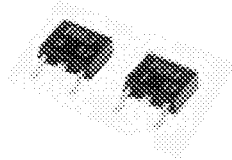


FS5ASJ-3

HIGH-SPEED SWITCHING USE

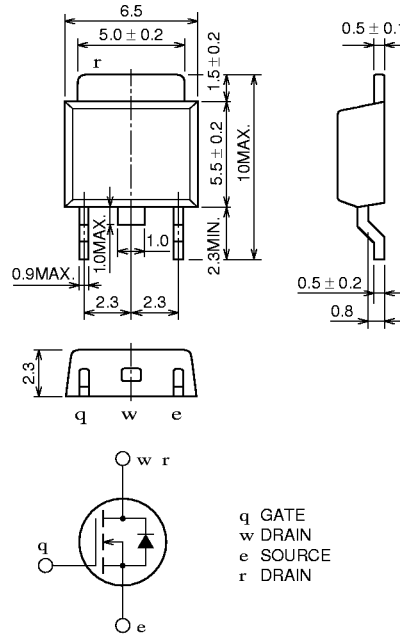
FS5ASJ-3



- ˆ 4V DRIVE
- ˆ V_{DS} 150V
- ˆ $r_{DS(ON)}$ (MAX) 0.35Ω
- ˆ I_D 5A
- ˆ Integrated Fast Recovery Diode (TYP.) 85ns

OUTLINE DRAWING

Dimensions in mm



MP-3

APPLICATION

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

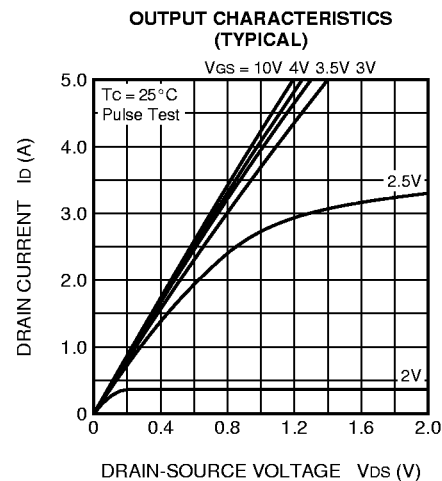
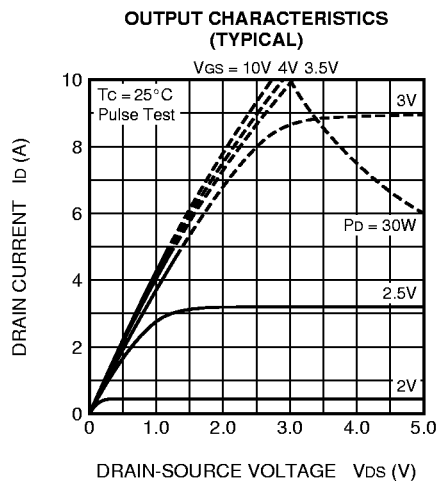
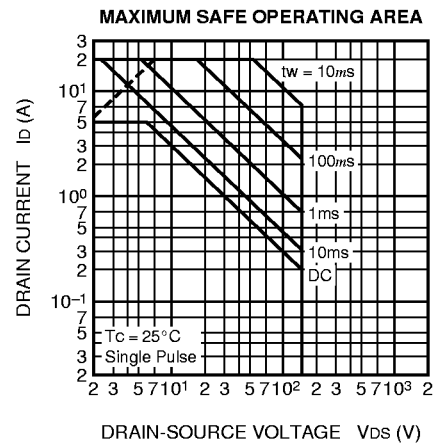
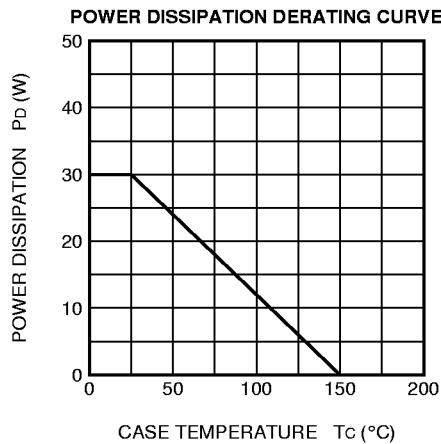
MAXIMUM RATINGS (T_c = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	150	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	± 20	V
I_D	Drain current		5	A
I_{DM}	Drain current (Pulsed)		20	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	5	A
I_S	Source current		5	A
I_{SM}	Source current (Pulsed)		20	A
P_D	Maximum power dissipation		30	W
T_{ch}	Channel temperature		$-55 \sim +150$	°C
T_{stg}	Storage temperature		$-55 \sim +150$	°C
—	Weight	Typical value	0.26	g

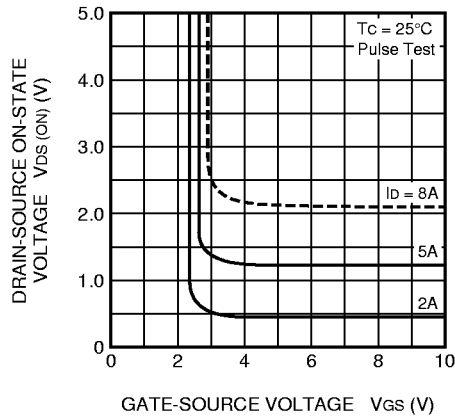
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V(BR)DSS	Drain-source breakdown voltage	ID = 1mA, VGS = 0V	150	—	—	V
IGSS	Gate-source leakage current	VGS = ±20V, VDS = 0V	—	—	±0.1	μA
IDSS	Drain-source leakage current	VDS = 150V, VGS = 0V	—	—	0.1	mA
VGS(th)	Gate-source threshold voltage	ID = 1mA, VDS = 10V	1.0	1.5	2.0	V
rDS(ON)	Drain-source on-state resistance	ID = 2A, VGS = 10V	—	0.27	0.35	Ω
rDS(ON)	Drain-source on-state resistance	ID = 2A, VGS = 4V	—	0.28	0.37	Ω
VDS(ON)	Drain-source on-state voltage	ID = 2A, VGS = 10V	—	0.54	0.70	V
yfs	Forward transfer admittance	ID = 2A, VDS = 5V	—	9.5	—	S
Ciss	Input capacitance	VDS = 10V, VGS = 0V, f = 1MHz	—	800	—	pF
Coss	Output capacitance		—	100	—	pF
Crss	Reverse transfer capacitance		—	35	—	pF
td(on)	Turn-on delay time	VDD = 80V, ID = 2A, VGS = 10V, RGEN = RGS = 50Ω	—	14	—	ns
tr	Rise time		—	17	—	ns
td(off)	Turn-off delay time		—	65	—	ns
tf	Fall time		—	31	—	ns
VSD	Source-drain voltage	IS = 2A, VGS = 0V	—	1.0	1.5	V
Rth(ch-c)	Thermal resistance	Channel to case	—	—	4.17	°C/W
trr	Reverse recovery time	IS = 5A, dis/dt = -100A/μs	—	85	—	ns

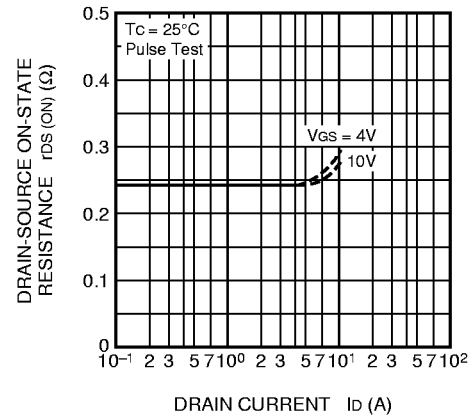
PERFORMANCE CURVES



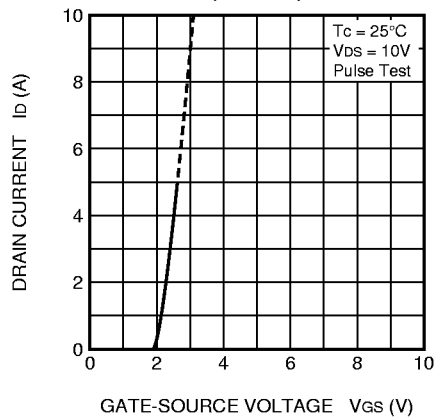
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



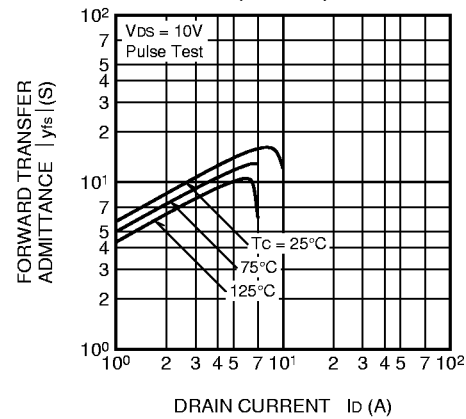
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



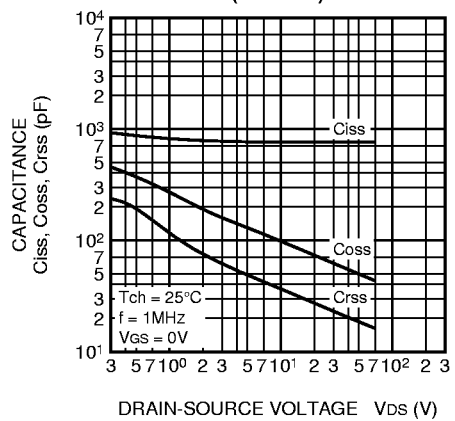
TRANSFER CHARACTERISTICS
(TYPICAL)



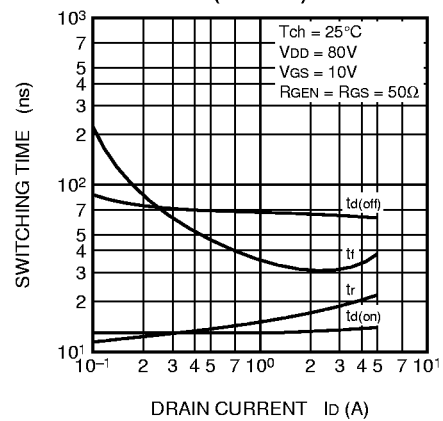
FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



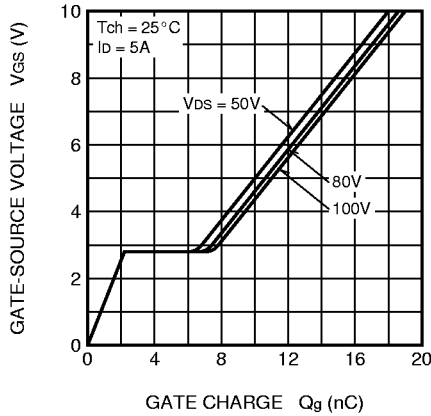
CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



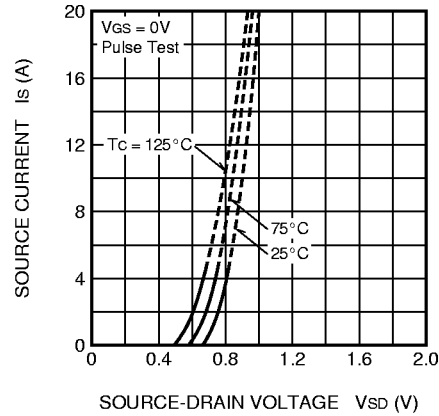
SWITCHING CHARACTERISTICS
(TYPICAL)



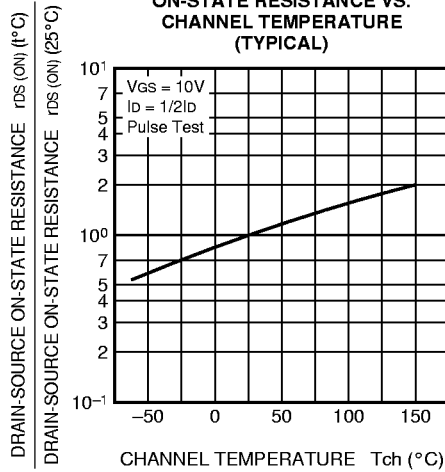
GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)



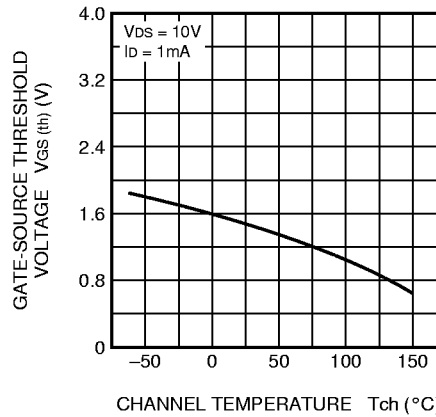
SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)



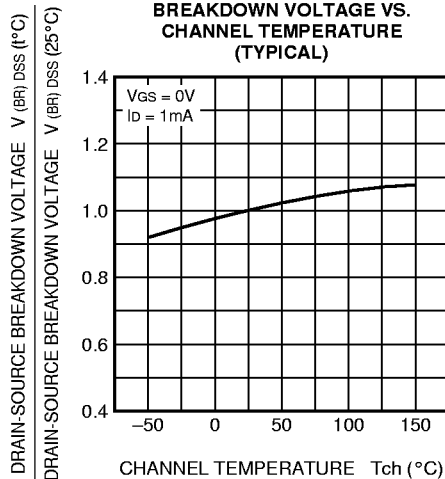
ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)



THRESHOLD VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



BREAKDOWN VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS

