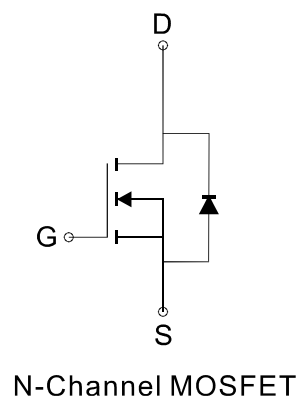
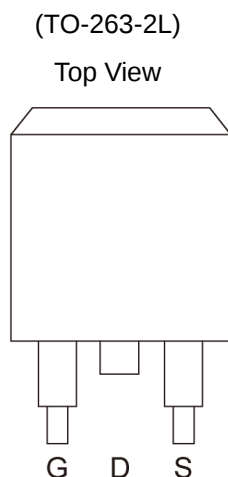


**N-Channel 60-V (D-S) MOSFET**

**GENERAL DESCRIPTION**

The ME3205H-G is the N-Channel logic enhancement mode power field effect transistors, using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on state resistance. These devices are particularly suited for low voltage application such as notebook computer power management and other battery powered circuits where Low-side switching , and low in-line power loss are needed in a very small outline surface mount package.

**PIN CONFIGURATION**



**FEATURES**

- $R_{DS(ON)} \leq 6.5m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

**APPLICATIONS**

- Power Management in Note book
- DC/DC Converter
- Load Switch
- LCD Display inverter

**Ordering Information:** ME3205H-G (Green product-Halogen free)

**Absolute Maximum Ratings** ( $T_c=25^\circ\text{C}$  Unless Otherwise Noted)

| Parameter                              |                        | Symbol          | Maximum Ratings | Unit               |
|----------------------------------------|------------------------|-----------------|-----------------|--------------------|
| Drain-Source Voltage                   |                        | $V_{DS}$        | 60              | V                  |
| Gate-Source Voltage                    |                        | $V_{GS}$        | $\pm 20$        | V                  |
| Continuous Drain Current               | $T_c=25^\circ\text{C}$ | $I_D$           | 109.6           | A                  |
|                                        | $T_c=70^\circ\text{C}$ |                 | 87.7            |                    |
| Pulsed Drain Current                   |                        | $I_{DM}$        | 439             | A                  |
| Maximum Power Dissipation              | $T_c=25^\circ\text{C}$ | $P_D$           | 125             | W                  |
|                                        | $T_c=70^\circ\text{C}$ |                 | 80              |                    |
| Junction and Storage Temperature Range |                        | $T_J, T_{stg}$  | -55 to 150      | $^\circ\text{C}$   |
| Thermal Resistance-Junction to Case *  |                        | $R_{\theta JC}$ | 1               | $^\circ\text{C/W}$ |

\* The device mounted on  $1\text{in}^2$  FR4 board with 2 oz copper

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**N-Channel 60-V (D-S) MOSFET**
**Electrical Characteristics** ( $T_J=25^{\circ}\text{C}$  Unless Otherwise Specified)

| Symbol         | Parameter                               | Limit                                                                    | Min | Typ  | Max       | Unit       |
|----------------|-----------------------------------------|--------------------------------------------------------------------------|-----|------|-----------|------------|
| <b>STATIC</b>  |                                         |                                                                          |     |      |           |            |
| $BV_{DSS}$     | Drain-Source Breakdown Voltage          | $V_{GS}=0V, I_D=250\mu A$                                                | 60  |      |           | V          |
| $V_{GS(th)}$   | Gate Threshold Voltage                  | $V_{DS}=V_{GS}, I_D=250\mu A$                                            | 2   |      | 4         | V          |
| $I_{GSS}$      | Gate Leakage Current                    | $V_{DS}=0V, V_{GS}=\pm 20V$                                              |     |      | $\pm 100$ | nA         |
| $I_{DSS}$      | Zero Gate Voltage Drain Current         | $V_{DS}=60V, V_{GS}=0V$                                                  |     |      | 1         | $\mu A$    |
| $R_{DS(ON)}$   | Drain-Source On-Resistance <sup>a</sup> | $V_{GS}=10V, I_D=50A$                                                    |     | 5.3  | 6.4       | m $\Omega$ |
| $V_{SD}$       | Diode Forward Voltage                   | $I_S=50A, V_{GS}=0V$                                                     |     | 0.9  | 1.2       | V          |
| <b>DYNAMIC</b> |                                         |                                                                          |     |      |           |            |
| $Q_g$          | Total Gate Charge                       | $V_{DS}=30V, V_{GS}=10V, I_D=50A$                                        |     | 127  |           | nC         |
| $Q_{gs}$       | Gate-Source Charge                      |                                                                          |     | 37   |           |            |
| $Q_{gd}$       | Gate-Drain Charge                       |                                                                          |     | 10.4 |           |            |
| $C_{iss}$      | Input Capacitance                       | $V_{DS}=30V, V_{GS}=0V, f=1MHz$                                          |     | 7825 |           | pF         |
| $C_{oss}$      | Output Capacitance                      |                                                                          |     | 319  |           |            |
| $C_{rss}$      | Reverse Transfer Capacitance            |                                                                          |     | 237  |           |            |
| $t_{d(on)}$    | Turn-On Delay Time                      | $V_{DS}=30V, R_L=0.6\Omega,$<br>$V_{GS}=10V, R_G=6.8\Omega$<br>$I_D=50A$ |     | 58.4 |           | ns         |
| $t_r$          | Turn-On Rise Time                       |                                                                          |     | 334  |           |            |
| $t_{d(off)}$   | Turn-Off Delay Time                     |                                                                          |     | 87.6 |           |            |
| $t_f$          | Turn-Off Fall Time                      |                                                                          |     | 181  |           |            |

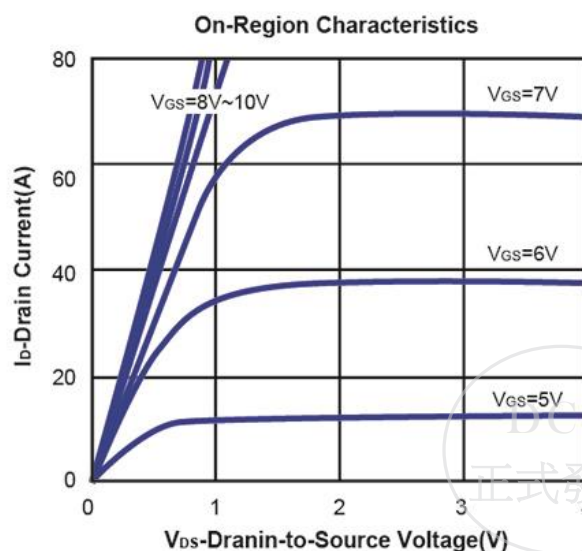
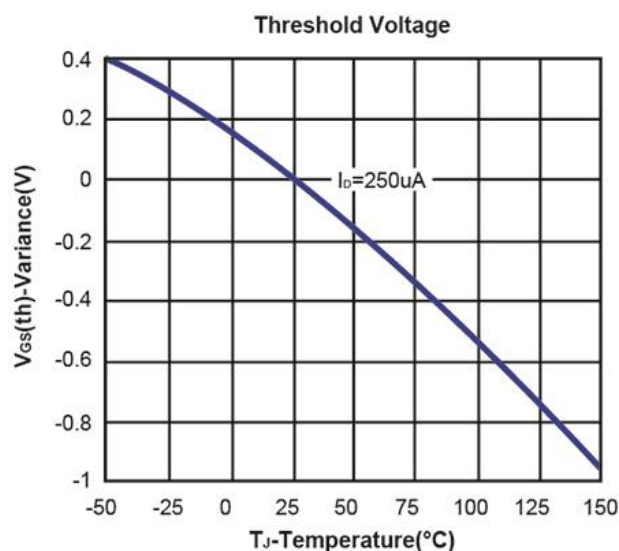
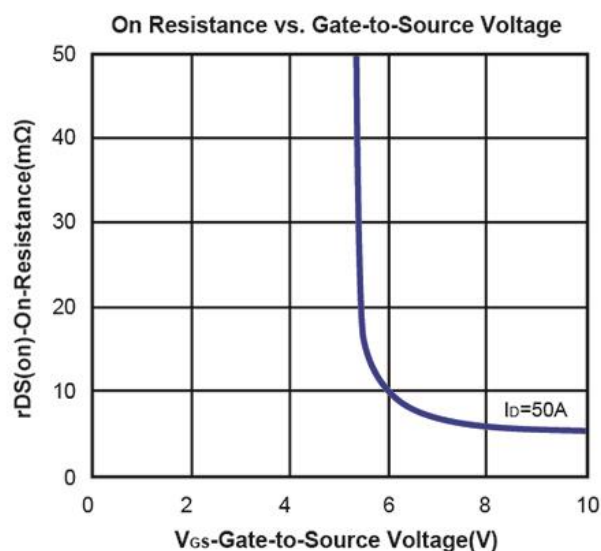
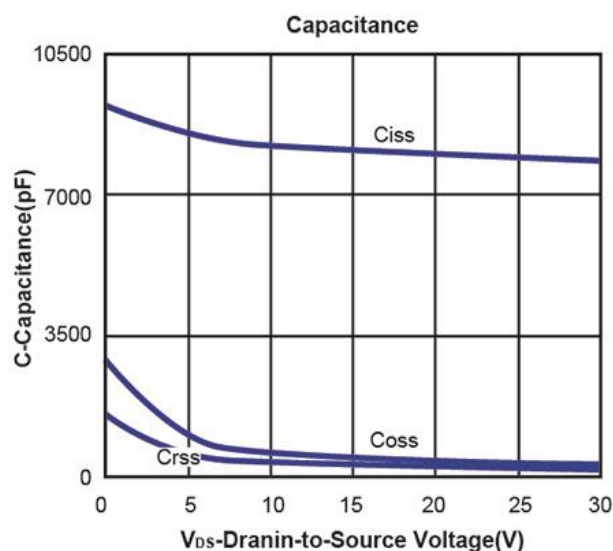
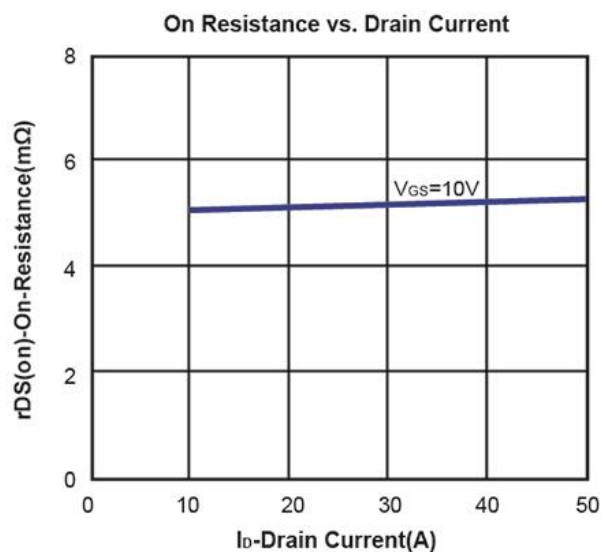
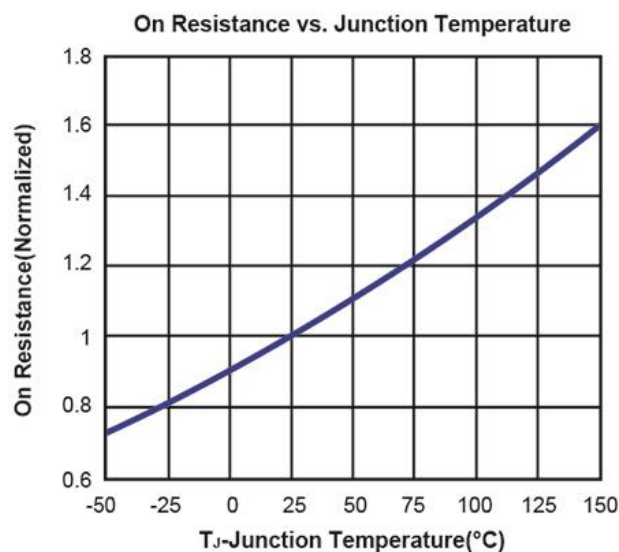
Notes: a. Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ , Guaranteed by design, not subject to production testing.

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

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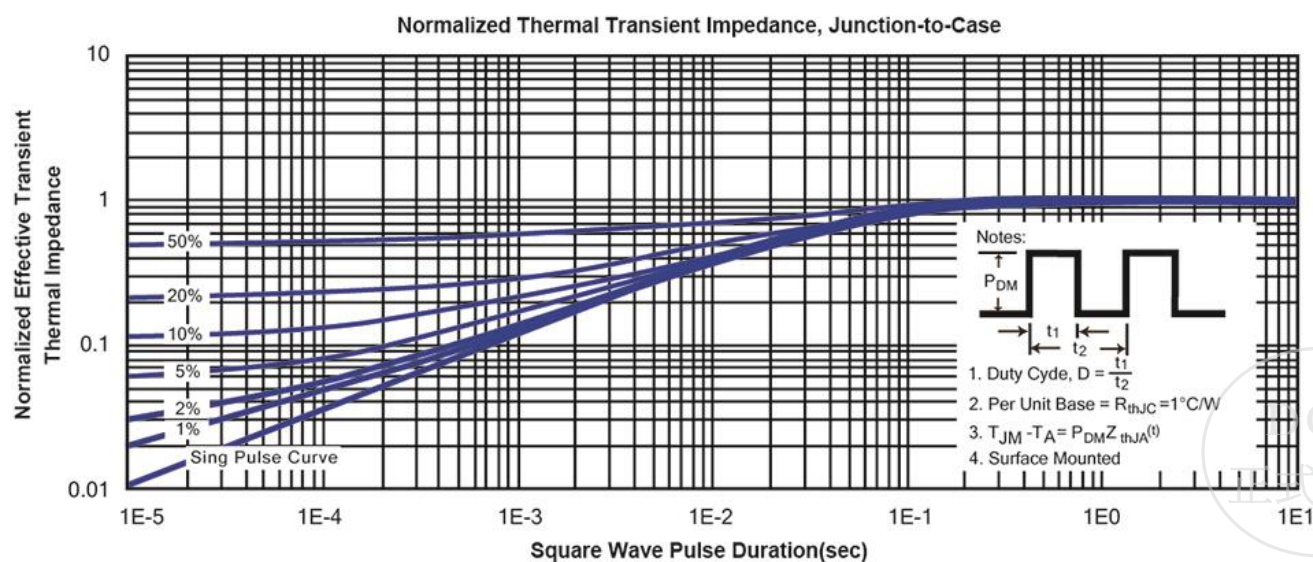
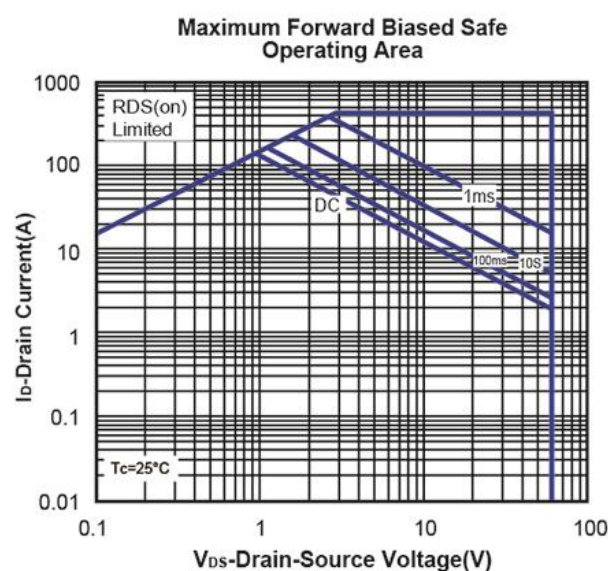
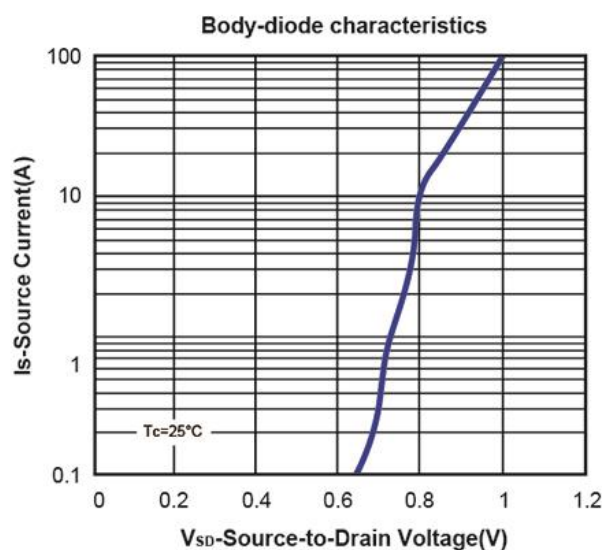
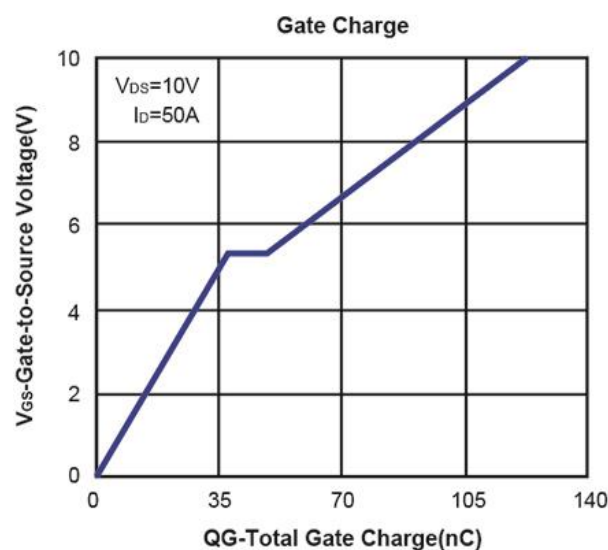
**N-Channel 60-V (D-S) MOSFET**

Typical Characteristics ( $T_J = 25^\circ\text{C}$  Noted)

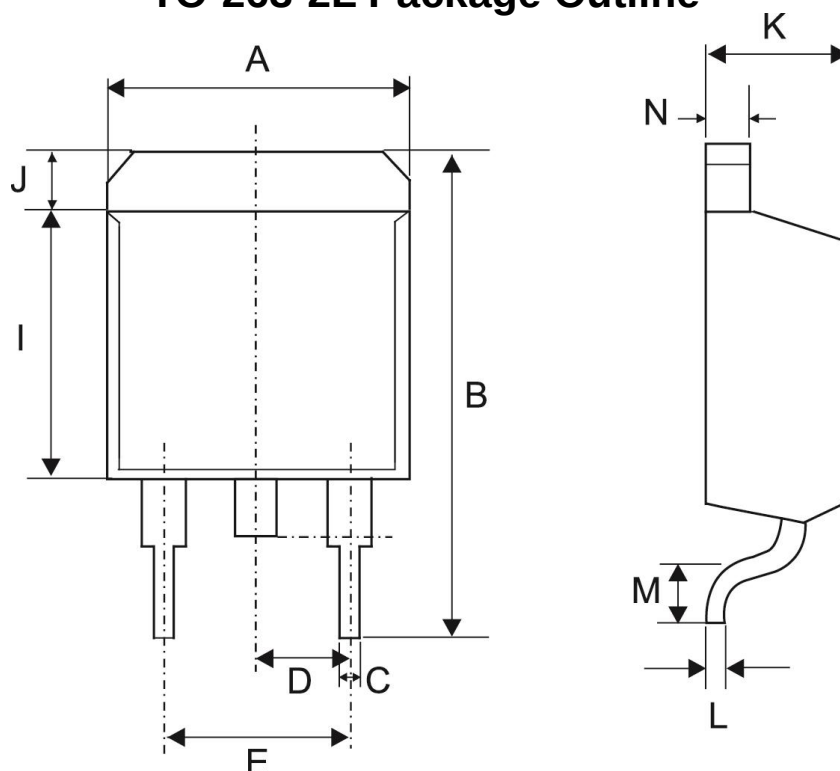


**N-Channel 60-V (D-S) MOSFET**

Typical Characteristics (T<sub>J</sub> =25°C Noted)



**TO-263-2L Package Outline**



| Symbol | MILLIMETERS (mm) |       |
|--------|------------------|-------|
|        | MIN              | MAX   |
| A      | 9.60             | 10.30 |
| B      | 15.00            | 15.80 |
| C      | 0.70             | 0.95  |
| D      | 2.54 BSC         |       |
| E      | 4.98             | 5.18  |
| I      | 8.50             | 9.40  |
| J      | 1.02             | 1.55  |
| K      | 4.30             | 4.75  |
| L      | 0.33             | 0.65  |
| M      | 1.94             | 2.79  |
| N      | 1.15             | 1.40  |

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