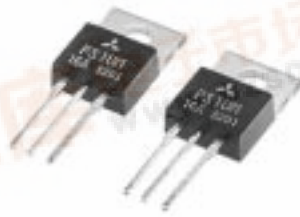


MITSUBISHI Nch POWER MOSFET

# FS1UM-16A

HIGH-SPEED SWITCHING USE

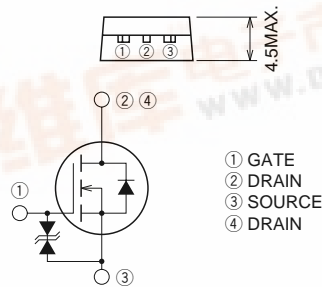
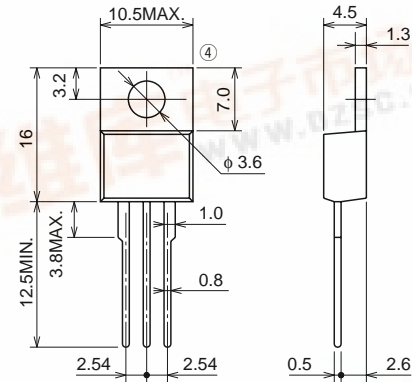
## FS1UM-16A



- V<sub>DSS</sub> ..... 800V
- r<sub>DS (ON)</sub> (MAX) ..... 12.3Ω
- I<sub>D</sub> ..... 1A

## OUTLINE DRAWING

Dimensions in mm



TO-220

## 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 <sub>DSS</sub>	Drain-source voltage	V <sub>GS</sub> = 0V	800	V
V <sub>GSS</sub>	Gate-source voltage	V <sub>DS</sub> = 0V	±30	V
I <sub>D</sub>	Drain current		1	A
I <sub>DM</sub>	Drain current (Pulsed)		3	A
P <sub>D</sub>	Maximum power dissipation		65	W
T <sub>ch</sub>	Channel temperature		-55 ~ +150	°C
T <sub>stg</sub>	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	2	g

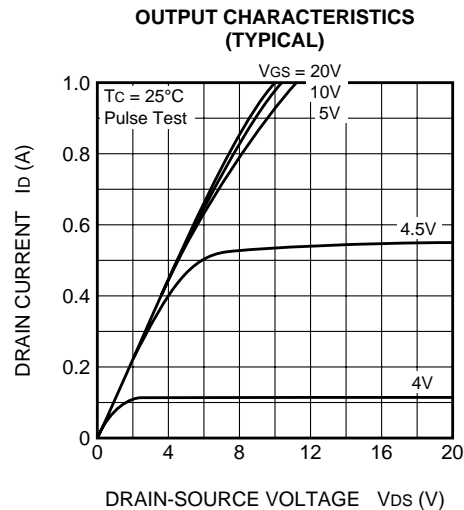
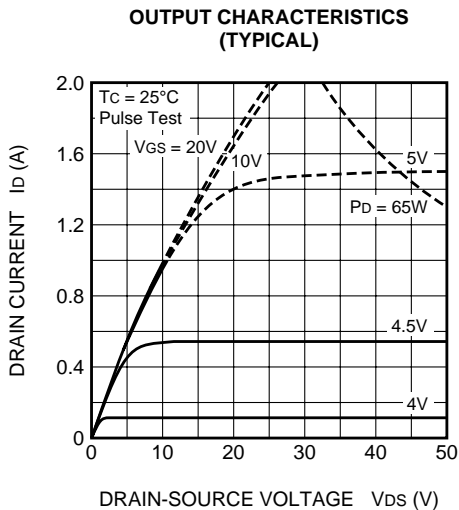
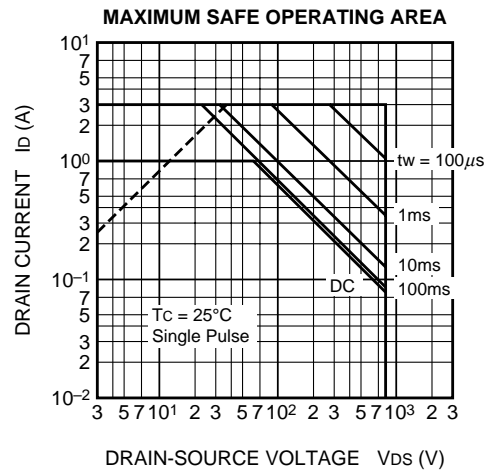
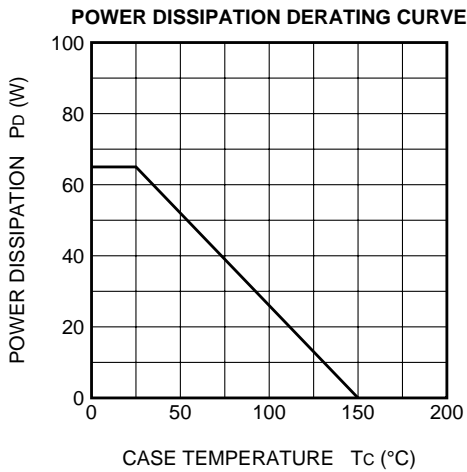
# FS1UM-16A

HIGH-SPEED SWITCHING USE

**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	800	—	—	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 = 800V, 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 = 0.5A, VGS = 10V	—	9.43	12.3	Ω
VDS(ON)	Drain-source on-state voltage	Id = 0.5A, VGS = 10V	—	4.72	6.15	V
yfs	Forward transfer admittance	Id = 0.5A, VDS = 10V	0.6	1.0	—	S
Ciss	Input capacitance	VDS = 25V, VGS = 0V, f = 1MHz	—	270	—	pF
Coss	Output capacitance		—	26	—	pF
Crss	Reverse transfer capacitance		—	4	—	pF
td(on)	Turn-on delay time	VDD = 200V, Id = 0.5A, VGS = 10V, RGEN = RGS = 50Ω	—	9	—	ns
tr	Rise time		—	12	—	ns
td(off)	Turn-off delay time		—	35	—	ns
tf	Fall time		—	30	—	ns
VSD	Source-drain voltage		IS = 0.5A, VGS = 0V	—	1.0	1.5
Rth(ch-c)	Thermal resistance	Channel to case	—	—	1.92	°C/W

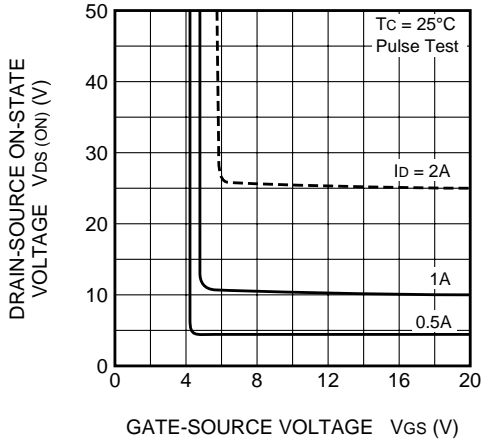
**PERFORMANCE CURVES**



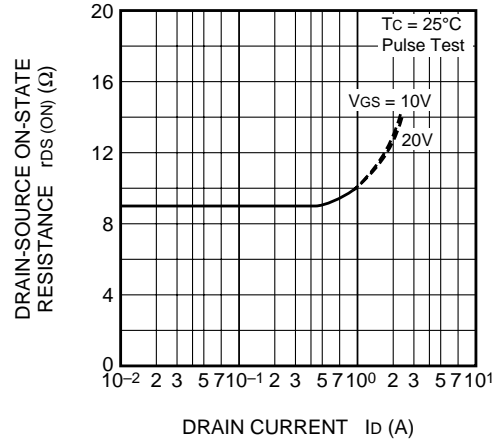
# FS1UM-16A

HIGH-SPEED SWITCHING USE

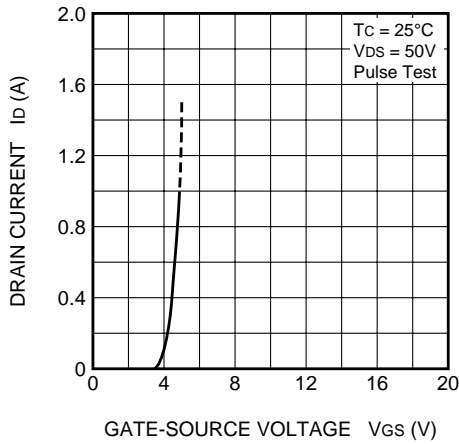
**ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)**



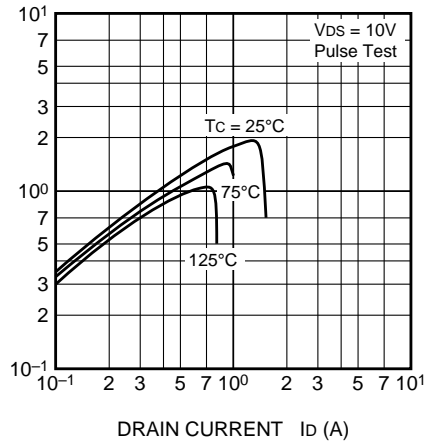
**ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)**



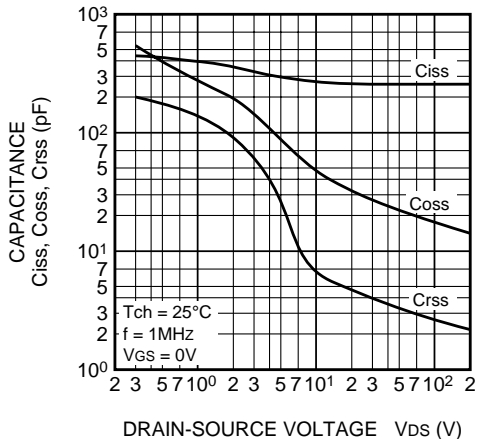
**TRANSFER CHARACTERISTICS (TYPICAL)**



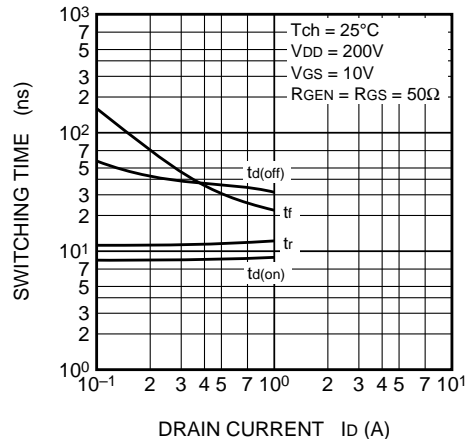
**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)**



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



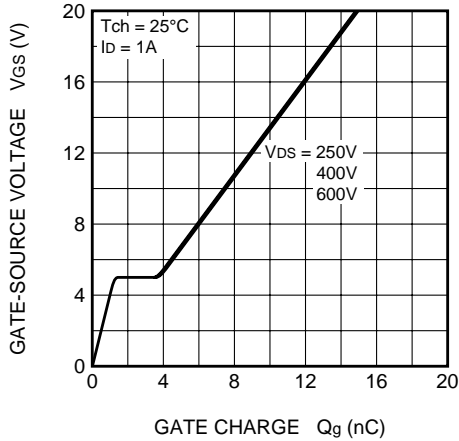
**SWITCHING CHARACTERISTICS (TYPICAL)**



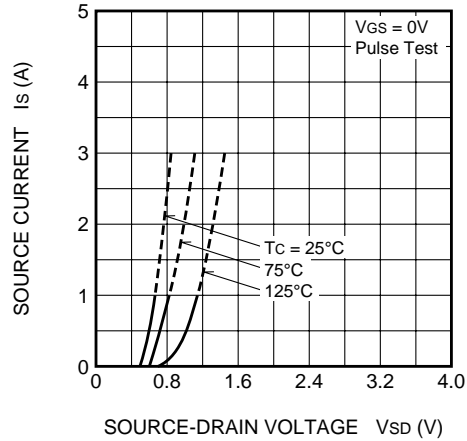
# FS1UM-16A

HIGH-SPEED SWITCHING USE

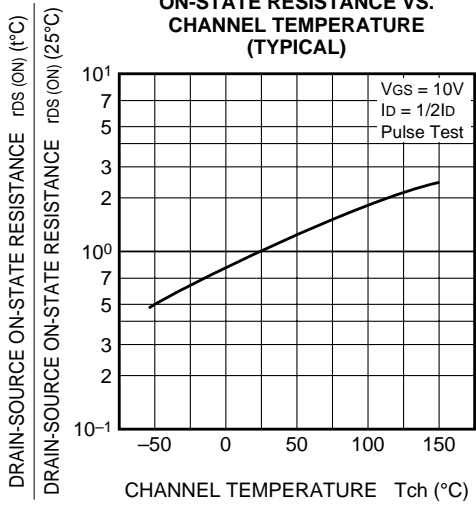
**GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)**



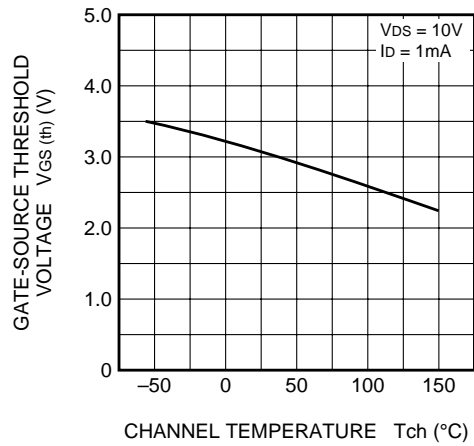
**SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)**



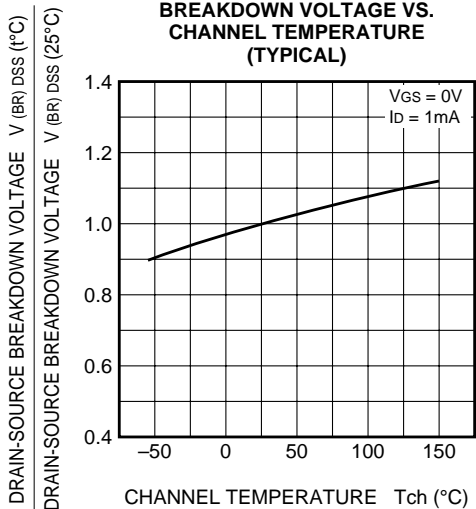
**ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)**



**THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)**



**BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS**

