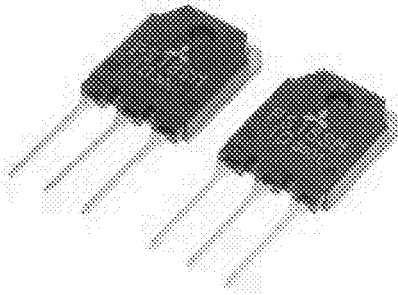


MITSUBISHI Nch POWER MOSFET

FS18SM-10

HIGH-SPEED SWITCHING USE

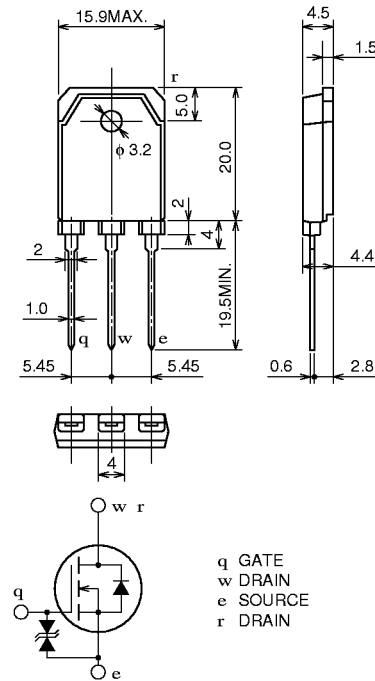
FS18SM-10



• V_{DS}	500V
• $r_{DS(ON)}$ (MAX)	0.40 Ω
• I_D	18A

OUTLINE DRAWING

Dimensions in mm



TO-3P

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	$V_{GS} = 0V$	500	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		18	A
I_{DM}	Drain current (Pulsed)		54	A
P_D	Maximum power dissipation		250	W
T_{ch}	Channel temperature		$-55 \sim +150$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-55 \sim +150$	$^\circ\text{C}$
—	Weight	Typical value	4.8	g

Feb.1999

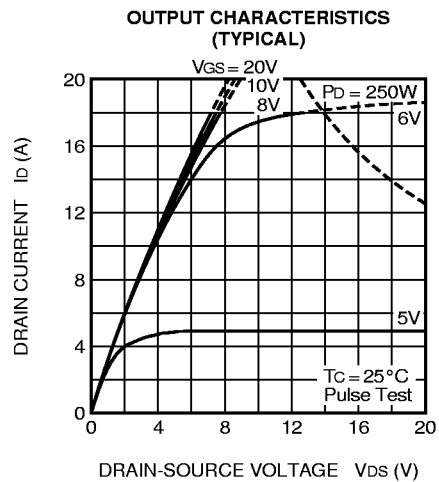
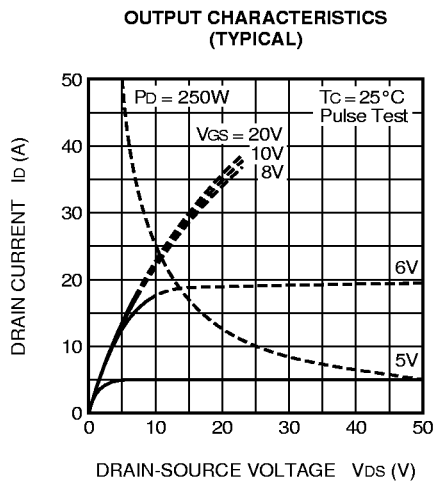
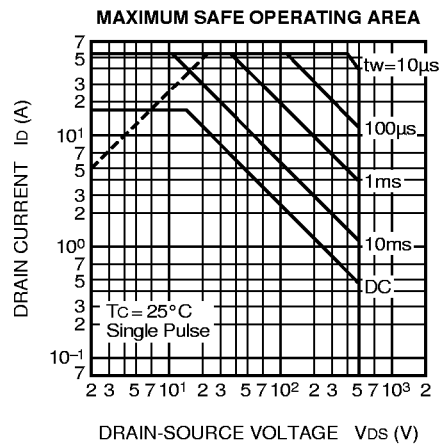
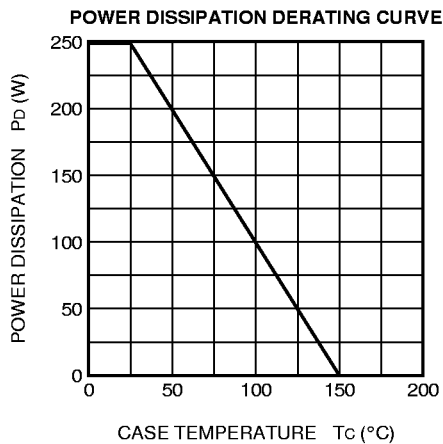
FS18SM-10

HIGH-SPEED SWITCHING USE

ELECTRICAL CHARACTERISTICS (T_{ch} = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V _{(BR) DSS}	Drain-source breakdown voltage	I _D = 1 mA, V _{GS} = 0 V	500	—	—	V
V _{(BR) GSS}	Gate-source breakdown voltage	I _G = ±100 μA, V _{DS} = 0 V	±30	—	—	V
I _{GSS}	Gate-source leakage current	V _{GS} = ±25 V, V _{DS} = 0 V	—	—	±10	μA
I _{DSS}	Drain-source leakage current	V _{DS} = 500 V, V _{GS} = 0 V	—	—	1	mA
V _{GS(th)}	Gate-source threshold voltage	I _D = 1 mA, V _{DS} = 10 V	2	3	4	V
r _{DS(ON)}	Drain-source on-state resistance	I _D = 9 A, V _{GS} = 10 V	—	0.30	0.40	Ω
V _{DS(ON)}	Drain-source on-state voltage	I _D = 9 A, V _{GS} = 10 V	—	2.7	3.6	V
y _{fs}	Forward transfer admittance	I _D = 9 A, V _{DS} = 10 V	7.0	10.0	—	S
C _{iss}	Input capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz	—	2200	—	pF
C _{oss}	Output capacitance		—	300	—	pF
C _{rss}	Reverse transfer capacitance		—	45	—	pF
t _{d(on)}	Turn-on delay time	V _{DD} = 200 V, I _D = 9 A, V _{GS} = 10 V, R _{GEN} = R _{GS} = 50 Ω	—	40	—	ns
t _r	Rise time		—	80	—	ns
t _{d(off)}	Turn-off delay time		—	200	—	ns
t _f	Fall time		—	80	—	ns
V _{SD}	Source-drain voltage	I _S = 9 A, V _{GS} = 0 V	—	1.5	2.0	V
R _{th(ch-c)}	Thermal resistance	Channel to case	—	—	0.50	°C/W

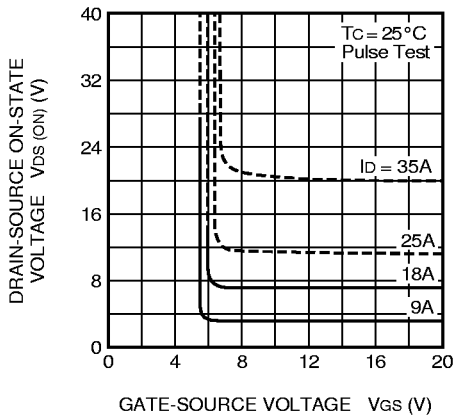
PERFORMANCE CURVES



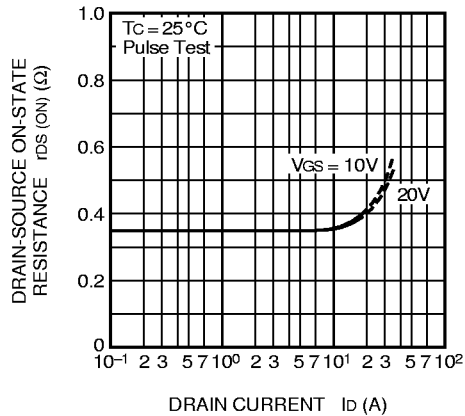
FS18SM-10

HIGH-SPEED SWITCHING USE

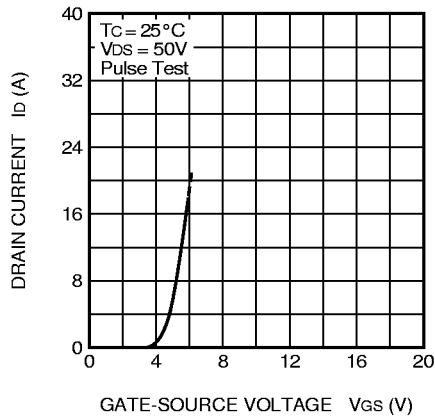
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



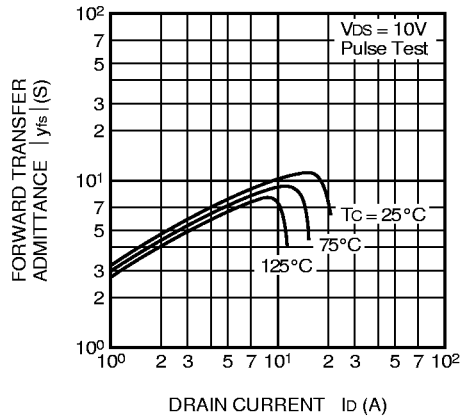
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



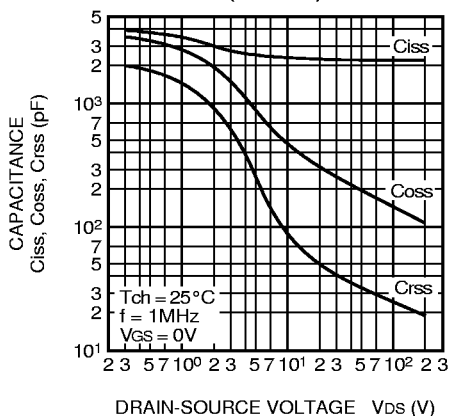
TRANSFER CHARACTERISTICS
(TYPICAL)



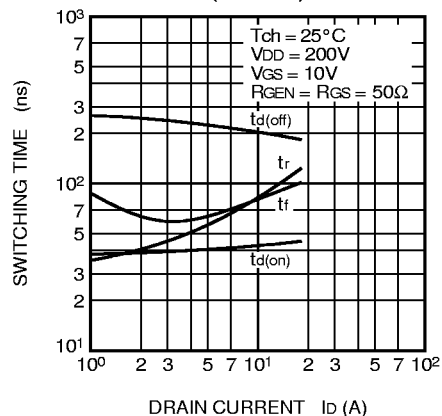
FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



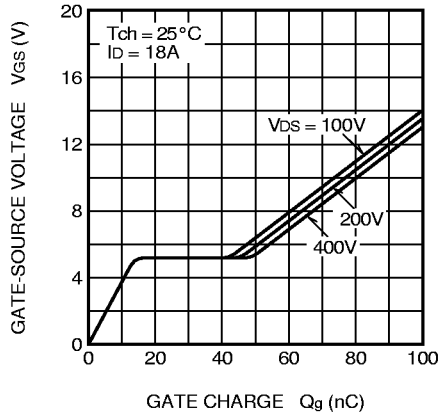
SWITCHING CHARACTERISTICS
(TYPICAL)



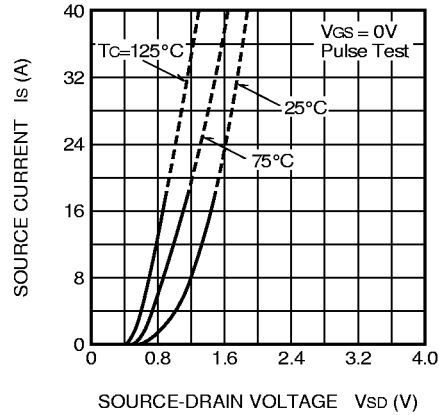
FS18SM-10

HIGH-SPEED SWITCHING USE

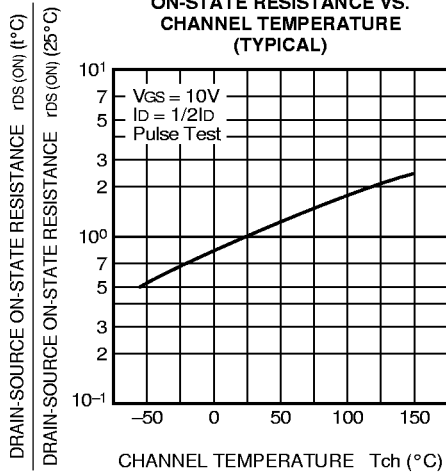
**GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)**



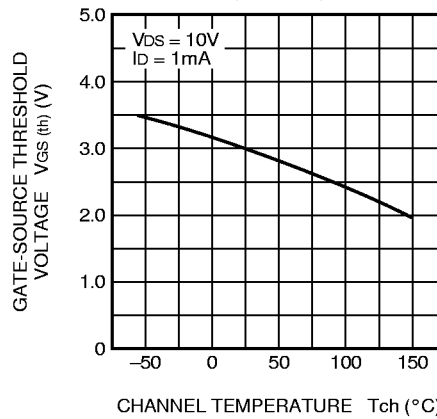
**SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)**



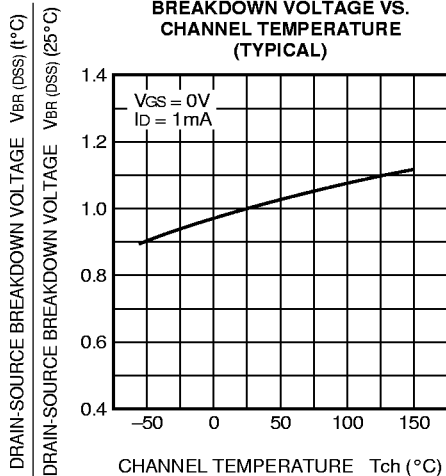
**ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



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



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



**TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS**

