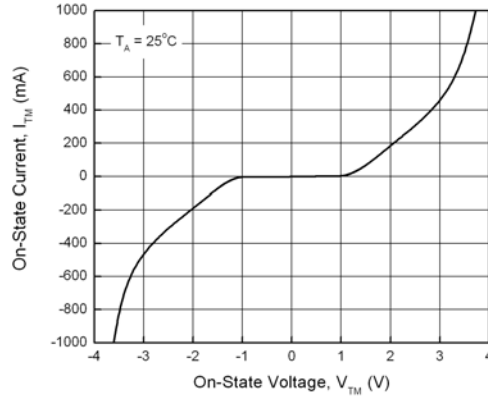


Figure 3. Holding Current vs. Ambient Temperature

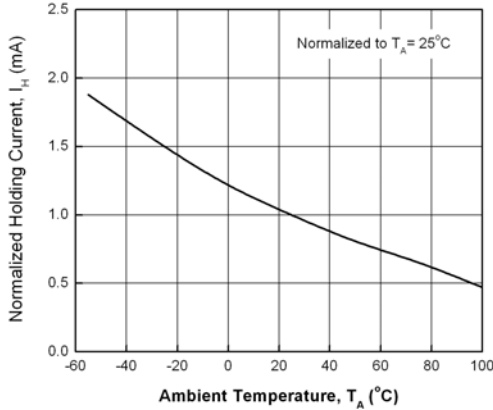


Figure 4. LED Current Required to Trigger vs. LED Pulse Width

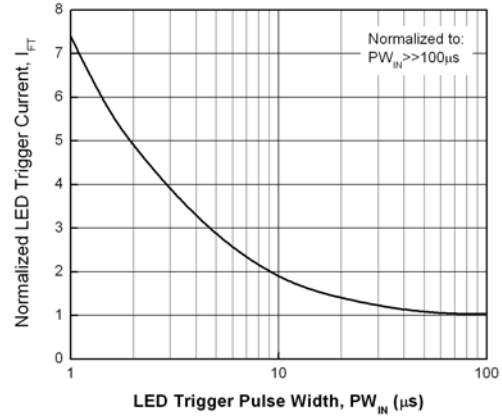


Figure 5. Leakage Current vs. Ambient Temperature

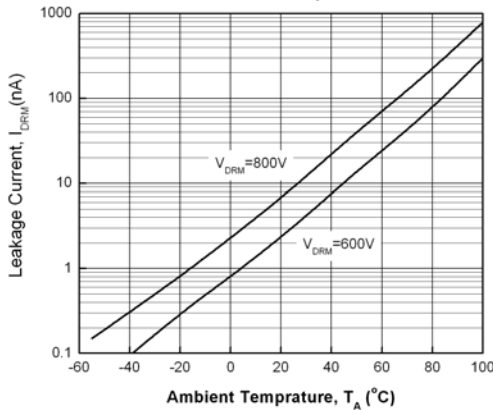
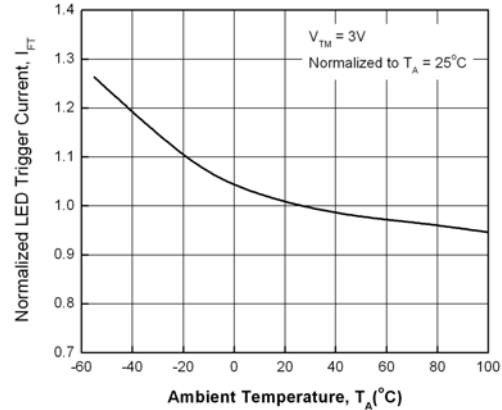


Figure 6. LED Trigger Current vs. Ambient Temperature



**6 PIN DIP ZERO CROSS TRIAC
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**EL303x Series
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EL308x Series**

Figure 7. Off-State Output Terminal Voltage vs. Ambient Temperature

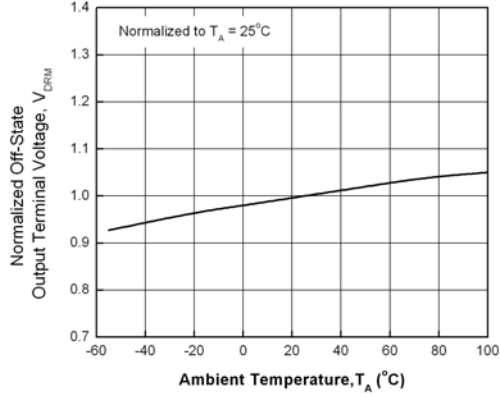


Figure 8. Leakage in Inhibit State vs. Ambient Temperature

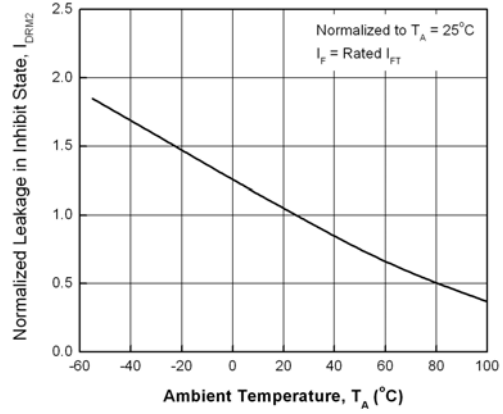
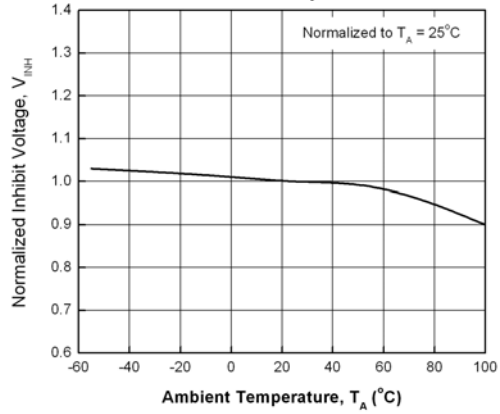


Figure 9. Inhibit Voltage vs. Ambient Temperature





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6 PIN DIP ZERO CROSS TRIAC PHOTOCOUPLER

Order Information

Part Number

EL303XY(Z)-V
or **EL304XY(Z)-V**
or **EL306XY(Z)-V**
or **EL308XY(Z)-V**

Note

X = Part No. (1 for $I_{FT}=15mA$, 2 for $I_{FT}=10mA$, 3 for $I_{FT}=5mA$)

Y = Lead form option (S, S1, M or none)

Z = Tape and reel option (TA, TB or none).

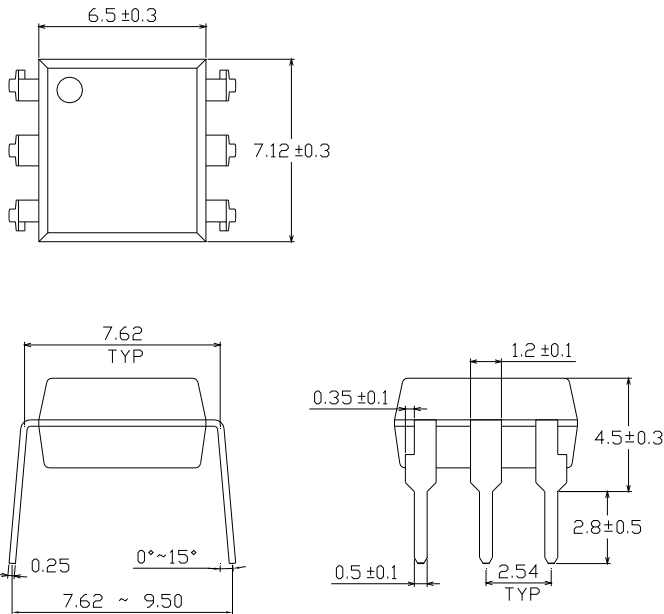
V = VDE safety approved option

| Option | Description | Packing quantity |
|---------|---|---------------------|
| None | Standard DIP-6 | 65 units per tube |
| M | Wide lead bend (0.4 inch spacing) | 65 units per tube |
| S (TA) | Surface mount lead form + TA tape & reel option | 1000 units per reel |
| S (TB) | Surface mount lead form + TB tape & reel option | 1000 units per reel |
| S1 (TA) | Surface mount lead form (low profile) + TA tape & reel option | 1000 units per reel |
| S1 (TB) | Surface mount lead form (low profile) + TB tape & reel option | 1000 units per reel |

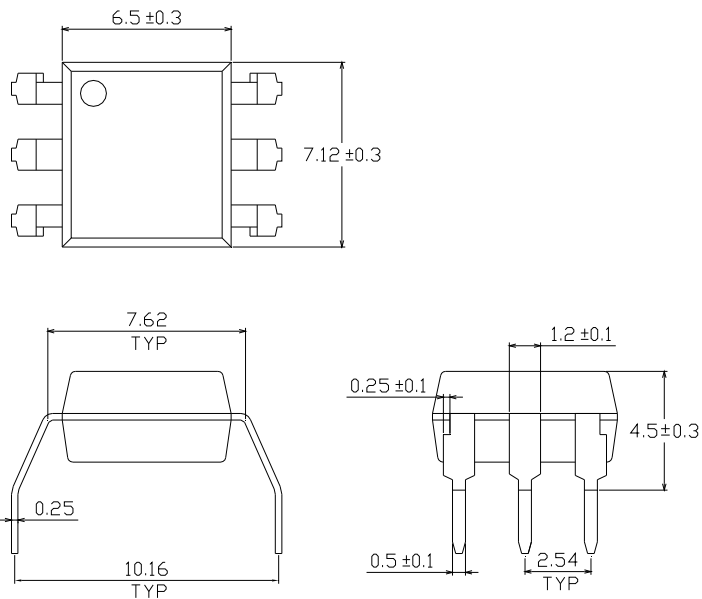
**6 PIN DIP ZERO CROSS TRIAC
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Package Drawings
(Dimensions in mm)

Standard DIP Type

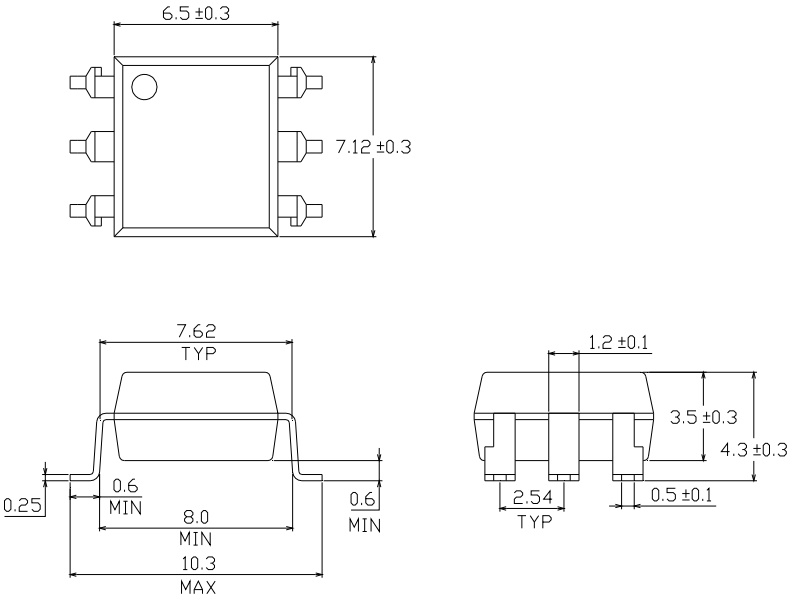


Option M Type

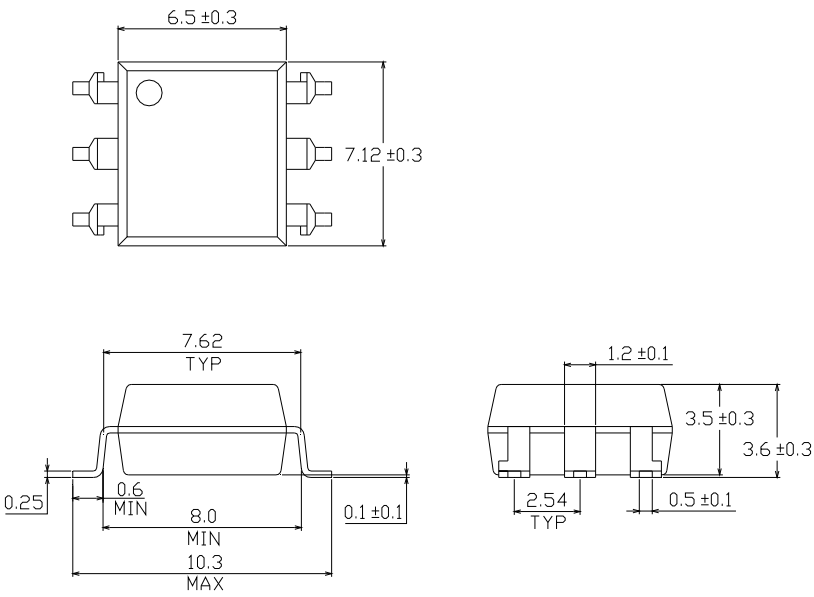


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Option S Type

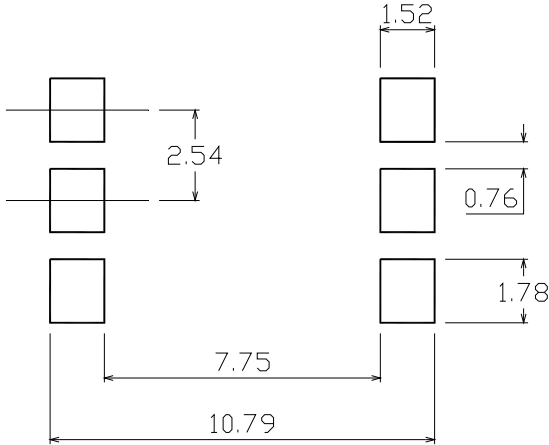


Option S1 Type

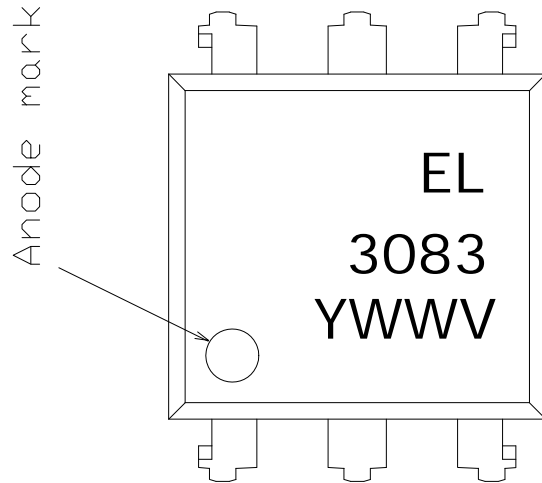


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Recommended pad layout for surface mount leadform



Device Marking



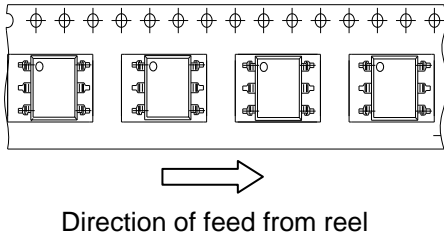
Notes

- EL denotes Everlight
- 3083 denotes Device Number
- Y denotes 1 digit Year code
- WW denotes 2 digit Week code
- V denotes VDE (optional)

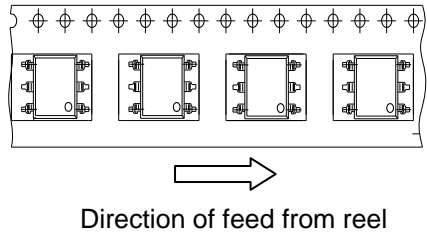
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Tape & Reel Packing Specifications

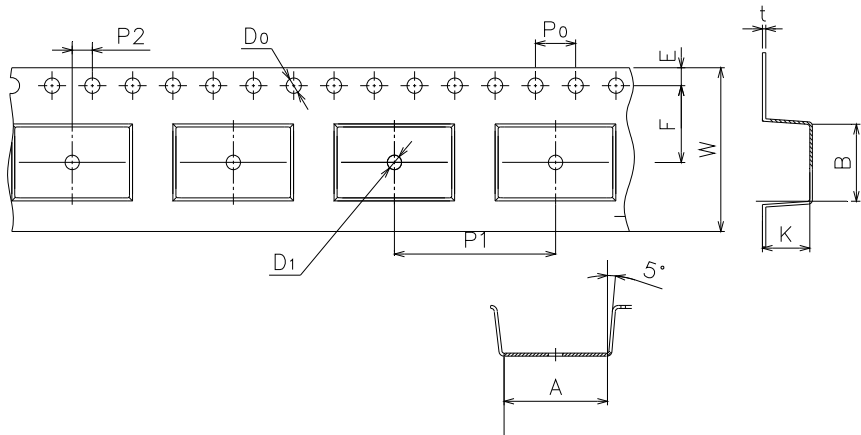
Option TA



Option TB



Tape dimensions

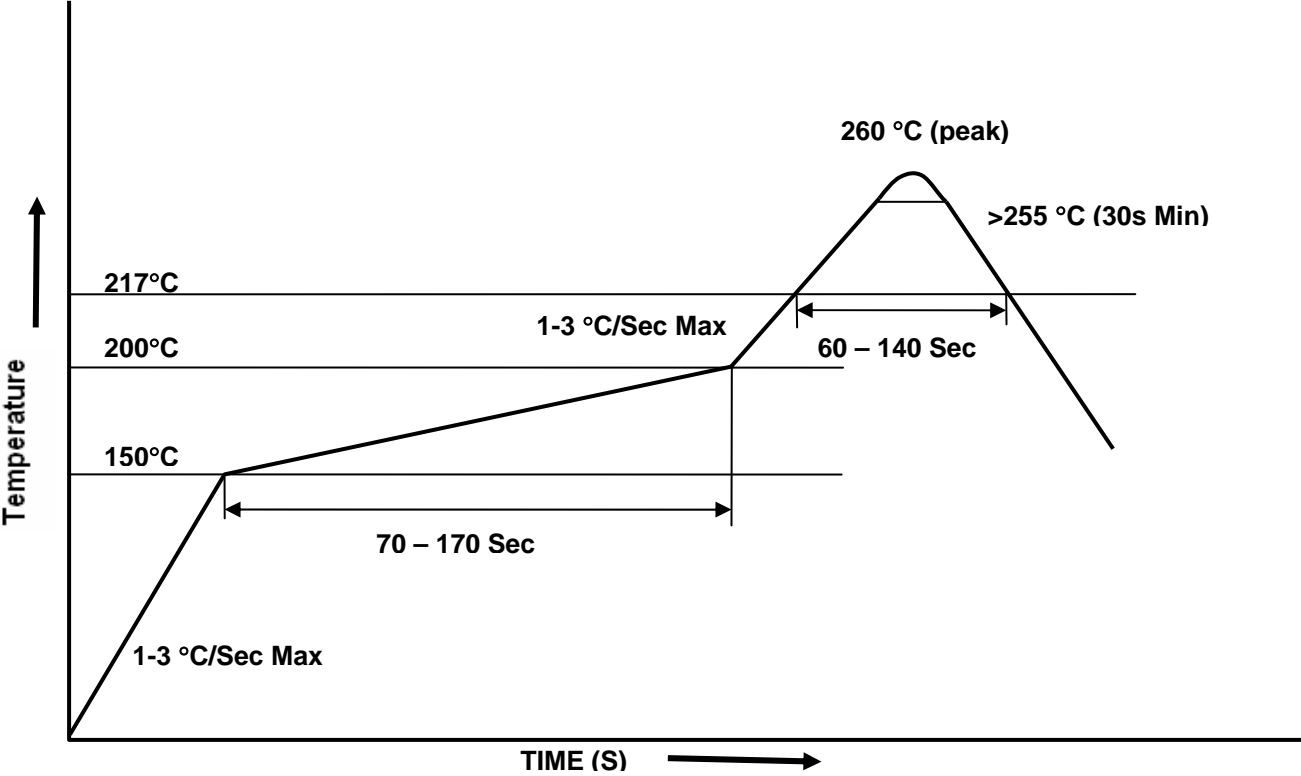


| Dimension No. | A | B | D0 | D1 | E | F |
|----------------|----------|----------|---------|------------|----------|---------|
| Dimension (mm) | 10.4±0.1 | 7.52±0.1 | 1.5±0.1 | 1.5+0.1/-0 | 1.75±0.1 | 7.5±0.1 |

| Dimension No. | P0 | P1 | P2 | t | W | K |
|----------------|----------|---------|---------|-----------|----------|---------|
| Dimension (mm) | 4.0±0.15 | 1.6±0.1 | 2.0±0.1 | 0.35±0.03 | 16.0±0.2 | 4.5±0.1 |

**6 PIN DIP ZERO CROSS TRIAC
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Solder Reflow Temperature Profile





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