

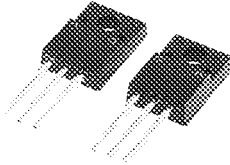
PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

MITSUBISHI Pch POWER MOSFET

FX20KMJ-06

HIGH-SPEED SWITCHING USE

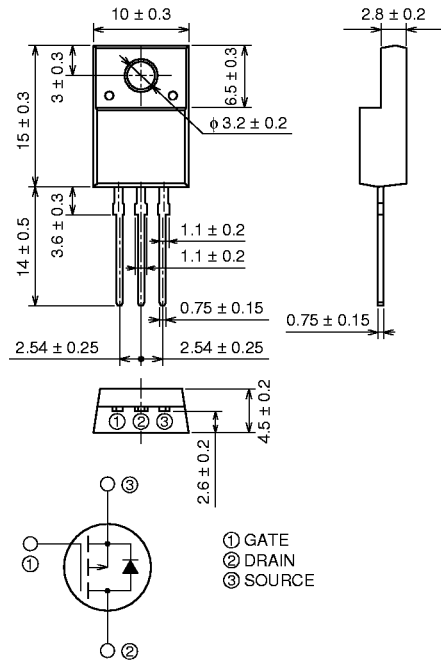
FX20KMJ-06



- 4V DRIVE
- V_{DSS} -60V
- $r_{DS(ON)}$ (MAX) 97m Ω
- I_D -20A
- Integrated Fast Recovery Diode (TYP.) 50ns
- 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)

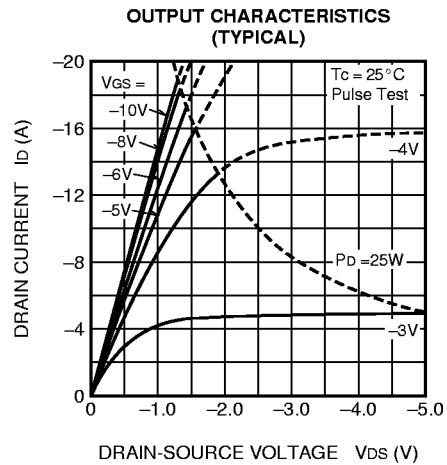
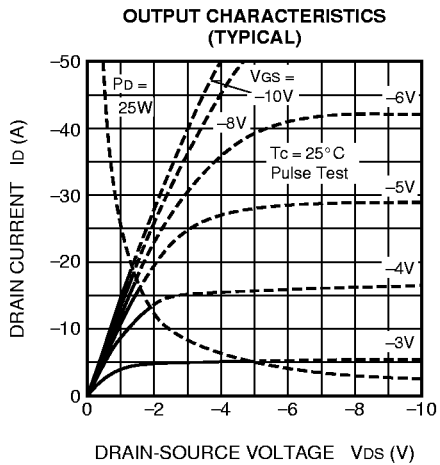
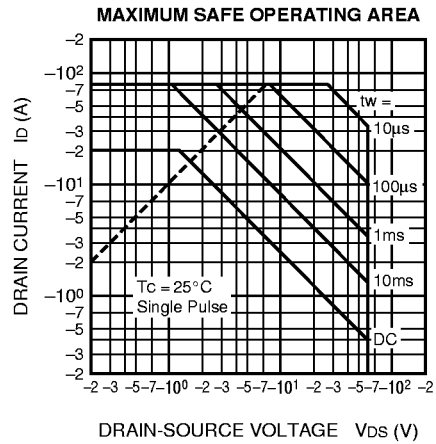
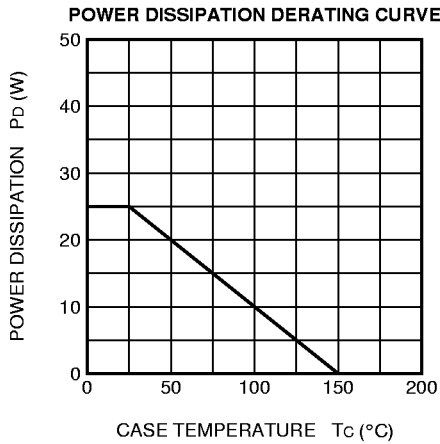
Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain-source voltage	$V_{GS} = 0V$	-60	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	±20	V
I_D	Drain current		-20	A
I_{DM}	Drain current (Pulsed)		-80	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	-20	A
I_S	Source current		-20	A
I_{SM}	Source current (Pulsed)		-80	A
P_D	Maximum power dissipation		25	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
V_{iso}	Isolation voltage	AC for 1 minute, Terminal to case	2000	V
—	Weight	Typical value	2.0	g

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ELECTRICAL CHARACTERISTICS ($T_{ch} = 25^\circ\text{C}$)

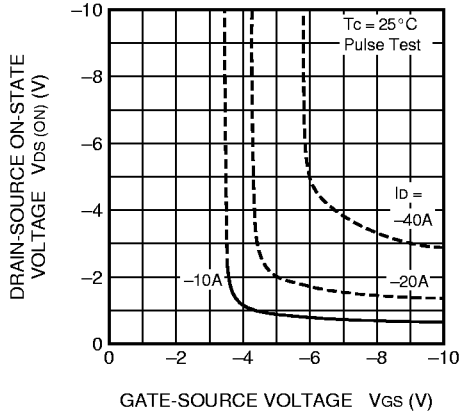
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-60	—	—	V
I _{GSS}	Gate-source leakage current	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$	—	—	± 0.1	μA
I _{DSS}	Drain-source leakage current	$V_{DS} = -60\text{V}, V_{GS} = 0\text{V}$	—	—	-0.1	mA
V _{GS} (th)	Gate-source threshold voltage	$I_D = -1\text{mA}, V_{DS} = -10\text{V}$	-1.3	-1.8	-2.3	V
r _{DS} (ON)	Drain-source on-state resistance	$I_D = -10\text{A}, V_{GS} = -10\text{V}$	—	73	97	m Ω
r _{DS} (ON)	Drain-source on-state resistance	$I_D = -10\text{A}, V_{GS} = -4\text{V}$	—	119	166	m Ω
V _{DS} (ON)	Drain-source on-state voltage	$I_D = -10\text{A}, V_{GS} = -10\text{V}$	—	-0.73	-0.97	V
y _{fs}	Forward transfer admittance	$I_D = -10\text{A}, V_{DS} = -10\text{V}$	—	10.9	—	S
C _{iss}	Input capacitance	$V_{DS} = -10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	—	2370	—	pF
C _{oss}	Output capacitance		—	306	—	pF
C _{rss}	Reverse transfer capacitance		—	147	—	pF
t _d (on)	Turn-on delay time	$V_{DD} = -30\text{V}, I_D = -10\text{A}, V_{GS} = -10\text{V}, R_{GEN} = R_{GS} = 50\Omega$	—	15	—	ns
t _r	Rise time		—	37	—	ns
t _d (off)	Turn-off delay time		—	131	—	ns
t _f	Fall time		—	72	—	ns
V _{SD}	Source-drain voltage	$I_S = -10\text{A}, V_{GS} = 0\text{V}$	—	-1.0	-1.5	V
R _{th} (ch-c)	Thermal resistance	Channel to case	—	—	5.00	$^\circ\text{C/W}$
t _{rr}	Reverse recovery time	$I_S = -20\text{A}, \text{dis}/\text{dt} = 100\text{A}/\mu\text{s}$	—	50	—	ns

PERFORMANCE CURVES

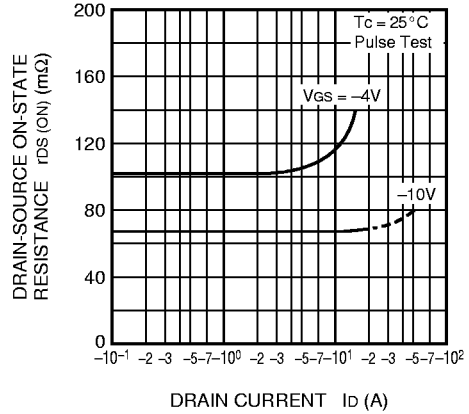


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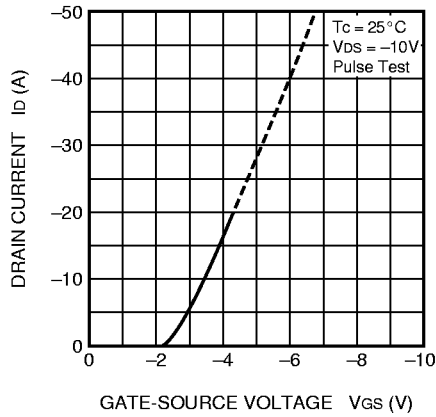
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



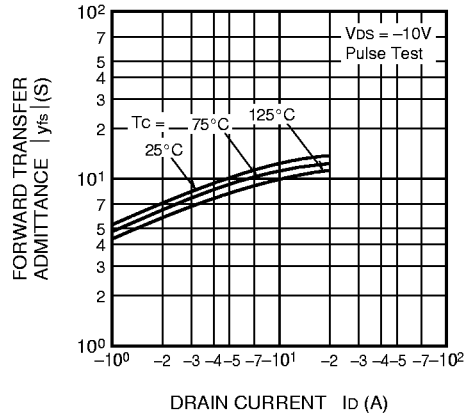
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



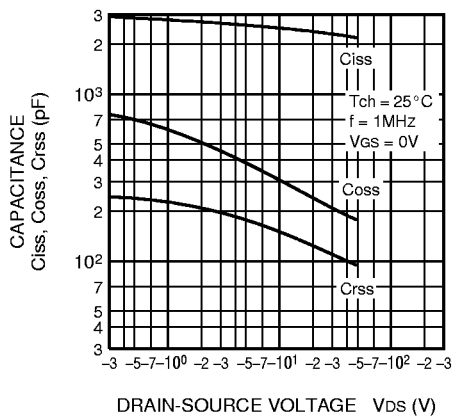
TRANSFER CHARACTERISTICS (TYPICAL)



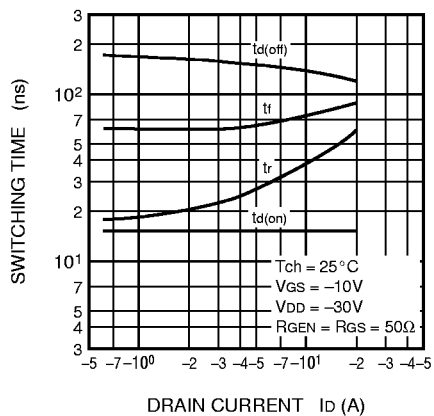
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)

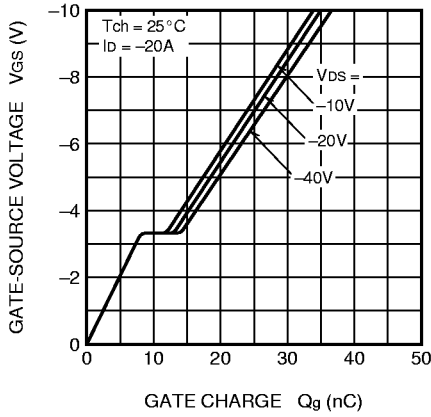


SWITCHING CHARACTERISTICS (TYPICAL)

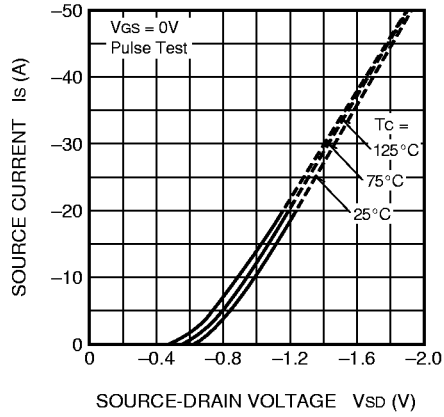


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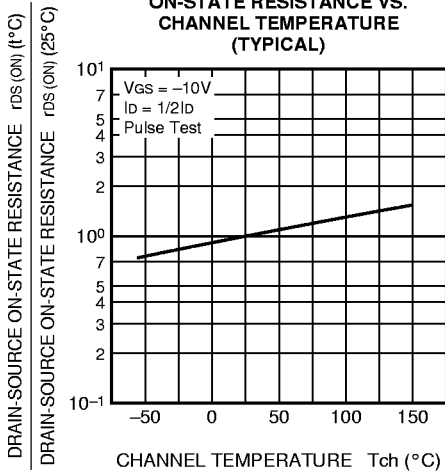
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



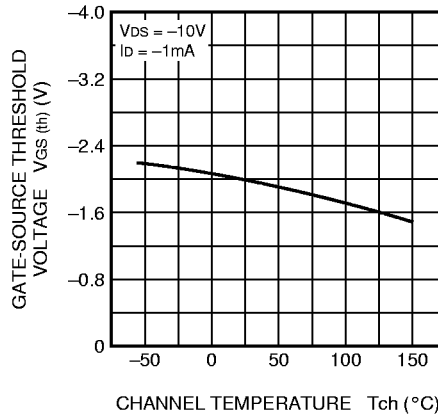
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



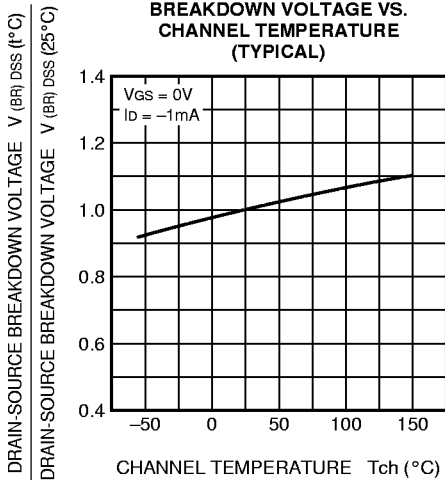
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

