

MITSUBISHI Nch POWER MOSFET

FS10AS-2

HIGH-SPEED SWITCHING USE

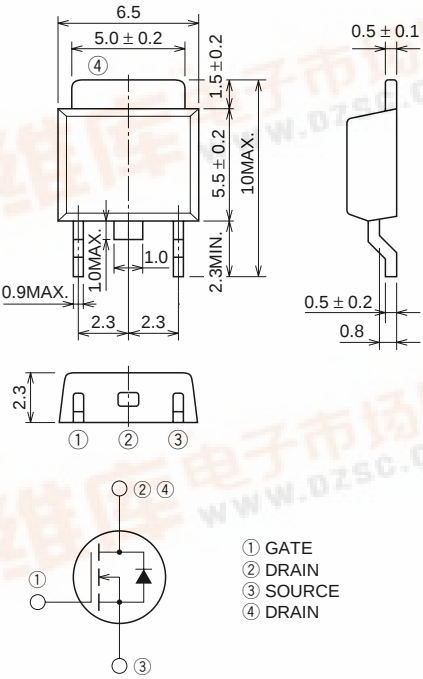
FS10AS-2



- 10V DRIVE
- V_{DS} 100V
- $r_{DS(ON)}$ (MAX) 0.23Ω
- I_D 10A
- Integrated Fast Recovery Diode (TYP.) 100ns

OUTLINE DRAWING

Dimensions in mm



APPLICATION

Motor control, Lamp control, Solenoid control
DC-DC converter, etc.

MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	100	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	±20	V
I_D	Drain current		10	A
I_{DM}	Drain current (Pulsed)		40	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	10	A
I_S	Source current		10	A
I_{SM}	Source current (Pulsed)		40	A
P_D	Maximum power dissipation		30	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	0.26	g

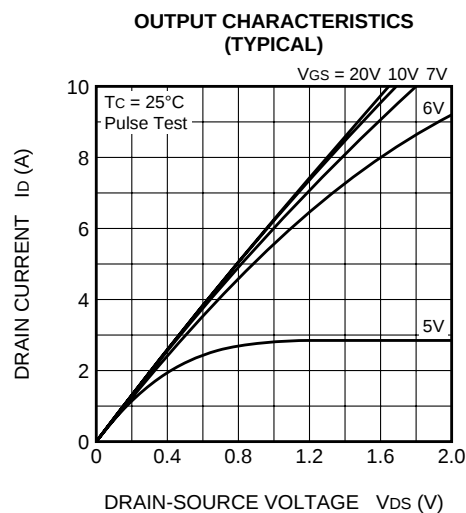
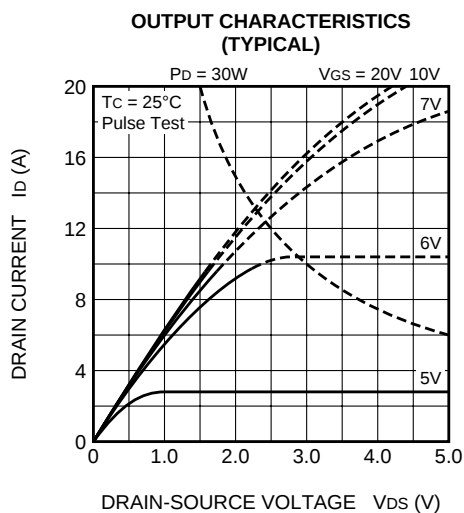
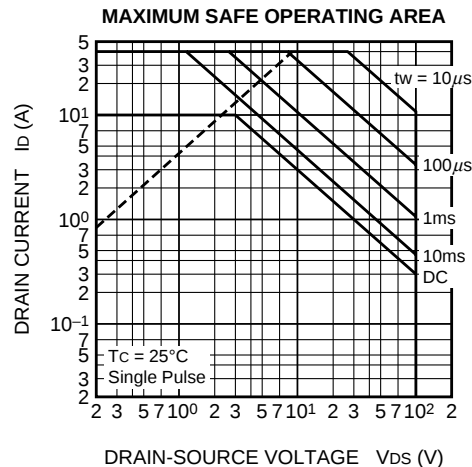
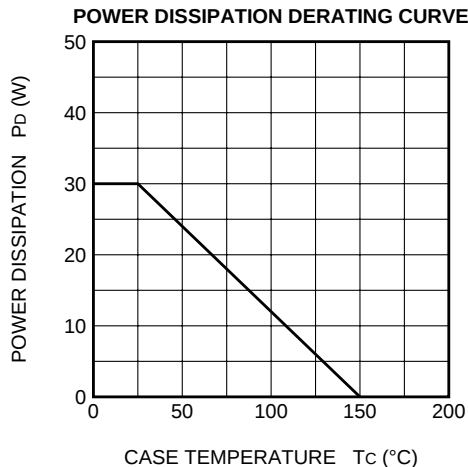
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HIGH-SPEED SWITCHING USE

ELECTRICAL CHARACTERISTICS (Tch = 25°C)

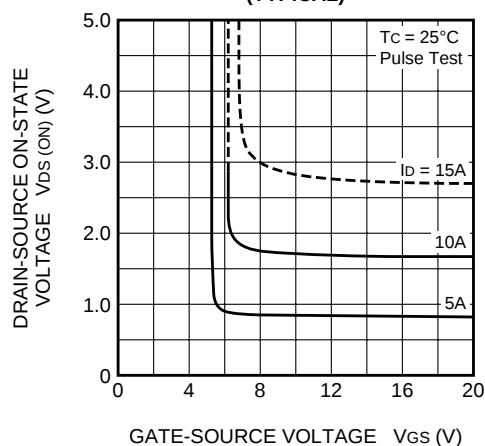
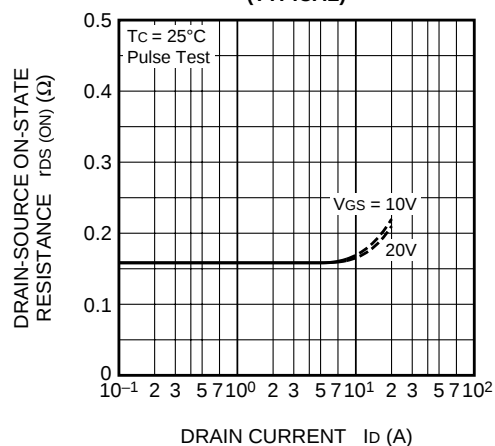
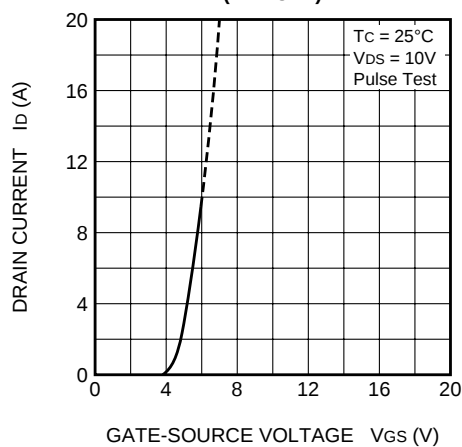
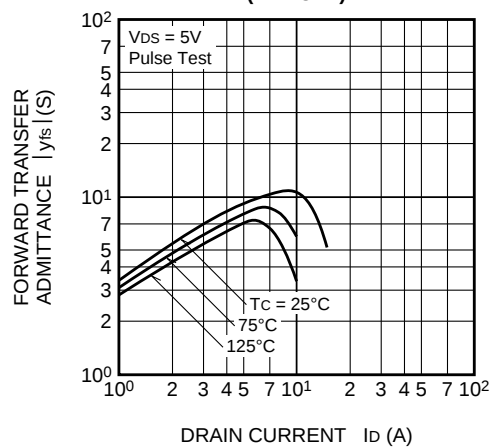
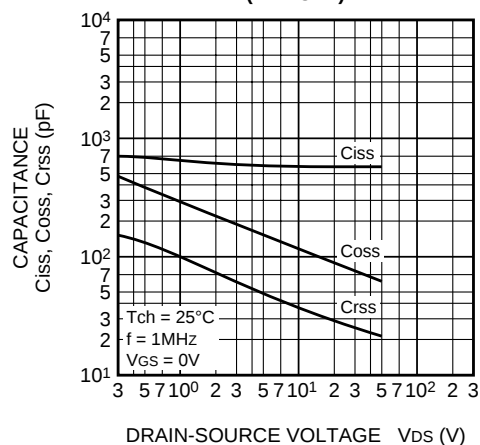
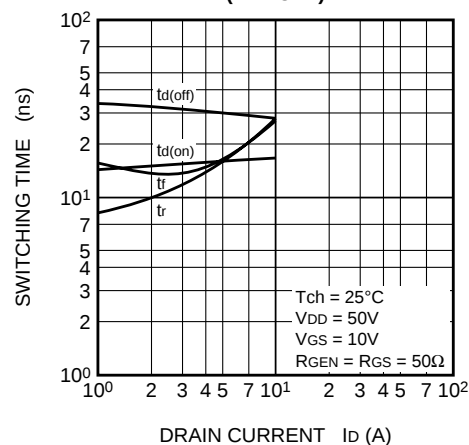
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V(BR)DSS	Drain-source breakdown voltage	Id = 1mA, VGS = 0V	100	—	—	V
IGSS	Gate-source leakage current	VGS = ±20V, VDS = 0V	—	—	±0.1	μA
IDSS	Drain-source leakage current	VDS = 100V, VGS = 0V	—	—	0.1	mA
VGS(th)	Gate-source threshold voltage	Id = 1mA, VDS = 10V	2.0	3.0	4.0	V
rDS(ON)	Drain-source on-state resistance	Id = 5A, VGS = 10V	—	0.16	0.23	Ω
VDS(ON)	Drain-source on-state voltage	Id = 5A, VGS = 10V	—	0.80	1.15	V
yfs	Forward transfer admittance	Id = 5A, VDS = 5V	—	9.0	—	S
Ciss	Input capacitance	VDS = 10V, VGS = 0V, f = 1MHz	—	600	—	pF
Coss	Output capacitance		—	125	—	pF
Crss	Reverse transfer capacitance		—	40	—	pF
td(on)	Turn-on delay time	VDD = 50V, Id = 5A, VGS = 10V, RGEN = RGS = 50Ω	—	18	—	ns
tr	Rise time		—	20	—	ns
td(off)	Turn-off delay time		—	30	—	ns
tf	Fall time		—	18	—	ns
VSD	Source-drain voltage	Is = 5A, VGS = 0V	—	1.0	1.5	V
Rth(ch-c)	Thermal resistance	Channel to case	—	—	4.17	°C/W
trr	Reverse recovery time	Is = 10A, dis/dt = -100A/μs	—	100	—	ns

PERFORMANCE CURVES

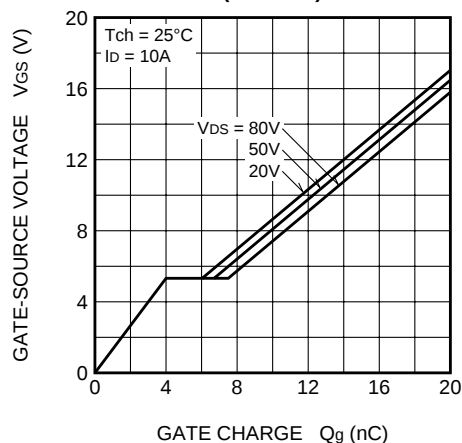


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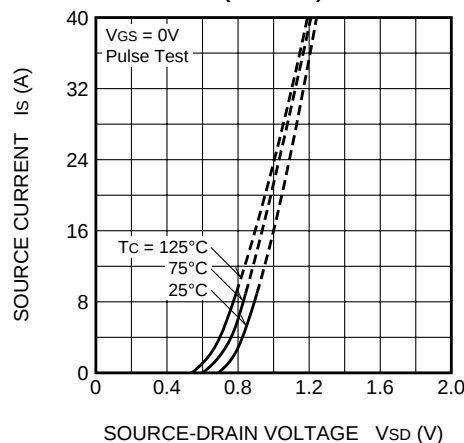
HIGH-SPEED SWITCHING USE

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)

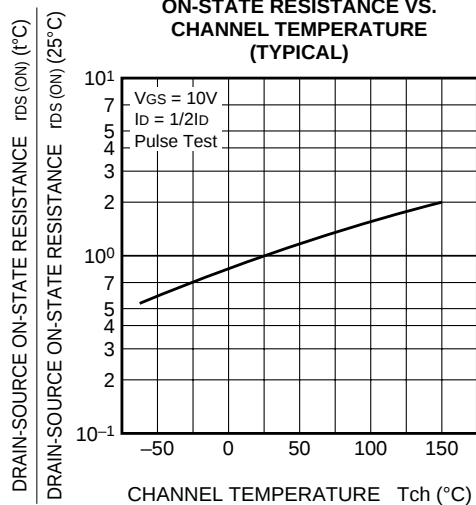
GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)



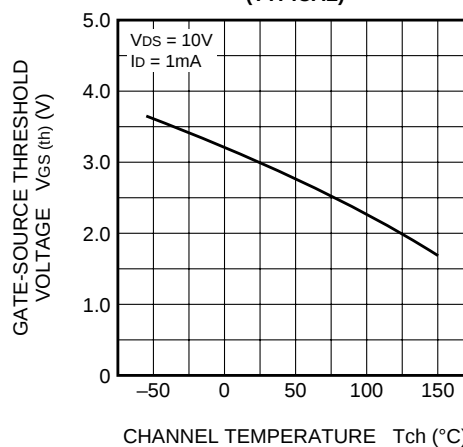
SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)



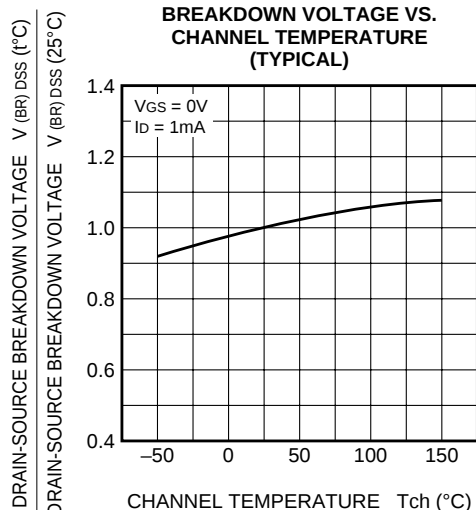
ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)



THRESHOLD VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



BREAKDOWN VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS

