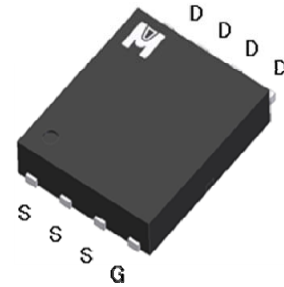


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

| | |
|----------------------------|-----|
| BV _{DSS} | 60V |
| R _{DS(on)} (MAX.) | 5mΩ |
| I _D | 75A |



UIS, R_g 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | | SYMBOL | LIMITS | UNIT |
|--|---|-----------------------------------|------------|------|
| Gate-Source Voltage | | V _{GS} | ±20 | V |
| Continuous Drain Current | T _C = 25 °C | I _D | 75 | A |
| | T _C = 100 °C | | 45 | |
| Pulsed Drain Current ¹ | | I _{DM} | 160 | |
| Avalanche Current | | I _{AS} | 70 | |
| Avalanche Energy | L = 0.1mH, I _D =70A, R _G =25Ω | E _{AS} | 245 | mJ |
| Repetitive Avalanche Energy ² | L = 0.05mH | E _{AR} | 122 | |
| Power Dissipation | T _C = 25 °C | P _D | 50 | W |
| | T _C = 100 °C | | 20 | |
| Operating Junction & Storage Temperature Range | | T _j , T _{stg} | -55 to 150 | °C |

100% UIS testing in condition of V_D=30V, L=0.1mH, V_G=10V, I_L=40A, Rated V_{DS}=60V N-CH

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNIT |
|---------------------|------------------|---------|---------|--------|
| Junction-to-Case | R _{θJC} | | 2.5 | °C / W |
| Junction-to-Ambient | R _{θJA} | | 62 | |

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS ($T_c = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNIT |
|---|---------------|--|--------|------|-----------|------------|
| | | | MIN | TYP | MAX | |
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 60 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 2 | 3 | 4 | |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 48V, V_{GS} = 0V$ | | | 1 | μA |
| | | $V_{DS} = 40V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$ | | | 25 | |
| On-State Drain Current ¹ | $I_{D(ON)}$ | $V_{DS} = 5V, V_{GS} = 10V$ | 75 | | | A |
| Drain-Source On-State Resistance ¹ | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 20A$ | | 4.6 | 5.0 | m Ω |
| Forward Transconductance ¹ | g_{fs} | $V_{DS} = 5V, I_D = 20A$ | | 55 | | S |
| DYNAMIC | | | | | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$ | | 5085 | | pF |
| Output Capacitance | C_{oss} | | | 573 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 190 | | |
| Gate Resistance | R_g | $V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$ | | 1.5 | | Ω |
| Total Gate Charge ^{1,2} | Q_g | $V_{DS} = 30V, V_{GS} = 10V, I_D = 20A$ | | 59 | | nC |
| Gate-Source Charge ^{1,2} | Q_{gs} | | | 20 | | |
| Gate-Drain Charge ^{1,2} | Q_{gd} | | | 19 | | |
| Turn-On Delay Time ^{1,2} | $t_{d(on)}$ | $V_{DS} = 30V, I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$ | | 55 | | nS |
| Rise Time ^{1,2} | t_r | | | 150 | | |
| Turn-Off Delay Time ^{1,2} | $t_{d(off)}$ | | | 90 | | |
| Fall Time ^{1,2} | t_f | | | 160 | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_c = 25\text{ }^\circ\text{C}$) | | | | | | |
| Continuous Current | I_S | | | | 75 | A |
| Pulsed Current ³ | I_{SM} | | | | 150 | |
| Forward Voltage ¹ | V_{SD} | $I_F = 20A, V_{GS} = 0V$ | | | 1.3 | V |
| Reverse Recovery Time | t_{rr} | $I_F = 25A, di_F/dt = 100A / \mu S$ | | 35 | | nS |
| Reverse Recovery Charge | Q_{rr} | | | 220 | | nC |

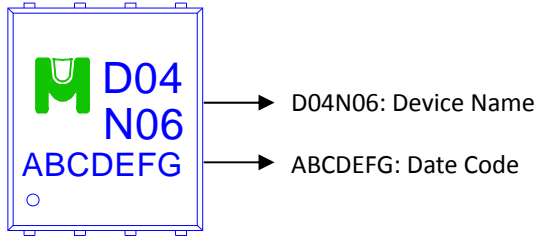
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

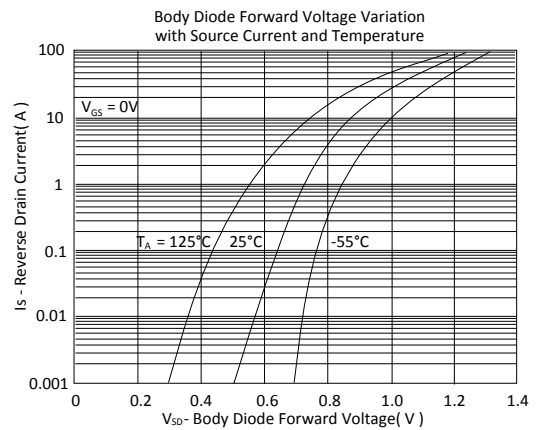
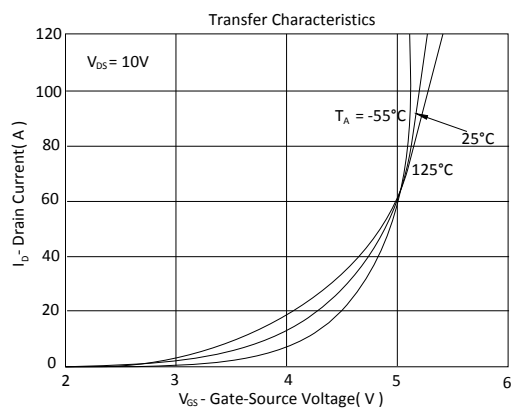
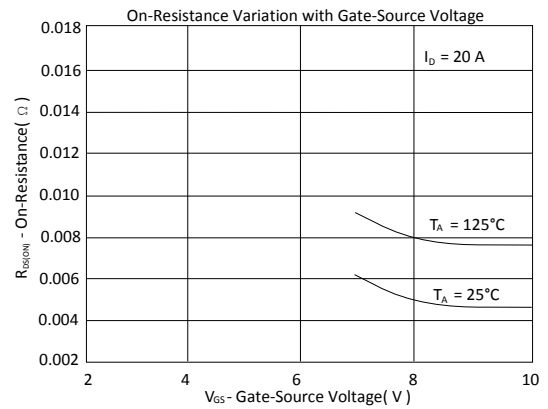
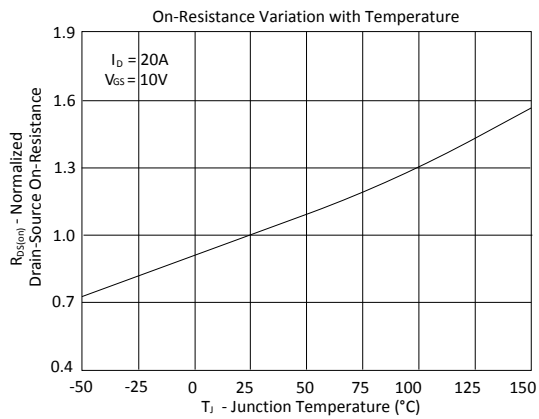
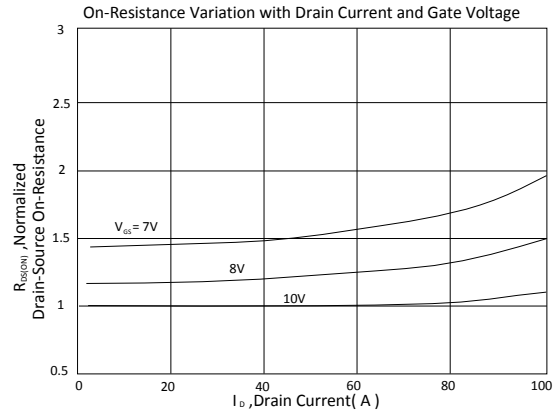
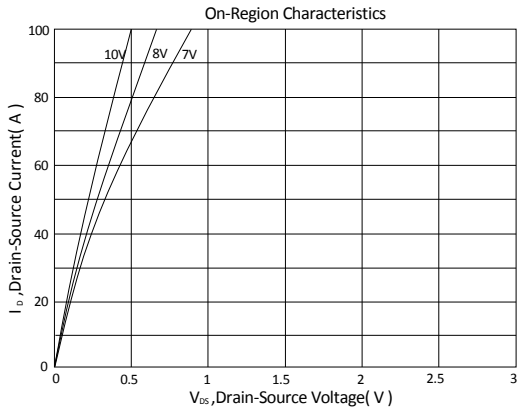
Ordering & Marking Information:

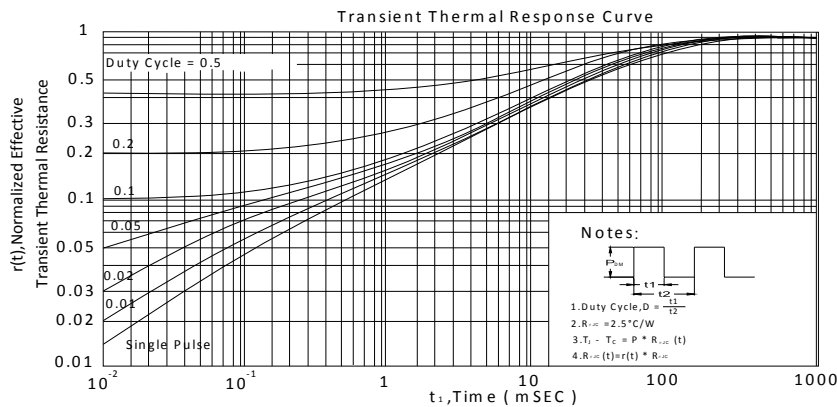
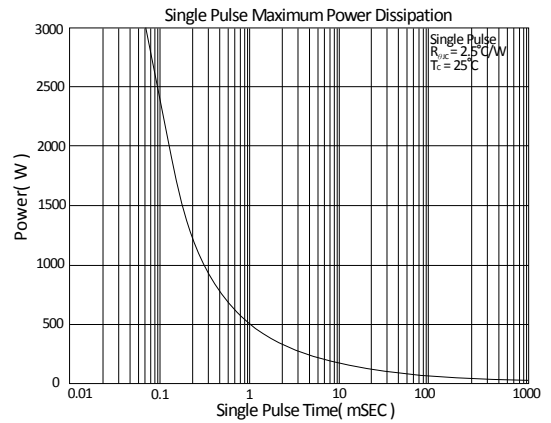
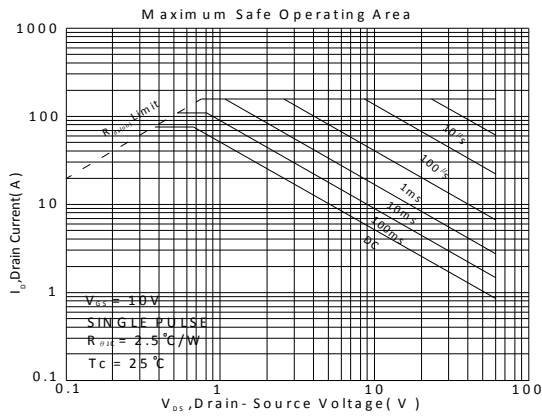
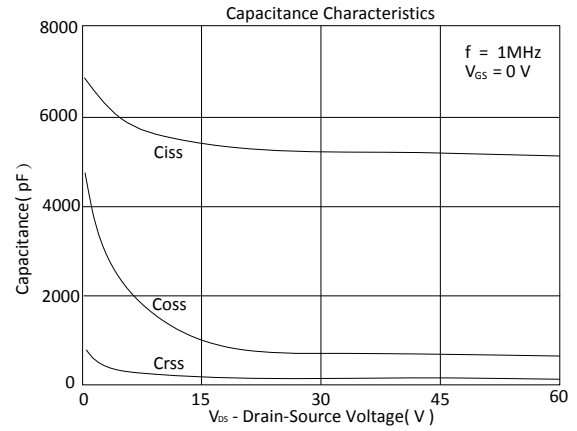
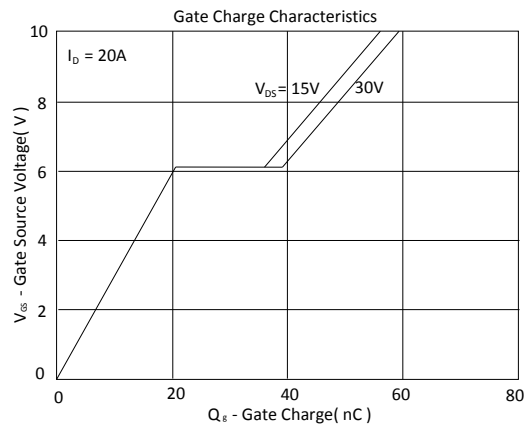
Device Name: EMD04N06H for EDFN 5 x 6





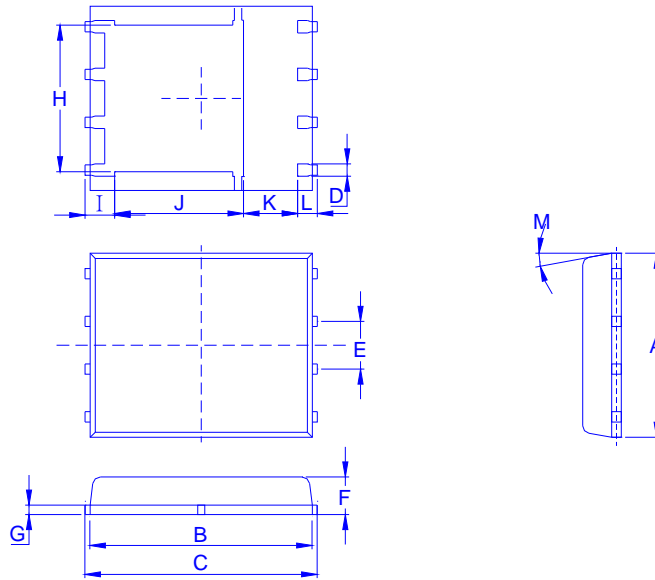
TYPICAL CHARACTERISTICS







Outline Drawing



Dimension in mm

| Dimension | A | B | C | D | E | F | G | H | I | J | K | L | M |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Min. | 4.80 | 5.50 | 5.90 | 0.3 | | 0.85 | 0.15 | 3.67 | 0.41 | 3.00 | 0.94 | 0.45 | 0° |
| Typ. | | | | | 1.27 | | | | | | | | |
| Max. | 5.30 | 5.90 | 6.15 | 0.51 | | 1.20 | 0.30 | 4.54 | 0.85 | 3.92 | 1.7 | 0.71 | 12° |

Recommended minimum pads

