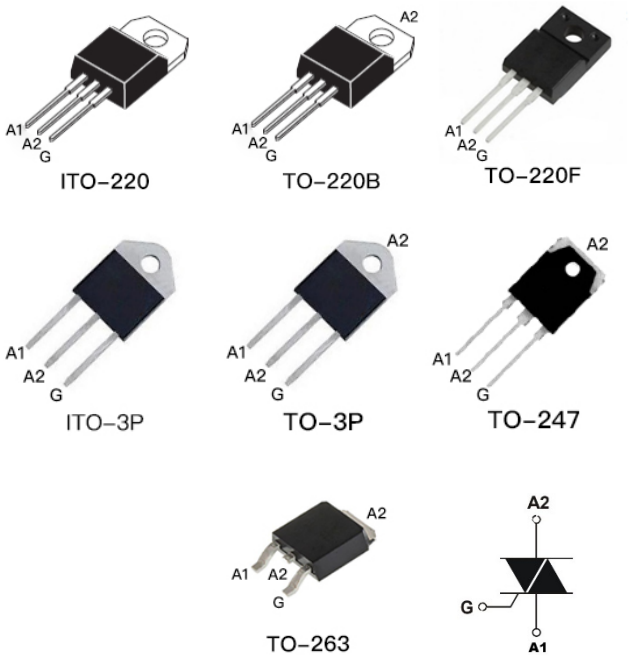
## Description

Available in high power packages, the suitable for general purpose AC switching.

## Features

- High current TRIAC
- Low thermal resistance with clip bonding
- High commutation capability




## Applications

- General purpose AC switch control
- Control loads in Motor, Fan, and Pump.
- Solenoid drivers
- LED Dimming
- Inrush current limiting circuits

## Absolute Maximum Ratings ($T_A$=25℃)

| Rating | | Symbol | Value |
|---|---|---|---|
| Peak repetitive off-state voltage<br>( $T_J$ = -40 to +125℃, Full sine wave, 50Hz to 60Hz; Gate open) (Note 1) | | $V_{DRM}$<br>$V_{RRM}$ | 800V |
| On-state RMS current (full sine wave) | | $I_{T(RMS)}$ | 25A |
| Non repetitive surge peak on-state current<br>(full cycle, T initial = 25℃) | F=50Hz, t=20ms | $I_{TSM}$ | 180A |
| | F=60Hz, t=16.7ms | | 190A |
| $I^2t$ Value for fusing | $t_P$=10ms | $I^2t$ | 149.5$A^2s$ |
| Critical rate of rise of on-state current $I_G$=2$I_{GT}$ | F=120Hz, $T_J$=125℃ | di/dt | 80A/μs |
| Non repetitive surge peak off-state voltage | $t_P$=10ms, $T_J$=25℃ | $V_{DSM}/V_{RSM}$ | $V_{DRM}/V_{RRM}$+100V |
| Peak gate current | $t_P$=20μs, $T_J$=125℃ | $I_{GM}$ | 8A |
| Average gate power dissipation | $T_J$=125℃ | $P_{G(AV)}$ | 4W |
| Operating junction and storage temperature ranges | | $T_J$,$T_{STG}$ | -40℃ to +150℃ |

Note:

1. $V_{DRM}$ and $V_{RRM}$ for all types can be applied on a continuous basis.
   Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

## Electrical Characteristics ($T_J$=25℃, unless otherwise specified)

| Parameter | | Symbol | Value | |
|---|---|---|---|---|
| $V_D$=12V, $R_L$=33Ω | I-II-III | $I_{GT\ Max.}$ | 35mA | 50mA |
| | ALL | $V_{GT\ Max.}$ | 1.2V | 1.2V |
| $V_D$=$V_{DRM}$, $R_L$=100Ω, $T_J$=150℃ | ALL | $V_{GD\ Min.}$ | 0.2V | 0.2V |
| $I_T$=100mA | | $I_{H\ Max.}$ (1) | 50mA | 75mA |
| $I_G$=1.2$I_{GT}$ | I-III | $I_{L\ Max}$ | 70mA | 80mA |
| | II | | 90mA | 100mA |
| $V_D$=67%$V_{DRM}$ gate open, $T_J$=125℃ | | dv/dt $_{Min.}$ (1) | 1000V/μs | 1000V/μs |

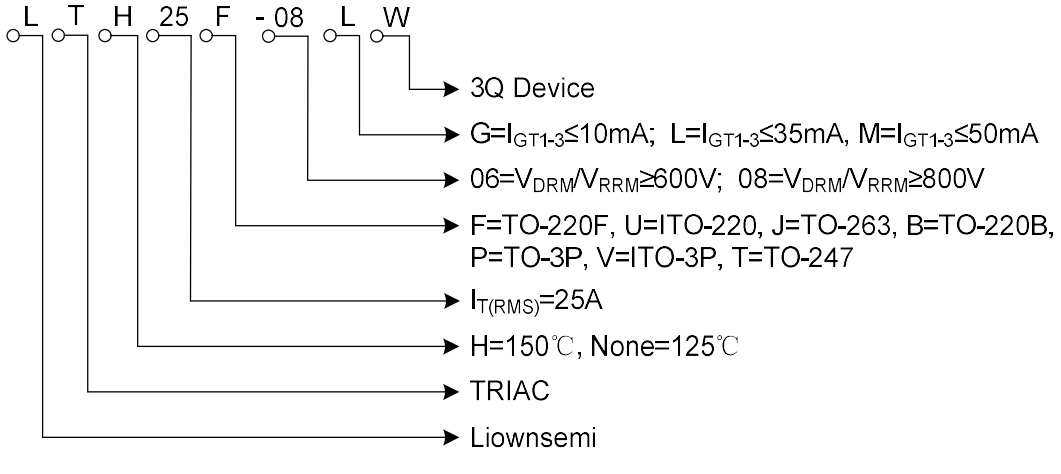
1. for both polarities of A2 referenced to A1

## Static Characteristics

| Test conditions | Symbol | Value |
|---|---|---|
| $I_{TM}$=25A, $t_P$=380μs, $T_J$=25℃ | $V_{T\ Max.}$ (1) | 1.4V |
| Threshold voltage, $T_J$=150℃ | $V_{t0\ Max.}$ (1) | 0.95V |
| Dynamic resistance, $T_J$=150℃ | $R_{D\ Max.}$ (1) | 30mΩ |
| $V_{DRM}$=$V_{RRM}$, $T_J$=25℃ | $I_{DRM\ Max.}$ | 5μA |
| $V_{DRM}$=$V_{RRM}$, $T_J$=125℃ | $I_{RRM\ Max.}$ | 8mA |

1. for both polarities of A2 referenced to A1

## Part Number Code

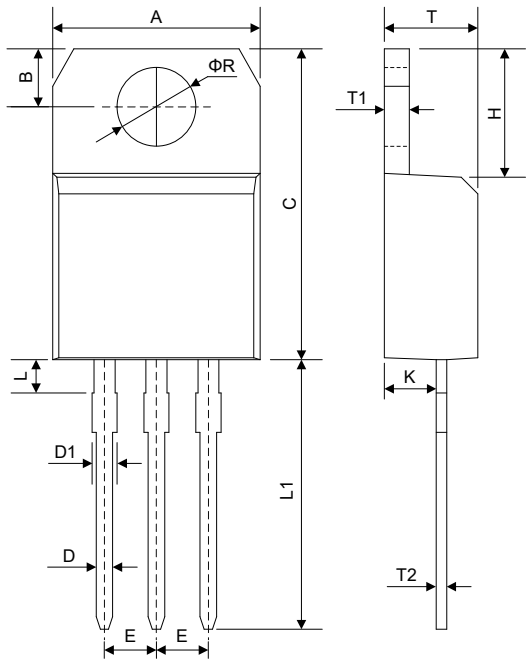


## Ordering Information

| Part Number | Marking | Package |
|---|---|---|
| LTH25U-08LW | LTH25U-08LW | ITO-220 |
| LTH25U-08MW | LTH25U-08MW | ITO-220 |
| LTH25B-08LW | LTH25B-08LW | TO-220B |
| LTH25B-08MW | LTH25B-08MW | TO-220B |
| LTH25F-08LW | LTH25F-08LW | TO-220F |
| LTH25F-08MW | LTH25F-08MW | TO-220F |
| LTH25J-08LW | LTH25J-08LW | TO-263 |
| LTH25J-08MW | LTH25J-08MW | TO-263 |
| LTH25P-08LW | LTH25P-08LW | TO-3P |
| LTH25P-08MW | LTH25P-08MW | TO-3P |
| LTH25V-08LW | LTH25V-08LW | ITO-3P |
| LTH25V-08MW | LTH25V-08MW | ITO-3P |
| LTH25T-08LW | LTH25T-08LW | TO-247 |
| LTH25T-08MW | LTH25T-08MW | TO-247 |

## Dimensions

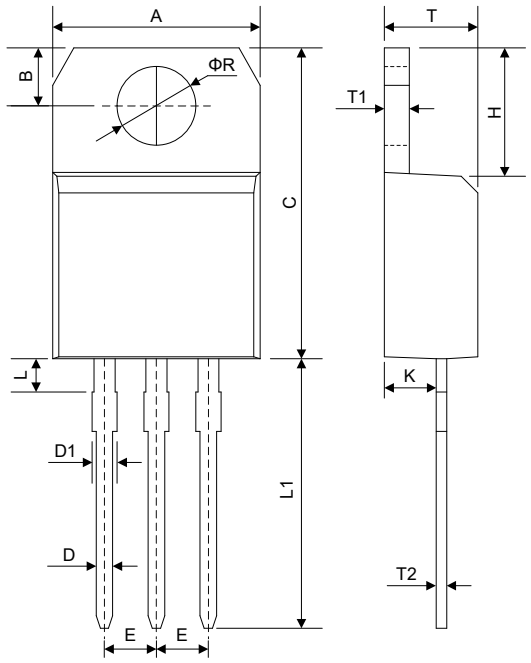
**ITO-220**




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 9.80 | 10.40 |
| B | 2.65 | 3.10 |
| C | 14.80 | 16.10 |
| D | 0.70 | 0.92 |
| D1 | 1.18 | 1.42 |
| E | 2.40 | 2.70 |
| L | 2.80 | 4.20 |
| L1 | 13.05 | 13.60 |
| H | 5.85 | 6.82 |
| K | 2.35 | 2.75 |
| T | 4.38 | 4.61 |
| T1 | 1.15 | 1.36 |
| T2 | 0.35 | 0.65 |
| ΦR | 3.75 | 3.95 |

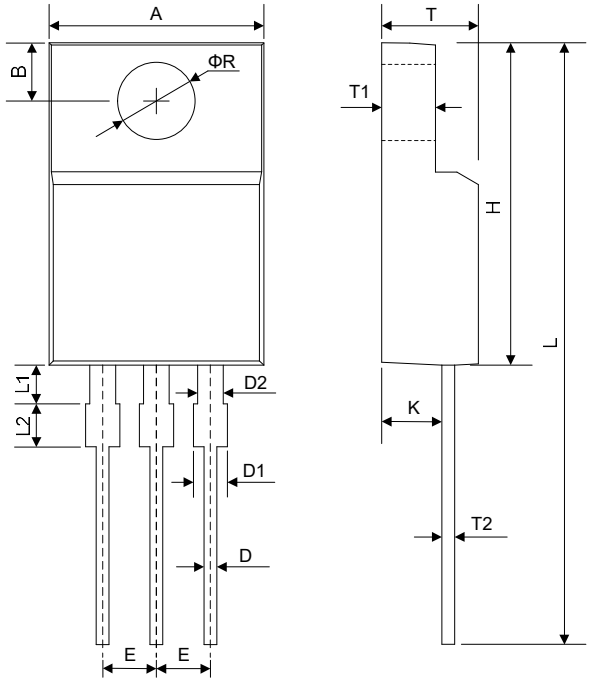
## Dimensions

### TO-220B




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 9.80 | 10.40 |
| B | 2.65 | 3.10 |
| C | 14.80 | 16.10 |
| D | 0.70 | 0.92 |
| D1 | 1.18 | 1.42 |
| E | 2.40 | 2.70 |
| L | 2.80 | 4.20 |
| L1 | 13.05 | 13.60 |
| H | 5.85 | 6.82 |
| K | 2.35 | 2.75 |
| T | 4.38 | 4.61 |
| T1 | 1.15 | 1.36 |
| T2 | 0.35 | 0.65 |
| ΦR | 3.75 | 3.95 |

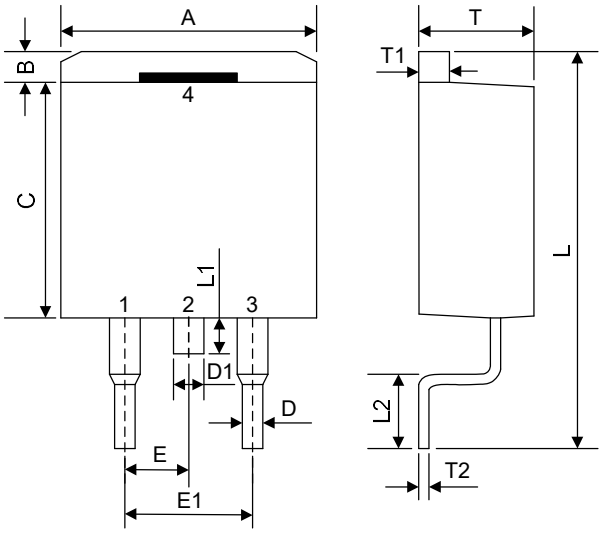
### TO-220F




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 9.96 | 10.36 |
| B | 2.70 REF. | |
| D | 0.50 | 0.75 |
| D1 | 1.50 | 1.75 |
| D2 | 1.10 | 1.35 |
| E | 2.54 TYP. | |
| H | 14.80 | 15.20 |
| K | 2.50 | 2.90 |
| L | 28.00 | 28.40 |
| L1 | 1.70 | 1.90 |
| L2 | 1.90 | 2.10 |
| T | 4.30 | 4.70 |
| T1 | 2.80 | 3.20 |
| T2 | 0.50 | 0.75 |
| ΦR | 3.50 REF. | |

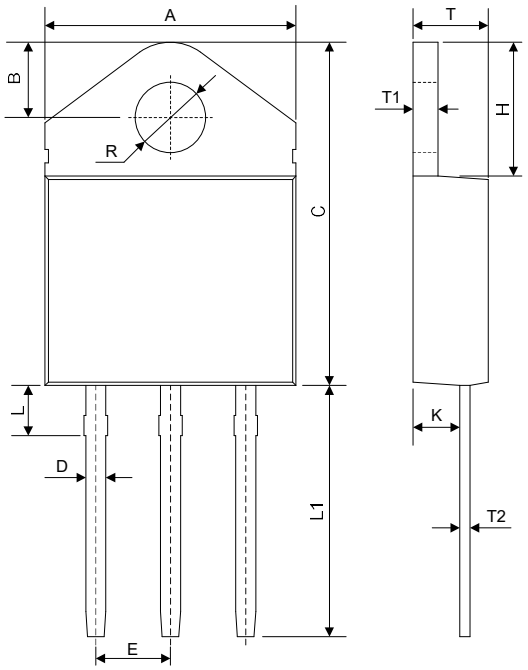
## Dimensions

### TO-263




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 9.80 | 10.20 |
| B | 1.00 | 1.40 |
| C | 9.00 | 9.40 |
| D | 0.70 | 0.90 |
| D1 | 1.15 | 1.35 |
| E | 2.34 | 2.74 |
| E1 | 4.88 | 5.28 |
| L | 15.00 | 16.00 |
| L1 | 1.20 | 1.60 |
| L2 | 2.24 | 2.84 |
| T | 4.30 | 4.70 |
| T1 | 1.20 | 1.40 |
| T2 | 0.40 | 0.60 |

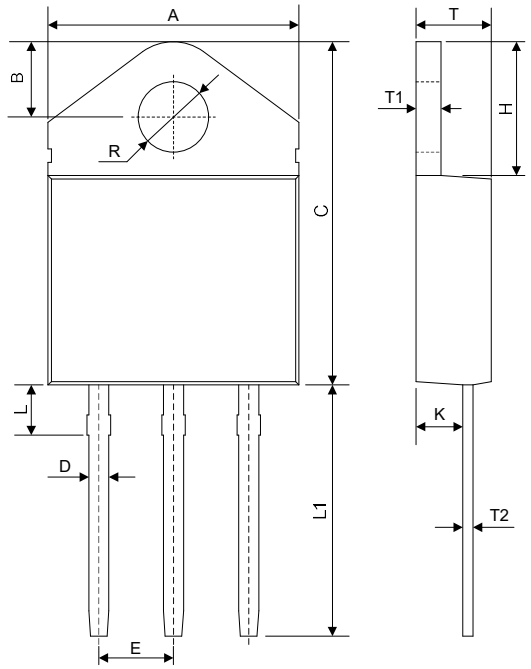
### TO-3P




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 14.9 | 15.35 |
| B | 4.1 | 4.65 |
| C | 20.21 | 20.75 |
| D | 1.12 | 1.32 |
| E | 5.35 | 5.62 |
| H | 7.85 | 8.22 |
| K | 2.71 | 2.92 |
| L | 2.5 | 3.2 |
| L1 | 15.02 | 15.55 |
| T | 4.38 | 4.65 |
| T1 | 1.42 | 1.62 |
| T2 | 0.52 | 0.68 |
| ΦR | 4.12 | 4.31 |

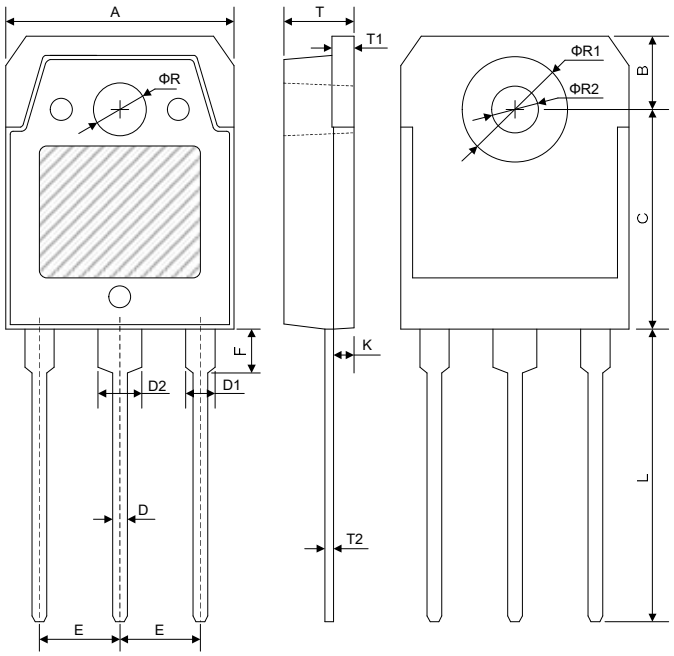
## Dimensions

### ITO-3P




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 14.9 | 15.35 |
| B | 4.1 | 4.65 |
| C | 20.21 | 20.75 |
| D | 1.12 | 1.32 |
| E | 5.35 | 5.62 |
| H | 7.85 | 8.22 |
| K | 2.71 | 2.92 |
| L | 2.5 | 3.2 |
| L1 | 15.02 | 15.55 |
| T | 4.38 | 4.65 |
| T1 | 1.42 | 1.62 |
| T2 | 0.52 | 0.68 |
| ΦR | 4.12 | 4.31 |

### TO-247




| Symbol | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 15.55 | 15.65 |
| B | 4.90 | 5.10 |
| C | 14.80 | 15.00 |
| D | 1.00 | |
| D1 | 2.00 | |
| D2 | 2.95 | 3.05 |
| E | 5.35 | 5.55 |
| F | 2.90 | 3.10 |
| K | 1.33 | 1.43 |
| L | 20.00 | 20.20 |
| T | 4.75 | 4.85 |
| T1 | 1.492 | 1.508 |
| T2 | 0.585 | 0.615 |
| ΦR | 3.50 | |
| ΦR1 | 7.00 | |
| ΦR2 | 3.20 | |

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