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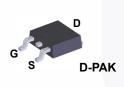
FDD10N20LZ N-Channel UniFETTM MOSFET 200 V, 7.6 A, 360 mΩ

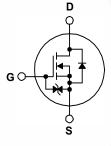
Features

- + $R_{DS(on)}$ = 300 m Ω (Typ.) @ V_{GS} = 10 V, I_D = 3.8 A
- Low Gate Charge (Typ. 12 nC)
- Low C_{rss} (Typ. 11 pF)
- 100% Avalanche Tested
- Improved dv/dt Capability
- · ESD Improved Capability
- RoHS Compliant

Applications

- Lighting
- Uninterruptible Power Supply
- AC-DC Power Supply





MOSFET Maximum Ratings T_C = 25°C unless otherwise noted.

| Symbol | Parameter | | | FDD10N20LZTM | Unit |
|-----------------------------------|---|--|----------|--------------|------|
| V _{DSS} | Drain to Source Voltage | | | 200 | V |
| V _{GSS} | Gate to Source Voltage | | | ±20 | V |
| I _D | Drain Current | - Continuous (T _C = 25 ^o C) | | 7.6 | А |
| | | - Continuous (T _C = 100 ^o C) | | 4.5 | - A |
| I _{DM} | Drain Current | - Pulsed | (Note 1) | 30 | А |
| E _{AS} | Single Pulsed Avalanche Energy (Note 2) | | (Note 2) | 121 | mJ |
| I _{AR} | Avalanche Current (Note 1) | | (Note 1) | 7.6 | А |
| E _{AR} | Repetitive Avalanche Energy (Note 1) | | (Note 1) | 8.3 | mJ |
| dv/dt | Peak Diode Recovery dv/dt (Note 3) | | (Note 3) | 4.5 | V/ns |
| P _D | Power Dissipation | $(T_{\rm C} = 25^{\rm o}{\rm C})$ | | 83 | W |
| | | - Derate Above 25°C | | 0.7 | W/ºC |
| T _J , T _{STG} | Operating and Storage Temp | Operating and Storage Temperature Range | | -55 to +150 | °C |
| TL | Maximum Lead Temperature | for Soldering, 1/8" from Case for 5 Sec | conds | 300 | °C |

Thermal Characteristics

| Symbol | Parameter | FDD10N20LZTM | Unit |
|-----------------------|---|--------------|-------|
| $R_{	extsf{	heta}JC}$ | Thermal Resistance, Junction to Case, Max. | 1.5 | °C/W |
| $R_{	extsf{	heta}JA}$ | Thermal Resistance, Junction to Ambient, Max. | 110 | - C/W |

November 2013

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Description

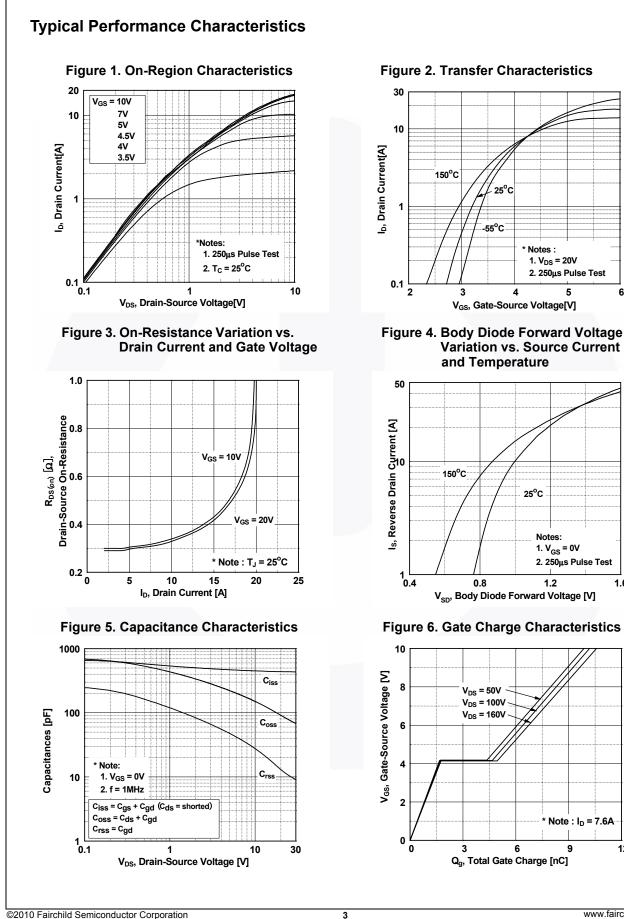
UniFETTM MOSFET is Fairchild Semiconductor's high voltage MOSFET family based on planar stripe and DMOS technology. This MOSFET is tailored to reduce on-state resistance, and to provide better switching performance and higher avalanche energy strength. This device family is suitable for switching power converter applications such as power factor correction (PFC), flat panel display (FPD) TV power, ATX and electronic lamp ballasts.

| FDD10N2 | mber | Top Mark | Package | Package Packing Method Reel Size | | e Ta | ape Width | Qu | antity | |
|---------------------------------|--|--------------------------------------|--|--|-------------------|------|-----------|------|------------|--|
| - | FDD10N20LZTM FDD10N20LZ | | DPAK | Tape and Reel | 330 mm | | 16 mm | 250 | 2500 units | |
| Electrica | I Chara | cteristics T _C = 25°C u | unless othe | wise noted. | | | | | | |
| Symbol | | Parameter | | Test Conditions | S | Min. | Тур. | Max. | Unit | |
| Off Charac | teristics | | | | | | | | | |
| BV _{DSS} | Drain to S | ource Breakdown Voltage | In = | = 250 μA, V _{GS} = 0 V, T | $c = 25^{\circ}C$ | 200 | - | - | V | |
| ∆BV _{DSS} | Breakdown Voltage Temperature | | | | | | 0.0 | | V/°C | |
| $/\Delta T_{\rm J}$ Coefficient | | t | 5 | $I_D = 250 \ \mu A$, Referenced to $25^{\circ}C$ | | - | 0.2 | - | V/°C | |
| I _{DSS} Zero Gate | | Voltage Drain Current | | V_{DS} = 200 V, V_{GS} = 0 V | | - | - | 1 | μA | |
| | | | | _s = 160 V, T _C = 125 ^o C | | - | - | 10 | _ μΑ | |
| I _{GSS} | Gate to Body Leakage Current | | V _G | $_{\rm S}$ = ±20 V, V _{DS} = 0 V | | - | - | ±10 | μA | |
| On Charac | teristics | | | | | | | | | |
| V _{GS(th)} | | eshold Voltage | V _G | _S = V _{DS} , I _D = 250 μA | | 2.0 | - | 3.0 | V | |
| | | | Ve | $_{\rm S}$ = 10 V, I _D = 3.8 A | | - | 0.30 | 0.36 | | |
| R _{DS(on)} | Static Dra | Static Drain to Source On Resistance | | _S = 5 V, I _D = 3.8 A | | - | 0.32 | 0.38 | Ω | |
| 9 _{FS} | Forward T | Transconductance | | _S = 20 V, I _D = 3.8 A | | - | 8 | - | S | |
| Dynamic C | haracter | istics | | | | | | | | |
| C _{iss} | - | pacitance | | | <u> </u> | 440 | 585 | pF | | |
| C _{oss} | | pacitance | V _{DS} = 25 V, V _{GS} = 0 V, | | _ | 75 | 100 | pF | | |
| C _{rss} | • | ransfer Capacitance | f = | f = 1 MHz | | | 11 | 17 | pF | |
| Q _{g(tot)} | | Charge at 10V | N/ | V 400V/1 7.0.4 | | - | 12 | 16 | nC | |
| Q _{gs} | | ource Gate Charge | V _{DS} = 100 V, I _D = 7.6 A, V _{GS} = 10 V | | | | 2 | - | nC | |
| Q _{gd} | | rain "Miller" Charge | •6 | 5 10 1 | (Note 4) | - | 3.5 | - | nC | |
| | | | | | | | | | 1 | |
| Switching | | | | | | | T T | | | |
| t _{d(on)} | Turn-On D | | | V_{DD} = 100 V, I _D = 7.6 A, V _{GS} = 10 V, R _G = 25 Ω | | - | 10 | 30 | ns | |
| t _r | Turn-On R | | | | | - | 15 | 40 | ns | |
| t _{d(off)} | Turn-Off D | | ▼ G | | | | 55 | 120 | ns | |
| t _f | Turn-Off F | all lime | | | (Note 4) | | 25 | 60 | ns | |
| Drain-Sour | ce Diode | Characteristics | | | | | | | | |
| I _S | Maximum Continuous Drain to Source Diode Forward Current | | | | | - | - | 7.6 | Α | |
| I _{SM} | Maximum | Pulsed Drain to Source Dic | de Forward | Forward Current | | - | - | 30 | Α | |
| V _{SD} | | ource Diode Forward Voltag | | _S = 0 V, I _{SD} = 7.6 A | | - | - | 1.4 | V | |
| t _{rr} | Reverse R | ecovery Time | | _S = 0 V, I _{SD} = 7.6 A, | | - | 115 | | ns | |
| Q _{rr} | Reverse R | ecovery Charge | | /dt = 100 A/μs | | - | 0.5 | - | μC | |

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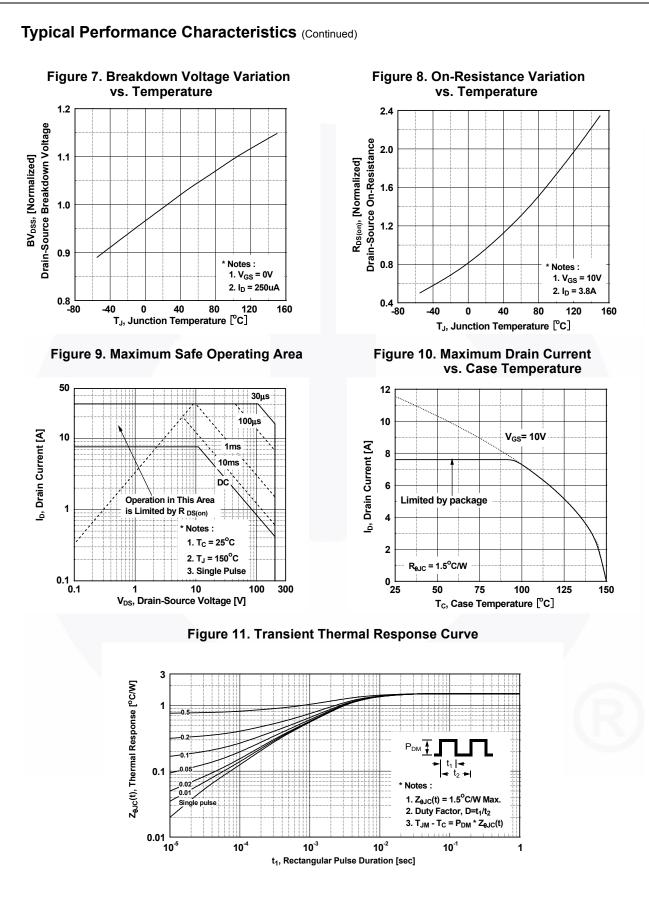
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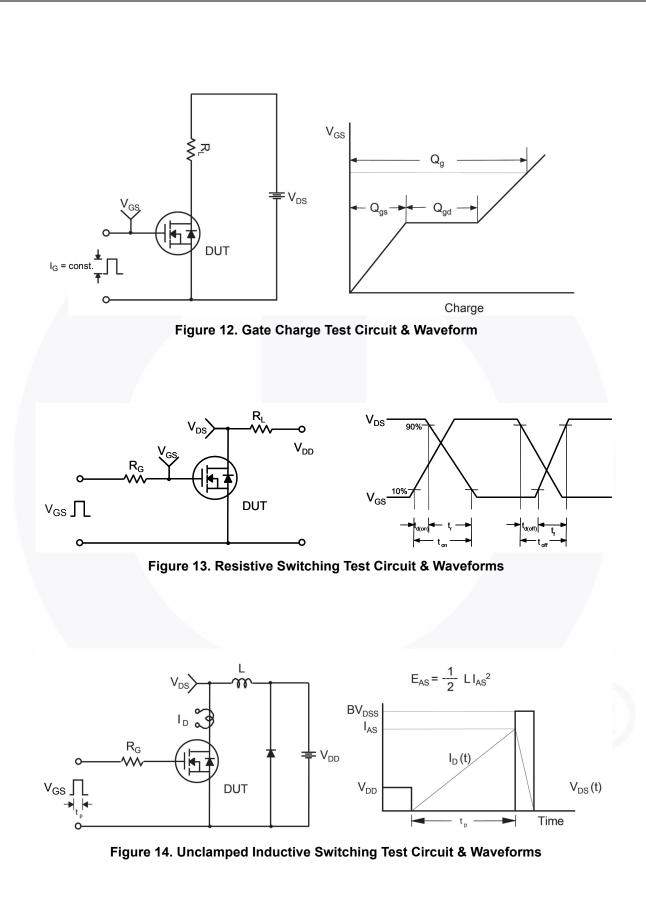
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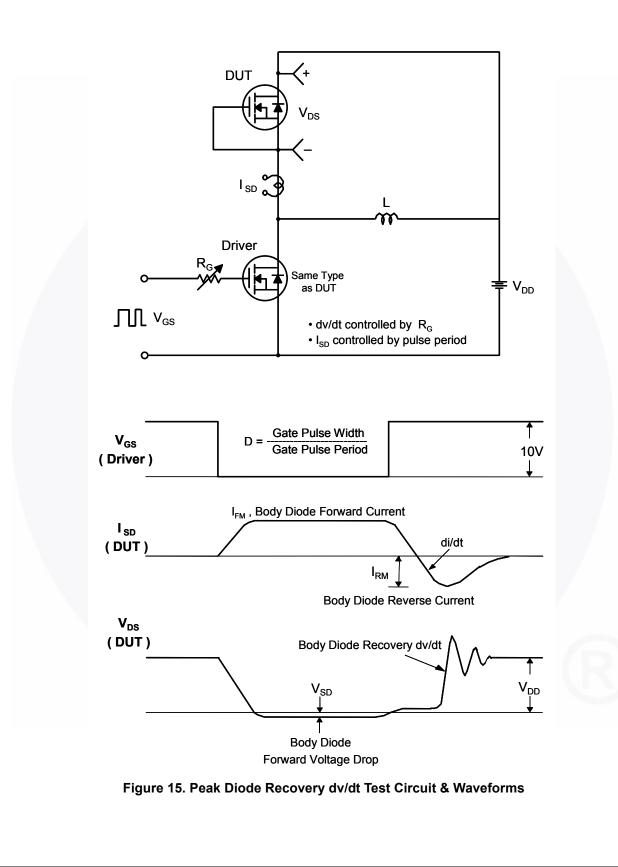


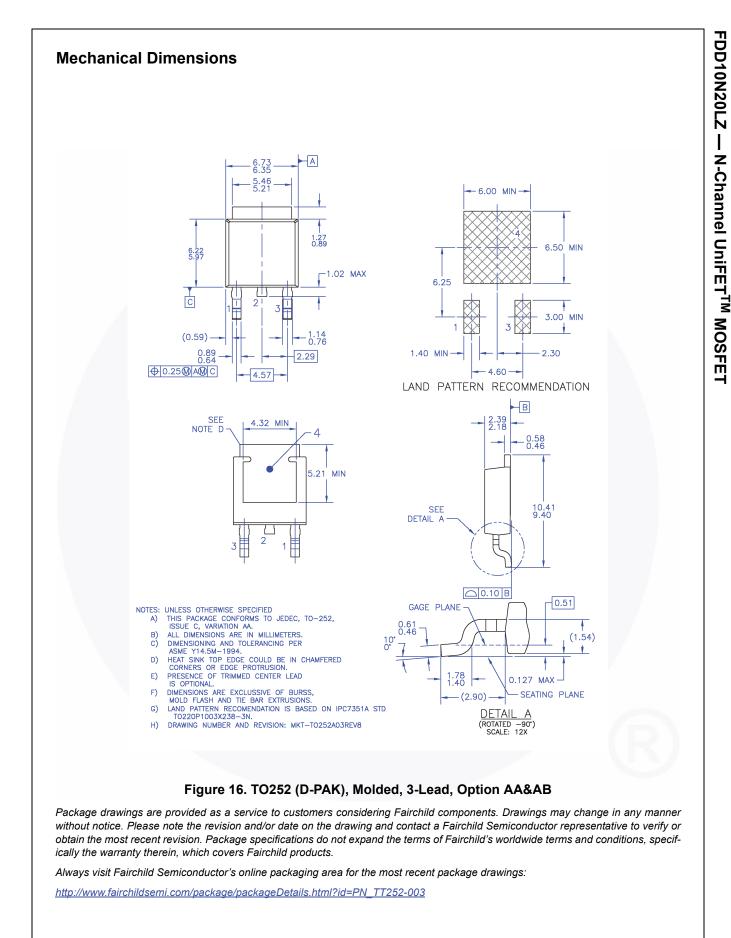
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