

MITSUBISHI Nch POWER MOSFET

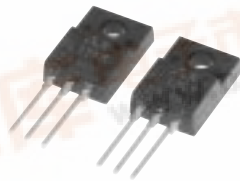
FL12KM-12A

HIGH-SPEED SWITCHING USE

PRELIMINARY

Notice: This is not a final specification.
Some parametric limits are subject to change.

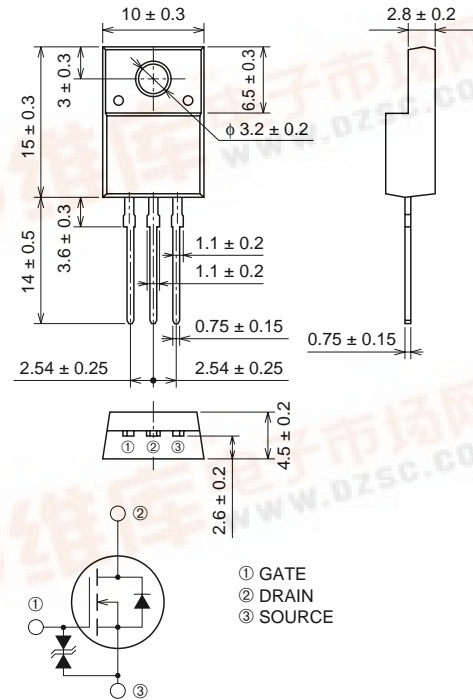
FL12KM-12A



- 10V DRIVE
- V_{DSS} 600V
- r_{DS} (ON) (MAX) 0.94Ω
- I_D 12A

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

Switch mode power supply, Inverter fluorescent lamp, etc.

MAXIMUM RATINGS (T_c = 25°C)

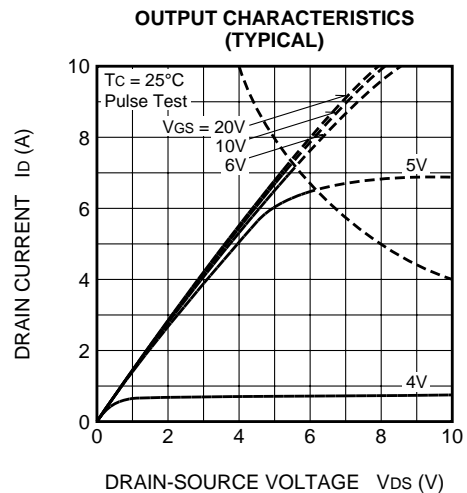
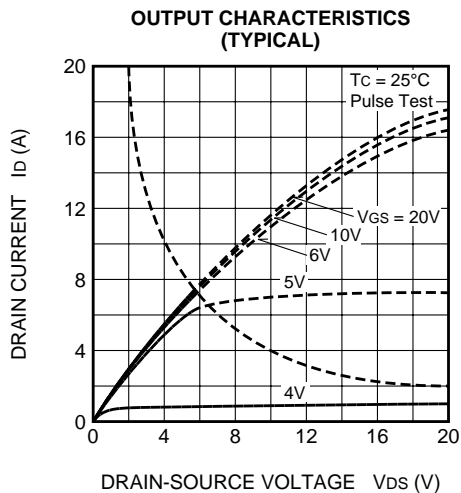
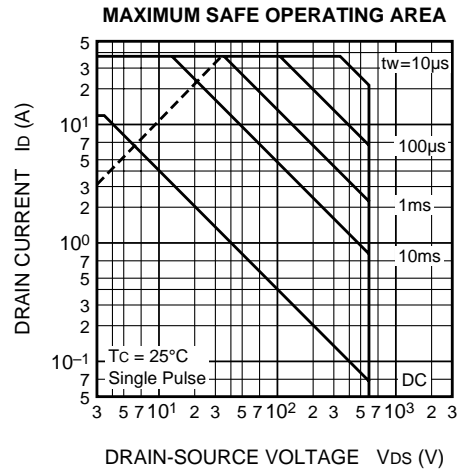
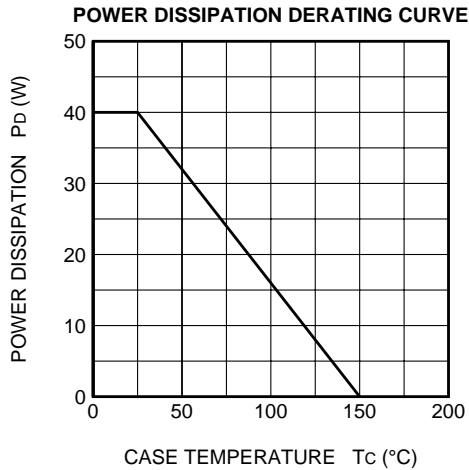
| Symbol | Parameter | Conditions | Ratings | Unit |
|------------------|----------------------------------|----------------------------------|------------|------|
| V _{DSS} | Drain-source voltage | V _{GS} = 0V | 600 | V |
| V _{GSS} | Gate-source voltage | V _{DS} = 0V | ±30 | V |
| I _D | Drain current | | 12 | A |
| I _{DM} | Drain current (Pulsed) | | 36 | A |
| I _{DA} | Avalanche drain current (Pulsed) | L = 200μH | 12 | A |
| P _D | Maximum power dissipation | | 40 | W |
| T _{ch} | Channel temperature | | -55 ~ +150 | °C |
| T _{stg} | Storage temperature | | -55 ~ +150 | °C |
| V _{iso} | Isolation voltage | AC for 1minute, Terminal to case | 2000 | V |
| — | Weight | Typical value | 2.0 | g |

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ELECTRICAL CHARACTERISTICS (Tch = 25°C)

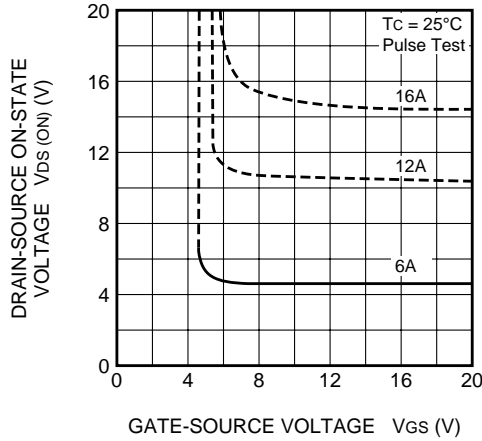
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|------------|----------------------------------|--|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| V (BR) DSS | Drain-source breakdown voltage | Id = 1mA, VGS = 0V | 600 | — | — | V |
| V (BR) GSS | Gate-source breakdown voltage | IGS = ±100μA, VDS = 0V | ±30 | — | — | V |
| IGSS | Gate-source leakage current | VGS = ±25V, VDS = 0V | — | — | ±10 | μA |
| IDSS | Drain-source leakage current | VDS = 600V, VGS = 0V | — | — | 1 | mA |
| VGS (th) | Gate-source threshold voltage | Id = 1mA, VDS = 10V | 2.0 | 3.0 | 4.0 | V |
| rDS (ON) | Drain-source on-state resistance | Id = 6A, VGS = 10V | — | 0.80 | 0.94 | Ω |
| VDS (ON) | Drain-source on-state voltage | Id = 6A, VGS = 10V | — | 4.80 | 5.64 | V |
| yfs | Forward transfer admittance | Id = 6A, VDS = 10V | — | 8.0 | — | S |
| Ciss | Input capacitance | VDS = 25V, VGS = 0V, f = 1MHz | — | 1250 | — | pF |
| Coss | Output capacitance | | — | 150 | — | pF |
| Crss | Reverse transfer capacitance | | — | 55 | — | pF |
| td (on) | Turn-on delay time | VDD = 200V, Id = 6A, VGS = 10V, RGEN = RGS = 50Ω | — | 25 | — | ns |
| tr | Rise time | | — | 45 | — | ns |
| td (off) | Turn-off delay time | | — | 250 | — | ns |
| tf | Fall time | | — | 90 | — | ns |
| VSD | Source-drain voltage | IS = 6A, VGS = 0V | — | 1.5 | 2.0 | V |
| Rth (ch-c) | Thermal resistance | Channel to case | — | — | 3.13 | °C/W |

PERFORMANCE CURVES

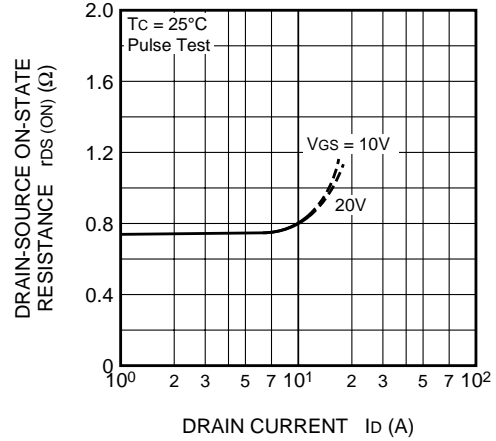


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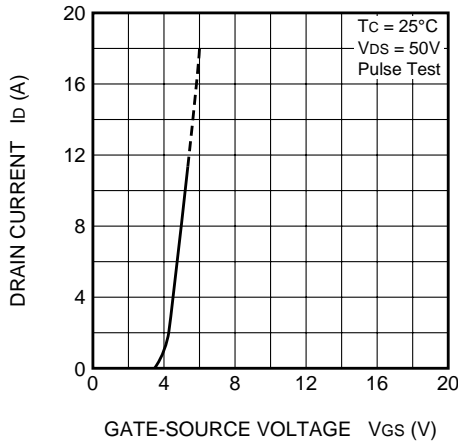
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



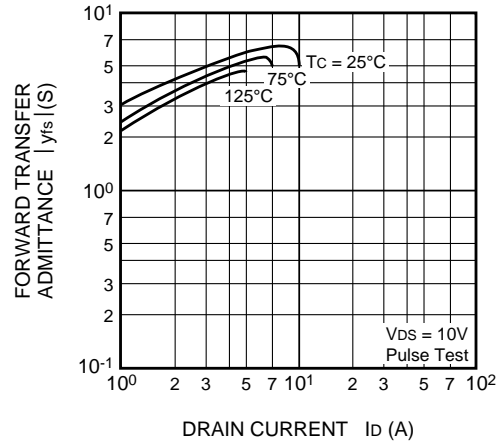
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



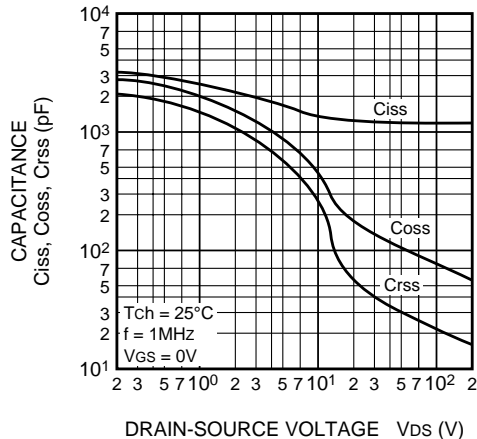
TRANSFER CHARACTERISTICS (TYPICAL)



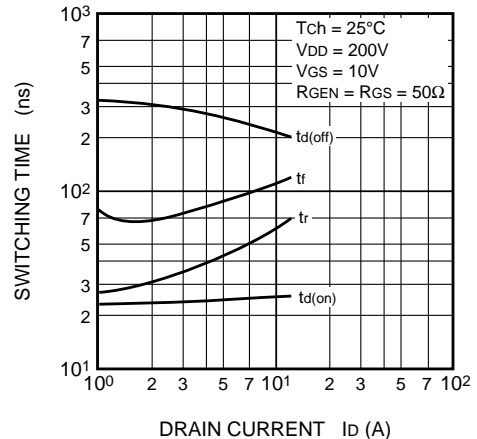
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)

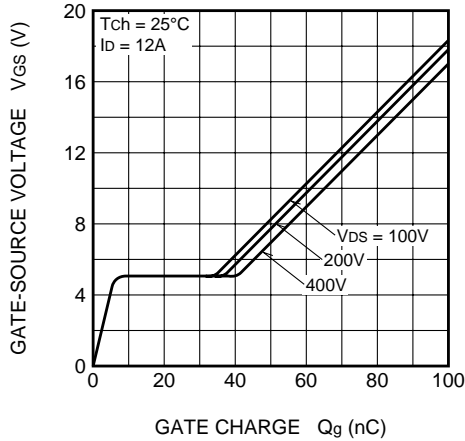


SWITCHING CHARACTERISTICS (TYPICAL)

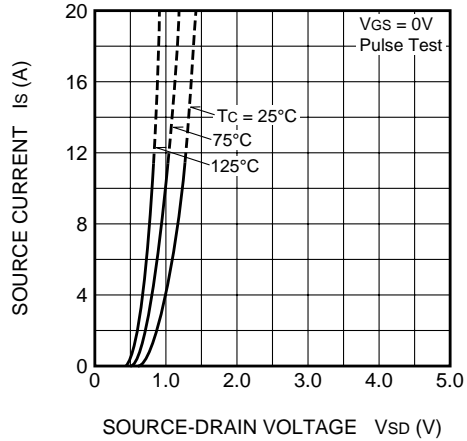


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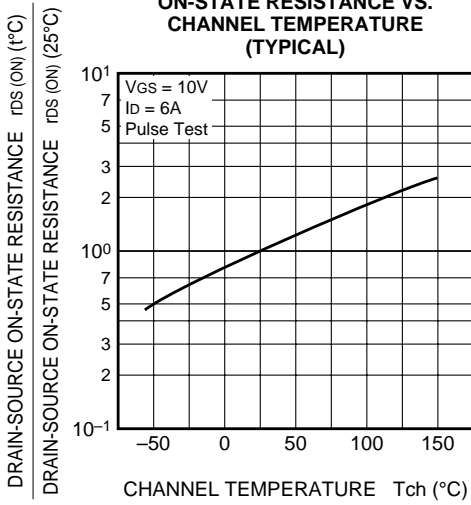
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



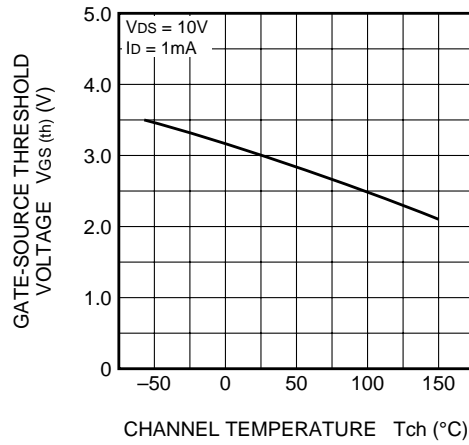
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



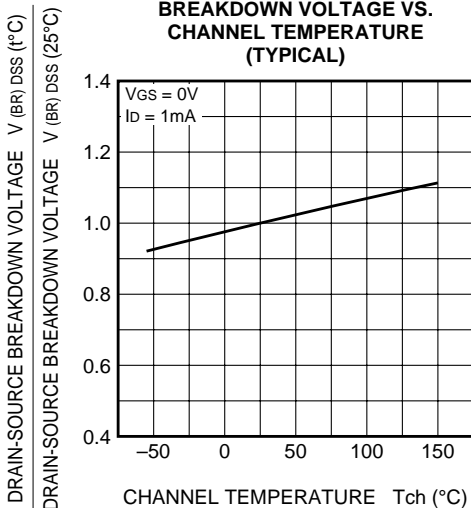
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

