FX6ASJ-06

HIGH-SPEED SWITCHING USE

FX6ASJ-06

- 4V DRIVE
- V_{DSS} .... –60V
- $r_{DS (ON) (MAX)}$ 0.21Ω
- I_D .... –6A
- Integrated Fast Recovery Diode (TYP.) 50ns

OUTLINE DRAWING   Dimensions in mm

① GATE
② DRAIN
③ SOURCE
④ DRAIN

MP-3

APPLICATION

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

MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain-source voltage	$V_{GS} = 0V$	–60	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	±20	V
I_D	Drain current		–6	A
I_{DM}	Drain current (Pulsed)		–24	A
I_{DA}	Avalanche drain current (Pulsed)	L = 100µH	–6	A
I_S	Source current		–6	A
I_{SM}	Source current (Pulsed)		–24	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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ELECTRICAL CHARACTERISTICS (Tch = 25°C)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V (BR) DSS	Drain-source breakdown voltage	ID = −1mA, VGS = 0V	−60	—	—	V
IGSS	Gate-source leakage current	VGS = ±20V, VDS = 0V	—	—	±0.1	μA
IDSS	Drain-source leakage current	VDS = −60V, VGS = 0V	—	—	−0.1	mA
VGS (th)	Gate-source threshold voltage	ID = −1mA, VDS = −10V	−1.3	−1.8	−2.3	V
rDS (ON)	Drain-source on-state resistance	ID = −3A, VGS = −10V	—	0.16	0.21	Ω
rDS (ON)	Drain-source on-state resistance	ID = −3A, VGS = −4V	—	0.27	0.37	Ω
VDS (ON)	Drain-source on-state voltage	ID = −3A, VGS = −10V	—	−0.48	−0.63	V
|yfs|	Forward transfer admittance	ID = −3A, VDS = −5V	—	4.9	—	S
Ciss	Input capacitance		—	1040	—	pF
Coss	Output capacitance	VDS = −10V, VGS = 0V, f = 1MHz	—	171	—	pF
Crss	Reverse transfer capacitance		—	68	—	pF
td (on)	Turn-on delay time		—	13	—	ns
tr	Rise time	VDD = −30V, ID = −3A, VGS = −10V, RGEN = RGS = 50Ω	—	10	—	ns
td (off)	Turn-off delay time		—	63	—	ns
tf	Fall time		—	31	—	ns
VSD	Source-drain voltage	IS = −3A, VGS = 0V	—	−1.0	−1.5	V
Rth (ch-c)	Thermal resistance	Channel to case	—	—	4.17	°C/W
trr	Reverse recovery time	IS = −6A, dis/dt = 100A/μs	—	50	—	ns

PERFORMANCE CURVES

POWER DISSIPATION DERATING CURVE

MAXIMUM SAFE OPERATING AREA

OUTPUT CHARACTERISTICS (TYPICAL)

OUTPUT CHARACTERISTICS (TYPICAL)

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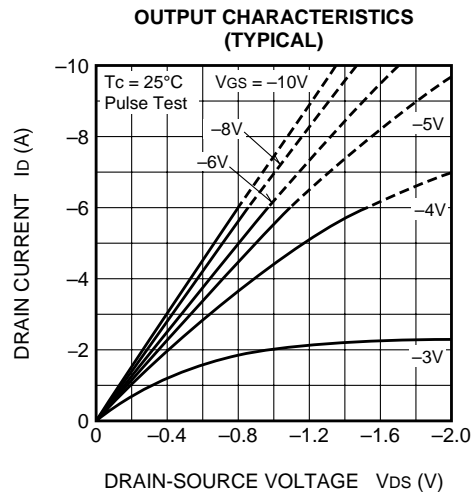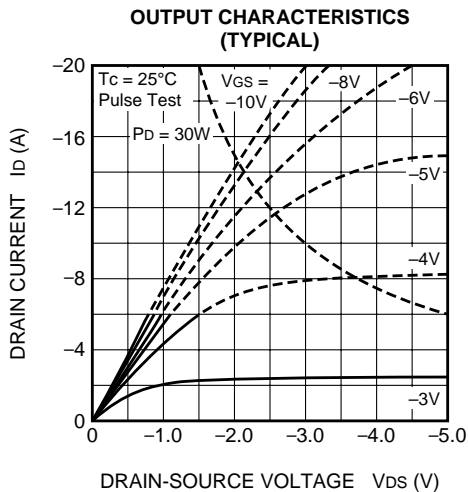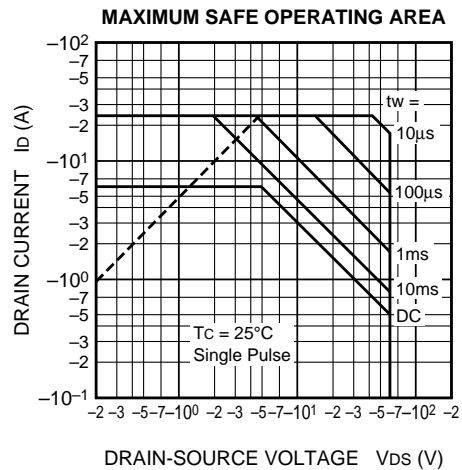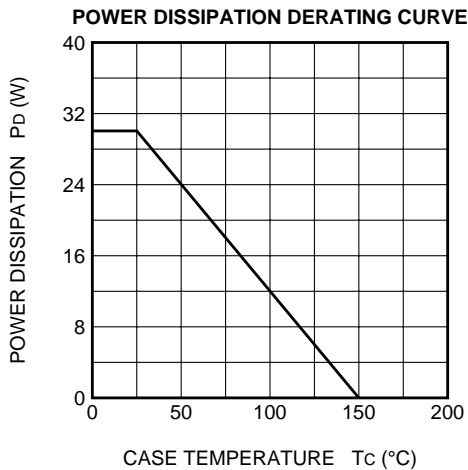
PRELIMINARY
Notice: This is not a final specification.
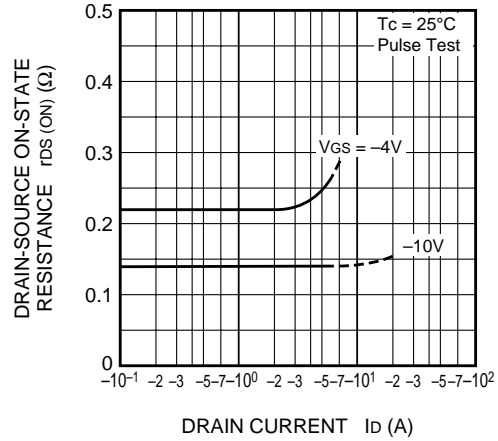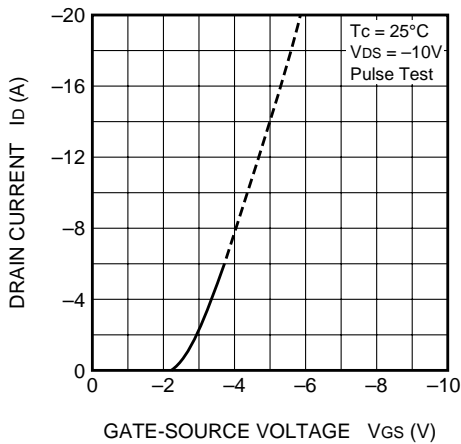Some parametric limits are subject to change.

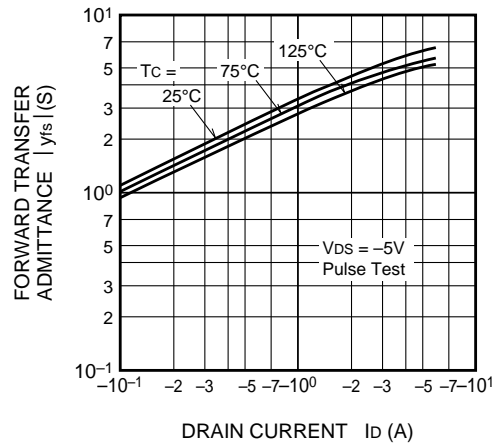### ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)
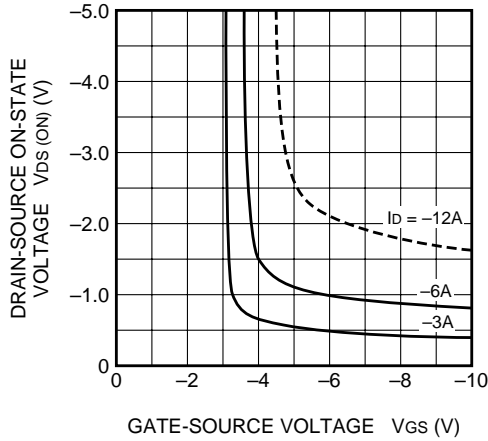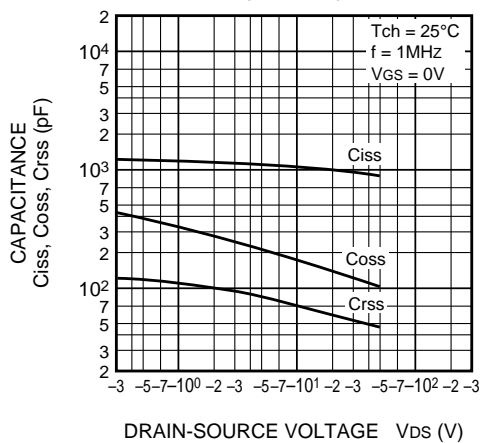

ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)
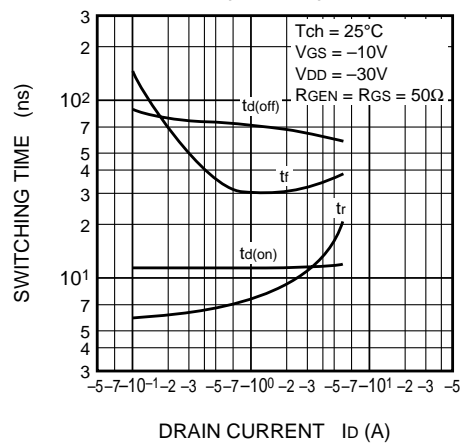

TRANSFER CHARACTERISTICS (TYPICAL)

FORWARD TRANSFER ADMITTANCE VS.DRAIN CURRENT (TYPICAL)
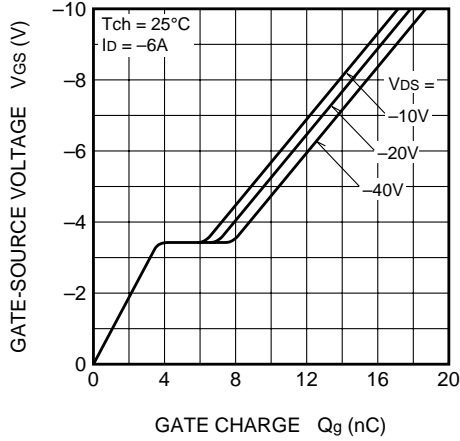

CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)

SWITCHING CHARACTERISTICS (TYPICAL)
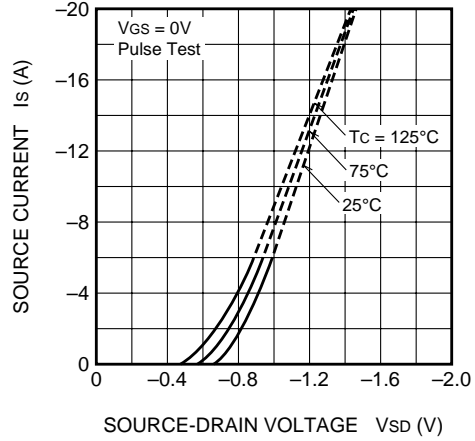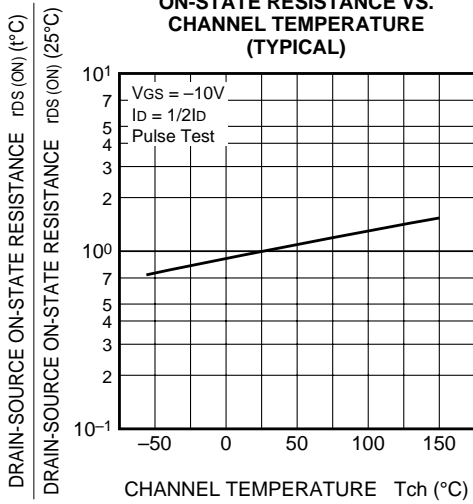

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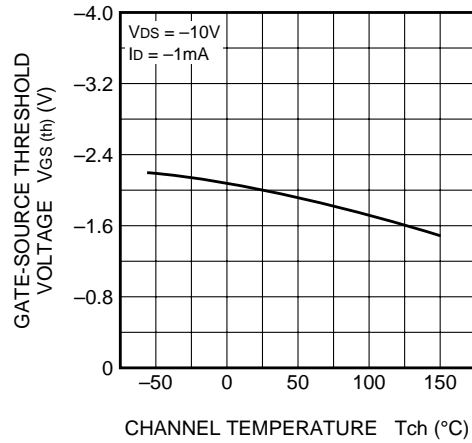### GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)

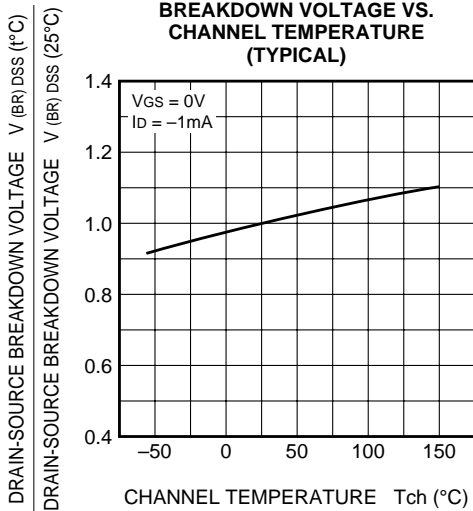### SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)

ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)

THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)

BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)

TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

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