

MITSUBISHI Nch POWER MOSFET

# FS3KM-18A

HIGH-SPEED SWITCHING USE

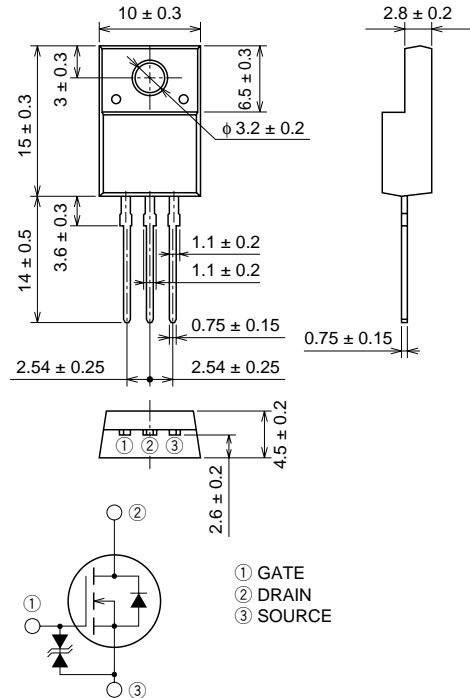
## FS3KM-18A



- $V_{DSS}$  ..... 900V
- $r_{DS(ON)}(MAX)$  .....  $4.0\Omega$
- $I_D$  ..... 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<sub>c</sub> = 25°C)

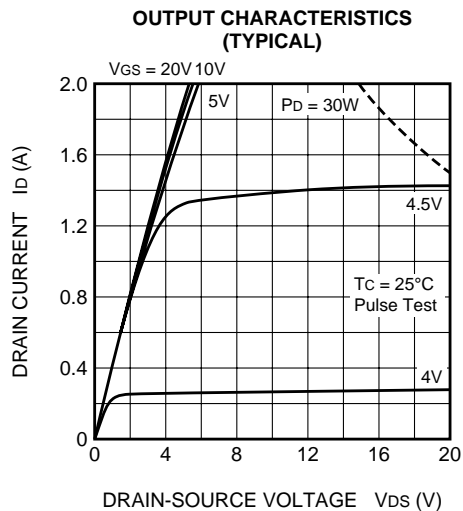
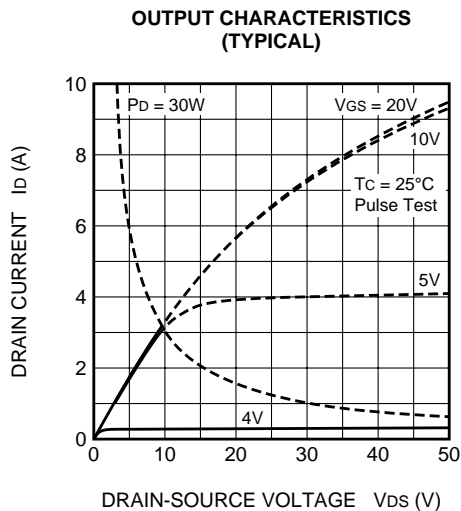
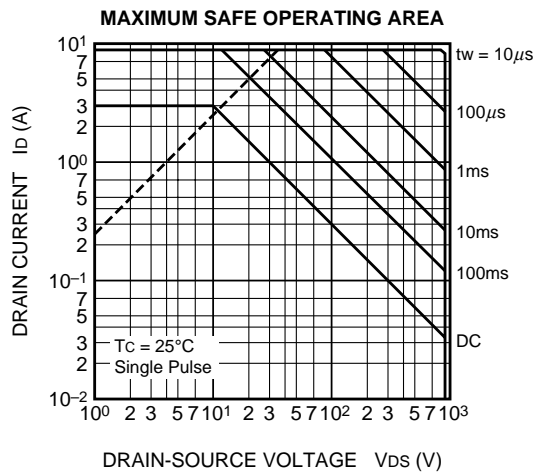
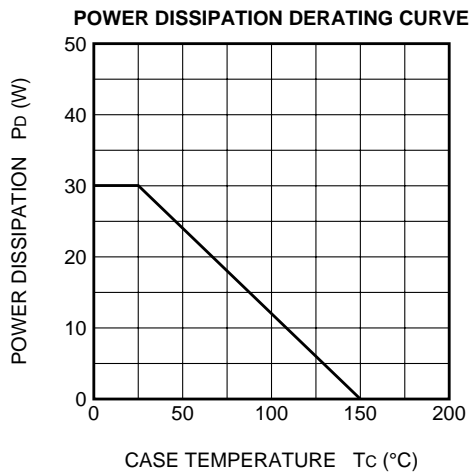
Symbol	Parameter	Conditions	Ratings	Unit
$V_{DSS}$	Drain-source voltage	$V_{GS} = 0V$	900	V
$V_{GSS}$	Gate-source voltage	$V_{DS} = 0V$	$\pm 30$	V
$I_D$	Drain current		3	A
$I_{DM}$	Drain current (Pulsed)		9	A
$P_D$	Maximum power dissipation		30	W
$T_{ch}$	Channel temperature		-55 ~ +150	°C
$T_{stg}$	Storage temperature		-55 ~ +150	°C
$V_{iso}$	Isolation voltage	AC for 1minute, Terminal to case	2000	$V_{rms}$
—	Weight	Typical value	2	g

Feb.1999

**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	900	—	—	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 = 900V, VGS = 0V	—	—	1	mA
VGS (th)	Gate-source threshold voltage	Id = 1mA, VDS = 10V	2	3	4	V
rDS (ON)	Drain-source on-state resistance	Id = 1.5A, VGS = 10V	—	3.08	4.00	Ω
VDS (ON)	Drain-source on-state voltage	Id = 1.5A, VGS = 10V	—	4.62	6.00	V
yfs	Forward transfer admittance	Id = 1.5A, VDS = 10V	2.1	3.5	—	S
Ciss	Input capacitance	VDS = 25V, VGS = 0V, f = 1MHz	—	770	—	pF
Coss	Output capacitance		—	77	—	pF
Crss	Reverse transfer capacitance		—	13	—	pF
td (on)	Turn-on delay time	VDD = 200V, Id = 1.5A, VGS = 10V, RGEN = RGS = 50Ω	—	15	—	ns
tr	Rise time		—	15	—	ns
td (off)	Turn-off delay time		—	90	—	ns
tf	Fall time		—	25	—	ns
VSD	Source-drain voltage	IS = 1.5A, VGS = 0V	—	1.0	1.5	V
Rth (ch-c)	Thermal resistance	Channel to case	—	—	4.17	°C/W

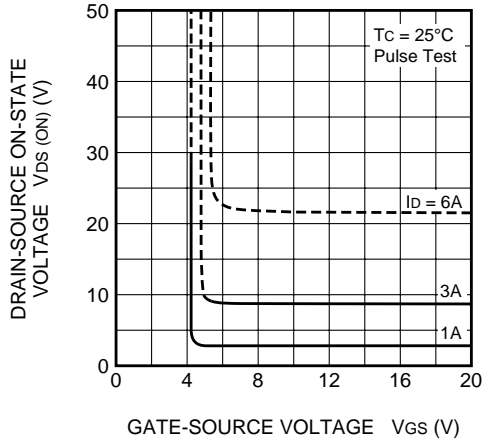
**PERFORMANCE CURVES**



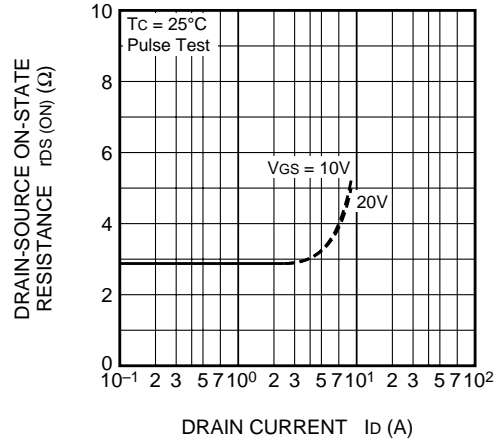
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## HIGH-SPEED SWITCHING USE

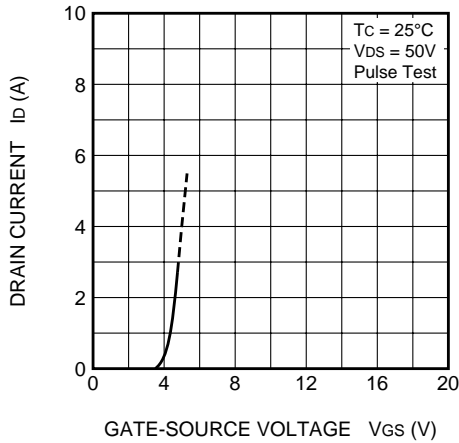
**ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)**



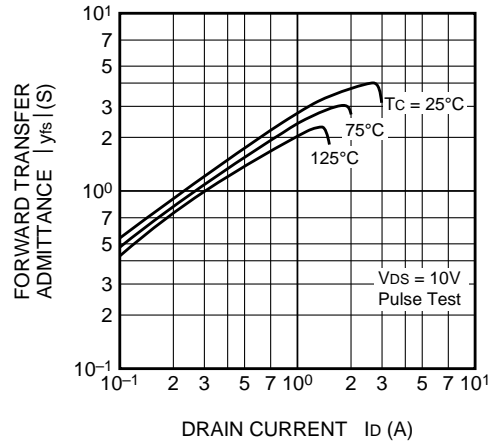
**ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)**



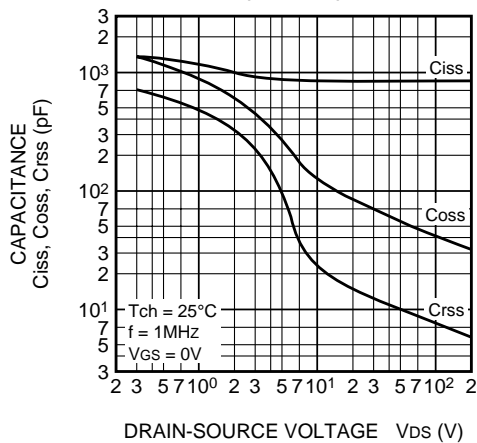
**TRANSFER CHARACTERISTICS (TYPICAL)**



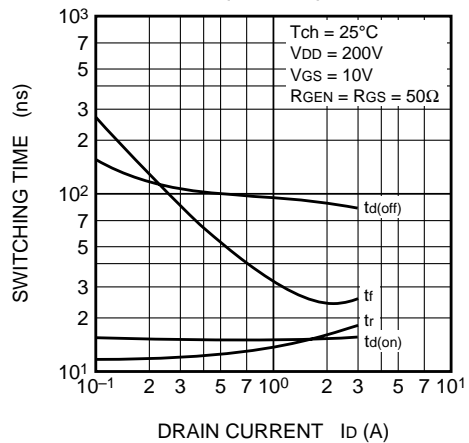
**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)**



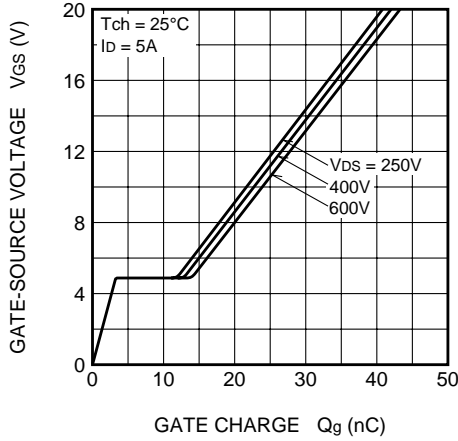
**CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)**



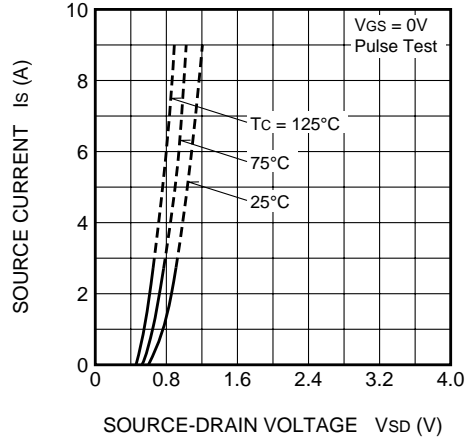
**SWITCHING CHARACTERISTICS (TYPICAL)**



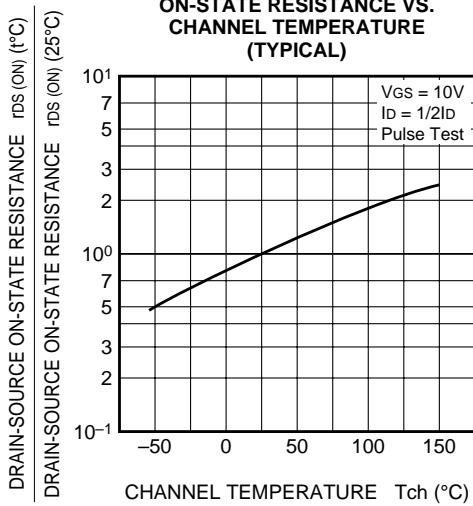
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



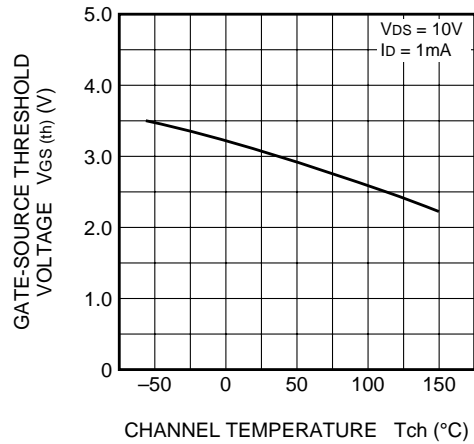
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



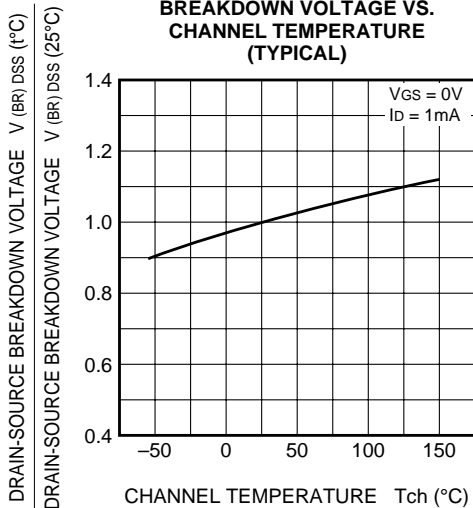
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

