

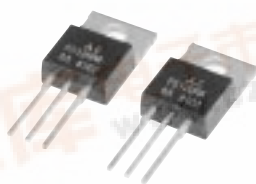
PRELIMINARY
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Some parametric limits are subject to change.

MITSUBISHI Nch POWER MOSFET

FS12UMA-4A

HIGH-SPEED SWITCHING USE

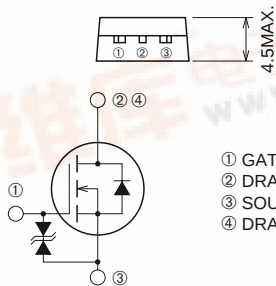
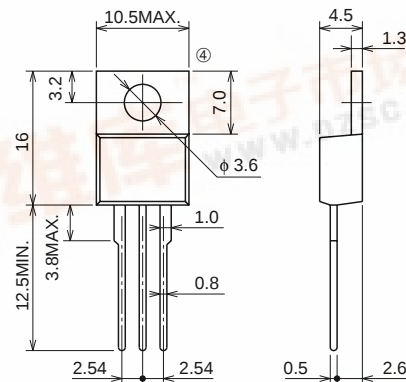
FS12UMA-4A



- 10V DRIVE
- V_{DS} 200V
- $r_{DS(ON)}(MAX)$ 0.40Ω
- I_D 12A

OUTLINE DRAWING

Dimensions in mm



TO-220

APPLICATION

Cs Switch for CRT Display monitor, Switch mode power supply, etc.

MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	200	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 20	V
I_D	Drain current		12	A
I_{DM}	Drain current (Pulsed)		36	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 200\mu H$	12	A
P_D	Maximum power dissipation		50	W
T_{ch}	Channel temperature		$-55 \sim +150$	°C
T_{stg}	Storage temperature		$-55 \sim +150$	°C
—	Weight	Typical value	2.0	g

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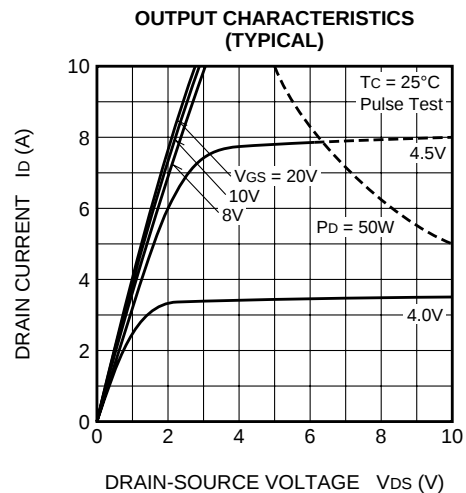
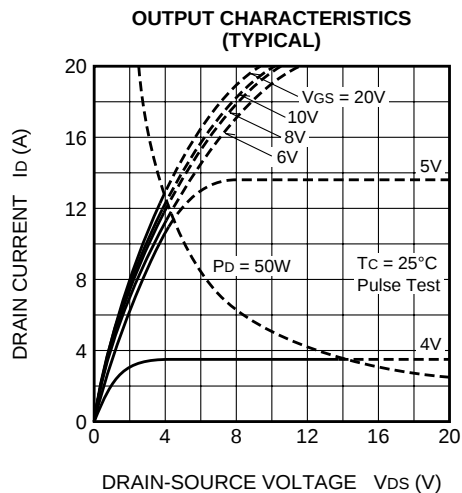
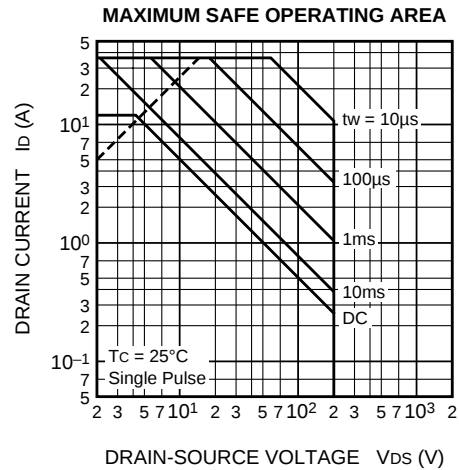
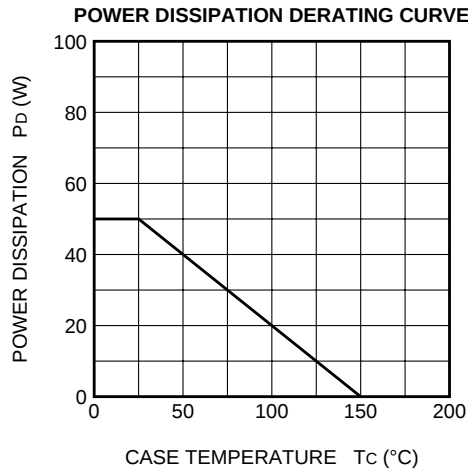
FS12UMA-4A

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	200	—	—	V
V (BR) GSS	Gate-source breakdown voltage	IGS = ±10μA, VDS = 0V	±20	—	—	V
IGSS	Gate-source leakage current	VGS = ±20V, VDS = 0V	—	—	±10	μA
IDSS	Drain-source leakage current	VDS = 200V, 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	—	0.30	0.40	Ω
VDS (ON)	Drain-source on-state voltage	Id = 6A, VGS = 10V	—	1.80	2.40	V
yfs	Forward transfer admittance	Id = 6A, VDS = 10V	—	8.0	—	S
Ciss	Input capacitance	VDS = 25V, VGS = 0V, f = 1MHz	—	700	—	pF
Coss	Output capacitance		—	95	—	pF
Crss	Reverse transfer capacitance		—	30	—	pF
td (on)	Turn-on delay time	VDD = 100V, Id = 6A, VGS = 10V, RGEN = RGS = 50Ω	—	15	—	ns
tr	Rise time		—	20	—	ns
td (off)	Turn-off delay time		—	110	—	ns
tf	Fall time		—	35	—	ns
VSD	Source-drain voltage	IS = 6A, VGS = 0V	—	0.95	—	V
Rth (ch-c)	Thermal resistance	Channel to case	—	—	2.50	°C/W

PERFORMANCE CURVES



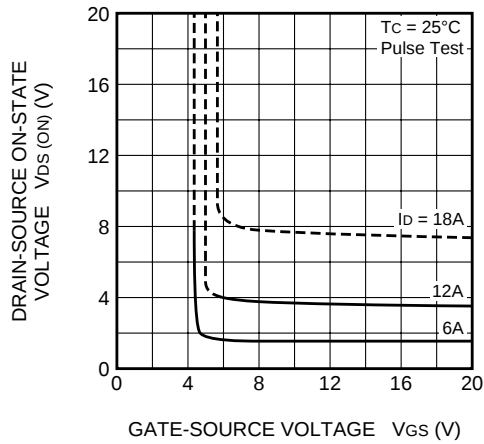
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MITSUBISHI Nch POWER MOSFET

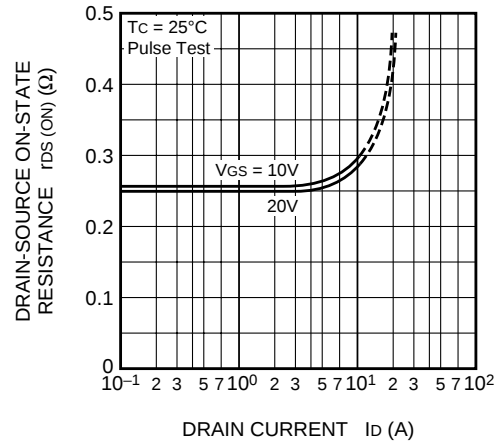
FS12UMA-4A

HIGH-SPEED SWITCHING USE

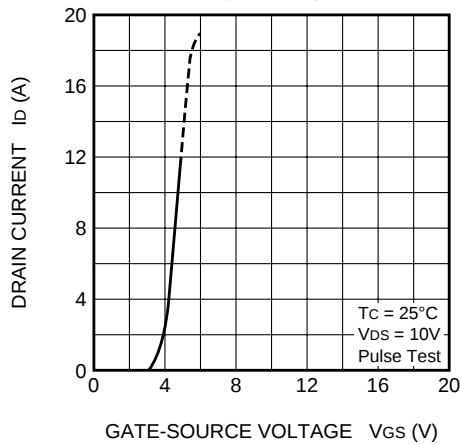
**ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)**



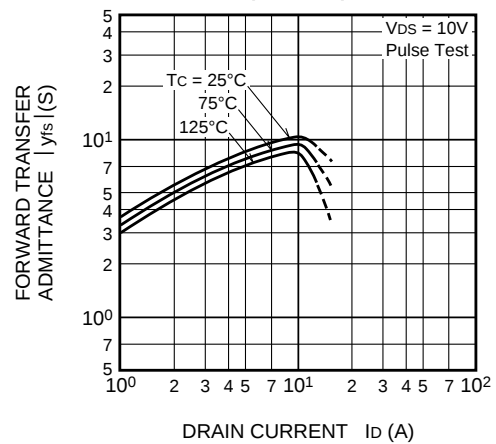
**ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)**



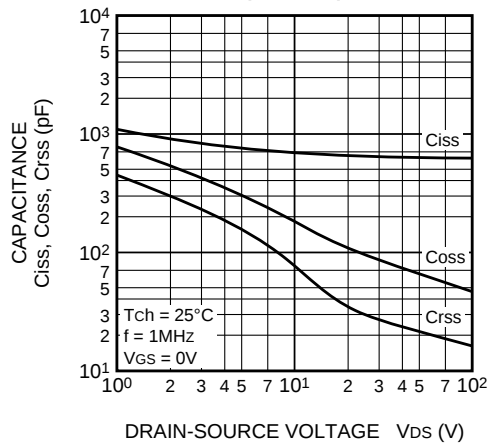
**TRANSFER CHARACTERISTICS
(TYPICAL)**



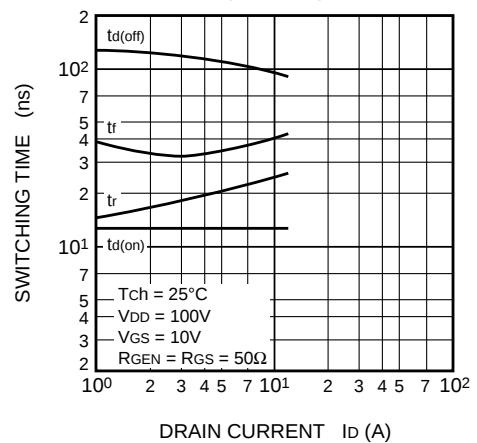
**FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)**



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



**SWITCHING CHARACTERISTICS
(TYPICAL)**

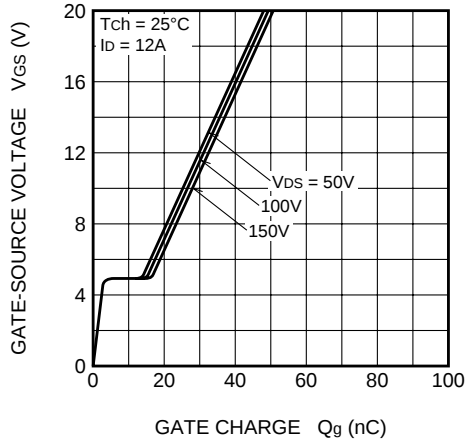


FS12UMA-4A

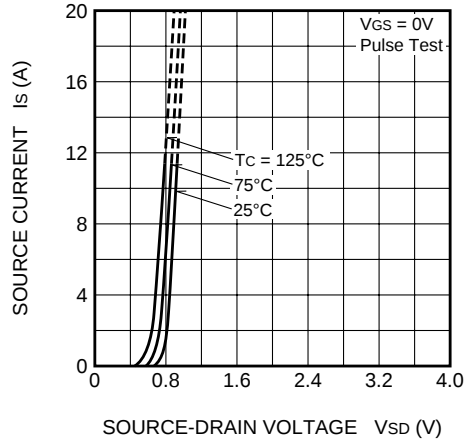
HIGH-SPEED SWITCHING USE

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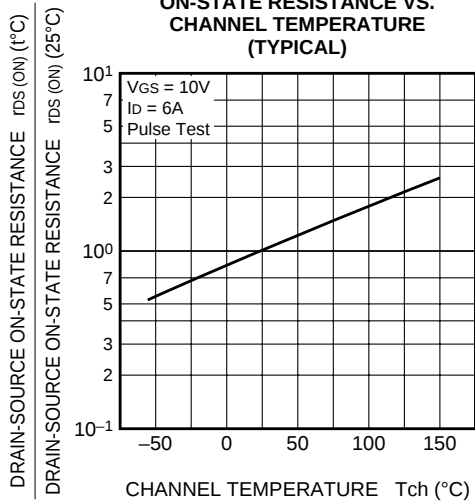
**GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)**



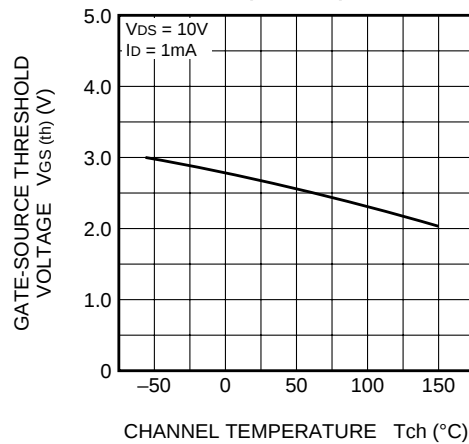
**SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)**



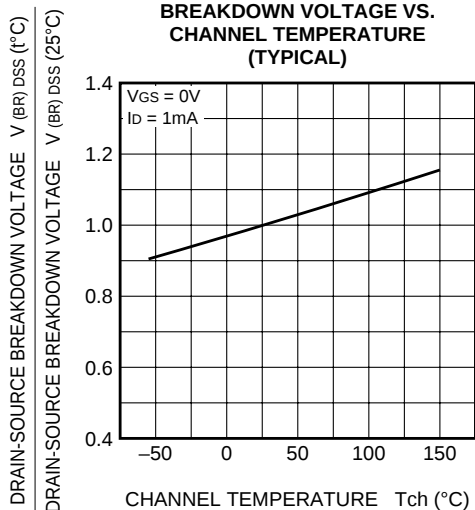
**ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



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



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



**TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS**

