

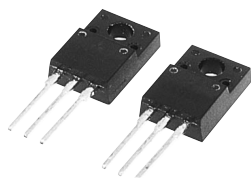
PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

MITSUBISHI Pch POWER MOSFET

FX30KMJ-3

HIGH-SPEED SWITCHING USE

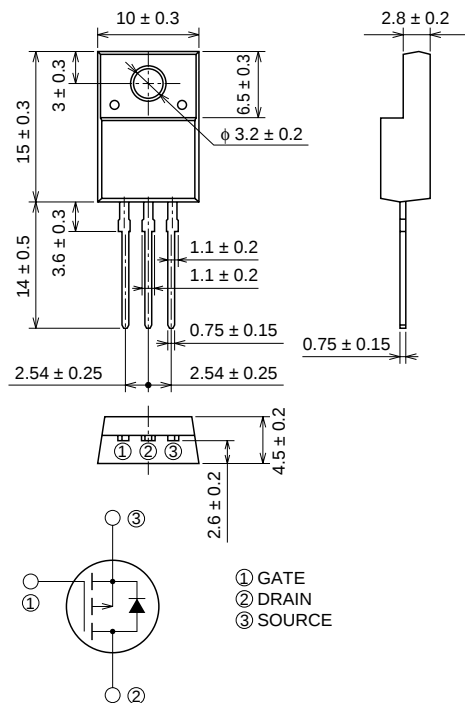
FX30KMJ-3



- 4V DRIVE
- V_{DS} -150V
- $r_{DS(ON)}$ (MAX) 100m Ω
- I_D -30A
- Integrated Fast Recovery Diode (TYP.) 100ns
- V_{iso} 2000V

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

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

MAXIMUM RATINGS (Tc = 25°C)

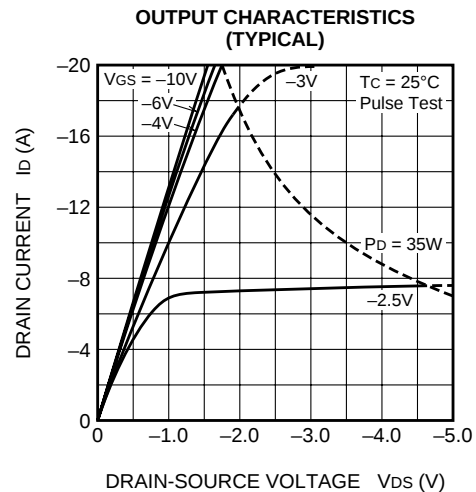
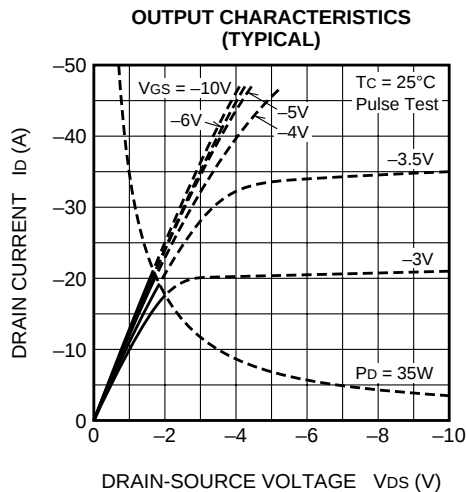
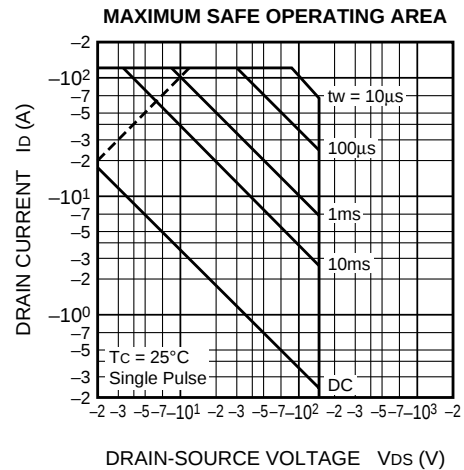
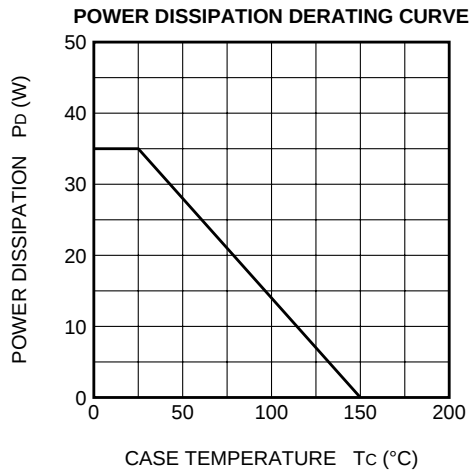
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	-150	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	±20	V
I_D	Drain current		-30	A
I_{DM}	Drain current (Pulsed)		-120	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 30\mu H$	-30	A
I_S	Source current		-30	A
I_{SM}	Source current (Pulsed)		-120	A
P_D	Maximum power dissipation		35	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

Jan.1999

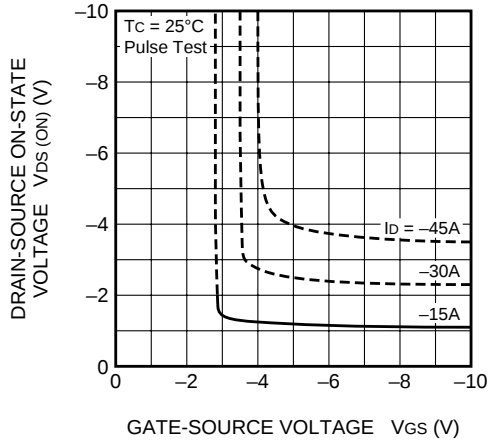
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	I _D = -1mA, V _{GS} = 0V	-150	—	—	V
I _{GSS}	Gate-source leakage current	V _{GS} = ±20V, V _{DS} = 0V	—	—	±0.1	μA
I _{DSS}	Drain-source leakage current	V _{DS} = -150V, V _{GS} = 0V	—	—	-0.1	mA
V _{GS} (th)	Gate-source threshold voltage	I _D = -1mA, V _{DS} = -10V	-1.0	-1.5	-2.0	V
r _{DS} (ON)	Drain-source on-state resistance	I _D = -15A, V _{GS} = -10V	—	78	100	mΩ
r _{DS} (ON)	Drain-source on-state resistance	I _D = -15A, V _{GS} = -4V	—	85	111	mΩ
V _{DS} (ON)	Drain-source on-state voltage	I _D = -15A, V _{GS} = -10V	—	-1.17	-1.50	V
y _{fs}	Forward transfer admittance	I _D = -15A, V _{DS} = -10V	—	41.3	—	S
C _{iss}	Input capacitance	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz	—	11430	—	pF
C _{oss}	Output capacitance		—	674	—	pF
C _{rss}	Reverse transfer capacitance		—	320	—	pF
t _d (on)	Turn-on delay time	V _{DD} = -80V, I _D = -15A, V _{GS} = -10V, R _{GEN} = R _{GS} = 50Ω	—	61	—	ns
t _r	Rise time		—	99	—	ns
t _d (off)	Turn-off delay time		—	878	—	ns
t _f	Fall time		—	330	—	ns
V _{SD}	Source-drain voltage	I _S = -15A, V _{GS} = 0V	—	-1.0	-1.5	V
R _{th} (ch-c)	Thermal resistance	Channel to case	—	—	3.57	°C/W
t _{rr}	Reverse recovery time	I _S = -30A, dis/dt = 100A/μs	—	100	—	ns

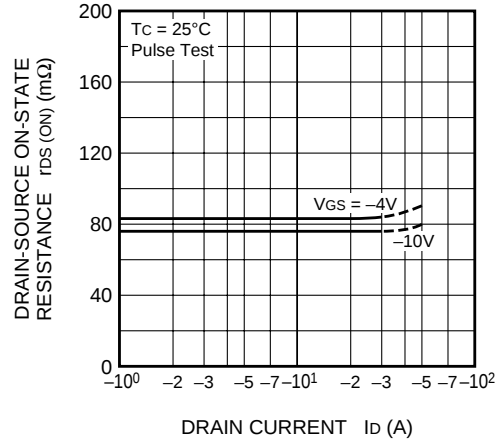
PERFORMANCE CURVES



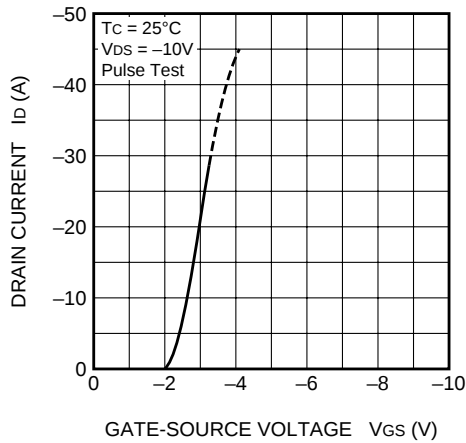
**ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)**



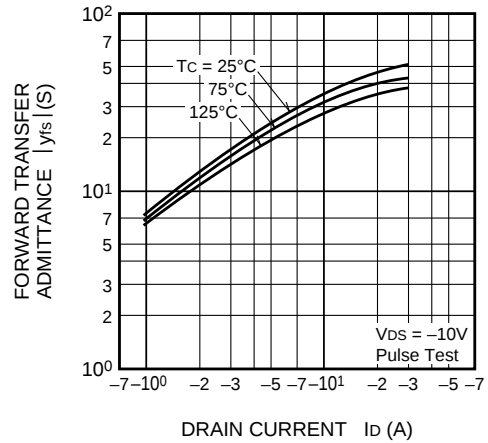
**ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)**



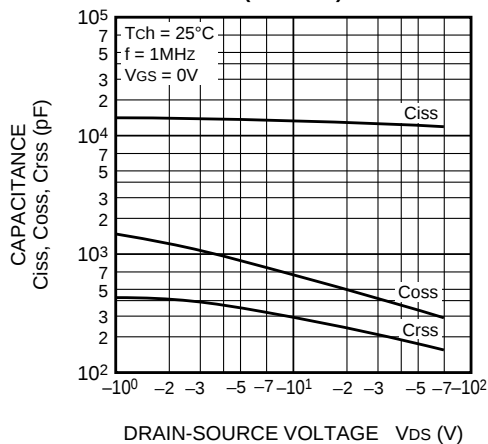
**TRANSFER CHARACTERISTICS
(TYPICAL)**



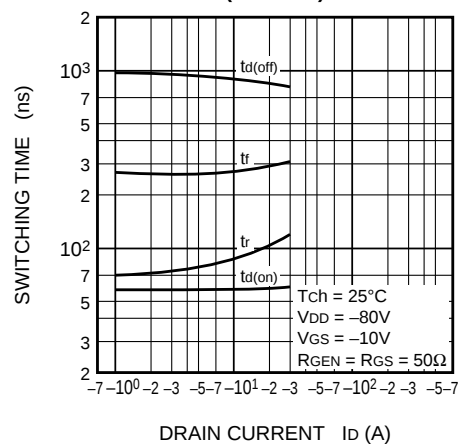
**FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)**



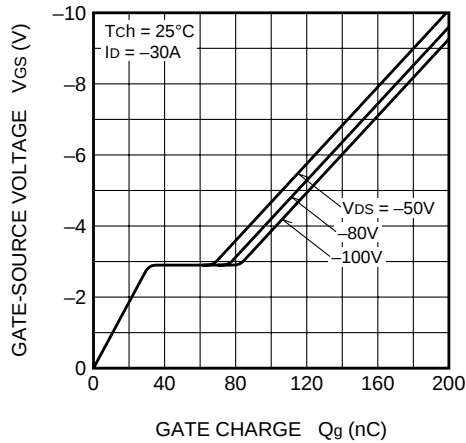
**CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)**



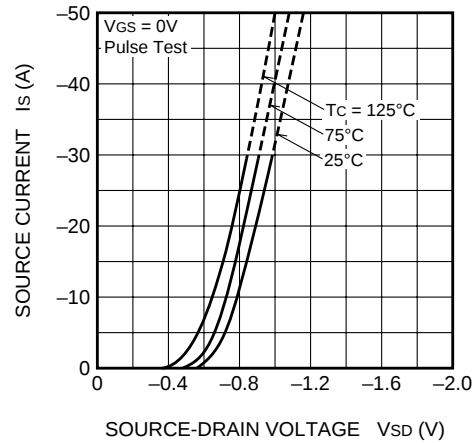
**SWITCHING CHARACTERISTICS
(TYPICAL)**



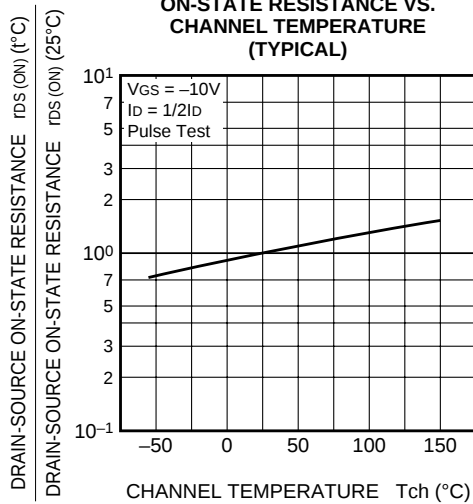
**GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)**



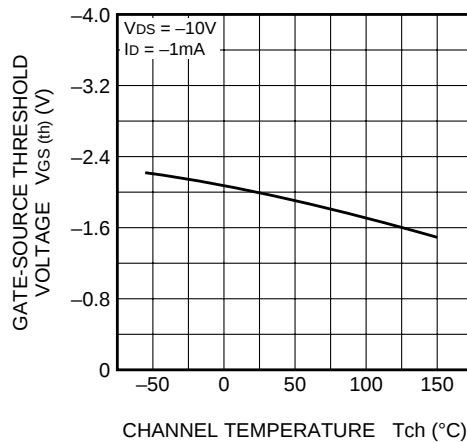
**SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)**



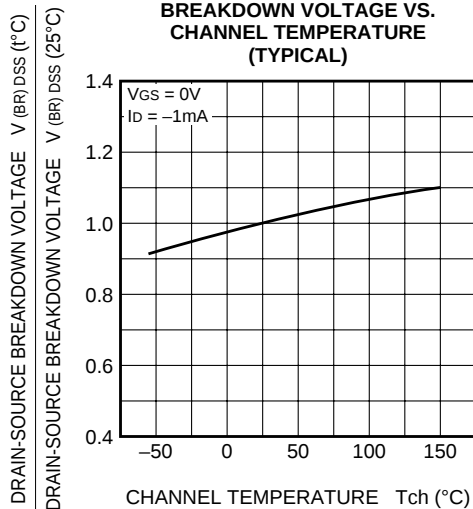
**ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



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



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



**TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS**

