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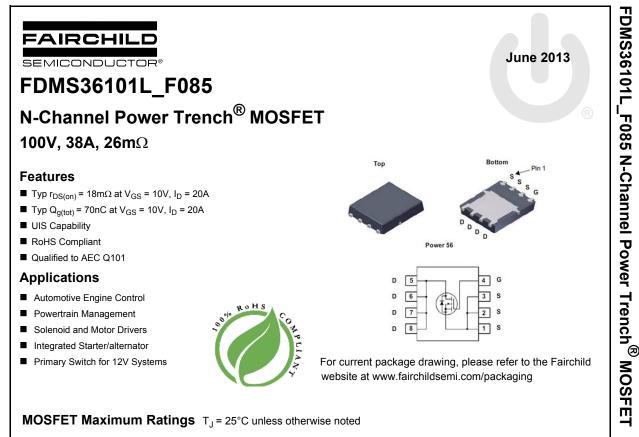


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| Symbol | Parameter | | Ratings | Units |
|-----------------------------------|---|-----------------------|--------------|-------|
| V _{DSS} | Drain to Source Voltage | | 100 | V |
| V _{GS} | Gate to Source Voltage | | ±20 | V |
| I _D | Drain Current - Continuous (V _{GS} =10) (Note 1) | T _C =25°C | 38 | |
| | Pulsed Drain Current | T _C = 25°C | See Figure4 | Α |
| E _{AS} | Single Pulse Avalanche Energy | (Note 2) | 101 | mJ |
| P _D | Power Dissipation | | 94 | W |
| | Derate above 25°C | | 0.63 | W/ºC |
| T _J , T _{STG} | Operating and Storage Temperature | | -55 to + 175 | °C |
| R _{0JC} | Thermal Resistance Junction to Case | | 1.6 | °C/W |
| $R_{\theta JA}$ | Maximum Thermal Resistance Junction to Ambient | (Note 3) | 50 | °C/W |

Package Marking and Ordering Information

| Device Marking | Device | Package | Reel Size | Tape Width | Quantity |
|----------------|-----------------|----------|-----------|------------|------------|
| FDMS36101L | FDMS36101L_F085 | Power 56 | 13" | 12mm | 3000 units |

Notes:

1: Current is limited by bondwire configuration.

2: Starting T_J = 25°C, L = 0.22mH, I_{AS} = 30.4A, V_{DD} = 100V during inductor charging and V_{DD} = 0V during time in avalanche 3: $R_{\theta,JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta JA}$ is determined by the user's board design. The maximum rating presented here is based on mounting on a 1 in² pad of 2oz copper.

| Symbol | Parameter | Test | Conditions | Min | Тур | Мах | Units |
|--|-----------------------------------|--|---|-----|-------------|------|----------|
| Off Cha | racteristics | | | | | | |
| B _{VDSS} | Drain to Source Breakdown Voltage | I _D = 250μA, V | / _{GS} = 0V | 100 | - | - | V |
| | | V _{DS} =100V, | $T_J = 25^{\circ}C$ | - | - | 1 | μA |
| IDSS | Drain to Source Leakage Current | $V_{GS} = 0V$ | T _J = 175 ^o C(Note 4) | - | - | 1 | mA |
| I _{GSS} | Gate to Source Leakage Current | V_{GS} = ±20V | | - | - | ±100 | nA |
| V _{GS(th)} | Gate to Source Threshold Voltage | V _{GS} = V _{DS} , I _E | _D = 250μA | 1.0 | 1.84 | 3.0 | V |
| VGS(th) | Gale to Source Threshold Voltage | $V_{GS} = V_{DS}, I_{C}$ $I_{D} = 20A,$ | $T_{\rm J} = 250 \mu \text{A}$ | 1.0 | 1.04 | 26 | ν mΩ |
| | Drain to Source On Resistance | | | - | 45 | 65 | mΩ |
| r _{DS(on)} | | I _D = 20A, | $T_J = 25^{\circ}C$ | - | 20 | 28 | mΩ |
| | | V _{GS} = 4.5V | $T_{.1} = 175^{\circ}C(Note 4)$ | - | 47 | 66 | mΩ |
| Dynami C _{iss} C _{oss} | C Characteristics | | | - | 3945 229 | - | pF pF |
| C _{rss} | Reverse Transfer Capacitance | f = 1MHz | _ | - | 111 | - | pF |
| R _q | Gate Resistance | f = 1MHz | | - | 1.2 | - | <u>Ω</u> |
| Q _{g(ToT)} | Total Gate Charge at 10V | V _{GS} = 0 to 10 | V V _{DD} = 50V | - | 70 | 84 | nC |
| $Q_{g(th)}$ | Threshold Gate Charge | $V_{GS} = 0$ to $2V$ | ••••• | - | 6.8 | 9 | nC |
| 9() | Gate to Source Gate Charge | | | - | 10.5 | - | nC |
| Q _{gs} | | _ | - | | 12 | - | nC |

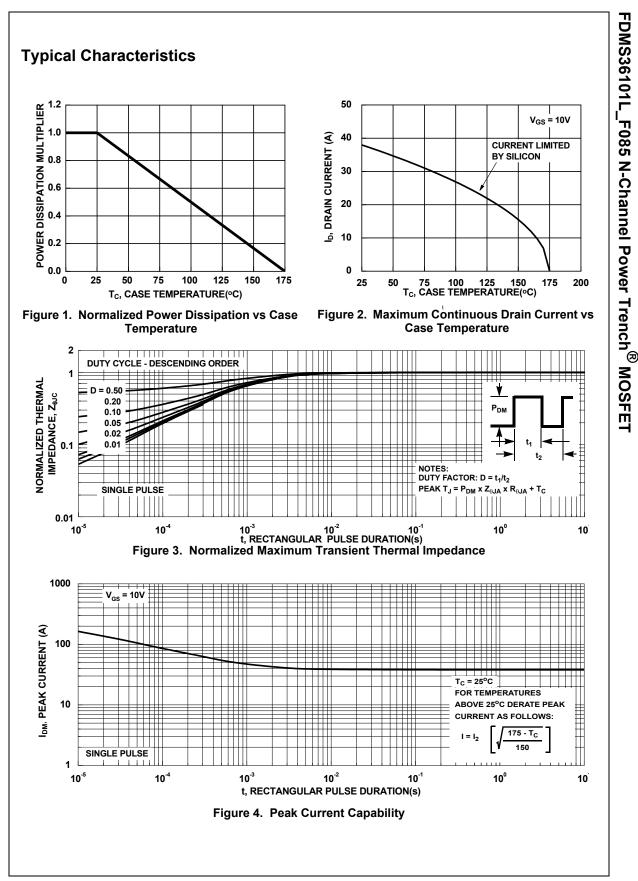
| t _{on} | Turn-On Time | | - | - | 24 | ns |
|---------------------|---------------------|--|---|----|----|----|
| t _{d(on)} | Turn-On Delay Time | | - | 15 | - | ns |
| t _r | Rise Time | V _{DD} = 50V, I _D = 20A, | - | 7 | - | ns |
| t _{d(off)} | Turn-Off Delay Time | V_{GS} = 10V, R_{GEN} = 6 Ω | - | 45 | - | ns |
| t _f | Fall Time | | - | 3 | - | ns |
| t _{off} | Turn-Off Time | | - | - | 57 | ns |

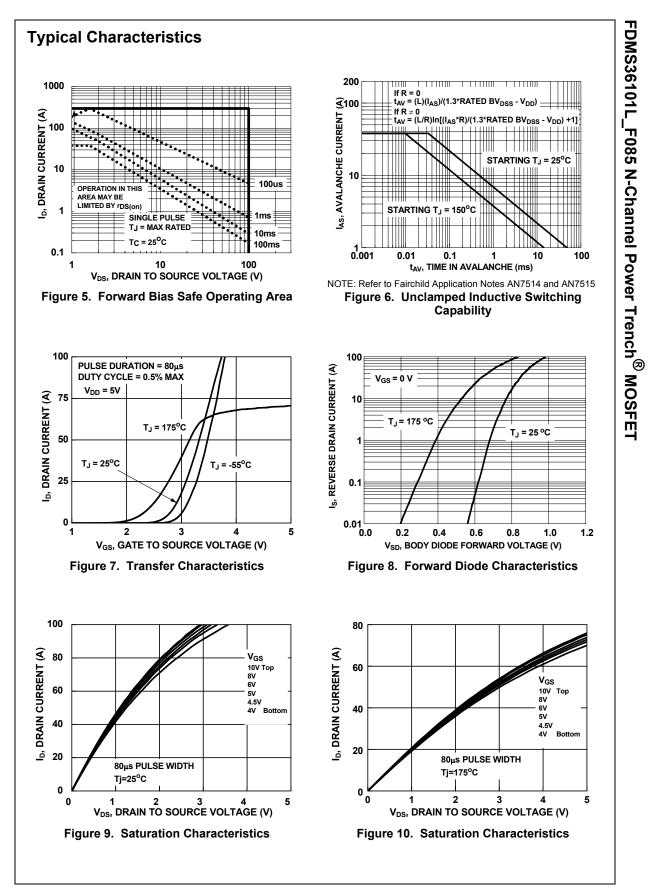
Drain-Source Diode Characteristics

| V _{SD} Source to I | Source to Drain Diode Voltage | I _{SD} = 20A, V _{GS} = 0V | - | - | 1.25 | V |
|-----------------------------|-------------------------------|---|---|----|------|----|
| | Source to Brain Diode Voltage | I _{SD} = 10A, V _{GS} = 0V | - | - | 1.2 | V |
| T _{rr} | Reverse Recovery Time | I _F = 20A, dI _{SD} /dt = 100A/μs, | - | 43 | 47 | ns |
| Q _{rr} | Reverse Recovery Charge | V _{DD} =80V | - | 71 | 85 | nC |

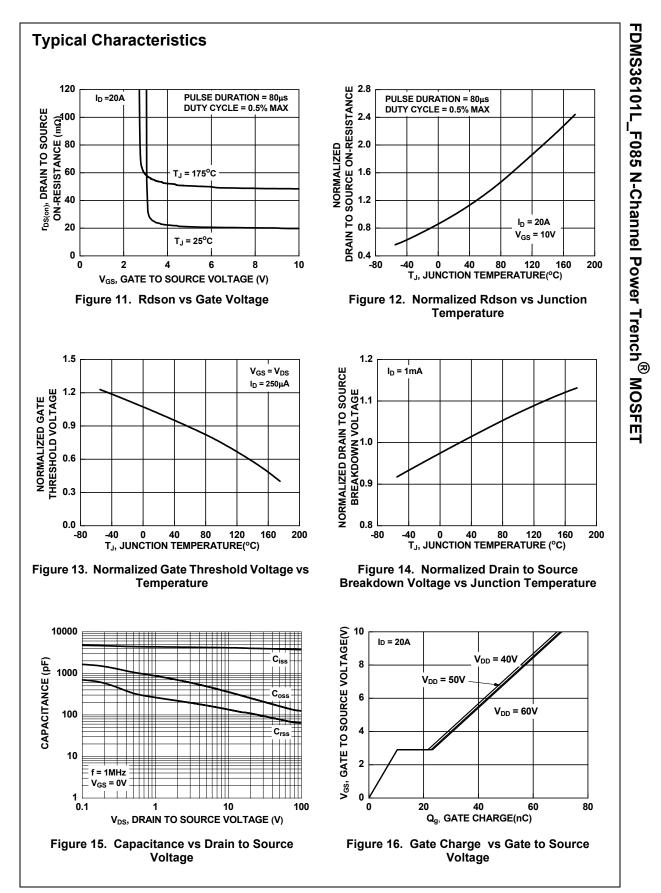
Notes:

4: The maximum value is specified by design at $T_J = 175^{\circ}$ C. Product is not tested to this condition in production.





FDMS36101L_F085 Rev. C1



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