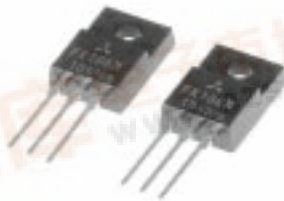


MITSUBISHI Nch POWER MOSFET

FK10KM-10

HIGH-SPEED SWITCHING USE

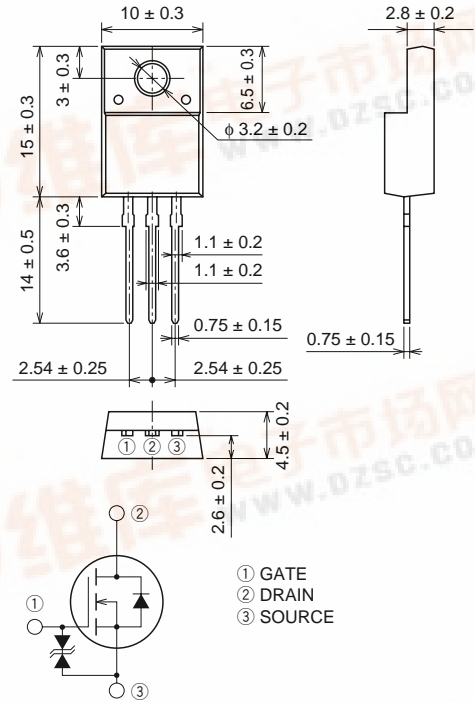
FK10KM-10



- V_{DSS} 500V
- $r_{DS(ON)}$ (MAX) 1.13 Ω
- I_D 10A
- V_{iso} 2000V
- Integrated Fast Recovery Diode (MAX.) 150ns

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

Servo motor drive, Robot, UPS, Inverter Fluorecent lamp, etc.

MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain-source voltage	$V_{GS} = 0V$	500	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		10	A
I_{DM}	Drain current (Pulsed)		30	A
I_S	Source current		10	A
I_{SM}	Source current (Pulsed)		30	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 _{rms}
—	Weight	Typical value	2.0	g



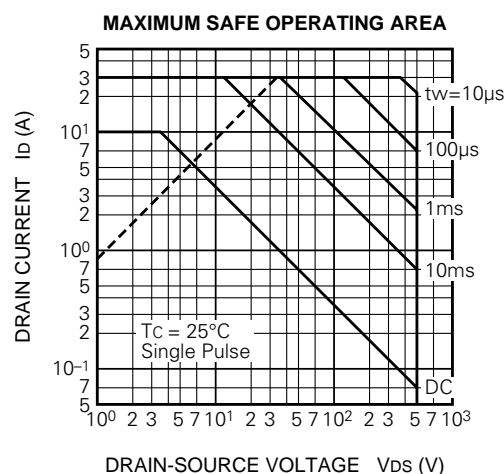
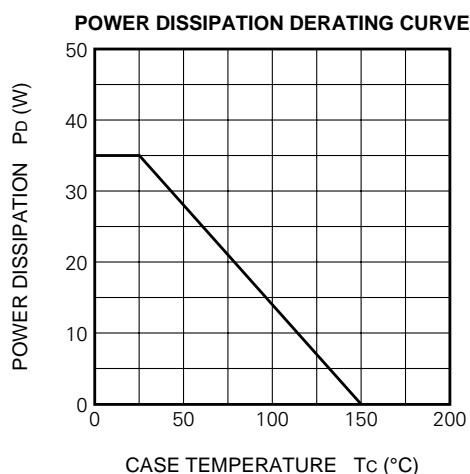
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HIGH-SPEED SWITCHING USE

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	500	—	—	V
V(BR)GSS	Gate-source breakdown voltage	IG = ±100μA, VDS = 0V	±30	—	—	V
IGSS	Gate-source leakage current	VGS = ±25V, VDS = 0V	—	—	±10	μA
IDSS	Drain-source leakage current	VDS = 500V, VGS = 0V	—	—	1	mA
VGS(th)	Gate-source threshold voltage	Id = 1mA, VDS = 10V	2	3	4	V
rDS(ON)	Drain-source on-state resistance	Id = 5A, VGS = 10V	—	0.88	1.13	Ω
VDS(ON)	Drain-source on-state voltage	Id = 5A, VGS = 10V	—	4.40	5.65	V
yfs	Forward transfer admittance	Id = 5A, VDS = 10V	3.3	5.5	—	S
Ciss	Input capacitance	VDS = 25V, VGS = 0V, f = 1MHz	—	1100	—	pF
Coss	Output capacitance		—	130	—	pF
Crss	Reverse transfer capacitance		—	20	—	pF
td(on)	Turn-on delay time	VDD = 200V, Id = 5A, VGS = 10V, RGEN = RGS = 50Ω	—	20	—	ns
tr	Rise time		—	30	—	ns
td(off)	Turn-off delay time		—	95	—	ns
tf	Fall time		—	35	—	ns
VSD	Source-drain voltage	IS = 5A, VGS = 0V	—	1.5	2.0	V
Rth(ch-c)	Thermal resistance	Channel to case	—	—	3.57	°C/W
trr	Reverse recovery time	IS = 10A, dis/dt = -100A/μs	—	—	150	ns

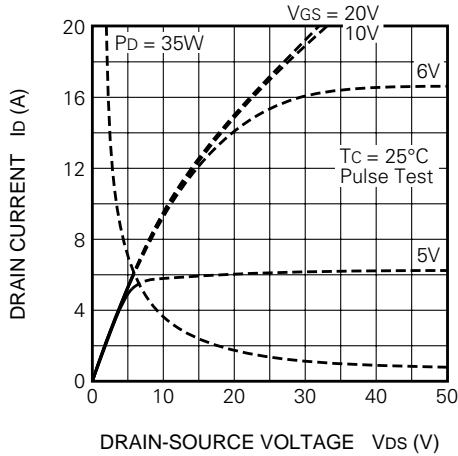
PERFORMANCE CURVES



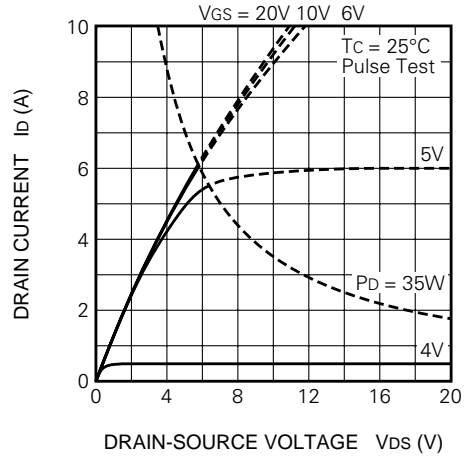
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HIGH-SPEED SWITCHING USE

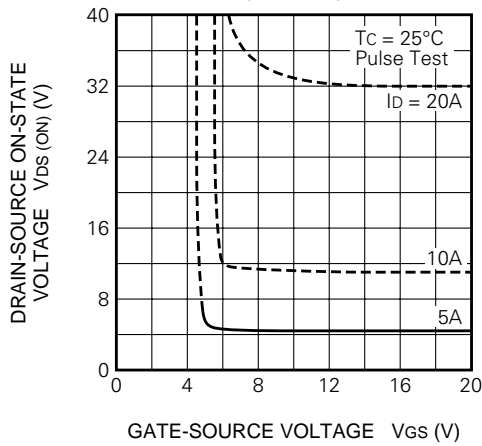
OUTPUT CHARACTERISTICS (TYPICAL)



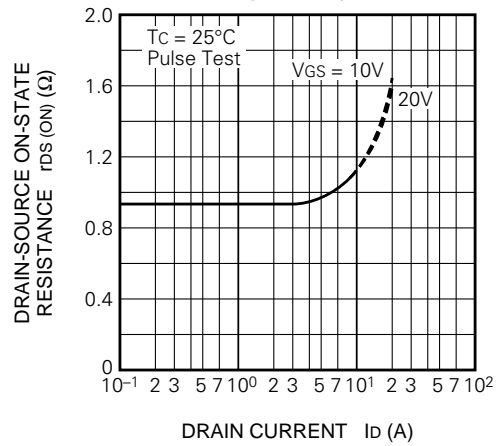
OUTPUT CHARACTERISTICS (TYPICAL)



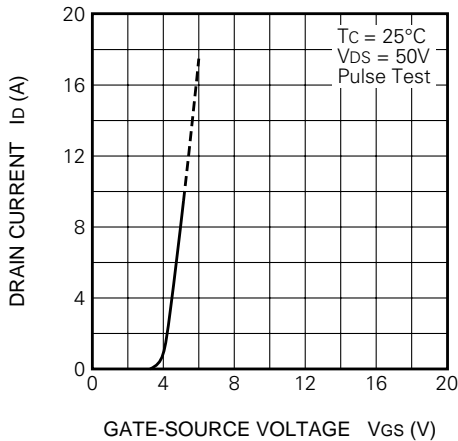
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



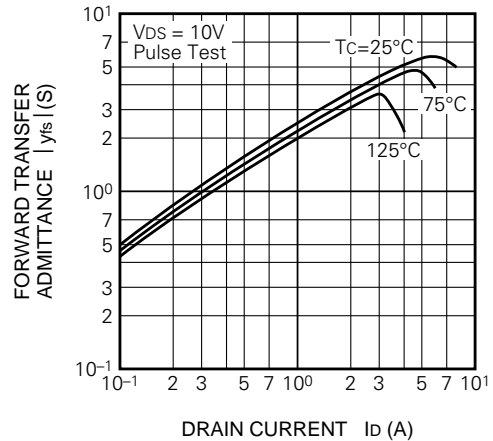
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



TRANSFER CHARACTERISTICS (TYPICAL)



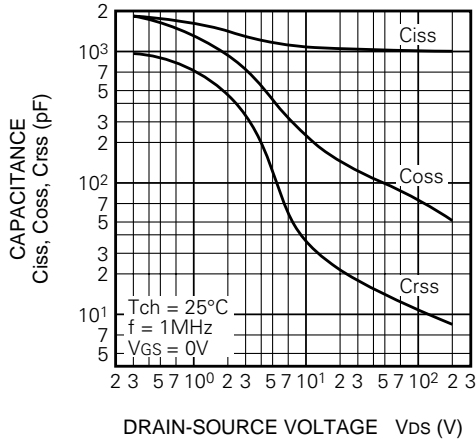
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



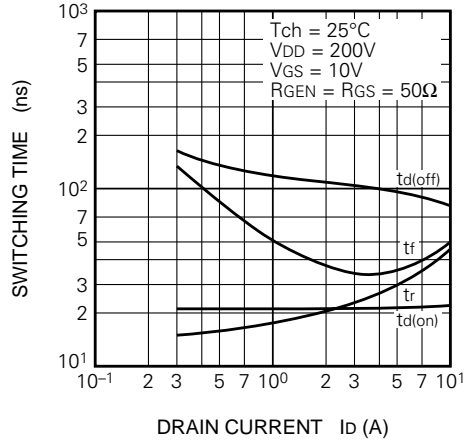
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HIGH-SPEED SWITCHING USE

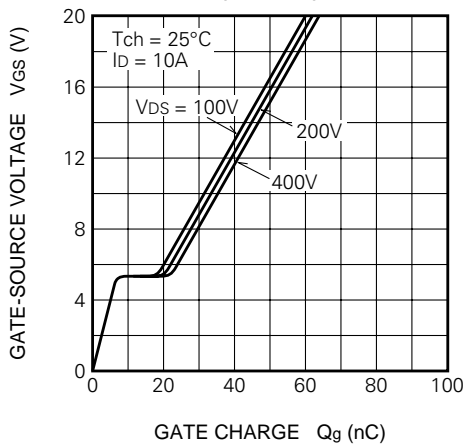
CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



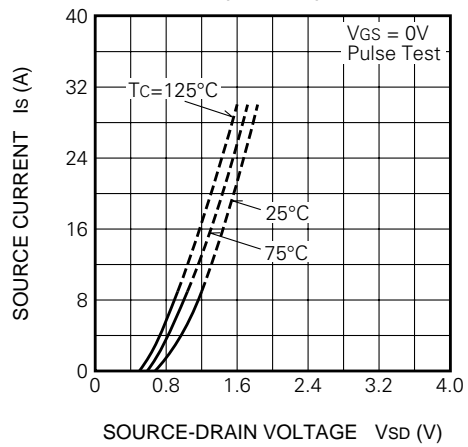
SWITCHING CHARACTERISTICS (TYPICAL)



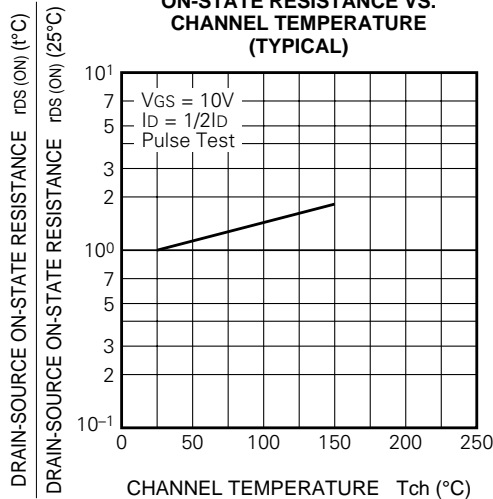
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



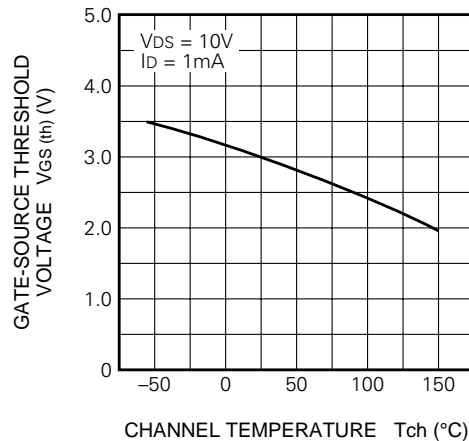
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



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HIGH-SPEED SWITCHING USE

