

## Maximum Ratings (Per Leg) @T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitance load, derate current by 20%.

| Characteristic                                                                                      | Symbol                                                  | Value   | Unit |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage              | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>RM</sub> | 200     | V    |
| Average Rectified Output Current (Per Leg)<br>(Total)                                               | I <sub>O</sub>                                          | 5<br>10 | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                        | 150     | A    |
| Peak Repetitive Reverse Surge Current (2μS-1KHz)                                                    | I <sub>RRM</sub>                                        | 3       | A    |
| Isolation Voltage (ITO-220AB Only)<br>From terminal to heatsink t = 3 sec.                          | V <sub>AC</sub>                                         | 2000    | V    |

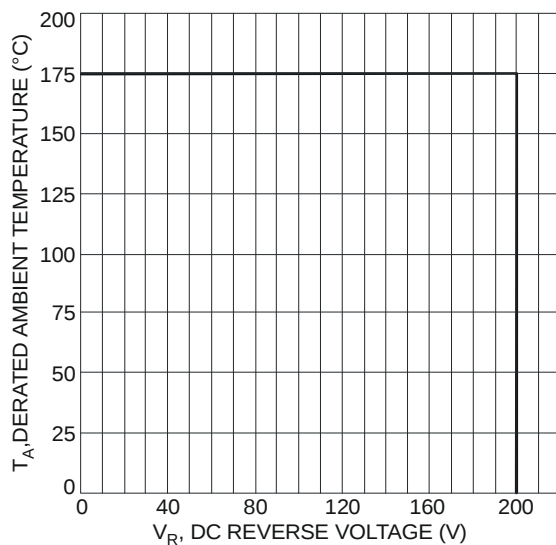
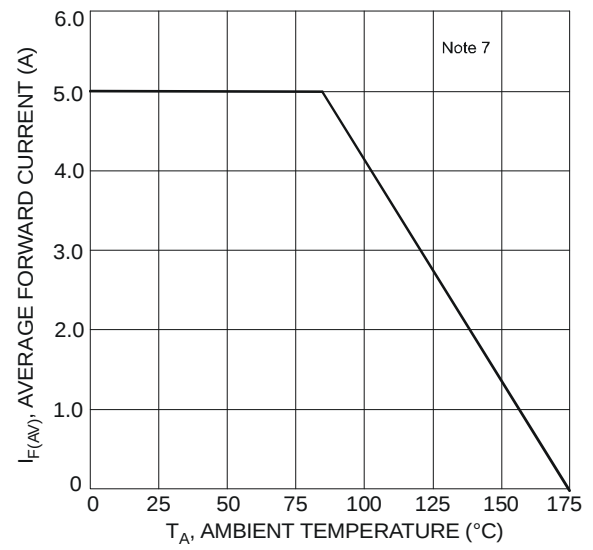
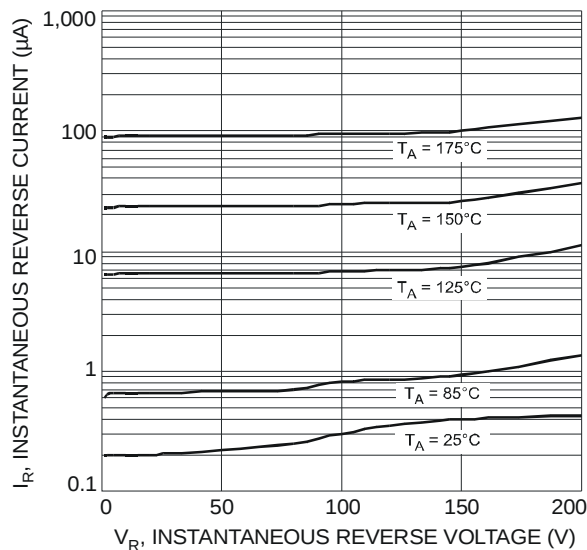
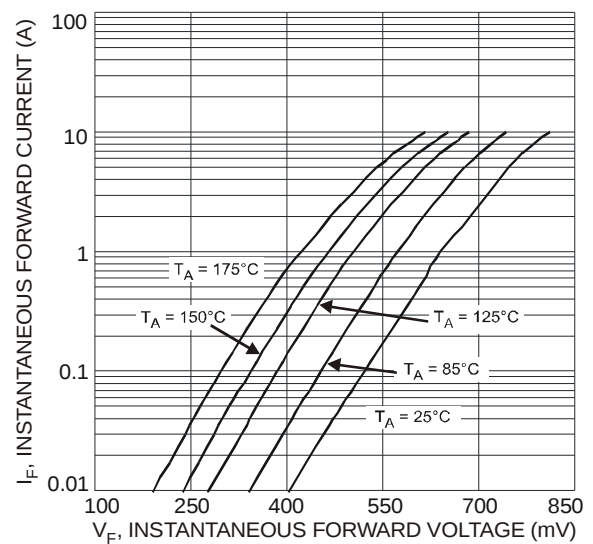
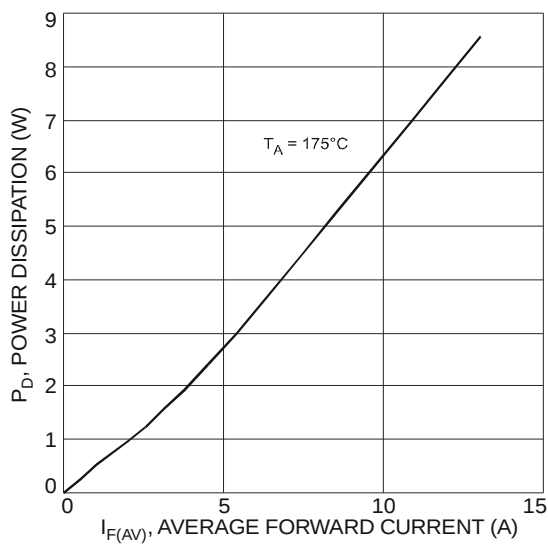
## Thermal Characteristics (Per Leg)

| Characteristic                                                                               | Symbol                            | Value       | Unit |
|----------------------------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance<br>Package = TO-220AB & D <sup>2</sup> Pak<br>Package = ITO-220AB | R <sub>θJC</sub>                  | 2<br>4      | °C/W |
| Operating and Storage Temperature Range                                                      | T <sub>J</sub> , T <sub>STG</sub> | -65 to +175 | °C   |

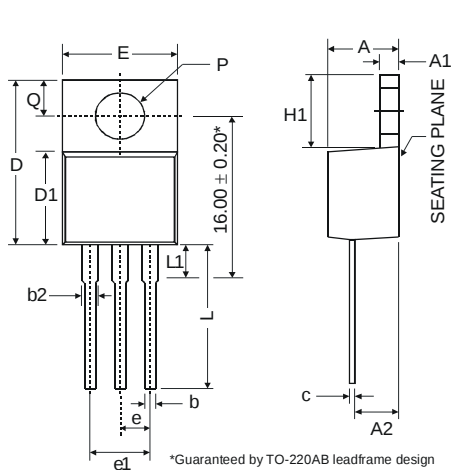
## Electrical Characteristics (Per Leg) @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic           | Symbol          | Min | Typ            | Max                  | Unit | Test Condition                                                                                                                                              |
|--------------------------|-----------------|-----|----------------|----------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Forward Voltage Drop     | V <sub>F</sub>  | -   | -<br>0.60<br>- | 0.82<br>0.65<br>0.88 | V    | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C<br>I <sub>F</sub> = 10A, T <sub>J</sub> = 25°C                    |
| Leakage Current (Note 6) | I <sub>R</sub>  | -   | -              | 0.2<br>25            | mA   | V <sub>R</sub> = 200V, T <sub>J</sub> = 25°C<br>V <sub>R</sub> = 200V, T <sub>J</sub> = 125°C                                                               |
| Reverse Recovery Time    | t <sub>rr</sub> | -   | 24<br>20       | 30<br>25             | ns   | I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1A, I <sub>RR</sub> = 0.25A<br>I <sub>F</sub> = 1A, V <sub>R</sub> = 30V,<br>di/dt = 100A/μS, T <sub>J</sub> = 25°C |

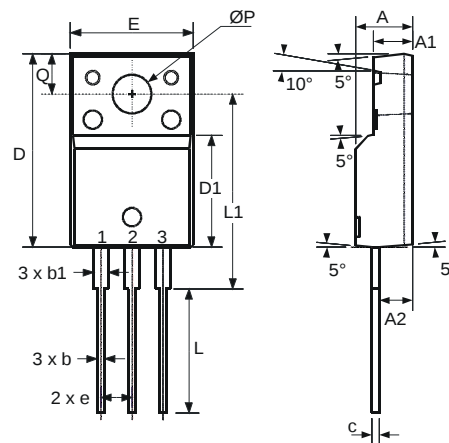
Notes: 6. Short duration pulse test used to minimize self-heating effect.  
7. Using heatsink (by Black Aluminum 45mm \* 20mm \* 12mm)



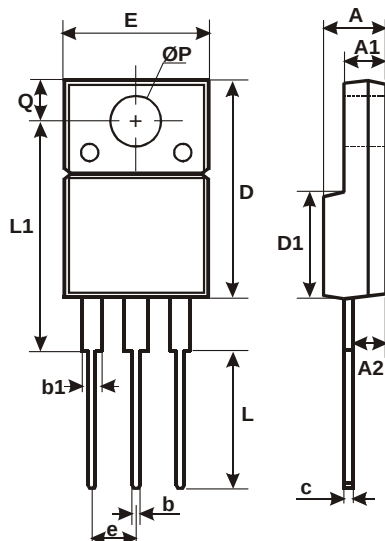
## Package Outline Dimensions



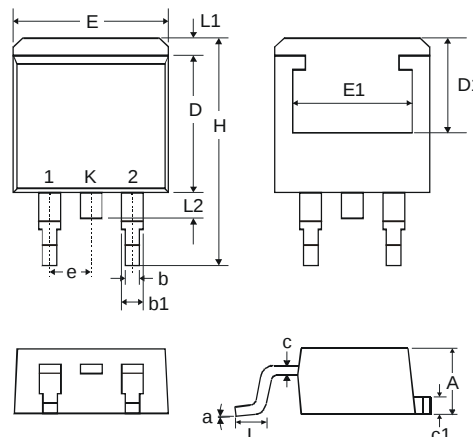
| TO-220AB             |       |      |       |
|----------------------|-------|------|-------|
| Dim                  | Min   | Typ  | Max   |
| A                    | 3.56  | -    | 4.82  |
| A1                   | 0.51  | -    | 1.39  |
| A2                   | 2.04  | -    | 2.92  |
| b                    | 0.39  | 0.81 | 1.01  |
| b1                   | 1.15  | 1.24 | 1.77  |
| c                    | 0.356 | -    | 0.61  |
| D                    | 14.22 | -    | 16.51 |
| D1                   | 8.39  | -    | 9.01  |
| e                    | 2.54  |      |       |
| e1                   | 5.08  |      |       |
| E                    | 9.66  | -    | 10.66 |
| H1                   | 5.85  | -    | 6.85  |
| L                    | 12.70 | -    | 14.73 |
| L1                   | -     | -    | 6.35  |
| P                    | 3.54  | -    | 4.08  |
| Q                    | 2.54  | -    | 3.42  |
| All Dimensions in mm |       |      |       |



| ITO-220AB            |       |       |       |
|----------------------|-------|-------|-------|
| Dim                  | Min   | Typ   | Max   |
| A                    | 4.50  | 4.70  | 4.90  |
| A1                   | 3.04  | 3.24  | 3.44  |
| A2                   | 2.56  | 2.76  | 2.96  |
| b                    | 0.50  | 0.60  | 0.75  |
| b1                   | 1.10  | 1.20  | 1.35  |
| c                    | 0.50  | 0.60  | 0.70  |
| D                    | 15.67 | 15.87 | 16.07 |
| D1                   | 8.99  | 9.19  | 9.39  |
| e                    | 2.54  |       |       |
| E                    | 9.91  | 10.11 | 10.31 |
| L                    | 9.45  | 9.75  | 10.05 |
| L1                   | 15.80 | 16.00 | 16.20 |
| P                    | 2.98  | 3.18  | 3.38  |
| Q                    | 3.10  | 3.30  | 3.50  |
| All Dimensions in mm |       |       |       |

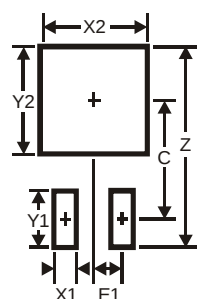


| ITO-220AB Alternate  |      |       |
|----------------------|------|-------|
| Dim                  | Min  | Max   |
| A                    | 4.36 | 4.77  |
| A1                   | 2.54 | 3.1   |
| A2                   | 2.54 | 2.8   |
| b                    | 0.55 | 0.75  |
| b1                   | 1.2  | 1.5   |
| c                    | 0.38 | 0.68  |
| D                    | 14.5 | 15.5  |
| D1                   | 8.38 | 8.89  |
| E                    | 9.72 | 10.27 |
| e                    | 2.41 | 2.67  |
| L                    | 9.87 | 10.67 |
| L1                   | 15.8 | 17    |
| ØP                   | 3.08 | 3.39  |
| Q                    | 2.6  | 3.0   |
| All Dimensions in mm |      |       |



| D²PAK                |          |       |
|----------------------|----------|-------|
| Dim                  | Min      | Max   |
| A                    | 4.07     | 4.82  |
| b                    | 0.51     | 0.99  |
| b1                   | 1.15     | 1.77  |
| c                    | 0.356    | 0.58  |
| c1                   | 1.143    | 1.65  |
| D                    | 8.39     | 9.65  |
| D1                   | 6.55     | —     |
| E                    | 9.66     | 10.66 |
| E1                   | 6.23     | —     |
| e                    | 2.54 Typ |       |
| H                    | 14.61    | 15.87 |
| L                    | 1.78     | 2.79  |
| L1                   | —        | 1.67  |
| L2                   | —        | 1.77  |
| a                    | 0°       | 8°    |
| All Dimensions in mm |          |       |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 16.9          |
| X1         | 1.1           |
| X2         | 10.8          |
| Y1         | 3.5           |
| Y2         | 11.4          |
| C          | 9.5           |
| E1         | 2.5           |

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