



PSMNR82-30YLE

N-channel 30 V, 0.82 mOhm, ASFET with enhanced SOA in LFPAK56

29 April 2022

Objective data sheet

1. General description

N-channel enhancement mode ASFET with enhanced SOA in LFPAK56 package optimized for low R_{DSon} and strong safe operating area optimized for hot-swap, inrush and linear-mode applications.

2. Features and benefits

- Fully optimized Safe Operating Area (SOA) for superior linear mode operation
- Optimized for low R_{DSon} / low I^2R conduction losses
- LFPAK56E package for applications that demand the highest performance and reliability in a 30 mm² footprint
- Low leakage < 1 μ A at 25 °C
- Copper-clip for low parasitic inductance and resistance
- High reliability LFPAK package, qualified to 175 °C

3. Applications

- Hot swap in 12 V-20 V applications
- e-Fuse
- DC switch
- Load switch
- Battery protection

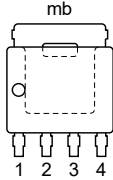
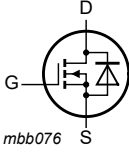
4. Quick reference data

Table 1. Quick reference data

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--------------------------------|----------------------------------|---|-------|-------|-------|------------|
| V_{DS} | drain-source voltage | 25 °C \leq T_j \leq 175 °C | - | - | 30 | V |
| I_D | drain current | $V_{GS} = 10$ V; $T_{mb} = 25$ °C | - | - | [tbd] | A |
| P_{tot} | total power dissipation | $T_{mb} = 25$ °C; #unique_5/unique_5_Connect_42_id03aa16 | - | - | [tbd] | W |
| T_j | junction temperature | | -55 | - | 175 | °C |
| Static characteristics | | | | | | |
| R_{DSon} | drain-source on-state resistance | $V_{GS} = 10$ V; $I_D = 25$ A; $T_j = 25$ °C | - | 0.75 | 0.82 | m Ω |
| | | $V_{GS} = 7$ V; $I_D = 25$ A; $T_j = 25$ °C | - | 0.87 | 1.25 | m Ω |
| Dynamic characteristics | | | | | | |
| Q_{GD} | gate-drain charge | $I_D = 25$ A; $V_{DS} = 15$ V; $V_{GS} = 4.5$ V | [tbd] | [tbd] | [tbd] | nC |
| $Q_{G(tot)}$ | total gate charge | | [tbd] | [tbd] | [tbd] | nC |
| Source-drain diode | | | | | | |
| S | softness factor | $I_S = 25$ A; $di_S/dt = -100$ A/ μ s; $V_{GS} = 0$ V; $V_{DS} = 15$ V; #unique_6/unique_6_Connect_42_id003aa160 | - | [tbd] | - | |

5. Pinning information

Table 2. Pinning information

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|-----|--------|-----------------------------------|--|---|
| 1 | S | source |  <p>LFPAK56; Power-SO8 (SOT669)</p> |  <p>mbb076</p> |
| 2 | S | source | | |
| 3 | S | source | | |
| 4 | G | gate | | |
| mb | D | mounting base; connected to drain | | |

6. Ordering information

Table 3. Ordering information

| Type number | Package | | |
|---------------|--------------------|--|---------|
| | Name | Description | Version |
| PSMNR82-30YLE | LFPAK56; Power-SO8 | plastic, single-ended surface-mounted package; 4 terminals | SOT669 |

7. Marking

Table 4. Marking codes

| Type number | Marking code |
|---------------|--------------|
| PSMNR82-30YLE | E82L30Y |

8. Thermal characteristics

Table 5. Thermal characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------|---|------------|-----|-------|-------|------|
| $R_{th(j-mb)}$ | thermal resistance from junction to mounting base | | - | [tbd] | [tbd] | K/W |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | | - | 42 | - | K/W |
| | | | - | 85 | - | K/W |

9. Package outline

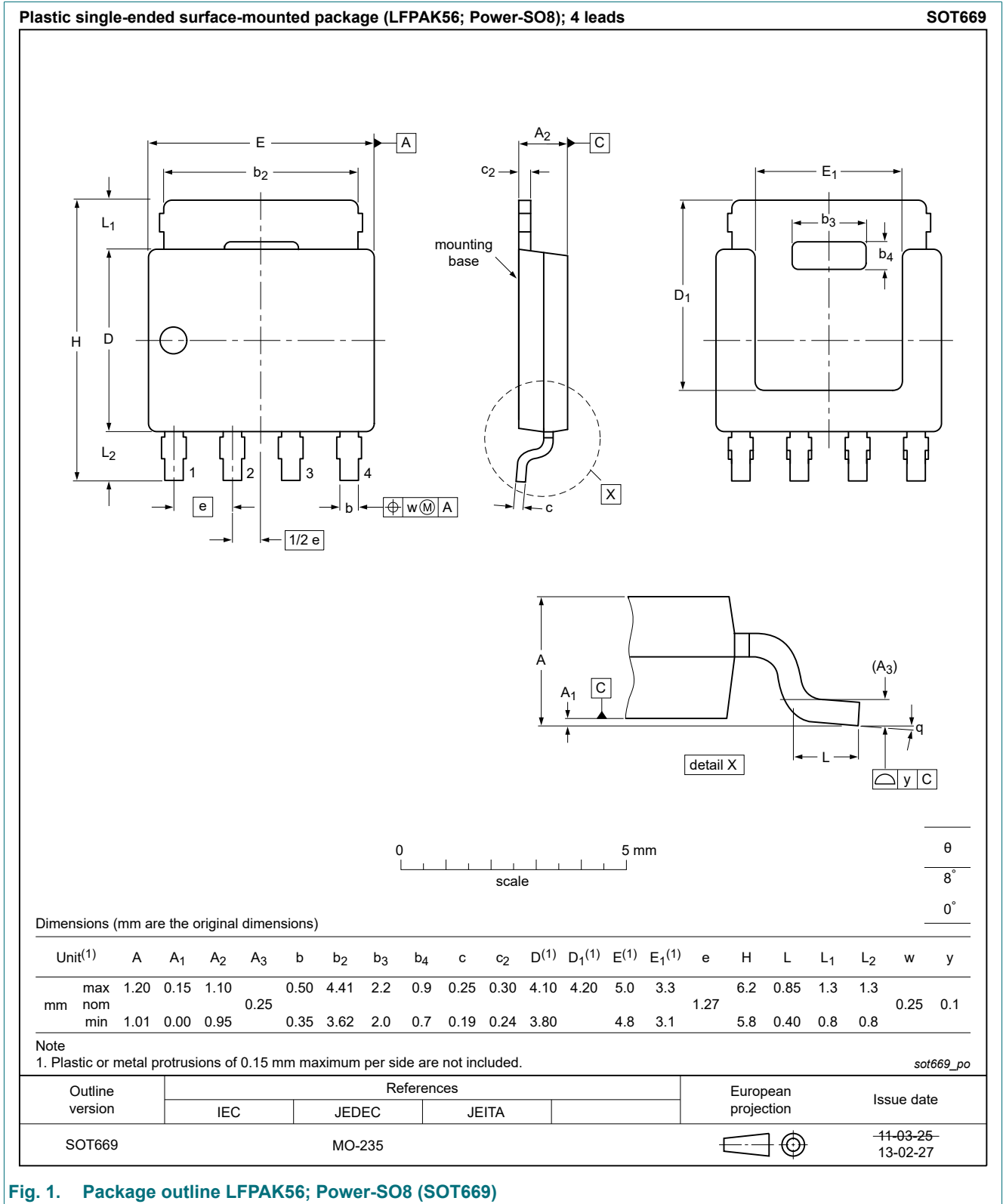


Fig. 1. Package outline LPAK56; Power-SO8 (SOT669)

10. Soldering

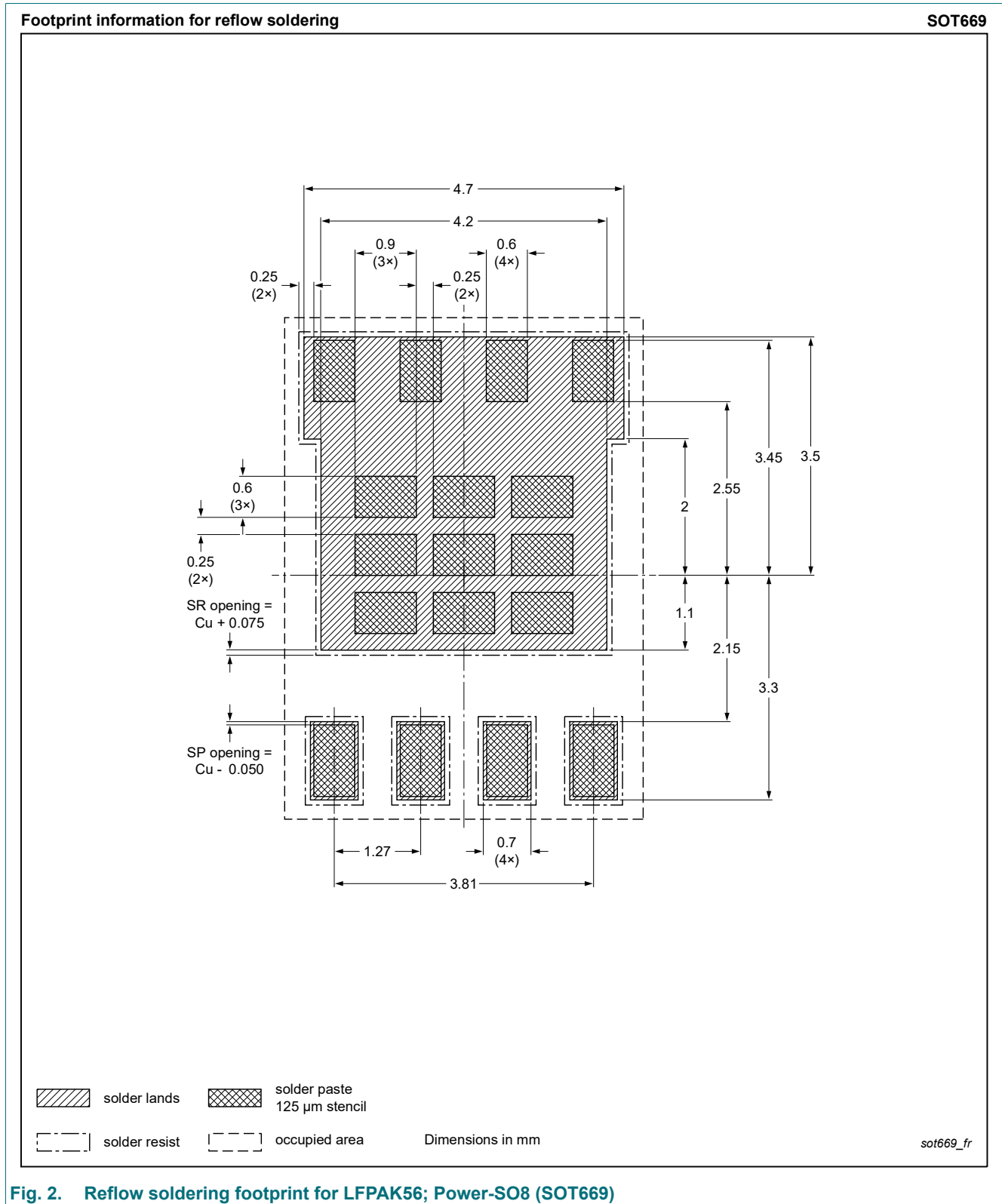


Fig. 2. Reflow soldering footprint for LFPAK56; Power-SO8 (SOT669)

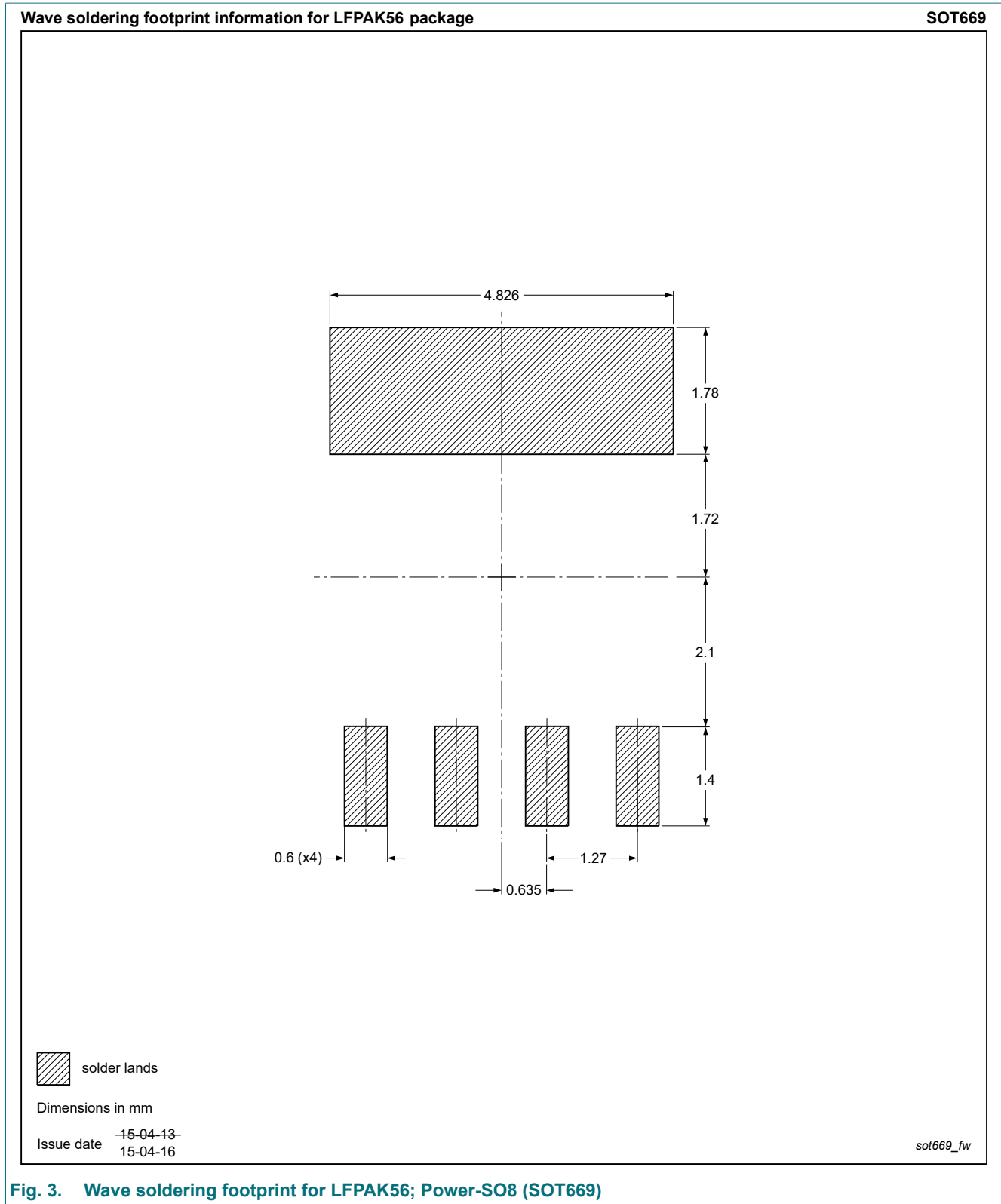


Fig. 3. Wave soldering footprint for LFPAK56; Power-SO8 (SOT669)

11. Legal information

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|--------------------------------|--------------------|---|
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| Product [short] data sheet | Production | This document contains the product specification. |

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- [2] The term 'short data sheet' is explained in section "Definitions".
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Contents

| | |
|---------------------------------|---|
| 1. General description..... | 1 |
| 2. Features and benefits..... | 1 |
| 3. Applications..... | 1 |
| 4. Quick reference data..... | 1 |
| 5. Pinning information..... | 2 |
| 6. Ordering information..... | 2 |
| 7. Marking..... | 2 |
| 8. Thermal characteristics..... | 2 |
| 9. Package outline..... | 3 |
| 10. Soldering..... | 4 |
| 11. Legal information..... | 6 |

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