

< HV MOSFET MODULE >

FMF800E3C-66BEW

HIGH POWER SWITCHING USE
INSULATED TYPE

FMF800E3C-66BEW



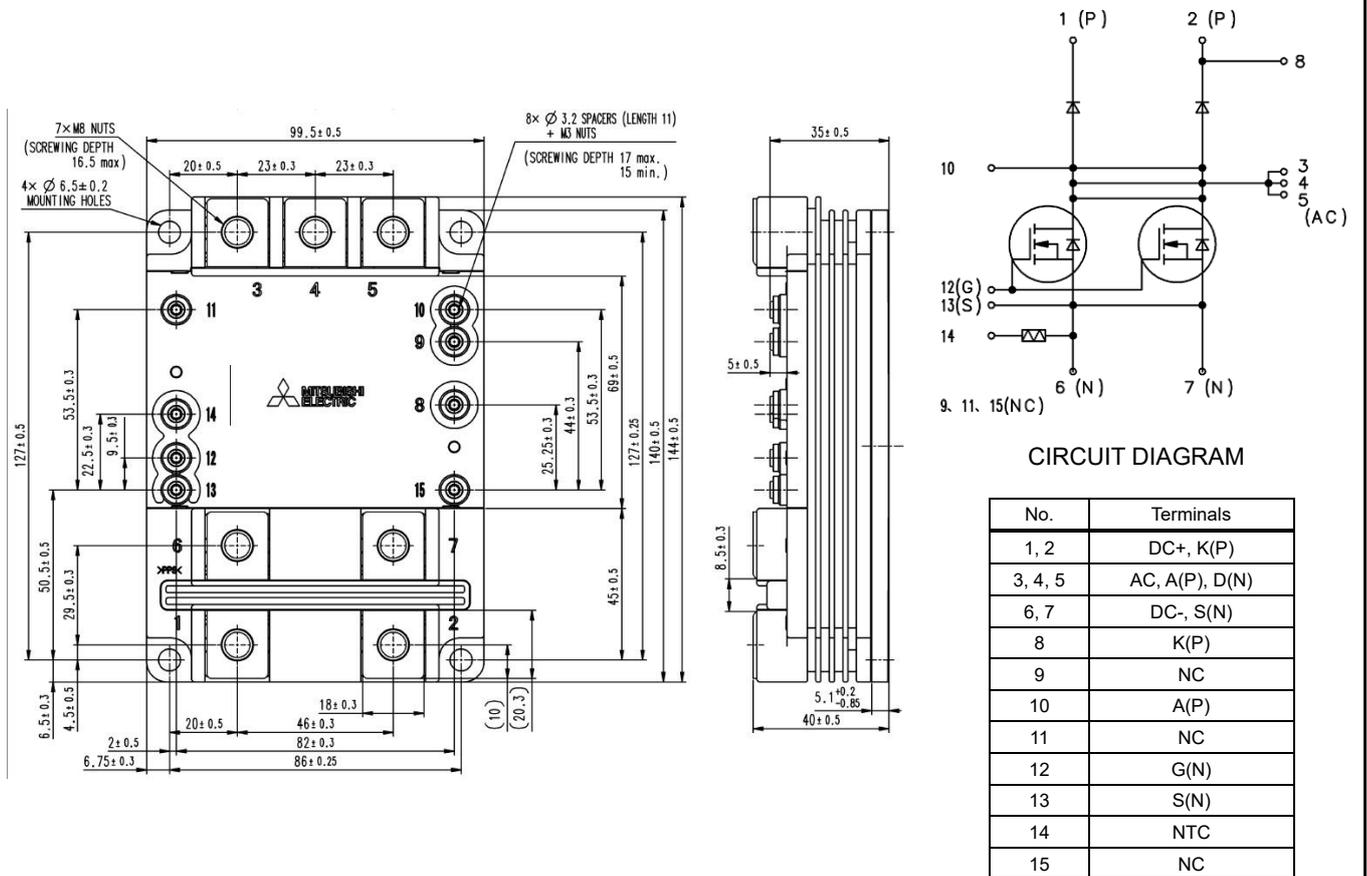
- I_D 800A
- V_{DSX} 3300V
- 2-element in a Pack
- Insulated Type
- SiC SBD embedded MOSFET (N-side)
- SiC SBD (P-side, Clamp-Diode)

APPLICATION

Traction drives, High Reliability Converters / Inverters, DC choppers

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



MAXIMUM RATINGS

| Item | Symbol | Conditions | Ratings | Unit |
|---|------------|---|----------|-----------------------|
| Drain-Source voltage | V_{DSX} | $V_{GS} = -7\text{ V}$ $T_j = -40\sim 175\text{ }^\circ\text{C}$ | 3300 | V |
| Gate-Source voltage | V_{GSS} | $V_{DS} = 0\text{ V}$ $T_j = -40\sim 175\text{ }^\circ\text{C}$ | ± 20 | V |
| Drain current | I_D | $V_{GS} = 17\text{ V}$, $T_c = 87\text{ }^\circ\text{C}$, AC terminal output current, (Note 1.) | 800 | A |
| Drain current | I_{DP} | Non repetitive pulse $T_j = T_{op}$ | 1600 | A |
| Reverse drain current (FWD forward current) | I_S | $V_{GS} = -7\text{ V}$, $T_c = 85\text{ }^\circ\text{C}$, AC terminal output current, (Note 1.) (Note 2.) | 800 | A |
| Reverse drain current (FWD forward current) | I_{SP} | Non repetitive pulse, (Note 2.) $T_j = T_{op}$ | 1600 | A |
| Total power dissipation | P_{tot} | $T_c = 25\text{ }^\circ\text{C}$, MOSFET part, Clamp-Di(SBD) part (Note 3.) | 6650 | W |
| Isolation voltage | V_{isol} | Charged part to the baseplate RMS sinusoidal AC 60Hz 1min | 6000 | V_{rms} |
| Partial discharge charge | Q_{pd} | Charged part to the baseplate RMS sinusoidal AC 60Hz $V_1=3500\text{V}$, $V_2=2600\text{V}$ (IEC61287-1 Ed.3.0:2014) | 10 | pC |
| Junction temperature | T_j | - | -40~175 | $^\circ\text{C}$ |
| Case temperature | T_c | - | -40~150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | - | -50~175 | $^\circ\text{C}$ |
| Operating junction temperature | T_{jop} | - | -40~175 | $^\circ\text{C}$ |
| Short-circuit withstand pulse duration | t_{pSC} | $V_{DD} = 2500\text{ V}$, $V_{GS} = +17 / -7\text{ V}$, $L_s = 40\text{ nH}$, $T_j = T_{op}$ | 1.7 | μs |
| Short circuit energy | E_{SC} | $V_{DD} = 2500\text{ V}$, $F(t)_{weibull}=1\%$ $T_j = T_{op}$ | 35 | J |
| Non-repetitive surge forward current | I_{FSM} | $t_p = 10\text{ms}$, $F(t)_{weibull}=1\%$, Half sine wave 1 cycle $T_j = 175\text{ }^\circ\text{C}$ | 5.9 | kA |
| I^2t value | I^2t | $t_p = 10\text{ms}$, $F(t)_{weibull}=1\%$, Half sine wave 1 cycle $T_j = 175\text{ }^\circ\text{C}$ | 180 | kA^2s |

MAXIMUM RATINGS (Clamp-Diode part)

| Item | Symbol | Conditions | Ratings | Unit |
|--------------------------------------|-----------|---|---------|-----------------------|
| Repetitive peak reverse voltage | V_{RRM} | - $T_j = -40\sim 175\text{ }^\circ\text{C}$ | 3300 | V |
| Forward current | I_F | $T_c = 96\text{ }^\circ\text{C}$, DC, (Note 1.) | 800 | A |
| | I_{FRM} | - $T_j = T_{op}$ | 1600 | A |
| Non-repetitive surge forward current | I_{FSM} | $t_p = 10\text{ms}$, $F(t)_{weibull}=1\%$, Half sine wave 1 cycle $T_j = 175\text{ }^\circ\text{C}$ | 3.5 | kA |
| I^2t value | I^2t | $t_p = 10\text{ms}$, $F(t)_{weibull}=1\%$, Half sine wave 1 cycle $T_j = 175\text{ }^\circ\text{C}$ | 64 | kA^2s |

ELECTRICAL CHARACTERISTICS

| Item | Symbol | Conditions | Limits | | | Unit | |
|-------------------------------|---------------|--|-----------------------------------|------|-------|------|------------------|
| | | | Min. | Typ. | Max. | | |
| Gate-source leakage current | I_{GSS} | $V_{DS} = 0\text{ V}$, $V_{GS} = V_{GSS}$ | $T_j = 25\text{ }^\circ\text{C}$ | -2.0 | - | 2.0 | μA |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | -2.0 | - | 2.0 | μA |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | -2.0 | - | 2.0 | μA |
| Drain-source cut-off current | I_{DSX} | $V_{DS} = V_{DSX}$, $V_{GS} = -7\text{ V}$ | $T_j = 25\text{ }^\circ\text{C}$ | 0.0 | 0.003 | 2.0 | mA |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.050 | - | mA |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | 0.0 | 0.080 | 3.0 | mA |
| Gate-source threshold voltage | $V_{GS(th)}$ | $V_{DS} = 10\text{ V}$, $I_D = 80\text{mA}$ | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.10 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 1.50 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 1.45 | 1.90 | V |
| Drain-source on resistance | $r_{DS(on)}$ | $V_{DS} = V_{DS(on)}$, $V_{GS} = 17\text{ V}$, N-side(Terminal 10-13), (Note 7.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.25 | - | $\text{m}\Omega$ |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 4.63 | - | $\text{m}\Omega$ |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 5.38 | 6.44 | $\text{m}\Omega$ |
| | | $V_{DS} = V_{DS(on)}$, $V_{GS} = 17\text{ V}$, N-side | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.00 | - | $\text{m}\Omega$ |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 4.31 | - | $\text{m}\Omega$ |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 5.00 | 6.06 | $\text{m}\Omega$ |
| Drain-source on-state voltage | $V_{DS(on)}$ | $I_D = 800\text{ A}$, $V_{GS} = 17\text{ V}$, N-side(Terminal 10-13), (Note 3.) (Note 7.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 1.80 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 3.70 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.30 | 5.15 | V |
| | | $I_D = 800\text{ A}$, $V_{GS} = 17\text{ V}$, N-side, (Note 3.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 1.60 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 3.45 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.00 | 4.85 | V |
| Source-drain voltage | $V_{SD(on)}$ | $I_S = 800\text{ A}$, $V_{GS} = 17\text{ V}$, N-side(Terminal 10-13), (Note 2.) (Note 3.) (Note 7.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 1.65 | - | V |
| | | | $T_j = 75\text{ }^\circ\text{C}$ | - | 2.25 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.10 | 4.70 | V |
| | | $I_S = 800\text{ A}$, $V_{GS} = 17\text{ V}$, N-side, (Note 2.) (Note 3.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 1.45 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 3.25 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 3.80 | 4.40 | V |
| Source-drain voltage | V_{SD} | $I_S = 800\text{ A}$, $V_{GS} = 0\text{ V}$, N-side(Terminal 10-13), (Note 2.) (Note 3.) (Note 7.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.20 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 4.10 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.65 | 5.30 | V |
| | | $I_S = 800\text{ A}$, $V_{GS} = 0\text{ V}$, N-side, (Note 2.) (Note 3.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.00 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 3.85 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.35 | 5.00 | V |
| Source-drain voltage | $V_{SD(off)}$ | $I_S = 800\text{ A}$, $V_{GS} = -7\text{ V}$, N-side(Terminal 10-13), (Note 2.) (Note 3.) (Note 7.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.20 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 4.10 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.65 | 5.30 | V |
| | | $I_S = 800\text{ A}$, $V_{GS} = -7\text{ V}$, N-side, (Note 2.) (Note 3.) | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.00 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 3.85 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 4.35 | 5.00 | V |
| Input capacitance | C_{iss} | $V_{DS} = 10\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 100\text{kHz}$, per 1/2 module | $T_j = 25\text{ }^\circ\text{C}$ | - | 110 | - | nF |
| Output capacitance | C_{oss} | $V_{DS} = 10\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 100\text{kHz}$, per 1/2 module | $T_j = 25\text{ }^\circ\text{C}$ | - | 70 | - | nF |
| Reverse transfer capacitance | C_{rss} | $V_{DS} = 10\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 100\text{kHz}$, per 1/2 module | $T_j = 25\text{ }^\circ\text{C}$ | - | 2.7 | - | nF |
| Gate charge | Q_G | $V_{DD} = 1800\text{ V}$, $I_D = 800\text{ A}$, $V_{GS} = +17 / -7\text{ V}$, per 1/2 module | $T_j = 25\text{ }^\circ\text{C}$ | - | 3.3 | - | μC |

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HIGH POWER SWITCHING USE
INSULATED TYPE

ELECTRICAL CHARACTERISTICS (continuation)

| Item | Symbol | Conditions | Limits | | | Unit | |
|--|------------------------|---|-----------------------------------|------|-------|------|---------------|
| | | | Min. | Typ. | Max. | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD} = 1800\text{ V}$, $I_D = 800\text{ A}$, $V_{GS} = +17 / -7\text{ V}$, $L_s = 40\text{ nH}$, $R_{G(on)} = 1.5\ \Omega$, $R_{G(off)} = 1.5\ \Omega$, Inductive Load | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.36 | - | μs |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.32 | - | μs |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.32 | 0.50 | μs |
| Rise time | t_r | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.18 | - | μs |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.15 | - | μs |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.15 | 0.30 | μs |
| Turn-on switching energy per pulse (Note 5) | $E_{on(10\%)}$ | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.26 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.22 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.22 | - | J |
| Turn-on switching energy per pulse | E_{on} | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.27 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.23 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.23 | - | J |
| Total capacitive charge (Note 2,6) | Q_C | $V_{DD} = 1800\text{ V}$, $I_D = 800\text{ A}$, $V_{GS} = +17 / -7\text{ V}$, $L_s = 40\text{ nH}$, $R_{G(on)} = 1.5\ \Omega$, $R_{G(off)} = 1.5\ \Omega$, Inductive Load | $T_j = 25\text{ }^\circ\text{C}$ | - | 10.7 | - | μC |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 12.5 | - | μC |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 12.5 | - | μC |
| Diode turn-off energy per pulse (Note 2,5) | $E_{off_Diode(10\%)}$ | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.004 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.005 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.005 | - | J |
| Diode turn-off energy per pulse (Note 2) | E_{off_Diode} | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.004 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.006 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.006 | - | J |
| Turn-off delay time | $t_{d(off)}$ | $V_{DD} = 1800\text{ V}$, $I_D = 800\text{ A}$, $V_{GS} = +17 / -7\text{ V}$, $L_s = 40\text{ nH}$, $R_{G(on)} = 1.5\ \Omega$, $R_{G(off)} = 1.5\ \Omega$, Inductive Load | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.43 | - | μs |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.52 | - | μs |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.54 | - | μs |
| Fall time | t_{f1} | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.17 | - | μs |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.19 | - | μs |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.19 | - | μs |
| Turn-off switching energy per pulse (Note 5) | $E_{off(10\%)}$ | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.10 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.11 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.11 | - | J |
| Turn-off switching energy per pulse | E_{off} | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.10 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.11 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.11 | - | J |

ELECTRICAL CHARACTERISTICS (Clamp-Diode part)

| Item | Symbol | Conditions | Limits | | | Unit | |
|--|------------------------|---|-----------------------------------|------|-------|------|----|
| | | | Min. | Typ. | Max. | | |
| Peak reverse recovery current | I_{RRM} | $V_{KA} = 3300\text{ V}$ | $T_j = 25\text{ }^\circ\text{C}$ | 0.0 | 0.03 | 1.6 | mA |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.4 | - | mA |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | 0.0 | 0.8 | 32 | mA |
| Forward voltage | V_F | $I_F = 800\text{ A}$, P-side(Terminal 8-10) | $T_j = 25\text{ }^\circ\text{C}$ | - | 1.8 | - | V |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 3.4 | - | V |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 3.8 | 4.4 | V |
| Diode turn-off energy per pulse (Note 5) | $E_{off_Diode(10\%)}$ | $V_{GS} = +17 / -7\text{ V}$, $L_s = 40\text{ nH}$, $R_{G(on)} = 1.5\ \Omega$, $R_{G(off)} = 1.5\ \Omega$, $V_{KK} = 1800\text{ V}$, $I_F = 800\text{ A}$, Inductive Load | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.002 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.004 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.004 | - | J |
| Diode turn-off energy per pulse | E_{off_Diode} | | $T_j = 25\text{ }^\circ\text{C}$ | - | 0.003 | - | J |
| | | | $T_j = 150\text{ }^\circ\text{C}$ | - | 0.005 | - | J |
| | | | $T_j = 175\text{ }^\circ\text{C}$ | - | 0.005 | - | J |

FMF800E3C-66BEW

HIGH POWER SWITCHING USE
INSULATED TYPE

THERMAL CHARACTERISTICS

| Item | Symbol | Conditions | Limits | | | Unit |
|---|----------------|--|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Thermal resistance junction to case | $R_{th(j-c)}$ | MOSFET + embedded SBD part, per 1/2 module | - | - | 22.5 | K/kW |
| Thermal resistance junction to case | $R_{th(j-c)D}$ | Clamp-Diode part, per 1/2 module | - | - | 22.5 | K/kW |
| Contact thermal resistance case to heatsink | $R_{th(c-s)}$ | Case to heat sink, $\lambda_{grease} = 1W/m \cdot K$, $D(c-s) = 70\mu m$ per 1/2 module | - | 22.5 | - | K/kW |

MECHANICAL CHARACTERISTICS

| Item | Symbol | Conditions | Limits | | | Unit |
|-----------------------------------|---------------|---|--------|------|------|------------|
| | | | Min. | Typ. | Max. | |
| Mounting torque | M_t | Main terminal screw : M8 This is the case when installing the product on the bus bar | 7.0 | - | 22.0 | N·m |
| | | Main terminal screw : M8 | 7.0 | - | 10.0 | N·m |
| Mounting torque | M_t | Mounting screw : M6 | 3.0 | - | 6.0 | N·m |
| Mounting torque | M_t | Auxiliary terminal screw : M3 | 0.4 | - | 0.8 | N·m |
| mass, Mass(IEC) | m | - | - | 0.8 | - | kg |
| Comparative tracking index | CTI | - | 600 | - | - | - |
| Clearance distance in air | d_a | Between main terminal | 8.0 | 8.5 | - | mm |
| Creepage distance along surface | d_s | - | 32.0 | 32.5 | - | mm |
| Internal inductance, D-S | $L_{P DS}$ | Between DC+ and DC-(terminal1,2-6,7) | - | 15 | - | nH |
| | $L_{P DS}$ | Between DC+ and AC (terminal1,2-3,4,5) | - | 43 | - | nH |
| | $L_{P DS}$ | Between AC and DC-(terminal3,4,5-6,7) | - | 43 | - | nH |
| Internal lead resistance, DD'-SS' | $R_{DD'+SS'}$ | $T_C=25^\circ C$, Between DC+ and DC-(terminal1,2-6,7) | - | 0.46 | - | m Ω |
| | $R_{DD'+SS'}$ | $T_C=25^\circ C$, Between DC+ and AC (terminal1,2-3,4,5) | - | 0.22 | - | m Ω |
| | $R_{DD'+SS'}$ | $T_C=25^\circ C$, Between AC and DC-(terminal3,4,5-6,7) | - | 0.33 | - | m Ω |
| Zero-power resistance | R_{25} | $T_C=25^\circ C$ | 4.65 | 5.00 | 5.35 | k Ω |
| B-constant | $B_{(25/50)}$ | Approximate by equation,(Note 8) | - | 3375 | - | K |

Note 1. Control Case Temperature (T_c) so that the junction temperature (T_j) does not exceed the maximum rating.

Note 2. The symbols represent characteristics of the anti-parallel, source to drain free-wheel diode (FWDi).

Note 3. Junction temperature (T_j) should not exceed $T_{j,max}$ rating.

Note 4. Pulse width and repetition rate should be such as to cause negligible temperature rise.

Note 5. The integration range of switching energies is from 10% V_{DS} to 10% $I_D(I_S)$.

Note 6. The integration range of total capacitive charge (Q_c) is from $I_S=0A$ to 2% I_S .

Note 7. N-side characteristic value includes wiring resistance between P-side source potential and N-side drain potential.

Note 8. $B_{(25/50)} = \ln \left(\frac{R_{25}}{R_{50}} \right) / \left(\frac{1}{T_{25}} - \frac{1}{T_{50}} \right)$

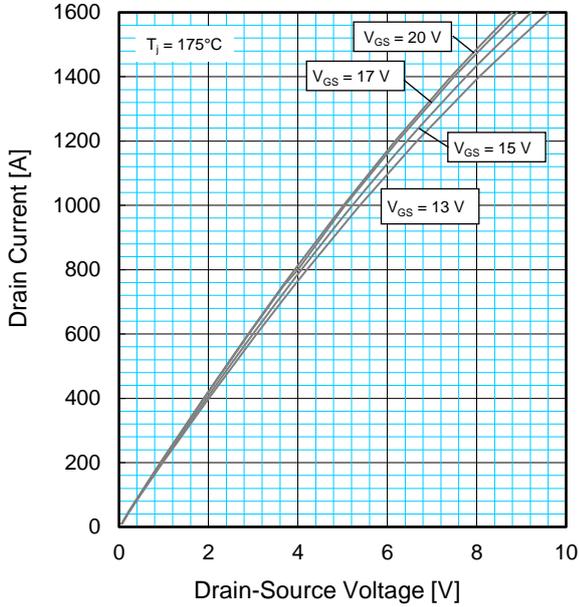
R_{25} : resistance at absolute temperature T_{25} [K]; $T_{25} = 25[^\circ C] + 273.15 = 298.15[K]$

R_{50} : resistance at absolute temperature T_{50} [K]; $T_{50} = 50[^\circ C] + 273.15 = 323.15[K]$

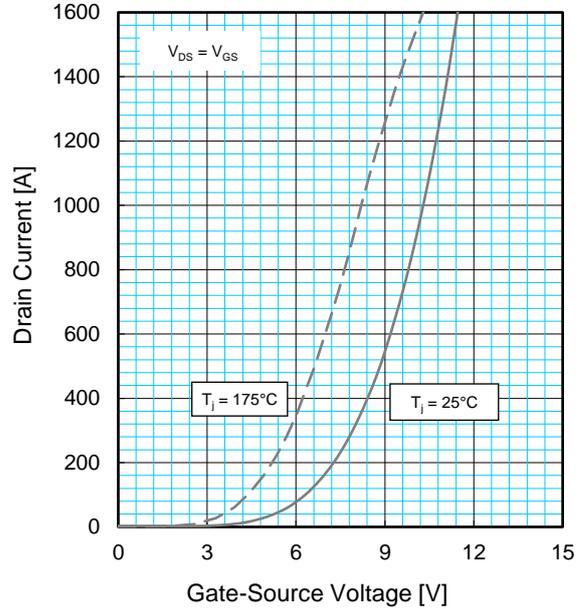
Products falling under the subject item No. 2 (41) 3 of Appended Table 1 of the Export Trade Control Order.

PERFORMANCE CURVES

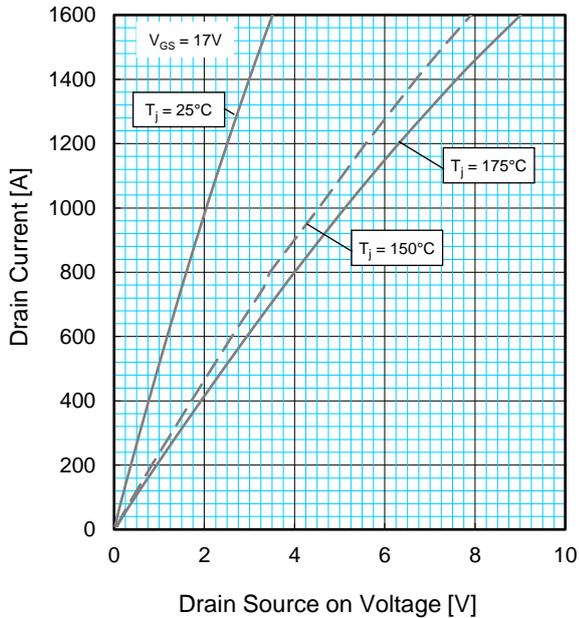
OUTPUT CHARACTERISTICS (TYPICAL)



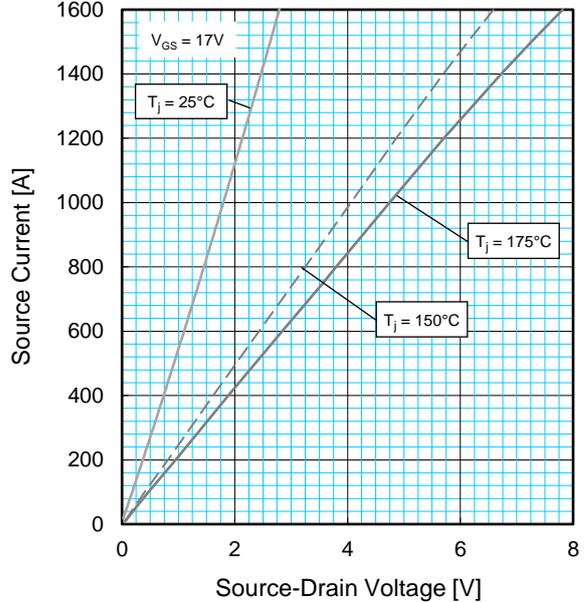
TRANSFER CHARACTERISTICS (TYPICAL)



DRAIN-SOURCE ON VOLTAGE CHARACTERISTICS (TYPICAL)



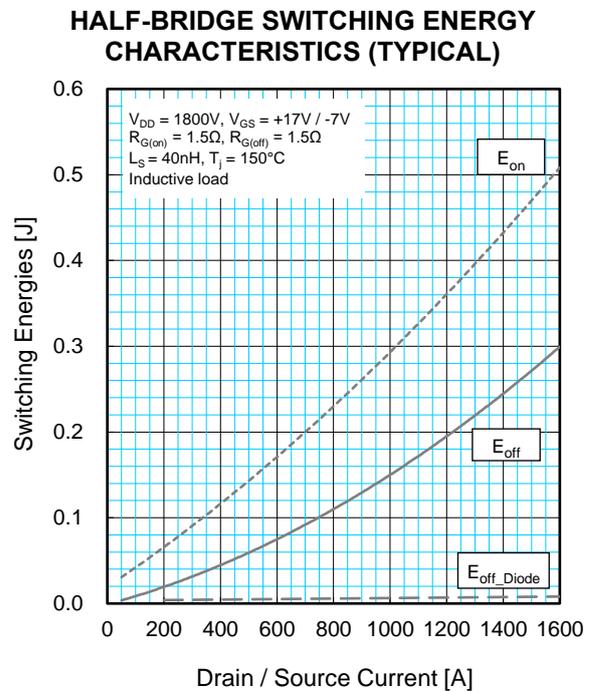
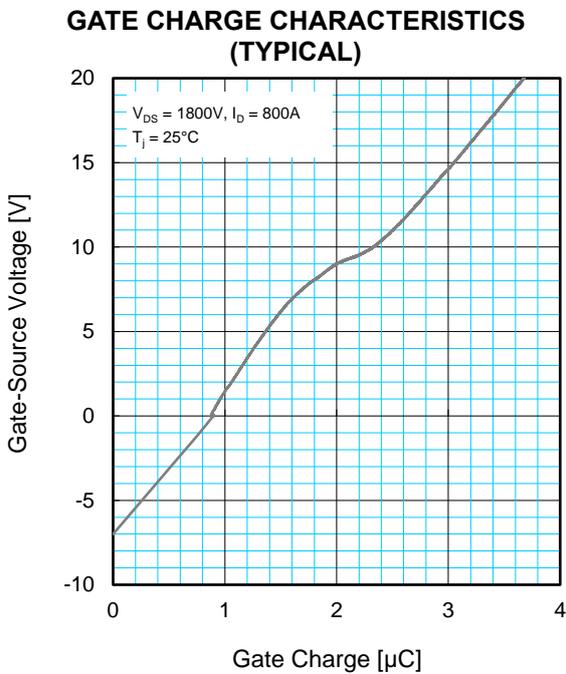
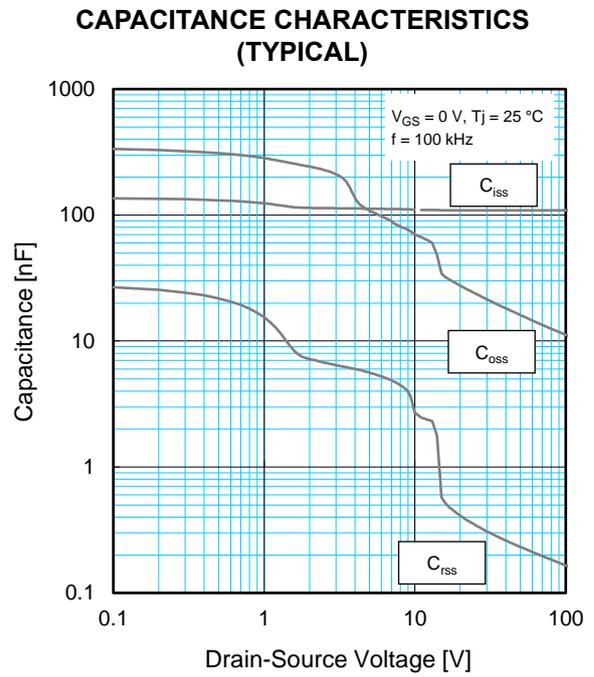
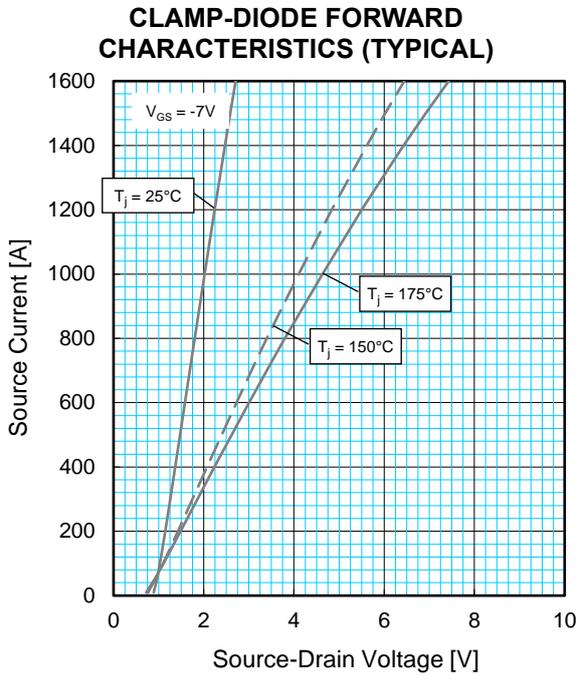
FREE-WHEEL DIODE FORWARD CHARACTERISTICS (TYPICAL)



FMF800E3C-66BEW

HIGH POWER SWITCHING USE
INSULATED TYPE

PERFORMANCE CURVES

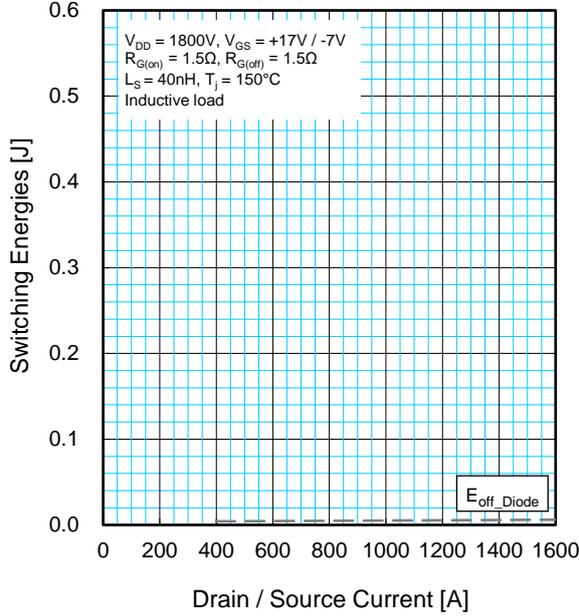


FMF800E3C-66BEW

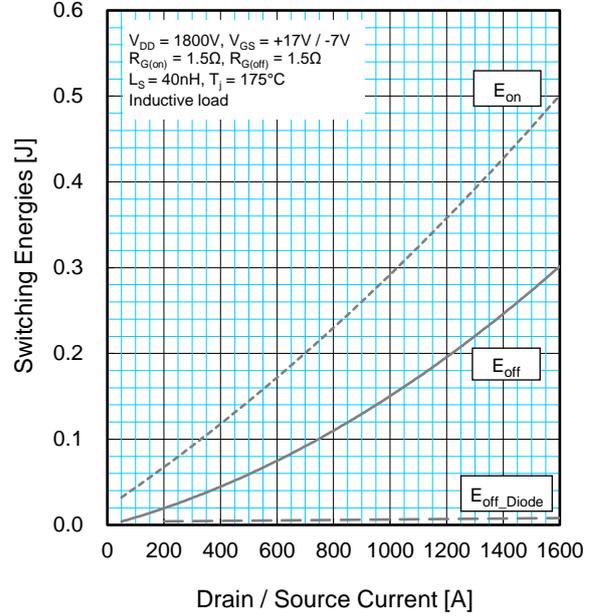
HIGH POWER SWITCHING USE
INSULATED TYPE

PERFORMANCE CURVES

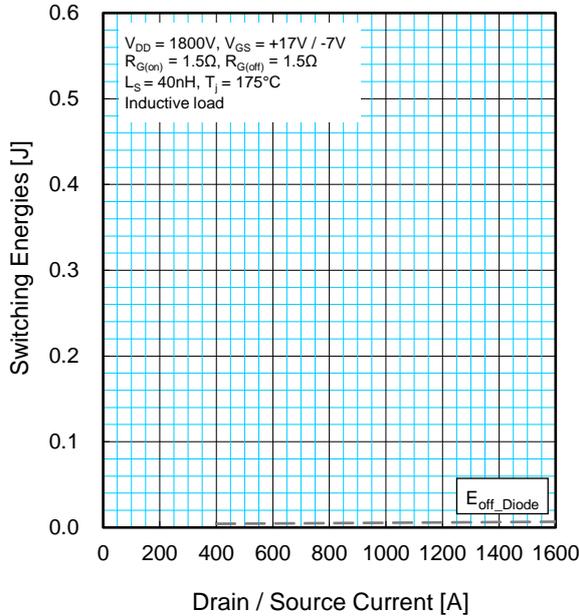
HALF-BRIDGE SWITCHING ENERGY CHARACTERISTICS (TYPICAL, CLAMP-DIODE)



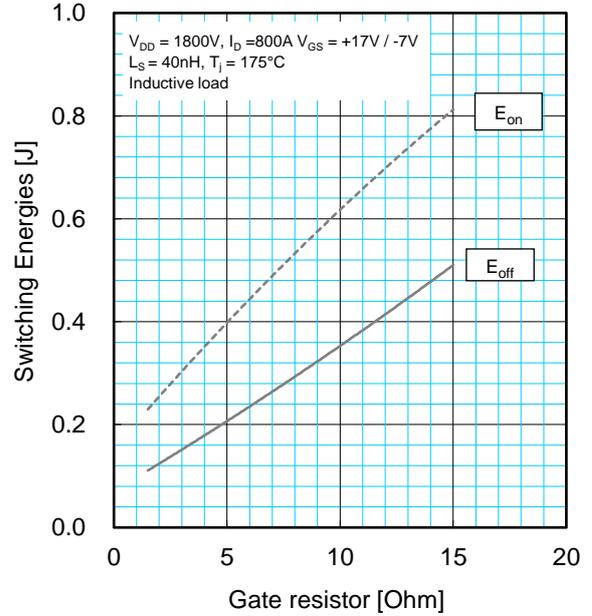
HALF-BRIDGE SWITCHING ENERGY CHARACTERISTICS (TYPICAL)



HALF-BRIDGE SWITCHING ENERGY CHARACTERISTICS (TYPICAL, CLAMP-DIODE)

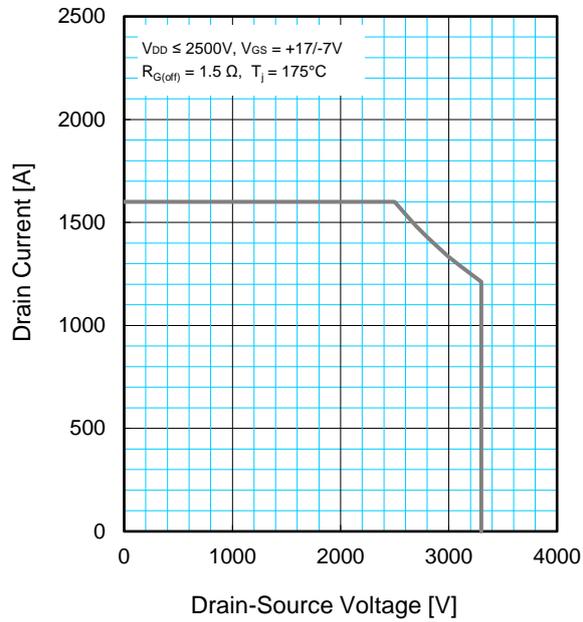


HALF-BRIDGE SWITCHING ENERGY CHARACTERISTICS (TYPICAL)

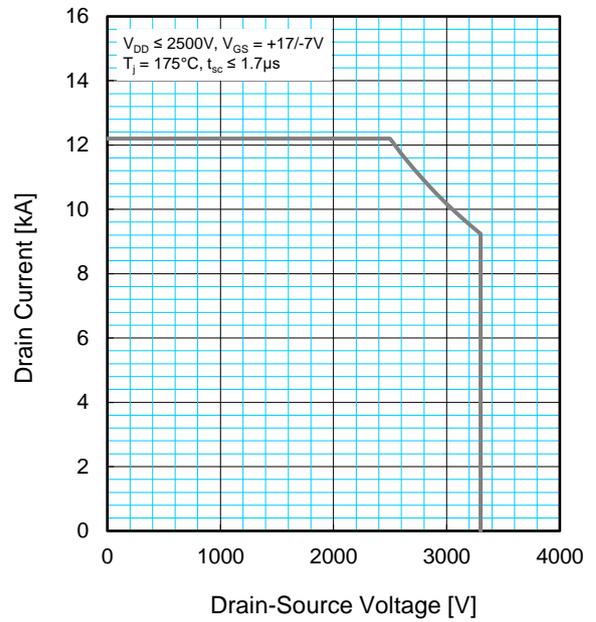


PERFORMANCE CURVES

REVERSE BIAS SAFE OPERATING AREA (RBSOA)

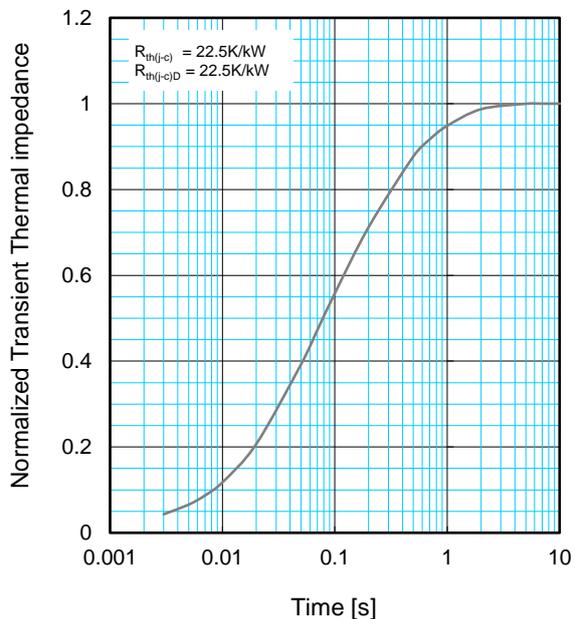


SHORT CIRCUIT SAFE OPERATING AREA (SCSOA)



PERFORMANCE CURVES

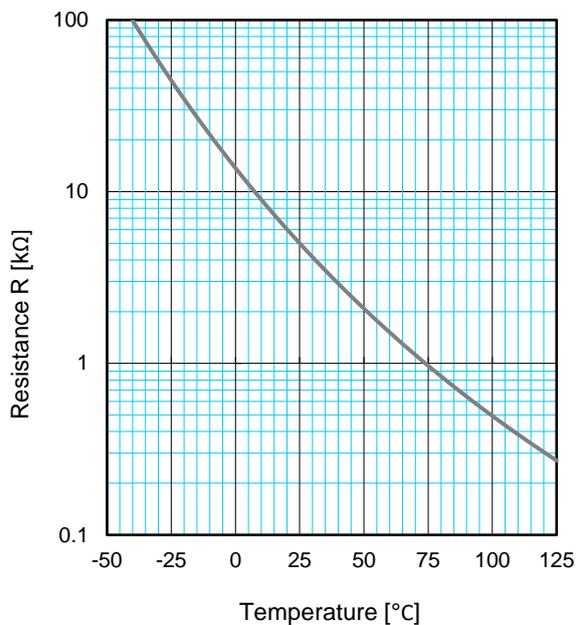
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



$$Z_{th(j-c)}(t) = \sum_{i=1}^n R_i \left\{ 1 - \exp\left(-\frac{t}{\tau_i}\right) \right\}$$

| | | | | |
|-------------------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 |
| R_i / R_{th} : | 0.0078 | 0.1975 | 0.3553 | 0.4393 |
| τ_i [sec.] : | 0.0001 | 0.7324 | 0.0381 | 0.1698 |

NTC THERMISTOR TEMPERATURE CHARACTERISTICS (TYPICAL)



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