

MITSUBISHI Nch POWER MOSFET

FS10KM-10A

HIGH-SPEED SWITCHING USE

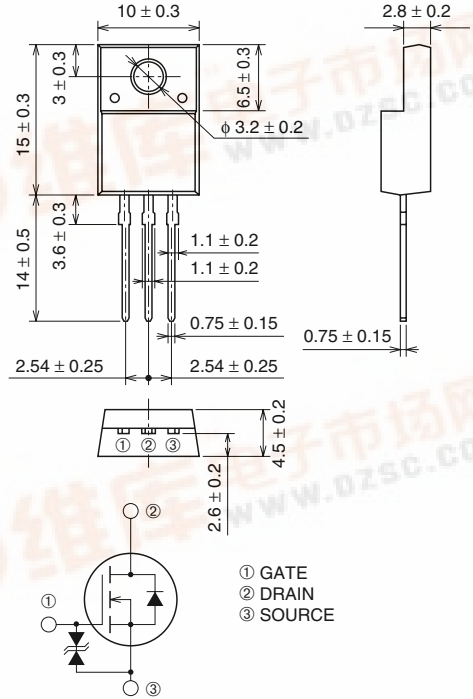
FS10KM-10A



- 10V DRIVE
- V_{DSS} 500V
- r_{DS} (ON) (MAX) 0.90Ω
- I_D 10A

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

SMPS, AC-adapter, Power supply of Printer, Copier, TV, VCR. etc.

MAXIMUM RATINGS (T_c = 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 _{DA}	Avalanche current (Pulsed)	L = 200μH	10	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



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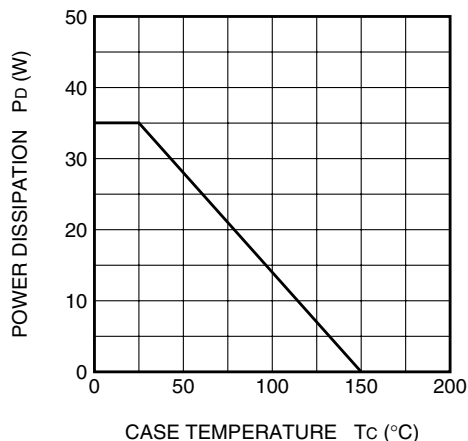
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ELECTRICAL CHARACTERISTICS (Tch = 25°C)

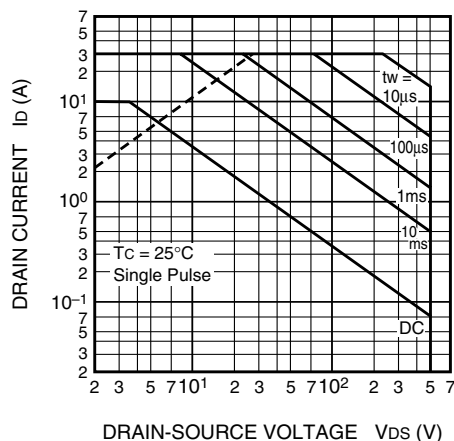
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	ID = 1mA, VGS = 0V	500	—	—	V
V (BR) GSS	Gate-source breakdown voltage	IGS = ±100μA, VDS = 0V	±30	—	—	V
IGSS	Gate-source leakage current	VGS = ±25V, VDS = 0V	—	—	±10	μA
IDSS	Drain-source leakage current	VDS = 500V, VGS = 0V	—	—	1	mA
VGS (th)	Gate-source threshold voltage	ID = 1mA, VDS = 10V	2.5	3.0	3.5	V
rDS (ON)	Drain-source on-state resistance	ID = 5A, VGS = 10V	—	0.70	0.90	Ω
VDS (ON)	Drain-source on-state voltage	ID = 5A, VGS = 10V	—	3.5	4.5	V
yfs	Forward transfer admittance	ID = 5A, VDS = 10V	4.8	8.0	—	S
Ciss	Input capacitance	VDS = 25V, VGS = 0V, f = 1MHz	—	1100	—	pF
Coss	Output capacitance		—	110	—	pF
Crss	Reverse transfer capacitance		—	25	—	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		—	140	—	ns
tf	Fall time		—	40	—	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

PERFORMANCE CURVES

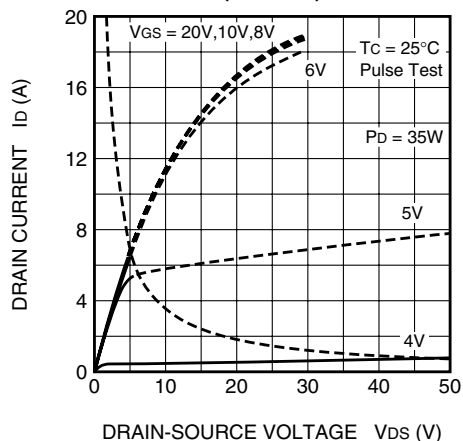
POWER DISSIPATION DERATING CURVE



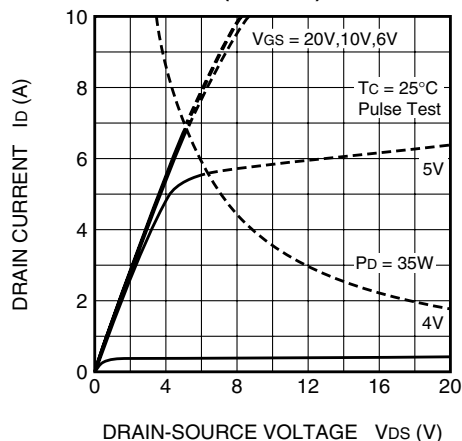
MAXIMUM SAFE OPERATING AREA



OUTPUT CHARACTERISTICS (TYPICAL)



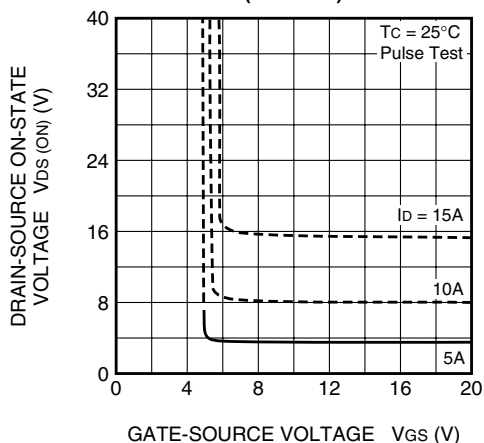
OUTPUT CHARACTERISTICS (TYPICAL)



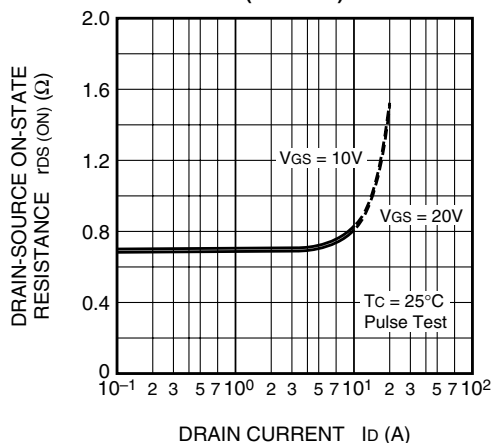
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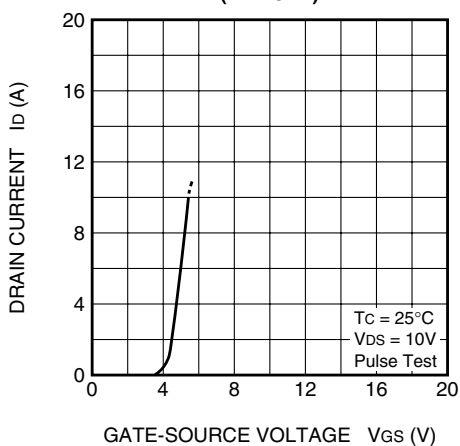
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



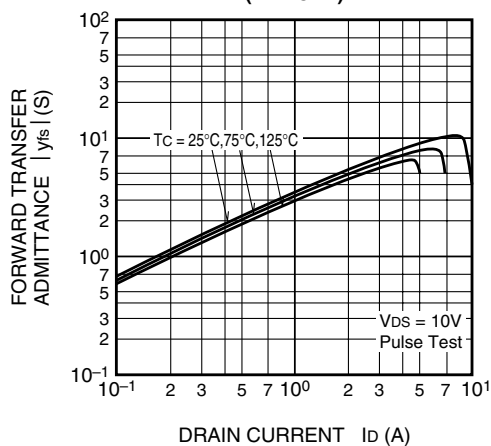
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



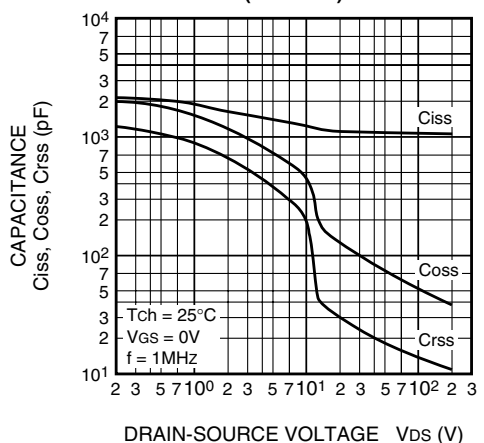
TRANSFER CHARACTERISTICS (TYPICAL)



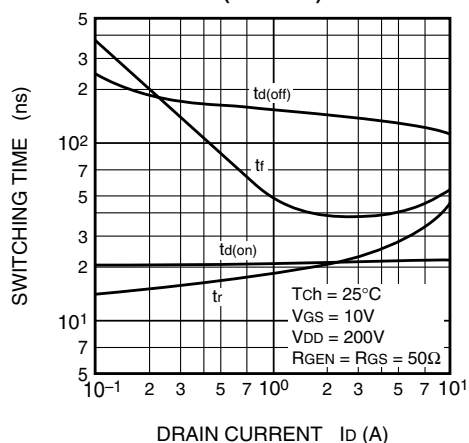
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



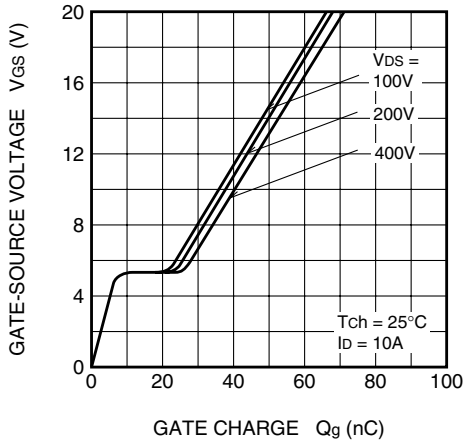
SWITCHING CHARACTERISTICS (TYPICAL)



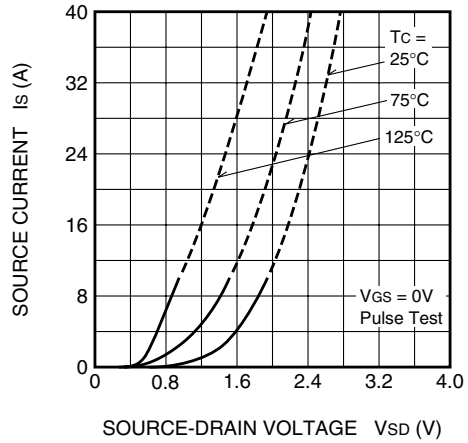
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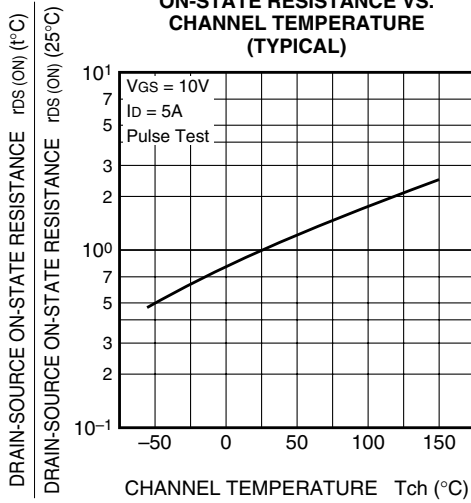
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



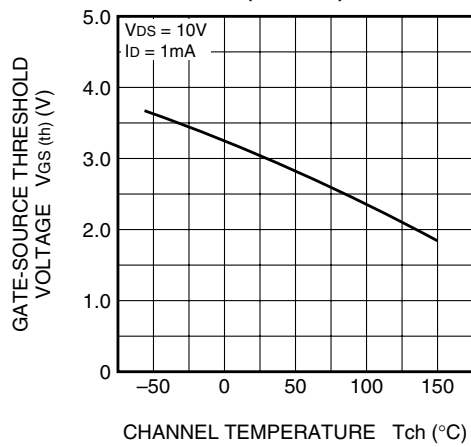
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



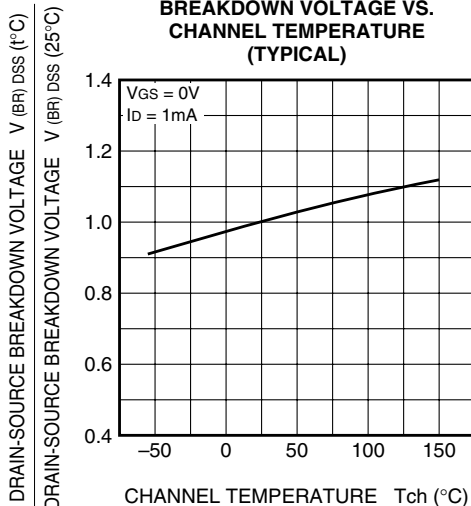
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

