

# FS3KM-16A

HIGH-SPEED SWITCHING USE

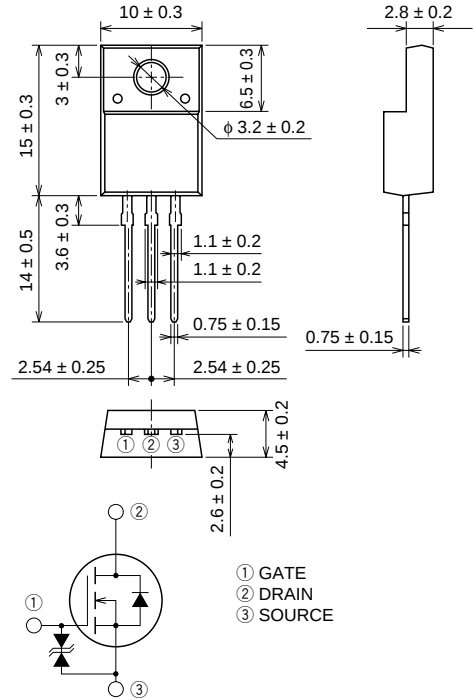
## FS3KM-16A



- $V_{DS}$  ..... 800V
- $r_{DS(ON)}(MAX)$  .....  $3.3\Omega$
- $I_D$  ..... 3A
- $V_{iso}$  ..... 2000V

## OUTLINE DRAWING

Dimensions in mm



TO-220FN

## APPLICATION

SMPS, DC-DC Converter, battery charger, power supply of printer, copier, HDD, FDD, TV, VCR, personal computer etc.

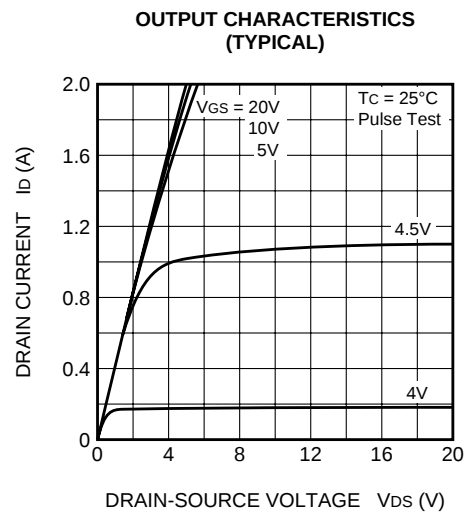
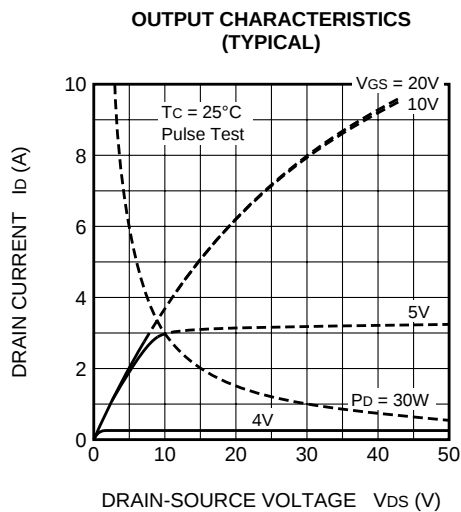
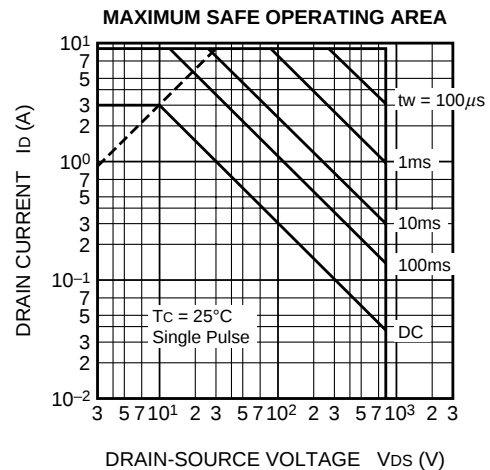
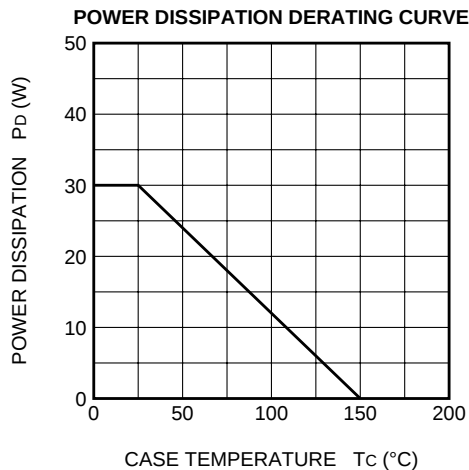
## MAXIMUM RATINGS ( $T_c = 25^\circ\text{C}$ )

| Symbol    | Parameter                 | Conditions                       | Ratings         | Unit             |
|-----------|---------------------------|----------------------------------|-----------------|------------------|
| $V_{DS}$  | Drain-source voltage      | $V_{GS} = 0V$                    | 800             | V                |
| $V_{GS}$  | Gate-source voltage       | $V_{DS} = 0V$                    | $\pm 30$        | V                |
| $I_D$     | Drain current             |                                  | 3               | A                |
| $I_{DM}$  | Drain current (Pulsed)    |                                  | 9               | A                |
| $P_D$     | Maximum power dissipation |                                  | 30              | W                |
| $T_{ch}$  | Channel temperature       |                                  | $-55 \sim +150$ | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature       |                                  | $-55 \sim +150$ | $^\circ\text{C}$ |
| $V_{iso}$ | Isolation voltage         | AC for 1minute, Terminal to case | 2000            | $V_{rms}$        |
| —         | Weight                    | Typical value                    | 2               | g                |

ELECTRICAL CHARACTERISTICS (T<sub>ch</sub> = 25°C)

| Symbol                 | Parameter                        | Test conditions                                                                                                   | Limits |      |      | Unit |
|------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------|--------|------|------|------|
|                        |                                  |                                                                                                                   | Min.   | Typ. | Max. |      |
| V (BR) DSS             | Drain-source breakdown voltage   | I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0V                                                                        | 800    | —    | —    | V    |
| V (BR) GSS             | Gate-source breakdown voltage    | I <sub>GS</sub> = ±100μA, V <sub>DS</sub> = 0V                                                                    | ±30    | —    | —    | V    |
| I <sub>GSS</sub>       | Gate-source leakage current      | V <sub>GS</sub> = ±25V, V <sub>DS</sub> = 0V                                                                      | —      | —    | ±10  | μA   |
| I <sub>DSS</sub>       | Drain-source leakage current     | V <sub>DS</sub> = 800V, V <sub>GS</sub> = 0V                                                                      | —      | —    | 1    | mA   |
| V <sub>GS</sub> (th)   | Gate-source threshold voltage    | I <sub>D</sub> = 1mA, V <sub>DS</sub> = 10V                                                                       | 2      | 3    | 4    | V    |
| r <sub>DS</sub> (ON)   | Drain-source on-state resistance | I <sub>D</sub> = 1.5A, V <sub>GS</sub> = 10V                                                                      | —      | 2.53 | 3.30 | Ω    |
| V <sub>DS</sub> (ON)   | Drain-source on-state voltage    | I <sub>D</sub> = 1.5A, V <sub>GS</sub> = 10V                                                                      | —      | 3.80 | 4.95 | V    |
| y <sub>fs</sub>        | Forward transfer admittance      | I <sub>D</sub> = 1.5A, V <sub>DS</sub> = 10V                                                                      | 2.1    | 3.5  | —    | S    |
| C <sub>iss</sub>       | Input capacitance                | V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1MHz                                                             | —      | 770  | —    | pF   |
| C <sub>oss</sub>       | Output capacitance               |                                                                                                                   | —      | 77   | —    | pF   |
| C <sub>rss</sub>       | Reverse transfer capacitance     |                                                                                                                   | —      | 13   | —    | pF   |
| t <sub>d</sub> (on)    | Turn-on delay time               | V <sub>DD</sub> = 200V, I <sub>D</sub> = 1.5A, V <sub>GS</sub> = 10V,<br>R <sub>GEN</sub> = R <sub>GS</sub> = 50Ω | —      | 15   | —    | ns   |
| t <sub>r</sub>         | Rise time                        |                                                                                                                   | —      | 15   | —    | ns   |
| t <sub>d</sub> (off)   | Turn-off delay time              |                                                                                                                   | —      | 90   | —    | ns   |
| t <sub>f</sub>         | Fall time                        |                                                                                                                   | —      | 25   | —    | ns   |
| V <sub>SD</sub>        | Source-drain voltage             | I <sub>S</sub> = 1.5A, V <sub>GS</sub> = 0V                                                                       | —      | 1.0  | 1.5  | V    |
| R <sub>th</sub> (ch-c) | Thermal resistance               | Channel to case                                                                                                   | —      | —    | 4.17 | °C/W |

PERFORMANCE CURVES



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