

1. General description

Standard reverse recovery power diode in a TO247-2L package.



AEC - Q101 Qualified



2. Features and benefits

- Low forward voltage drop
- Low leakage current
- High voltage capability
- High inrush current capability
- Package meets UL94V-0 flammability requirement

3. Applications

- Input rectification
- Bypass diode
- On board and off-board xEV battery chargers

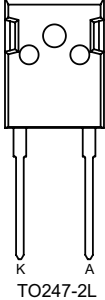
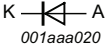
4. Quick reference data

Table 1. Quick reference data

| Symbol | Parameter | Conditions | Values | | | Unit |
|--------------------------------|-------------------------------------|--|--------|------|------|------|
| Absolute maximum rating | | | | | | |
| V_{RRM} | repetitive peak reverse voltage | | 1200 | | | V |
| $I_{F(AV)}$ | average forward current | $\delta = 0.5$; square-wave pulse; $T_{mb} \leq 130$ °C; Fig. 1 ; Fig. 2 ; Fig. 3 | 60 | | | A |
| I_{FSM} | non-repetitive peak forward current | $t_p = 10$ ms; $T_{j(imit)} = 25$ °C; sine-wave pulse; Fig. 4 | 950 | | | A |
| | | $t_p = 8.3$ ms; $T_{j(imit)} = 25$ °C; sine-wave pulse | 1045 | | | A |
| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
| Static characteristics | | | | | | |
| V_F | forward voltage | $I_F = 60$ A; $T_j = 25$ °C; Fig. 6 | - | 1.07 | 1.12 | V |
| | | $I_F = 60$ A; $T_j = 150$ °C; Fig. 6 | - | 0.99 | 1.05 | V |

5. Pinning information

Table 2. Pinning information

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|-----|--------|------------------------------------|--|--|
| 1 | K | cathode |  <p style="text-align: center;">K A TO247-2L</p> |  <p style="text-align: center;">K — <— A 001aaa020</p> |
| 2 | A | anode | | |
| mb | mb | mounting base; connected to cathod | | |

6. Ordering information

Table 3. Ordering information

| Type number | Package Name | Orderable part number | Packing method | Small packing quantity | Package version | Package issue date |
|-------------|--------------|-----------------------|----------------|------------------------|-----------------|--------------------|
| WND60P12W-A | TO247-2L | WND60P12W-AQ | Tube | 30 | TO247N-2L | 03-Aug-2023 |

7. Marking

Table 4. Marking codes

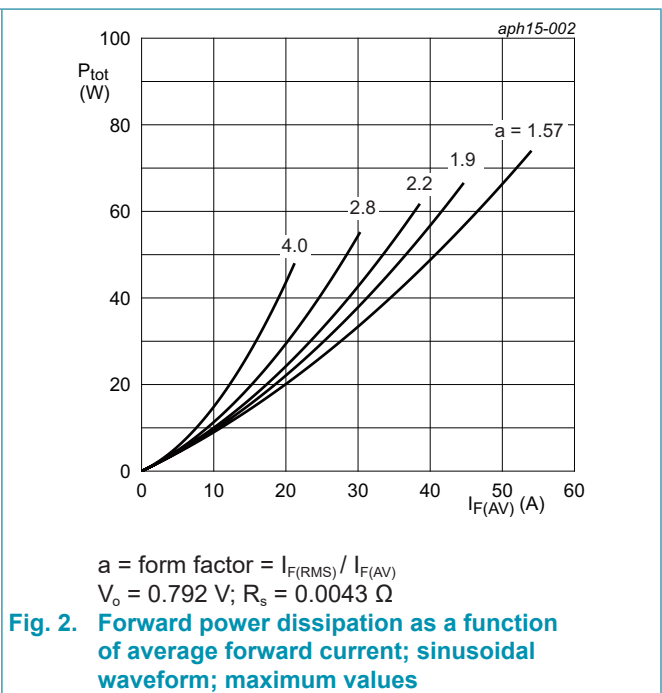
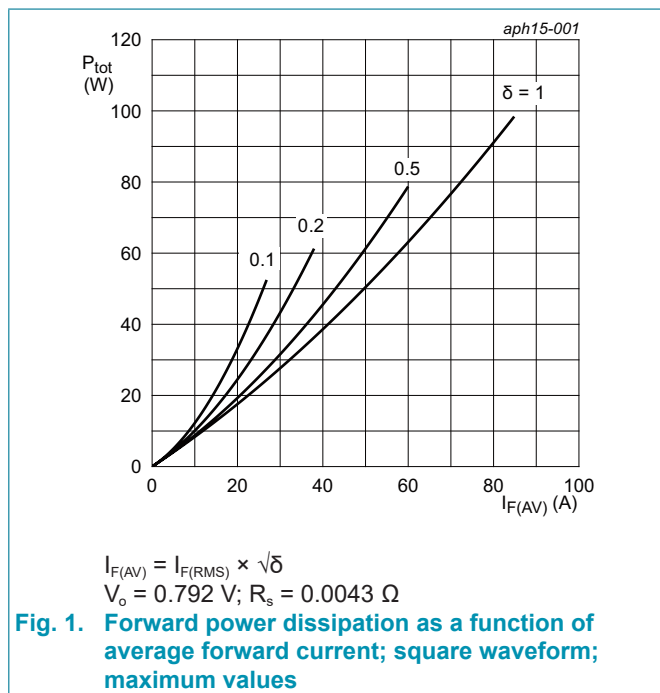
| Type number | Marking codes |
|-------------|-----------------|
| WND60P12W | WND 60P12W-A |

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol | Parameter | Conditions | Values | Unit |
|-------------|-------------------------------------|---|------------|----------------------|
| V_{RRM} | repetitive peak reverse voltage | | 1200 | V |
| V_{RWM} | crest working reverse voltage | | 1200 | V |
| V_R | reverse voltage | DC | 1200 | V |
| $I_{F(AV)}$ | average forward current | $\delta = 0.5$; square-wave pulse; $T_{mb} \leq 130\text{ }^\circ\text{C}$; Fig. 1 ; Fig. 2 ; Fig. 3 | 60 | A |
| I_{FSM} | non-repetitive peak forward current | $t_p = 10\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse; Fig. 4 | 950 | A |
| | | $t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse | 1045 | A |
| I^2t | I^2t for fusing | SIN; $t_p = 10\text{ ms}$ | 4513 | A^2s |
| T_{stg} | storage temperature | | -55 to 150 | $^\circ\text{C}$ |
| T_j | junction temperature | | 150 | $^\circ\text{C}$ |



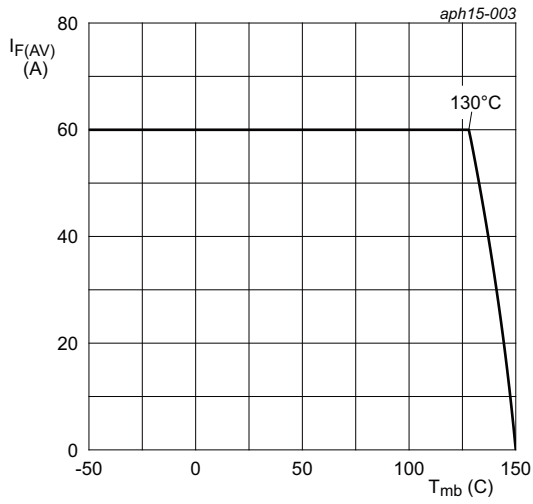


Fig. 3. Forward current as a function of mounting base temperature; maximum values

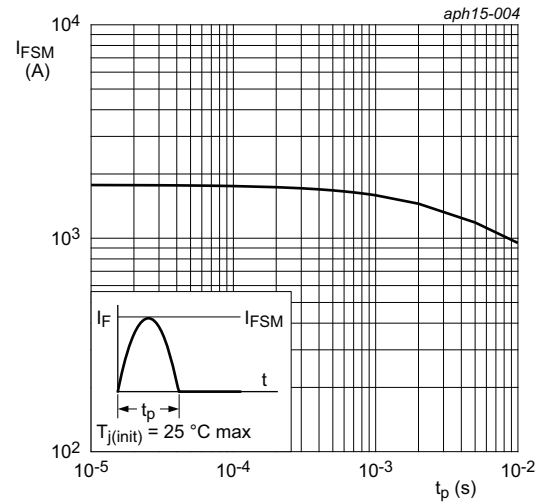


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

9. Thermal characteristics

Table 6. Thermal characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------|--|------------------------|-----|-----|------|------|
| $R_{th(j-mb)}$ | thermal resistance from junction to mounting base | Fig. 5 | - | - | 0.25 | K/W |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient free air | in free air | - | 40 | - | K/W |

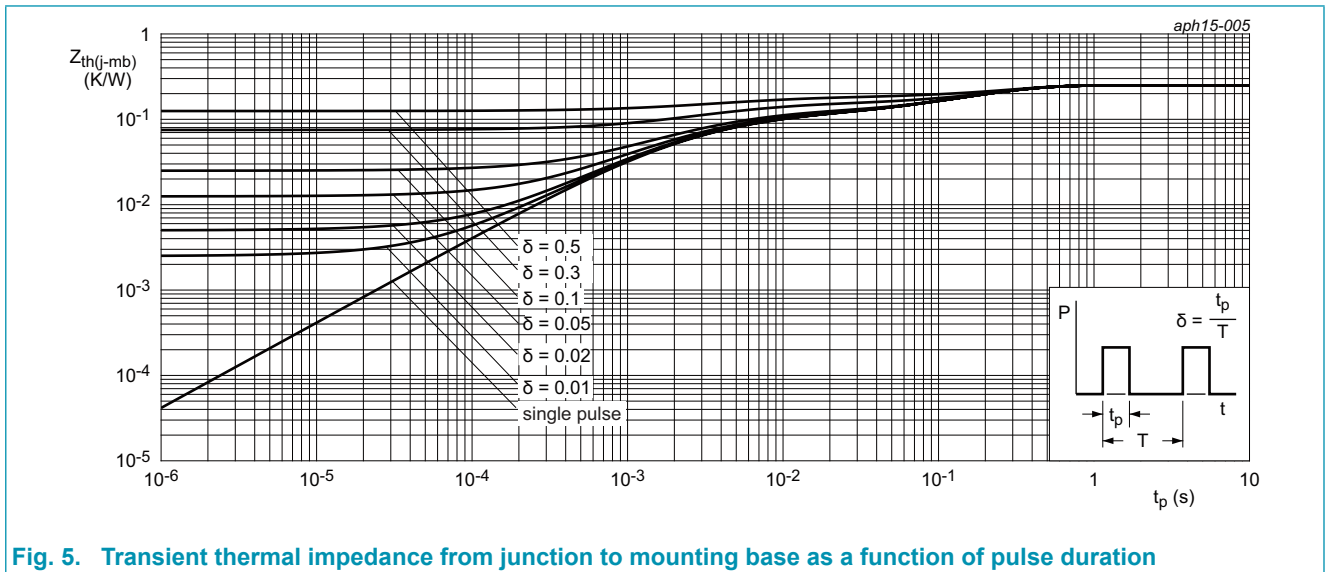
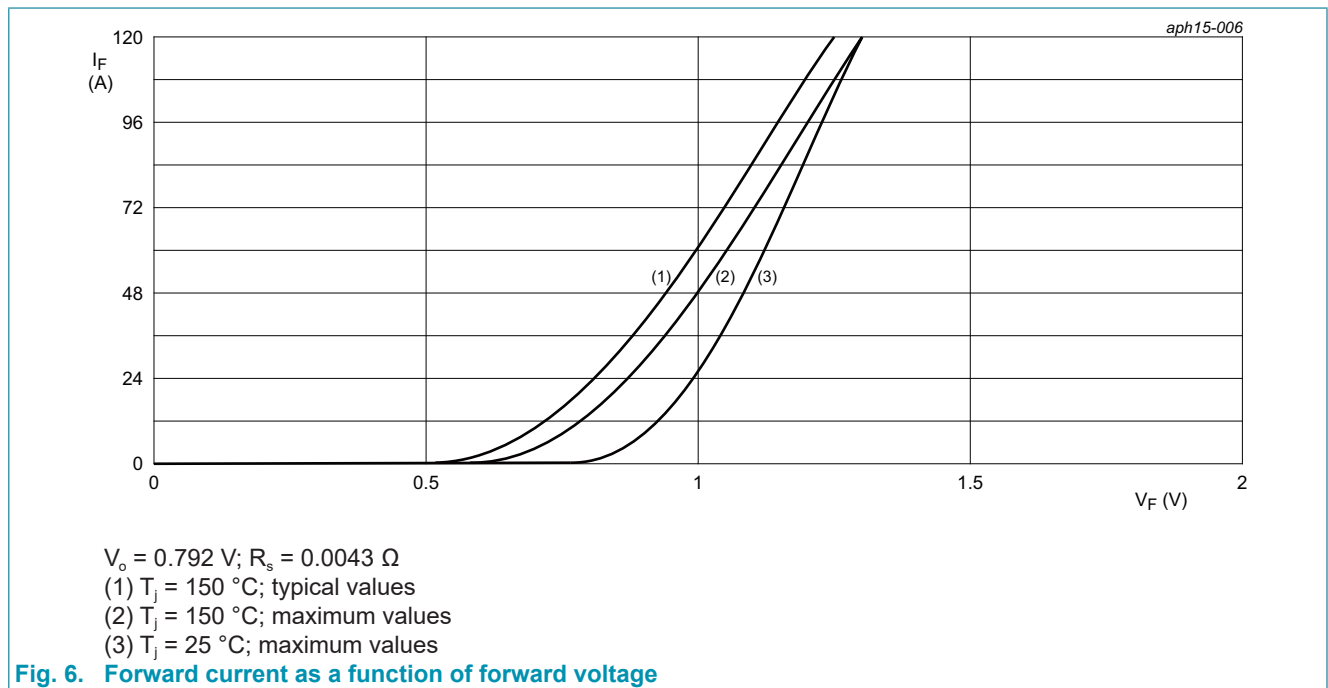


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

10. Characteristics

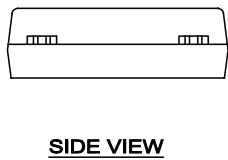
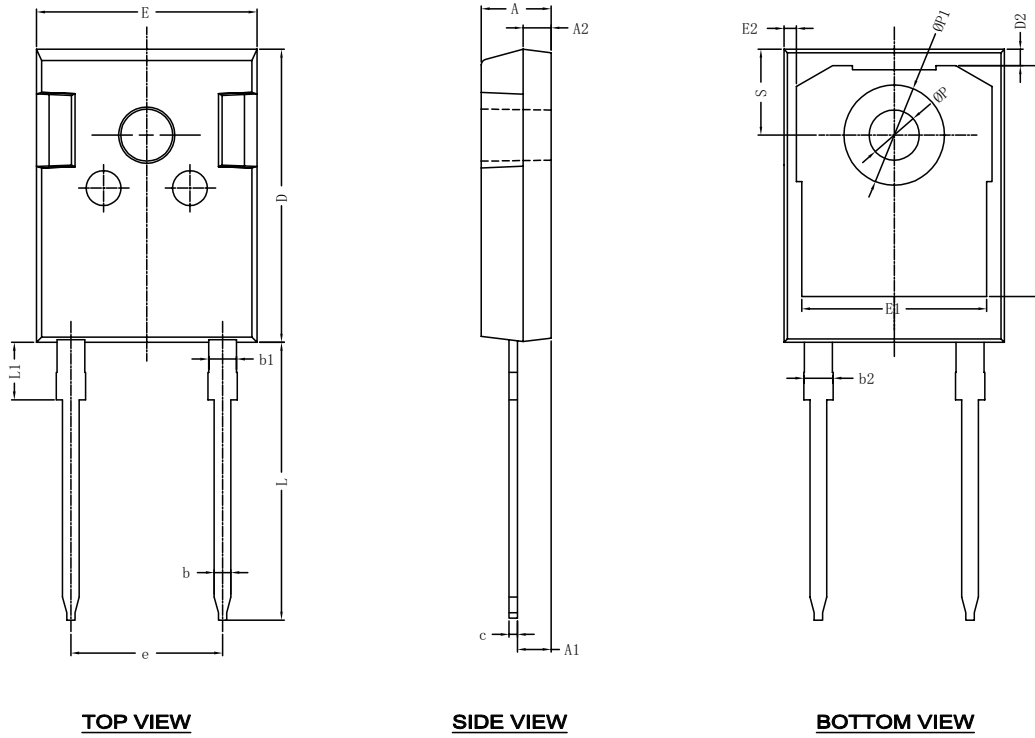
Table 7. Characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------|-----------------|---|-----|------|------|---------------|
| Static characteristics | | | | | | |
| V_F | forward current | $I_F = 60\text{ A}; T_j = 25\text{ }^\circ\text{C}; \text{Fig. 6}$ | - | 1.07 | 1.12 | V |
| | | $I_F = 60\text{ A}; T_j = 150\text{ }^\circ\text{C}; \text{Fig. 6}$ | - | 0.99 | 1.05 | V |
| I_R | reverse current | $V_R = 1200\text{ V}; T_j = 25\text{ }^\circ\text{C}$ | - | - | 50 | μA |
| | | $V_R = 1200\text{ V}; T_j = 150\text{ }^\circ\text{C}$ | - | - | 1.5 | mA |



11. Package outline

Plastic single-ended through-hole package; heatsink mounted; 1 mounting hole; 2-lead TO-247



| UNIT | A | A1 | A2 | b | b1 | b2 | c | D | D1 | D2 | E | E1 | E2 | e | L | L1 | P | P1 | S | |
|------|-----|------|------|------|------|------|------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| mm | MAX | 5.10 | 2.51 | 2.10 | 1.29 | 2.06 | 2.25 | 0.66 | 21.10 | 16.85 | 1.35 | 15.90 | 13.46 | 0.95 | 10.98 | 20.15 | 4.46 | 3.70 | 7.40 | 6.25 |
| | NOM | | | | | | | | | | | | | | | | | | | |
| | MIN | 4.90 | 2.31 | 1.90 | 1.16 | 1.96 | | 0.59 | 20.90 | 16.25 | 1.05 | 15.70 | 13.06 | 0.35 | 10.78 | 19.80 | 3.93 | 3.50 | 7.00 | 6.05 |

Note:
All dimensions do not include mold flash or protrusion.

12. Legal information

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| Document status [1][2] | Product status [3] | Definition |
|--------------------------------|--------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
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- [2] The term 'short data sheet' is explained in section "Definitions".
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