



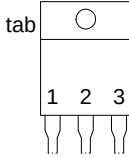
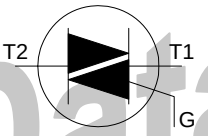
# HST08

TRIAC 600V,8A

## Description

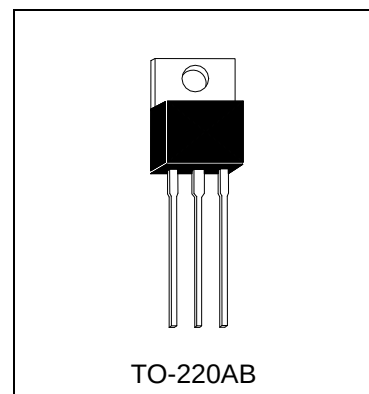
Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

## Pin Configuration

| Pin | Description     |  |  |
|-----|-----------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1   | Main terminal 1 |                                                                                   |                                                                                     |
| 2   | Main terminal 2 |                                                                                   |                                                                                     |
| 3   | Gate            |                                                                                   |                                                                                     |
| tab | Main terminal 2 |                                                                                   |                                                                                     |

## Limiting Values

| Symbol       | Parameter                                                                                       | Min. | Max. | Units            |
|--------------|-------------------------------------------------------------------------------------------------|------|------|------------------|
| $V_{DRM}$    | Repetitive peak off-state voltages                                                              | -    | 600  | V                |
| $I_{T(RMS)}$ | RMS on-state current                                                                            | -    | 8    | A                |
| $I_{TSM}$    | Non-repetitive peak on-state current(F=50Hz, tp=20ms)                                           | -    | 80   | A                |
| $I^2t$       | $I^2t$ for fusing (IT=10ms)                                                                     | -    | 36   | A <sup>2</sup> S |
| $dI_T/dt$    | Repetitive rate of rise of on-state current after triggering<br>(F=50Hz, IG=50mA, dIg/dt=0.1us) | -    | 50   | A/us             |
| $I_{GM}$     | Peak gate current(tp=20us, Tj=125°C)                                                            | -    | 4    | A                |
| $P_{GM}$     | Peak gate power(tp=20us, Tj=125°C)                                                              | -    | 10   | W                |
| $P_{G(AV)}$  | Average gate power (Tj=125°C)                                                                   | -    | 1    | W                |
| Tstg         | Storage Temperature Range                                                                       | -40  | 150  | °C               |
| Tj           | Operating junction temperature                                                                  | -40  | 125  | °C               |



TO-220AB



### Electrical Characteristics (Ta=25°C, unless otherwise stated,)

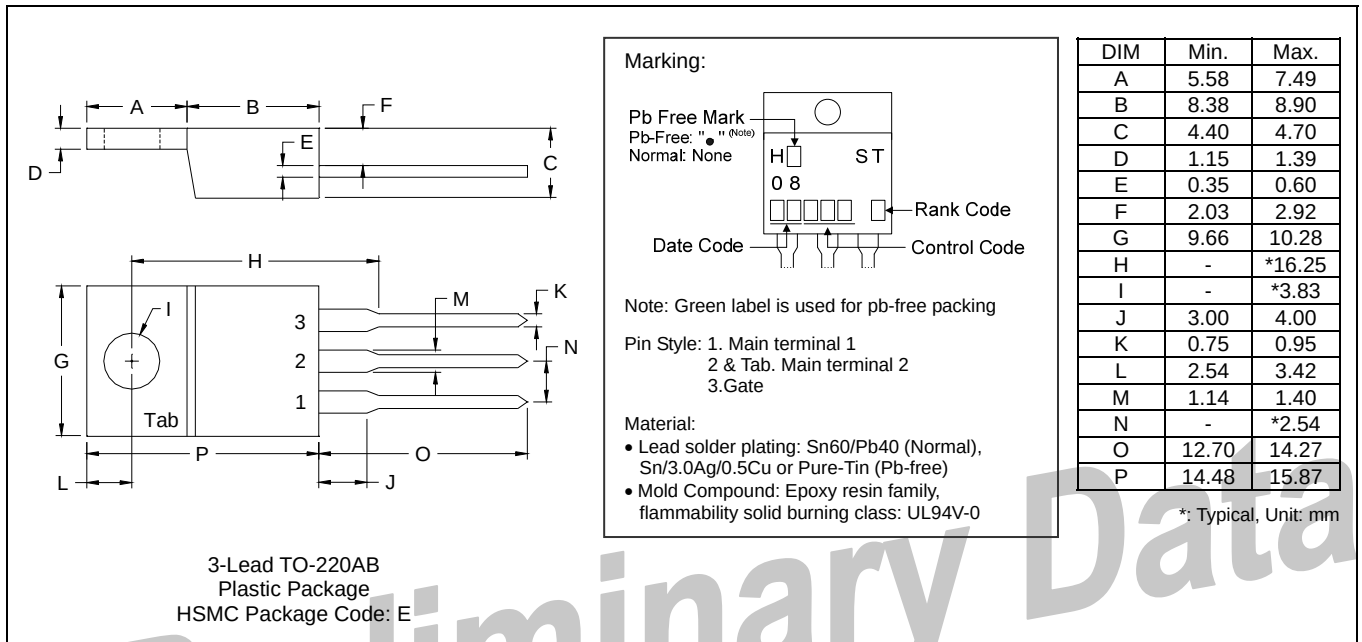
| Symbol              | Parameter                                                                                                                       | Quadrant     | Rank min |     | Rank max |     | Unit |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------|----------|-----|----------|-----|------|
|                     |                                                                                                                                 |              | C        | B   | C        | B   |      |
| I <sub>GT</sub>     | Gate Trigger Current (V <sub>D</sub> =12V)                                                                                      | I - II - III |          |     | 25       | 50  | mA   |
|                     |                                                                                                                                 | IV           |          |     | 50       | 100 | mA   |
| I <sub>L</sub>      | Latching Current (I <sub>T</sub> =1.2 I <sub>GT</sub> , T <sub>j</sub> =25°C)                                                   | I - III- IV  |          |     | 40       | 50  | mA   |
|                     |                                                                                                                                 | II           |          |     | 80       | 100 | mA   |
| I <sub>H</sub>      | Holding Current(I <sub>T</sub> =0.1A,)                                                                                          | ALL          |          |     | 25       | 50  | mA   |
| V <sub>TM</sub>     | On-state Voltage (I <sub>T</sub> =8.5A,)                                                                                        |              |          |     | 1.55     |     | V    |
| V <sub>GT</sub>     | Gate Trigger Voltage (V <sub>D</sub> =12V, T <sub>j</sub> =25°C)                                                                |              |          |     | 1.5      |     | V    |
| I <sub>D</sub>      | Off-state Leakage Current T <sub>C</sub> =25°C (V <sub>D</sub> = V <sub>DRM</sub> (max)) T <sub>C</sub> =125°C                  |              |          |     | 10       |     | uA   |
|                     |                                                                                                                                 |              |          |     | 1        |     | mA   |
| dV <sub>D</sub> /dt | Critical rate of rise of off-state voltage V <sub>DM</sub> =400VT <sub>j</sub> = 125°C; exponential waveform; gate open circuit |              | 200      | 400 |          |     | V/us |

### Thermal Resistances

| Symbol  | Parameter                                    | Min. | Typ | Max. | Unit |
|---------|----------------------------------------------|------|-----|------|------|
| Rth j-c | Thermal resistance junction to mounting base |      | 1.6 |      | °C/W |



### TO-220AB Dimension



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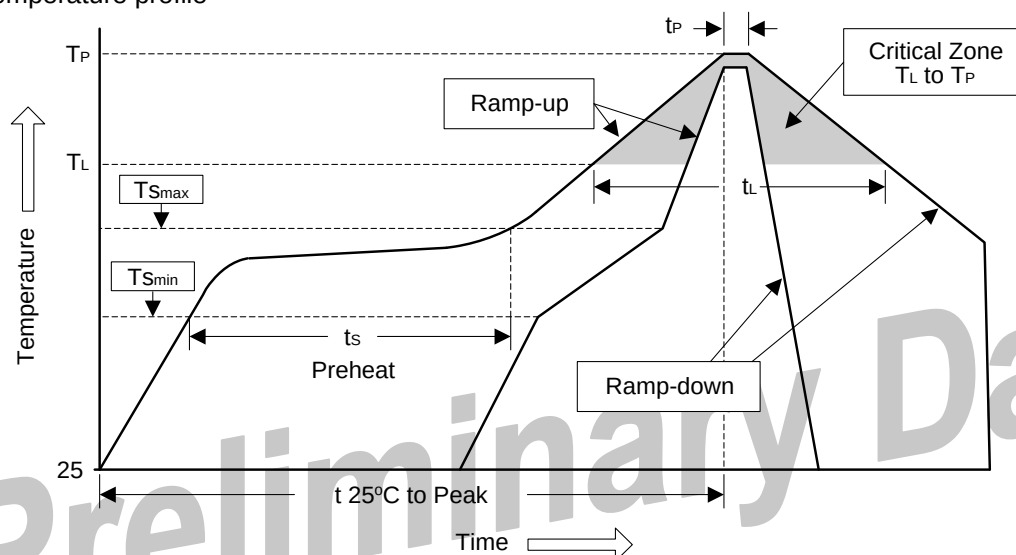
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## Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%
2. Reflow soldering of surface-mount devices

Figure 1: Temperature profile



| Profile Feature                                      | Sn-Pb Eutectic Assembly         | Pb-Free Assembly                |
|------------------------------------------------------|---------------------------------|---------------------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )              | $<3^{\circ}\text{C}/\text{sec}$ | $<3^{\circ}\text{C}/\text{sec}$ |
| Preheat                                              |                                 |                                 |
| - Temperature Min ( $T_{Smin}$ )                     | 100°C                           | 150°C                           |
| - Temperature Max ( $T_{Smax}$ )                     | 150°C                           | 200°C                           |
| - Time (min to max) ( $t_s$ )                        | 60~120 sec                      | 60~180 sec                      |
| $T_{Smax}$ to $T_L$                                  |                                 |                                 |
| - Ramp-up Rate                                       | $<3^{\circ}\text{C}/\text{sec}$ | $<3^{\circ}\text{C}/\text{sec}$ |
| Time maintained above:                               |                                 |                                 |
| - Temperature ( $T_L$ )                              | 183°C                           | 217°C                           |
| - Time ( $t_L$ )                                     | 60~150 sec                      | 60~150 sec                      |
| Peak Temperature ( $T_P$ )                           | 240°C +0/-5°C                   | 260°C +0/-5°C                   |
| Time within 5°C of actual Peak Temperature ( $t_P$ ) | 10~30 sec                       | 20~40 sec                       |
| Ramp-down Rate                                       | $<6^{\circ}\text{C}/\text{sec}$ | $<6^{\circ}\text{C}/\text{sec}$ |
| Time 25°C to Peak Temperature                        | <6 minutes                      | <8 minutes                      |

3. Flow (wave) soldering (solder dipping)

| Products         | Peak temperature | Dipping time |
|------------------|------------------|--------------|
| Pb devices.      | 245°C ±5°C       | 5sec ±1sec   |
| Pb-Free devices. | 260°C +0/-5°C    | 5sec ±1sec   |