

Features

- Advanced Shield Gate Trench technology
- Super Low Gate Charge
- High-Speed Switching
- 100% EAS Guaranteed
- Green Device Available

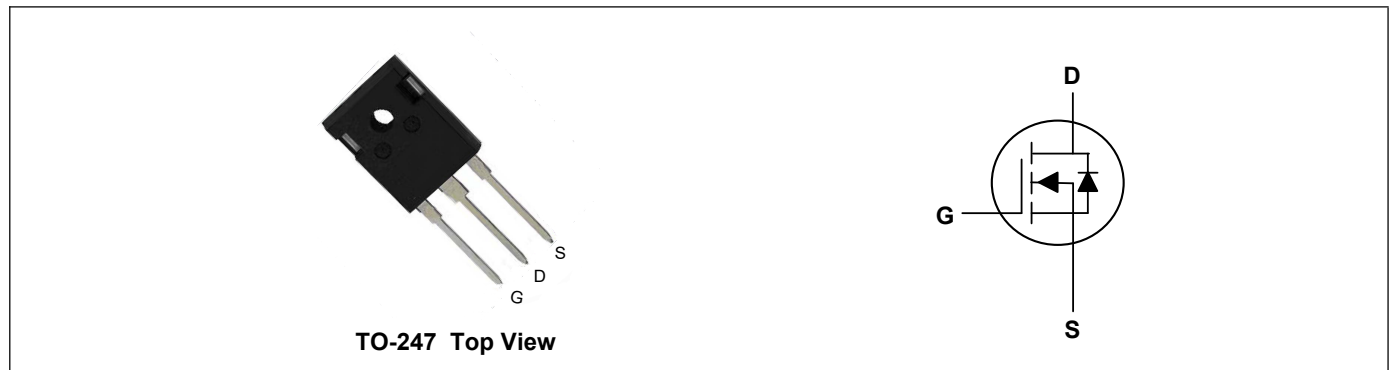
Applications

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch

Product Summary



| | | |
|---------------------------------|------|------------|
| V_{DS} | 200 | V |
| I_D | 132 | A |
| $R_{DS(ON)}$ (at $V_{GS}=10V$) | 10.5 | m Ω |



Absolute Maximum Ratings($T_c=25^\circ C$, unless otherwise noted)

| Parameter | Symbol | Rating | Units |
|--|-----------------------|------------|------------|
| Drain-Source Voltage | V_{DS} | 200 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current ¹ | $I_D@T_c=25^\circ C$ | 132 | A |
| Continuous Drain Current ¹ | $I_D@T_c=100^\circ C$ | 93 | A |
| Pulsed Drain Current ² | I_{DM} | 370 | A |
| Single Pulse Avalanche Energy ³ | E_{AS} | 720 | mJ |
| Total Power Dissipation | P_D | 429 | W |
| Storage Temperature Range | T_{STG} | -55 to 175 | $^\circ C$ |
| Operating Junction Temperature Range | T_J | -55 to 175 | $^\circ C$ |

Thermal Characteristics

| Parameter | Symbol | Typ | Max | Unit |
|--|-----------------|-----|------|--------------|
| Thermal Resistance Junction-Ambient ¹ | $R_{\theta JA}$ | --- | 60 | $^\circ C/W$ |
| Thermal Resistance Junction-Case ¹ | $R_{\theta JC}$ | --- | 0.35 | $^\circ C/W$ |

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|-----------------------------------|--------------|--|-----|------|-----------|------------|
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=250\mu A$ | 200 | --- | --- | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}=10V, I_D=20A$ | --- | 9 | 10.5 | m Ω |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{GS}=V_{DS}, I_D=250\mu A$ | 2.0 | --- | 4.0 | V |
| Drain-Source Leakage Current | I_{DSS} | $V_{DS}=160V, V_{GS}=0V$ | --- | --- | 1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | --- | --- | ± 100 | nA |
| Forward Transconductance | g_{fs} | $V_{DS}=5V, I_D=20A$ | --- | 70 | --- | S |
| Gate Resistance | R_g | $V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$ | --- | 4 | --- | Ω |
| Total Gate Charge | Q_g | $V_{DD}=100V, V_{GS}=10V, I_D=20A$ | --- | 55 | --- | nC |
| Gate-Source Charge | Q_{gs} | | --- | 17 | --- | |
| Gate-Drain Charge | Q_{gd} | | --- | 5 | --- | |
| Turn-On Delay Time | $T_{d(on)}$ | $V_{DS}=100V, V_{GS}=10V, R_G=10\Omega, I_D=20A$ | --- | 16 | --- | ns |
| Rise Time | T_r | | --- | 20 | --- | |
| Turn-Off Delay Time | $T_{d(off)}$ | | --- | 38 | --- | |
| Fall Time | T_f | | --- | 10 | --- | |
| Input Capacitance | C_{iss} | $V_{DS}=100V, V_{GS}=0V, f=1\text{MHz}$ | --- | 4980 | --- | pF |
| Output Capacitance | C_{oss} | | --- | 420 | --- | |
| Reverse Transfer Capacitance | C_{rss} | | --- | 8 | --- | |

Drain-Source Diode Characteristics

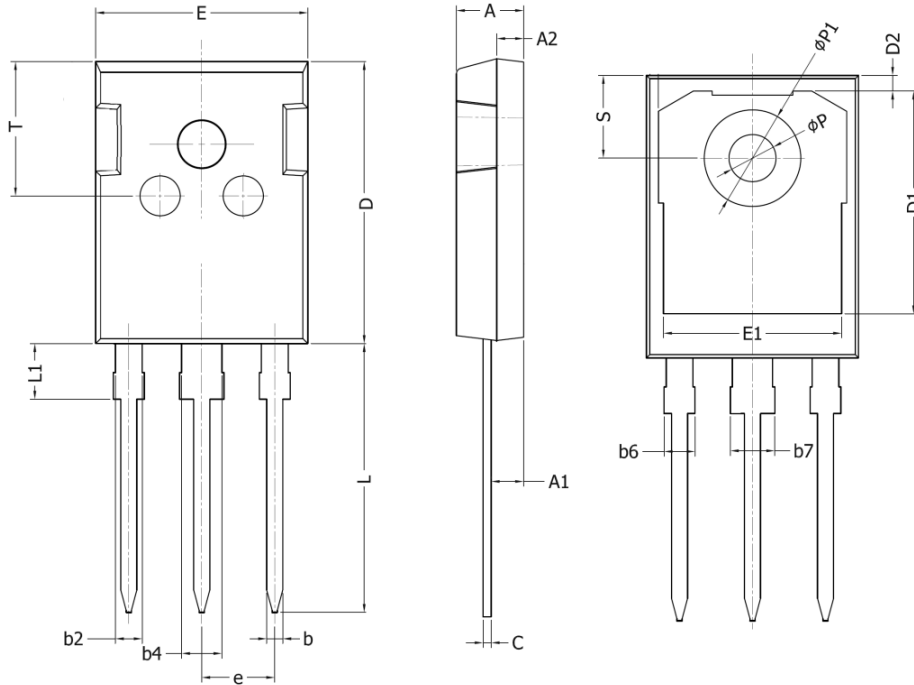
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|------------------------------------|----------|---|-----|-----|-----|------|
| Diode Forward Voltage ² | V_{SD} | $V_{GS}=0V, I_S=20A, T_J=25^{\circ}\text{C}$ | --- | --- | 1.3 | V |
| Reverse Recovery Time | t_{rr} | $I_F=20A$ $di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$ | --- | 140 | --- | nS |
| Reverse Recovery Charge | Q_{rr} | | --- | 630 | --- | nC |

Note:

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3.The EAS data shows Max. rating . The test condition is $V_{DD}=100V, L=0.4\text{mH}$

Typical Characteristics

TO-247 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | |
|--------|---------------------------|-------|
| | Min. | Max. |
| A | 4.90 | 5.20 |
| A1 | 2.31 | 2.51 |
| A2 | 1.9 | 2.1 |
| b | 1.16 | 1.26 |
| b2 | 1.96 | 2.06 |
| b4 | 2.96 | 3.06 |
| b6 | - | 2.25 |
| b7 | - | 3.25 |
| C | 0.59 | 0.66 |
| D | 20.90 | 21.20 |
| D1 | 16.25 | 16.85 |
| D2 | 1.05 | 1.35 |
| E | 15.75 | 16.10 |
| E1 | 13.00 | 13.60 |
| e | 5.436 BSC | |
| L | 19.80 | 20.20 |
| L1 | - | 4.30 |
| P | 3.40 | 3.60 |
| P1 | 7.00 | 7.40 |
| S | 6.05 | 6.25 |
| T | 9.80 | 10.20 |