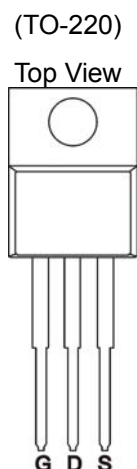


N- Channel 75-V (D-S) MOSFET

GENERAL DESCRIPTION

The ME80N75T is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

PIN CONFIGURATION

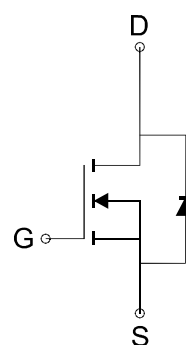


FEATURES

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

APPLICATIONS

- Power Management
- DC/DC Converter
- Load Switch



N-Channel MOSFET

Ordering Information: ME80N75T (Pb-free)

ME80N75T-G (Green product-Halogen free)

Absolute Maximum Ratings (Tc=25°C Unless Otherwise Noted)

| Parameter | | Symbol | Limit | Unit |
|--|---------|-----------------|------------|------|
| Drain-Source Voltage | | V_{DSS} | 75 | V |
| Gate-Source Voltage | | V_{GSS} | ± 25 | V |
| Continuous Drain Current* | Tc=25°C | I_D | 93 | A |
| | Tc=70°C | | 78 | |
| Pulsed Drain Current | | I_{DM} | 372 | A |
| Maximum Power Dissipation | Tc=25°C | P_D | 200 | W |
| | Tc=70°C | | 140 | |
| Operating Junction and Storage Temperature Range | | T_J | -55 to 175 | °C |
| Thermal Resistance-Junction to Case** | | $R_{\theta JC}$ | 0.75 | °C/W |

* Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 80A.

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



N- Channel 75-V (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 | 75 | | | V |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250 μA | 2.0 | | 4.0 | V |
| I _{GSS} | Gate-Body Leakage | V _{DS} =0V, V _{GS} =±25V | | | ±100 | nA |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =75V, V _{GS} =0V | | | 1 | μA |
| R _{DS(ON)} | Drain-Source On-Resistance* | V _{GS} =10V, I _D =40A | | 8 | 10 | mΩ |
| V _{SD} | Diode Forward Voltage * | I _S =40A, V _{GS} =0V | | 0.9 | 1.2 | V |
| DYNAMIC | | | | | | |
| Q _g | Total Gate Charge | V _{DD} =60V, V _{GS} =10V, I _D =75A | | 134 | | nC |
| Q _g | Total Gate Charge | V _{DD} =60V, V _{GS} =4.5V, I _D =75A | | 27 | | |
| Q _{gs} | Gate-Source Charge | | | 36 | | |
| Q _{gd} | Gate-Drain Charge | | | 50 | | |
| R _g | Gate Resistance | V _{DS} =0V, V _{GS} =0V, f=1MHz | | 0.8 | | Ω |
| C _{iss} | Input Capacitance | V _{DS} =20V, V _{GS} =0V, f=1MHz | | 6200 | | pF |
| C _{oss} | Output Capacitance | | | 437 | | |
| C _{rss} | Reverse Transfer Capacitance | | | 144 | | |
| t _{d(on)} | Turn-On Delay Time | V _{GS} =10V, R _L =15Ω V _{DD} =30V, R _G =10Ω | | 60 | | ns |
| t _r | Turn-On Rise Time | | | 43 | | |
| t _{d(off)} | Turn-Off Delay Time | | | 159 | | |
| t _f | Turn-Off Fall Time | | | 47 | | |

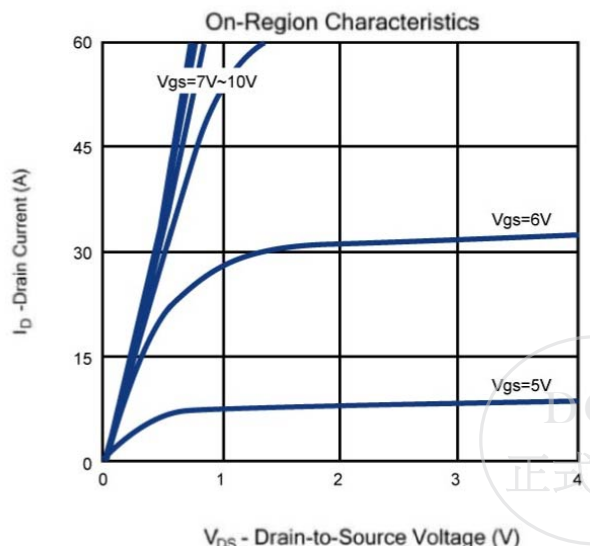
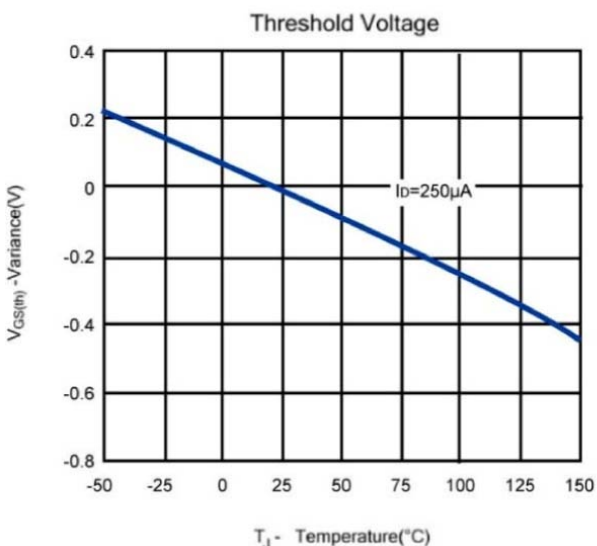
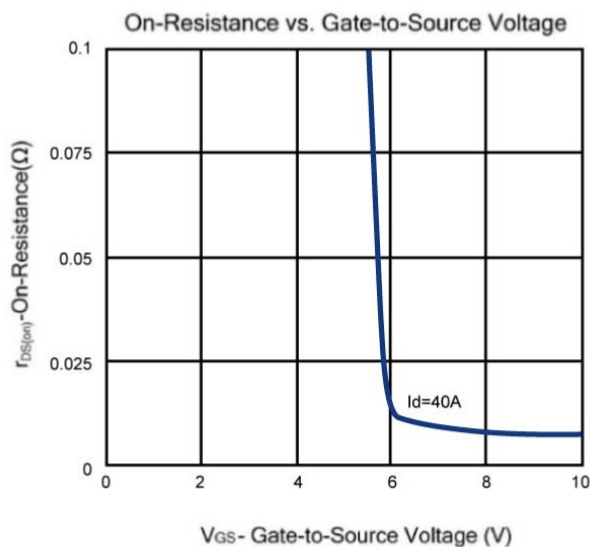
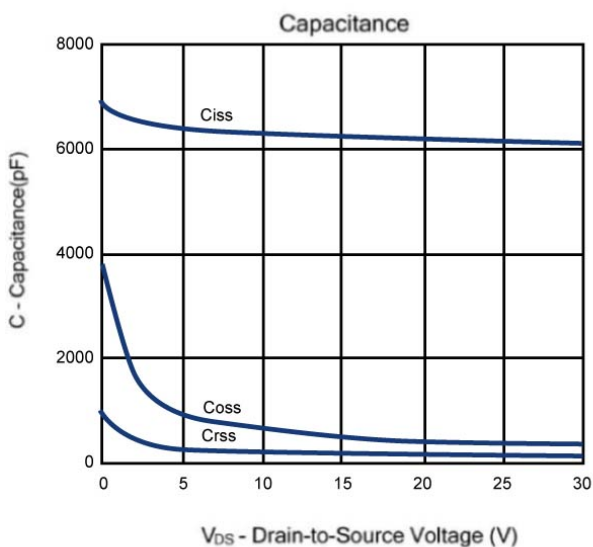
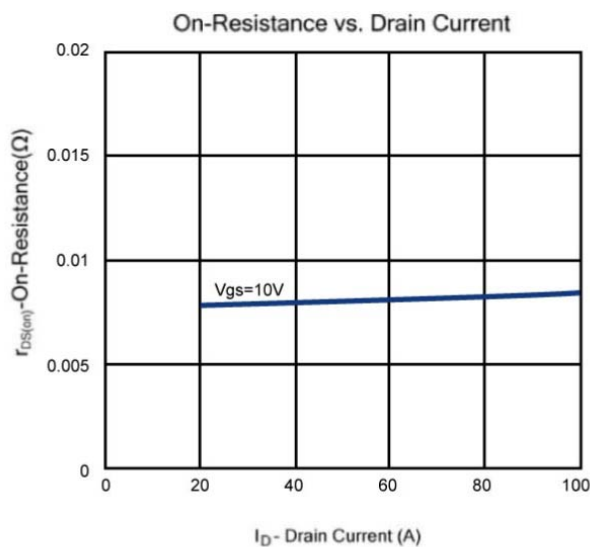
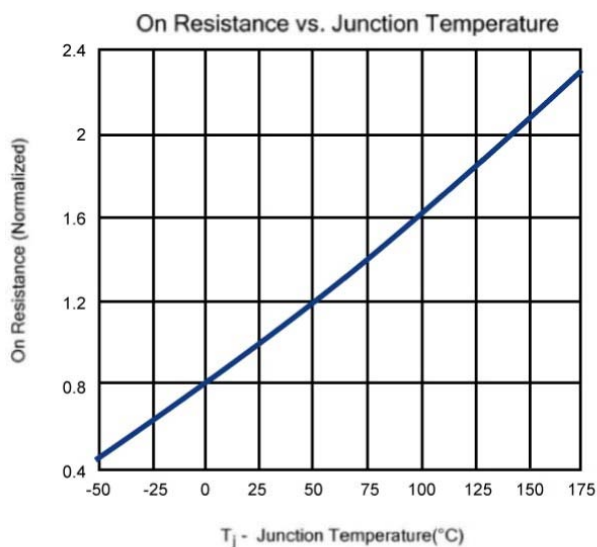
Notes: a. pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.



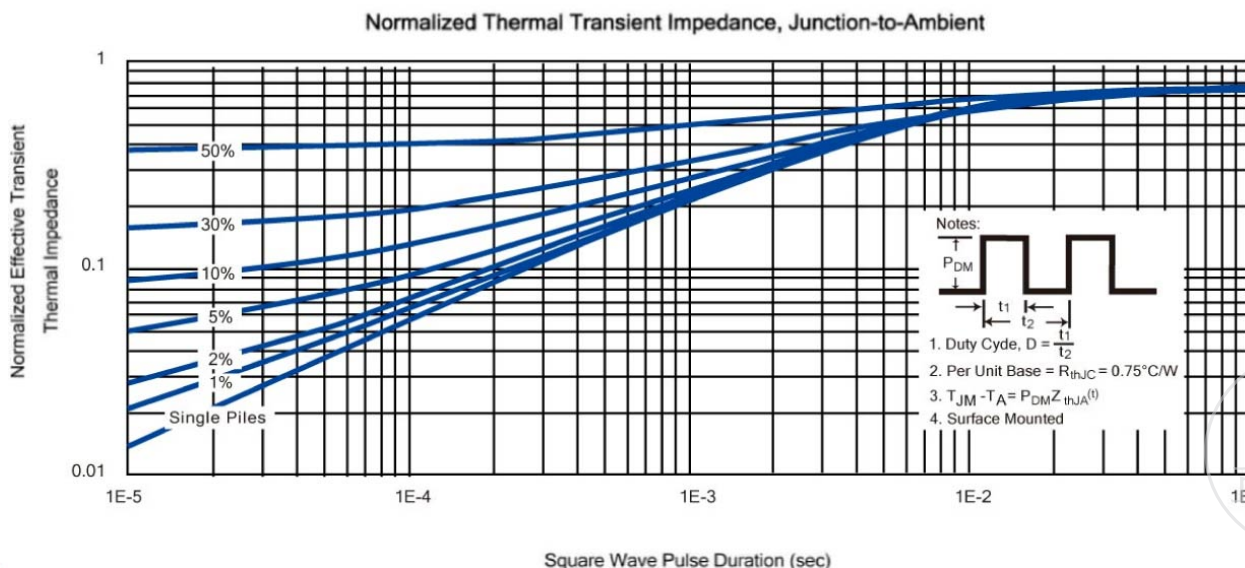
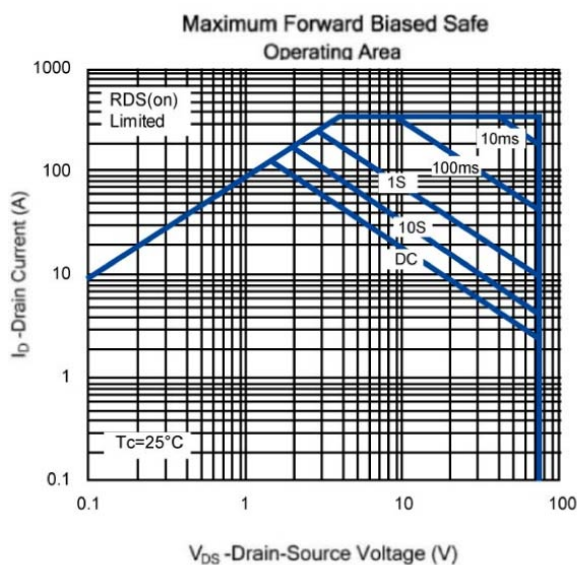
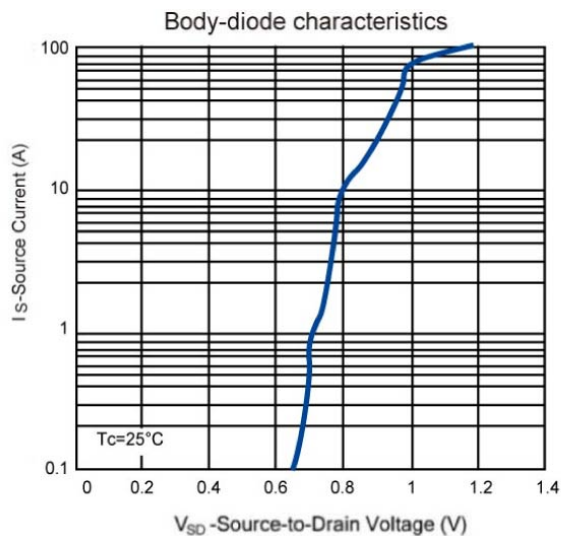
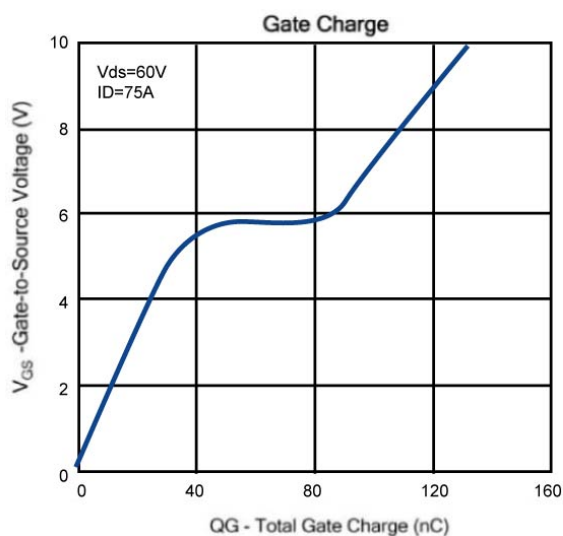
N- Channel 75-V (D-S) MOSFET

Typical Characteristics (T_J =25°C Noted)

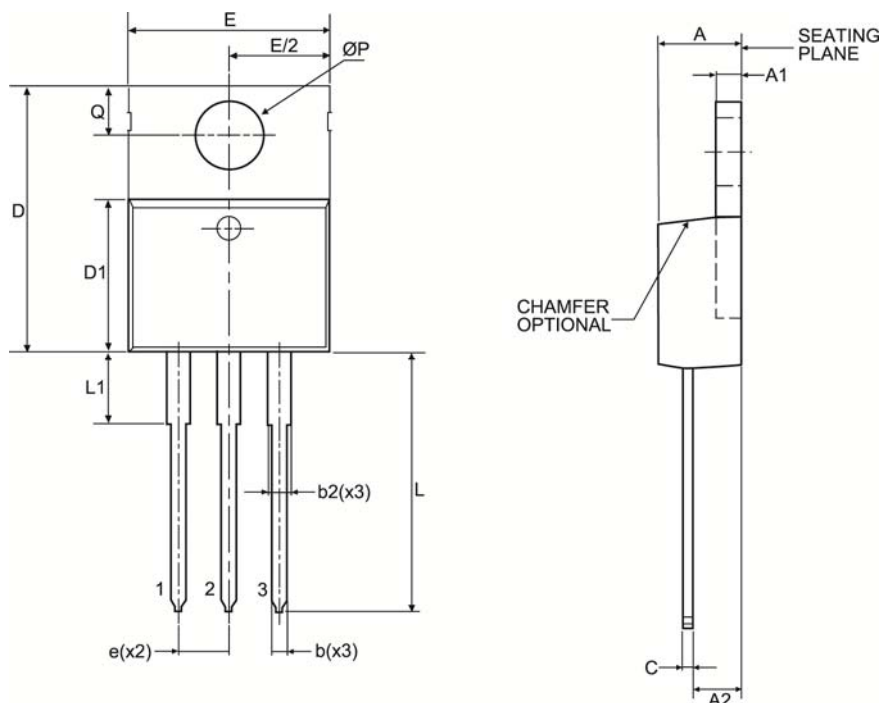


N- Channel 75-V (D-S) MOSFET

Typical Characteristics (T_J =25°C Noted)



TO-220 Package Outline



| Symbol | MILLIMETERS (mm) | |
|--------|------------------|-------|
| | MIN | MAX |
| A | 3.50 | 4.90 |
| A1 | 1.00 | 1.40 |
| A2 | 2.00 | 3.00 |
| b | 0.70 | 1.40 |
| c | 0.35 | 0.65 |
| D | 14.00 | 16.50 |
| D1 | 8.30 | 9.50 |
| E | 9.60 | 10.70 |
| e | 2.54 BSC | |
| L | 12.50 | 15.00 |
| ØP | 3.60 TYP | |
| Q | 2.50 | 3.10 |
| b2 | 1.10 | 1.80 |
| L1 | 2.40 | 3.20 |

