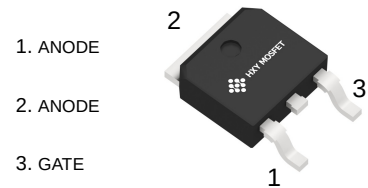




## General Description

Glass passivated triacs in a plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance.

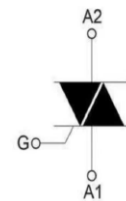
Typical applications include motor control, industrial and domestic lighting , heating and static switching.



TO-252-2L

## Package Marking and Ordering Information

| Product ID  | Pack      | Packing Method | Qty(PCS) |
|-------------|-----------|----------------|----------|
| BT137S-800E | TO-252-2L | Tape and Reel  | 2500     |



## Maximum Ratings (Ta=25°C unless otherwise noted)

| Symbol                | Parameter                                    | Conditions                                      | Value     | Unit       |
|-----------------------|----------------------------------------------|-------------------------------------------------|-----------|------------|
| $V_{DRM}$ / $V_{RRM}$ | repetitive peak off-state voltage            |                                                 | 800       | V          |
| $I_{T(RMS)}$          | RMS on-state current                         |                                                 | 8         | A          |
| $I_{TSM}$             | Non repetitive surge peak on-state current   | $t = 20ms$ $T_j = 25^\circ C$                   | 60        | A          |
|                       |                                              | $t = 16.7ms$ $T_j = 25^\circ C$                 | 50        |            |
| $I^2 t$               | $I^2 t$ for fusing                           | $t = 10 ms$                                     | 2         | $A^2 s$    |
| $di/dt$               | Critical-rate of rise of commutation current | $I_G = 2I_{GT}$ $t_r \leq 100ns$<br>$F = 120Hz$ | 50<br>10  | A/us       |
| $I_{GM}$              | Peak Gate Current                            | $T_j = 125^\circ C$ $t_p = 20\mu s$             | 0.6       | A          |
| $V_{GM}$              | Peak gate voltage                            | $T_j = 125^\circ C$                             | 1         | V          |
| $P_{GM}$              | Peak gate power                              | $T_j = 125^\circ C$                             | 1         | W          |
| $P_{G(AV)}$           | Average Gate Power Dissipation               | $T_j = 125^\circ C$                             | 0.5       | W          |
| $T_j$                 | Junction Temperature                         | -                                               | -40 ~ 125 | $^\circ C$ |
| $T_{stg}$             | Storage Temperature                          | -                                               | -40 ~ 150 | $^\circ C$ |



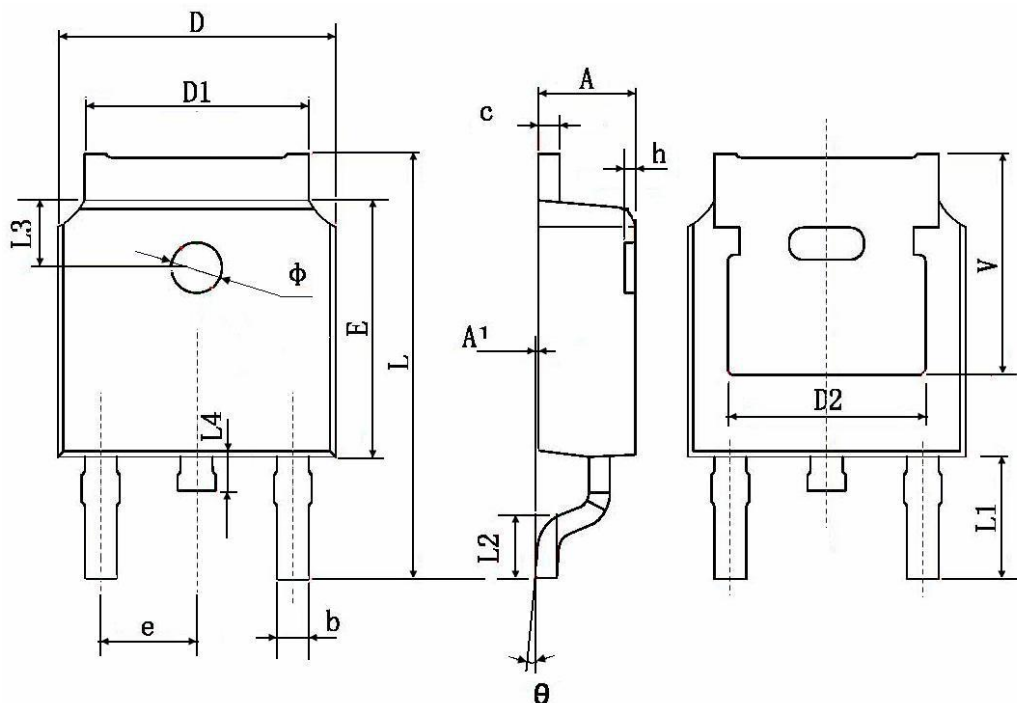
### Electrical Characteristics (Ta=25°C unless otherwise specified)

| Parameter                                                            |     | Symbol                              | Test conditions                                                                                                 |                                             | Min | Typ | Max  | Unit |
|----------------------------------------------------------------------|-----|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----|-----|------|------|
| Repetitive Peak Off-State Current<br>Repetitive Peak Reverse Current |     | I <sub>DRM</sub> , I <sub>RRM</sub> | V <sub>DRM</sub> =V <sub>RRM</sub> T <sub>j</sub> =25 °C                                                        |                                             |     |     | 5    | μA   |
|                                                                      |     |                                     | V <sub>DRM</sub> =V <sub>RRM</sub> T <sub>j</sub> =125 °C                                                       |                                             |     |     | 1    | mA   |
| Gate non-trigger voltage                                             |     | V <sub>GD</sub>                     | V <sub>D</sub> = 1/2V <sub>DRM</sub>                                                                            |                                             | 0.2 |     |      | V    |
| On-state voltage                                                     |     | V <sub>TM</sub>                     | I <sub>T</sub> = 6A, t <sub>p</sub> =380us                                                                      |                                             |     |     | 1.65 | V    |
| Gate trigger current                                                 | I   | I <sub>GT</sub>                     | T <sub>2</sub> (+), G(+)                                                                                        | V <sub>D</sub> =12V<br>R <sub>L</sub> =100Ω |     |     | 5    | mA   |
|                                                                      | II  |                                     | T <sub>2</sub> (+), G(-)                                                                                        |                                             |     |     | 10   |      |
|                                                                      | III |                                     | T <sub>2</sub> (-), G(-)                                                                                        |                                             |     |     | 5    |      |
|                                                                      | IV  |                                     | T <sub>2</sub> (-), G(+)                                                                                        |                                             |     |     | 20   |      |
| Gate trigger voltage                                                 | I   | V <sub>GT</sub>                     | T <sub>2</sub> (+), G(+)                                                                                        | V <sub>D</sub> =12V<br>R <sub>L</sub> =100Ω |     | 0.8 | 2    | V    |
|                                                                      | II  |                                     | T <sub>2</sub> (+), G(-)                                                                                        |                                             |     | 0.8 | 2    |      |
|                                                                      | III |                                     | T <sub>2</sub> (-), G(-)                                                                                        |                                             |     | 0.8 | 2    |      |
|                                                                      | IV  |                                     | T <sub>2</sub> (-), G(+)                                                                                        |                                             |     | 0.8 | 2.5  |      |
| Holding current                                                      |     | I <sub>H</sub>                      | V <sub>D</sub> =12V , I <sub>GT</sub> =100mA                                                                    |                                             |     |     | 30   | mA   |
| Critical-rate of rise of commutation voltage                         |     | dV/dt                               | V <sub>DM</sub> =67%V <sub>DRM</sub><br>Gate open T <sub>j</sub> =125 °C                                        |                                             |     |     | 50   | V/us |
| Rate of change of commutating voltage                                |     | (dI/dt) <sub>c</sub>                | V <sub>DM</sub> =400V T <sub>j</sub> =125 °C<br>(dI/dt) <sub>c</sub> =5.4A/ms Gate open                         |                                             |     |     | 20   | V/us |
| Turn-on time                                                         |     | t <sub>gt</sub>                     | I <sub>TM</sub> =16A , V <sub>DM</sub> =V <sub>DRM(MAX)</sub><br>I <sub>G</sub> =0.1A, dI <sub>G</sub> dt=5A uS |                                             |     |     | 2    | us   |



## Plastic-Encapsulate Thyristors

## TO-252-2L Package Information



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 2.200                     | 2.400  | 0.087                | 0.094 |
| A1     | 0.000                     | 0.127  | 0.000                | 0.005 |
| b      | 0.660                     | 0.860  | 0.026                | 0.034 |
| c      | 0.460                     | 0.580  | 0.018                | 0.023 |
| D      | 6.500                     | 6.700  | 0.256                | 0.264 |
| D1     | 5.100                     | 5.460  | 0.201                | 0.215 |
| D2     | 0.483 TYP.                |        | 0.190 TYP.           |       |
| E      | 6.000                     | 6.200  | 0.236                | 0.244 |
| e      | 2.186                     | 2.386  | 0.086                | 0.094 |
| L      | 9.800                     | 10.400 | 0.386                | 0.409 |
| L1     | 2.900 TYP.                |        | 0.114 TYP.           |       |
| L2     | 1.400                     | 1.700  | 0.055                | 0.067 |
| L3     | 1.600 TYP.                |        | 0.063 TYP.           |       |
| L4     | 0.600                     | 1.000  | 0.024                | 0.039 |
| Φ      | 1.100                     | 1.300  | 0.043                | 0.051 |
| θ      | 0°                        | 8°     | 0°                   | 8°    |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |
| V      | 5.350 TYP.                |        | 0.211 TYP.           |       |



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