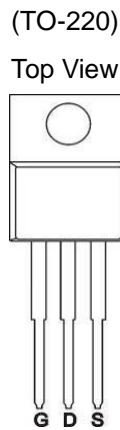


N-Channel 100V(D-S) MOSFET

GENERAL DESCRIPTION

The MEE4298T is a N-Channel enhancement mode power field effect transistor, using Force-MOS patented Extended Trench Gate (ETG) technology. This advanced technology is especially tailored to minimize on state resistance and gate charge, and enhance avalanche capability. These devices are particularly suited for medium voltage application such as charger, adapter, notebook computer power management and other lighting dimming powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

PIN CONFIGURATION



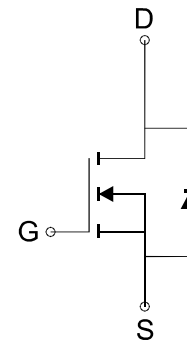
Ordering Information: MEE4298T (Pb-free)

FEATURES

- $R_{DS(ON)} \leq 8m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 11.5m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management
- Synchronous Rectification
- Load Switch



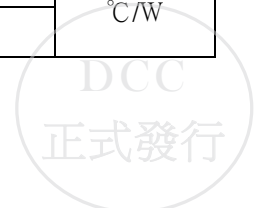
N-Channel MOSFET

Absolute Maximum Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)

| Parameter | Symbol | Maximum Ratings | Unit | |
|--|-----------------|------------------|--------------|---|
| Drain-Source Voltage | V_{DS} | 100 | V | |
| Gate-Source Voltage | V_{GS} | ± 20 | V | |
| Continuous Drain Current* | I_D | $T_C=25^\circ C$ | 64 | A |
| | | $T_C=70^\circ C$ | 51 | |
| | | $T_A=25^\circ C$ | 13 | |
| | | $T_A=70^\circ C$ | 10.3 | |
| Pulsed Drain Current | I_{DM} | 193. | A | |
| Maximum Power Dissipation* | P_D | $T_C=25^\circ C$ | 69 | W |
| | | $T_C=70^\circ C$ | 44 | |
| | | $T_A=25^\circ C$ | 2.8 | |
| | | $T_A=70^\circ C$ | 1.8 | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ C$ | |
| Thermal Resistance-Junction to Case* | $R_{\theta JC}$ | 1.8 | $^\circ C/W$ | |
| Junction-to-Ambient Thermal Resistance* | $R_{\theta JA}$ | 45 | | |

* The device mounted on 1in² FR4 board with 2 oz copper

* Chip silicon limitation current is 100A



N-Channel 100V(D-S) MOSFET

Electrical Characteristics (TA=25°C Unless Otherwise Specified)

| Symbol | Parameter | Limit | Min | Typ | Max | Unit |
|---------------------|---|---|-----|------|------|------|
| STATIC | | | | | | |
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250 μA | 100 | | | V |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250 μA | 1 | | 2.5 | V |
| I _{GSS} | Gate Leakage Current | V _{DS} =0V, V _{GS} =±20V | | | ±100 | nA |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =100V, V _{GS} =0V | | | 1 | μA |
| R _{DS(ON)} | Drain-Source On-State Resistance ^a | V _{GS} =10V, I _D =20A | | 6.7 | 8 | mΩ |
| | | V _{GS} =4.5V, I _D =20A | | 8.8 | 11.5 | |
| V _{SD} | Diode Forward Voltage | I _S =1A, V _{GS} =0V | | | 1 | V |
| DYNAMIC | | | | | | |
| Q _g | Total Gate Charge | V _{DS} =50V, V _{GS} =10V, I _D =20A | | 66.8 | | nC |
| Q _g | Total Gate Charge | V _{DS} =50V, V _{GS} =4.5V, I _D =20A | | 35.2 | | |
| Q _{gs} | Gate-Source Charge | | | 12.6 | | |
| Q _{gd} | Gate-Drain Charge | | | 14.1 | | |
| C _{iss} | Input capacitance | V _{DS} =30V, V _{GS} =0V, f=1.0MHz | | 3729 | | pF |
| C _{oss} | Output Capacitance | | | 1130 | | |
| C _{rss} | Reverse Transfer Capacitance | | | 64 | | |
| t _{d(on)} | Turn-On Delay Time | V _{DS} =50V, R _L =2.5Ω V _{GS} =10V, R _G =6Ω I _D =20A | | 25.4 | | ns |
| t _r | Turn-On Rise Time | | | 46.9 | | |
| t _{d(off)} | Turn-Off Delay Time | | | 64.3 | | |
| t _f | Turn-Off Fall Time | | | 23.1 | | |

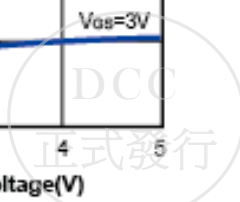
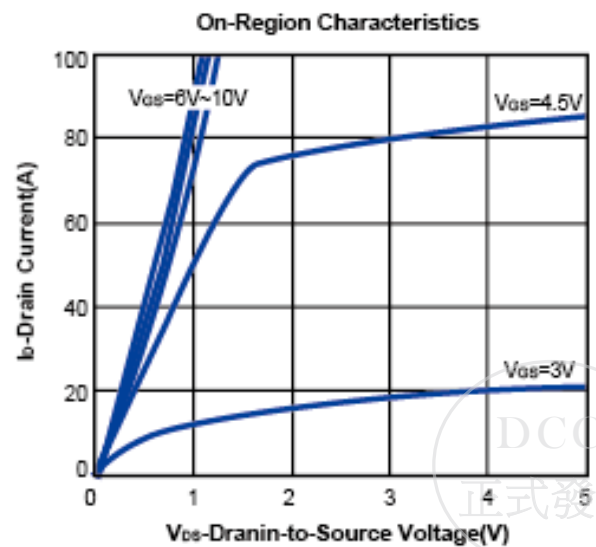
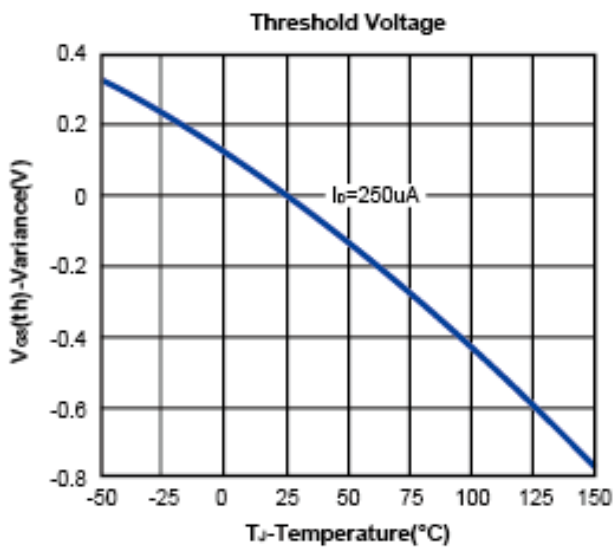
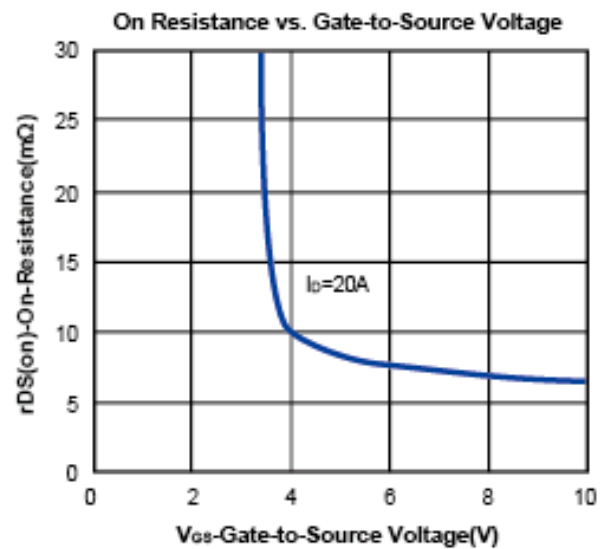
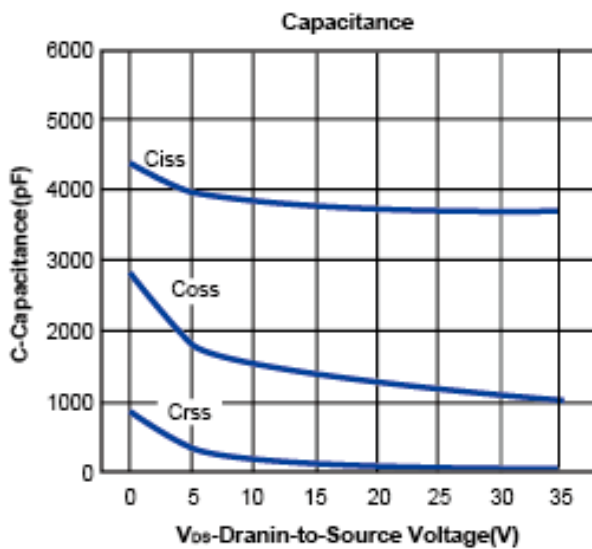
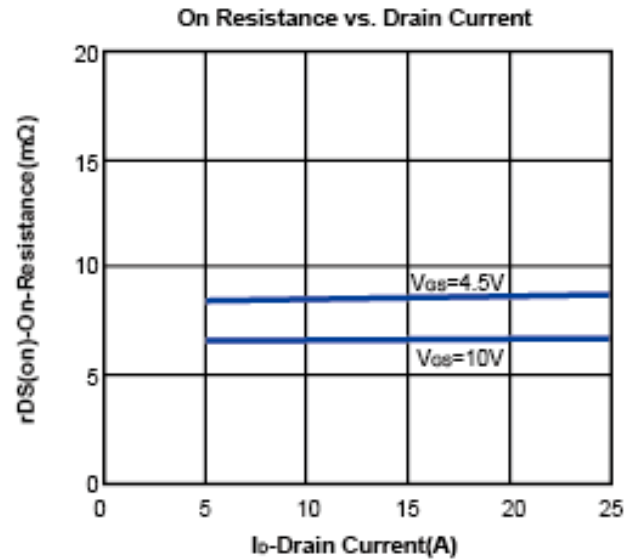
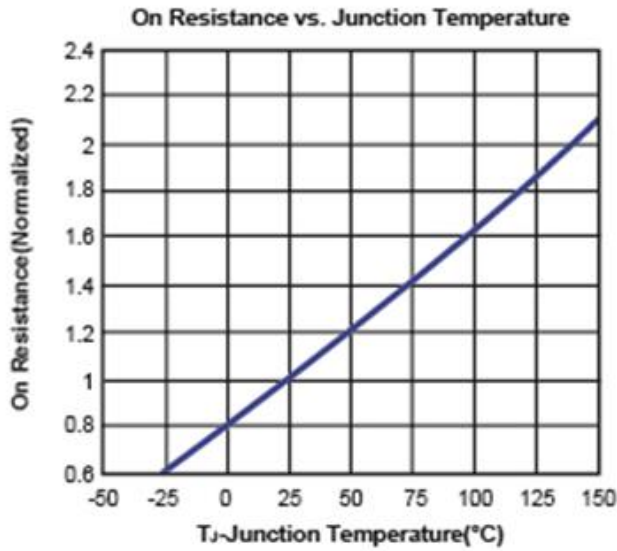
Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

b. Force mos reserves the right to improve or change product design, functions, reliability, qualified manufacturer without notice.



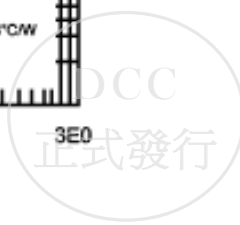
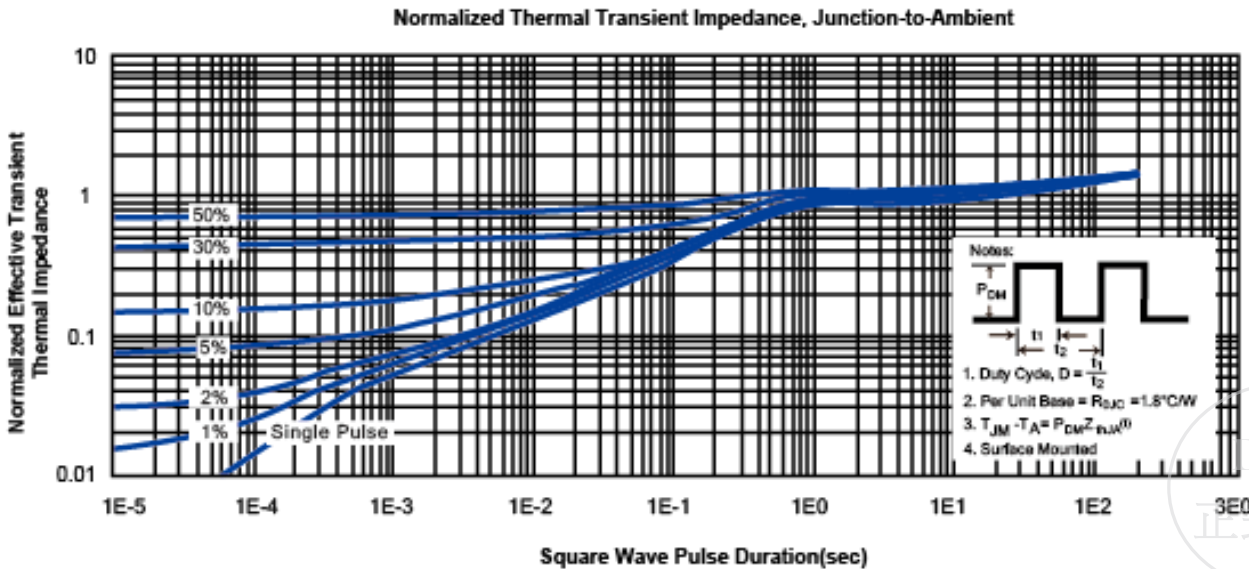
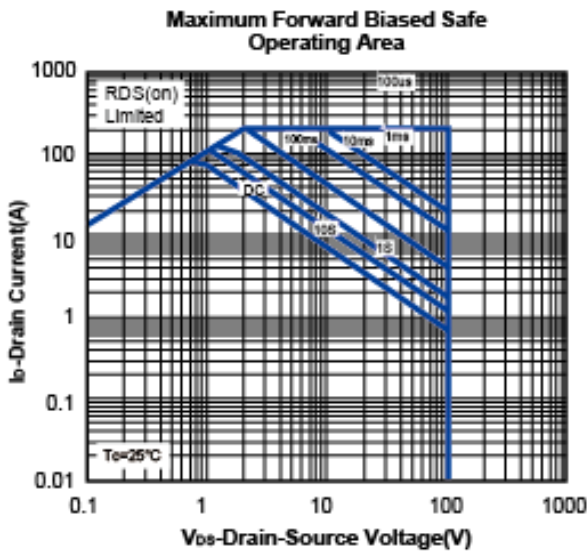
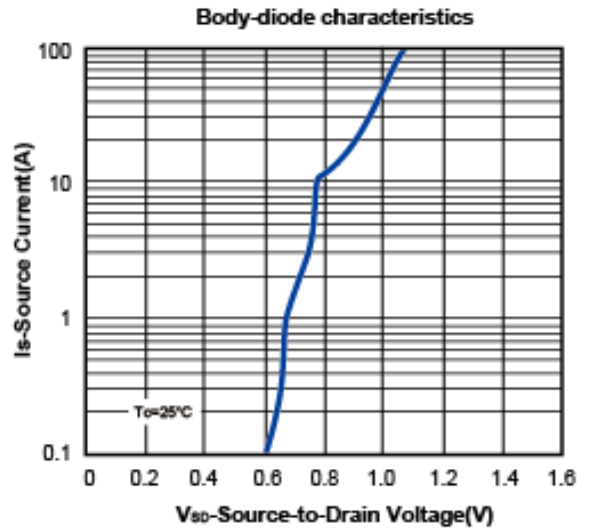
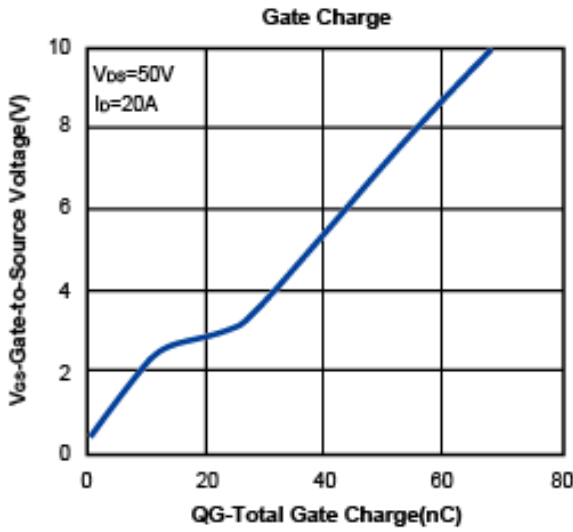
Typical Characteristics (T_J = 25°C Noted)

N-Channel 100V(D-S) MOSFET

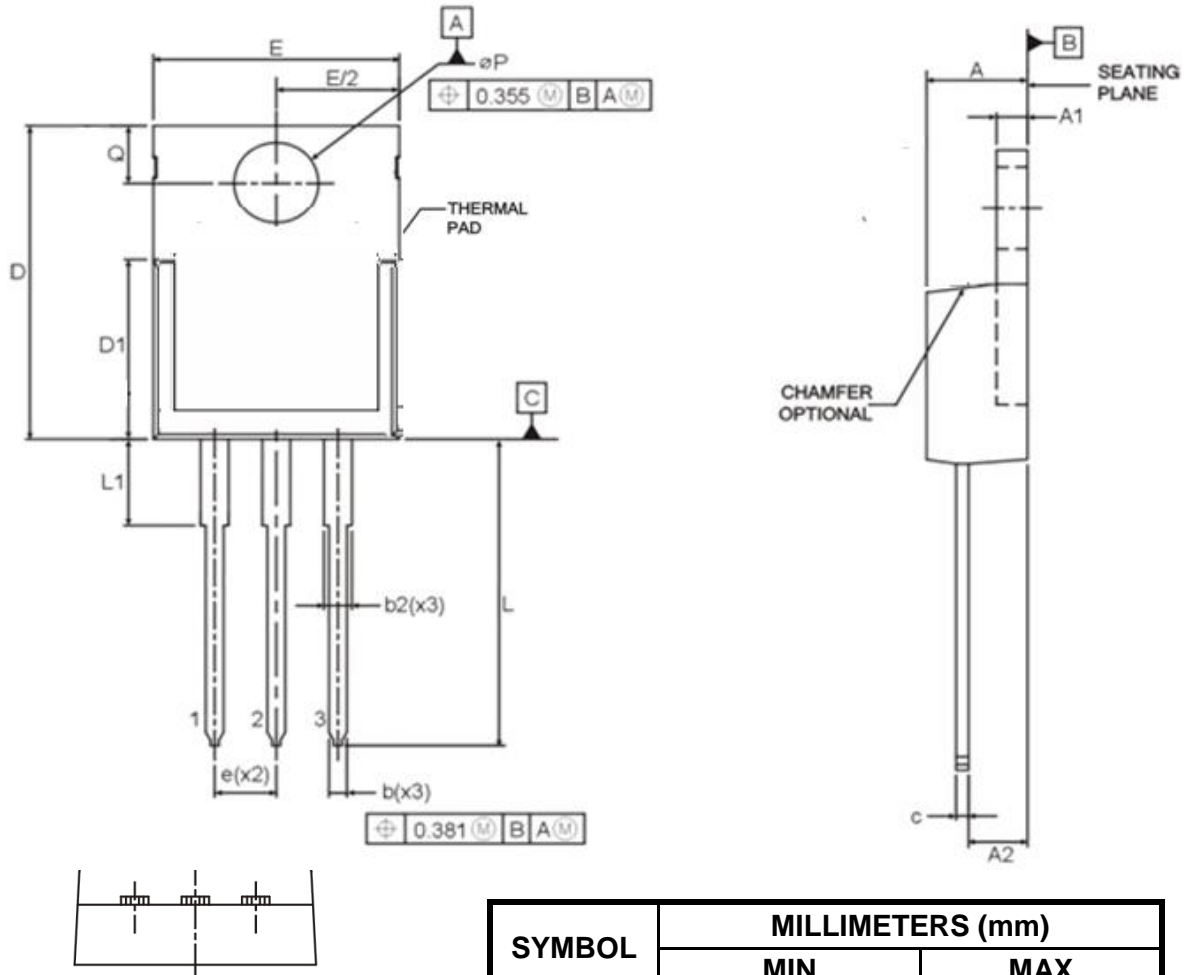


N-Channel 100V(D-S) MOSFET

Typical Characteristics (T_J = 25°C Noted)



TO-220 Package Outline



| SYMBOL | MILLIMETERS (mm) | |
|-----------------|------------------|-------|
| | MIN | MAX |
| A | 3.50 | 4.90 |
| A1 | 1.00 | 1.50 |
| A2 | 2.00 | 3.00 |
| b | 0.60 | 1.40 |
| c | 0.30 | 0.70 |
| D | 14.00 | 16.50 |
| D1 | 8.30 | 9.60 |
| E | 9.58 | 10.70 |
| e | 2.44 | 2.64 |
| L | 12.50 | 15.00 |
| $\varnothing P$ | 3.40 | 3.83 |
| Q | 2.50 | 3.25 |
| b2 | 1.00 | 1.80 |
| L1 | 2.40 | 3.50 |

