

FS5KMH-2

HIGH-SPEED SWITCHING USE

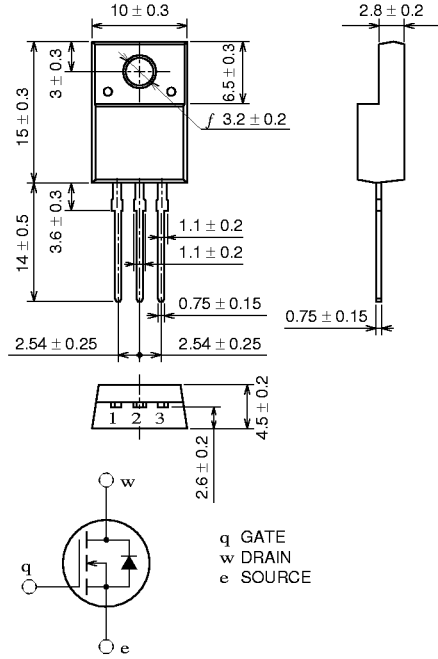
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- ˆ 2.5V DRIVE
- ˆ V_{DSS} 100V
- ˆ r_{DS} (ON) (MAX) 0.44Ω
- ˆ I_D 5A
- ˆ Integrated Fast Recovery Diode (TYP.) 80ns
- ˆ V_{iso} 2000V

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

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

MAXIMUM RATINGS (T_c = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V _{DSS}	Drain-source voltage	V _{GS} = 0V	100	V
V _{GSS}	Gate-source voltage	V _{DS} = 0V	±10	V
I _D	Drain current		5	A
I _{DM}	Drain current (Pulsed)		20	A
I _{DA}	Avalanche drain current (Pulsed)	L = 100μH	5	A
I _S	Source current		5	A
I _{SM}	Source current (Pulsed)		20	A
P _D	Maximum power dissipation		15	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
—	Weight	Typical value	2.0	g

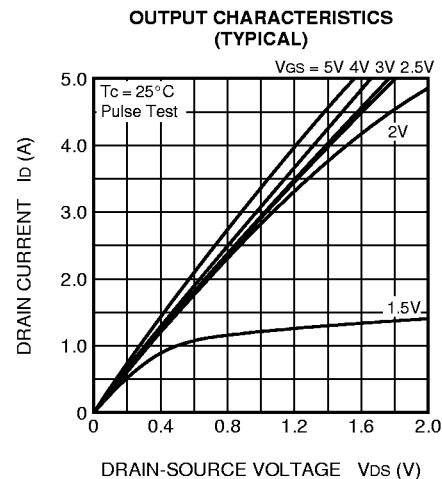
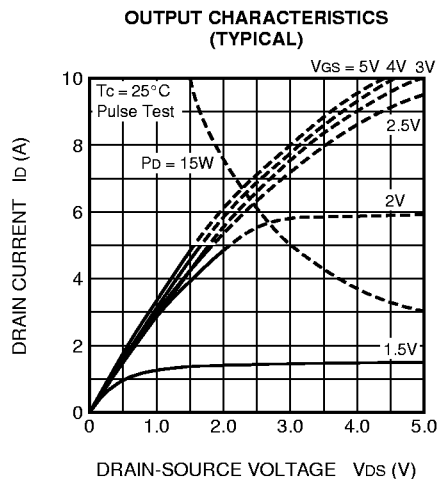
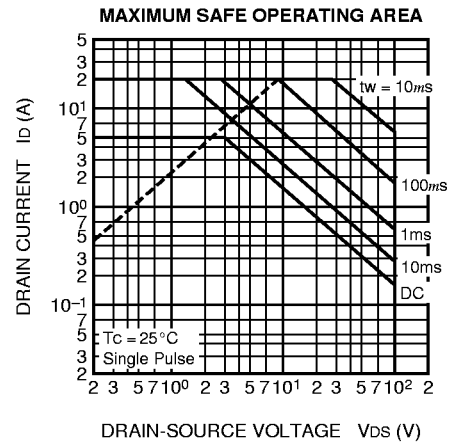
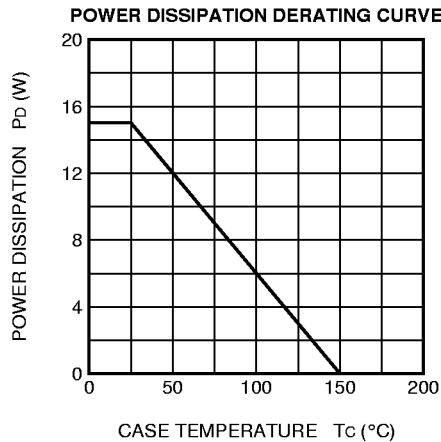
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ELECTRICAL CHARACTERISTICS (Tch = 25°C)

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 = ±10V, 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	0.6	0.9	1.2	V
rDS(ON)	Drain-source on-state resistance	ID = 2A, VGS = 4V	—	0.32	0.44	Ω
rDS(ON)	Drain-source on-state resistance	ID = 2A, VGS = 2.5V	—	0.34	0.47	Ω
VDS(ON)	Drain-source on-state voltage	ID = 2A, VGS = 4V	—	0.64	0.88	V
yfs	Forward transfer admittance	ID = 2A, VDS = 5V	—	10	—	S
Ciss	Input capacitance	VDS = 10V, VGS = 0V, f = 1MHz	—	540	—	pF
Coss	Output capacitance		—	75	—	pF
Crss	Reverse transfer capacitance		—	20	—	pF
td(on)	Turn-on delay time	VDD = 50V, ID = 2A, VGS = 4V, RGEN = RGS = 50Ω	—	12	—	ns
tr	Rise time		—	18	—	ns
td(off)	Turn-off delay time		—	45	—	ns
tf	Fall time		—	26	—	ns
VSD	Source-drain voltage	IS = 2A, VGS = 0V	—	1.0	1.5	V
Rth(ch-c)	Thermal resistance	Channel to case	—	—	8.33	°C/W
trr	Reverse recovery time	IS = 5A, dis/dt = -100A/μs	—	80	—	ns

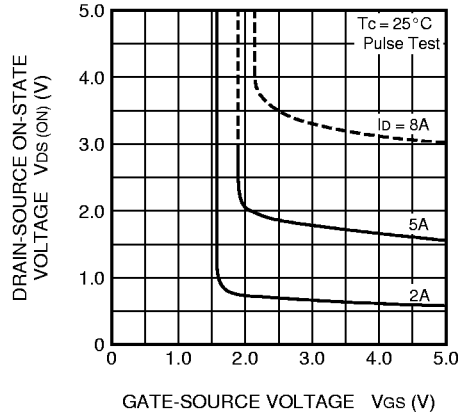
PERFORMANCE CURVES



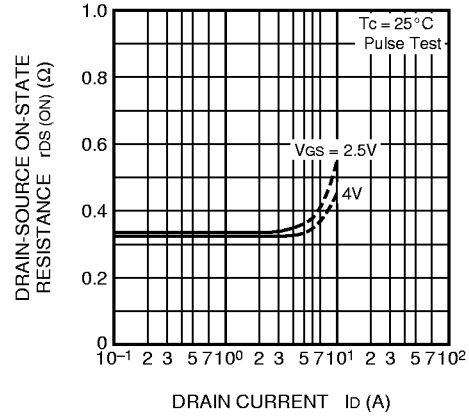
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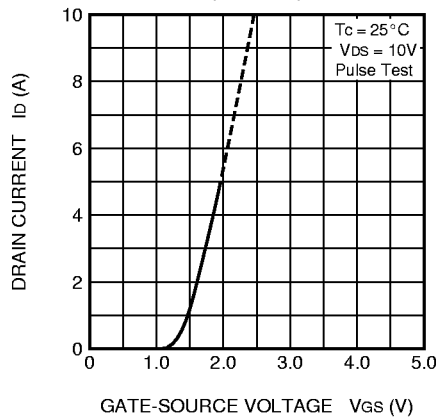
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



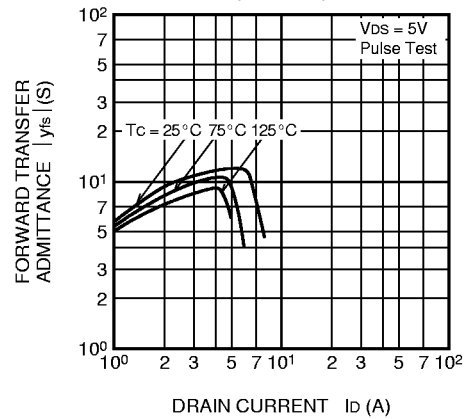
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



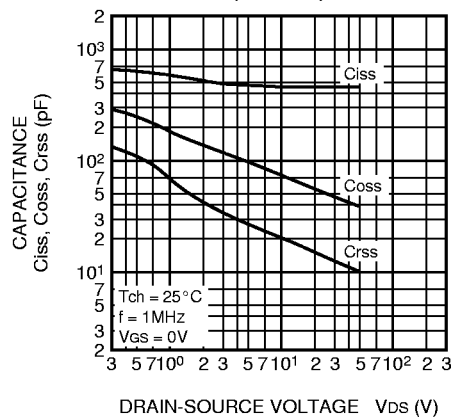
TRANSFER CHARACTERISTICS
(TYPICAL)



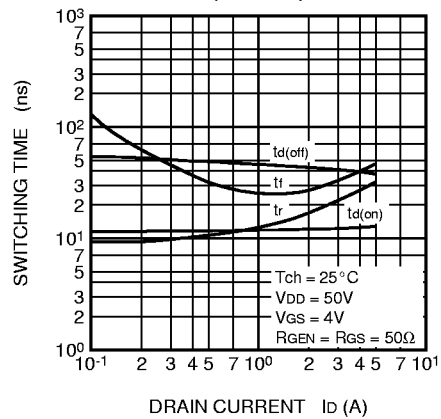
FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



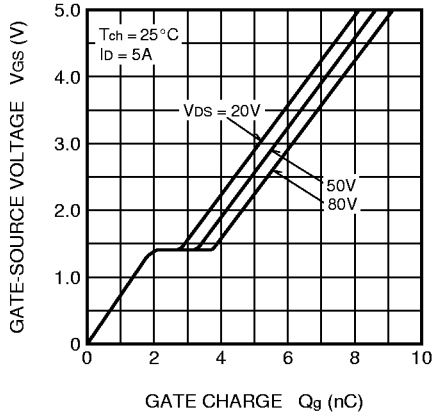
SWITCHING CHARACTERISTICS
(TYPICAL)



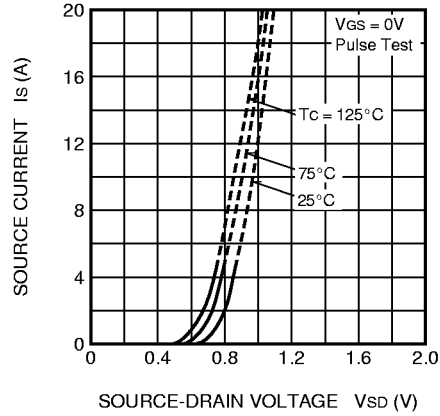
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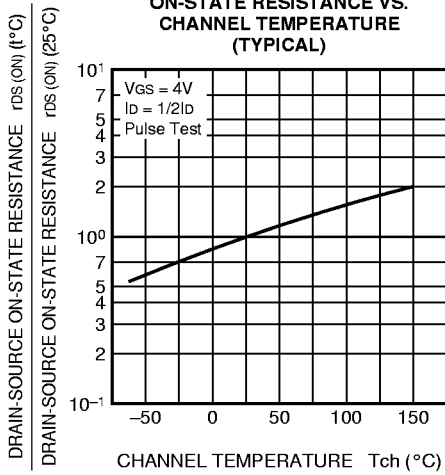
**GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)**



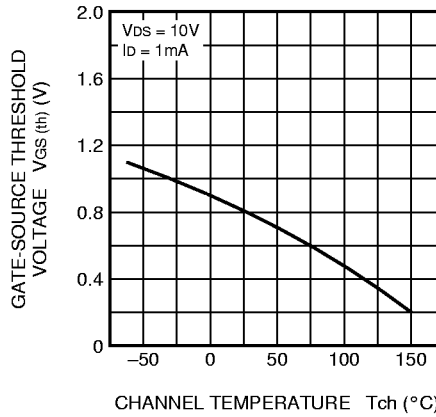
**SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)**



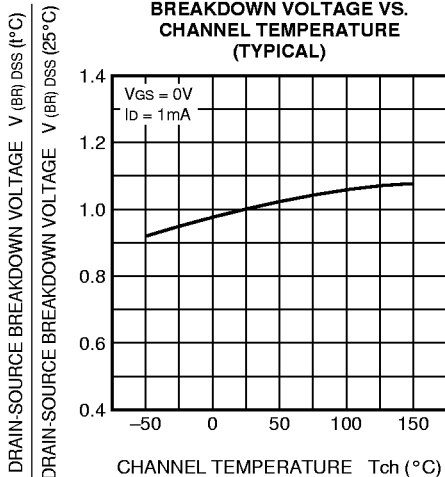
**ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



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



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



**TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS**

