

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

MITSUBISHI POWER MOSFET

FL20KM-5A

HIGH-SPEED SWITCHING USE
 Nch POWER MOSFET

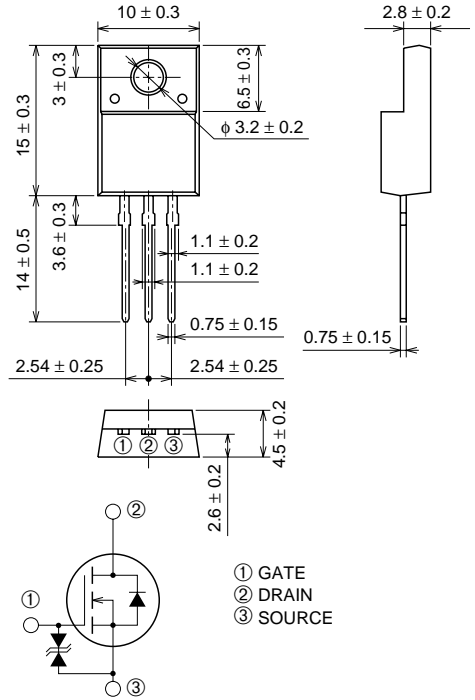
FL20KM-5A



- 10V DRIVE
- V_{DSS} 250V
- $r_{DS(ON)}$ (MAX) 0.19Ω
- I_D 20A
- V_{iso} 2000V

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

Inverter type fluorescent light sets, SMPS

MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain-source voltage	$V_{GS} = 0V$	250	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		20	A
I_{DM}	Drain current (Pulsed)		60	A
I_{DA}	Avalanche current (Pulsed)	$L = 200\mu\text{H}$	20	A
P_D	Maximum power dissipation		35	W
T_{ch}	Channel temperature		$-55 \sim +150$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-55 \sim +150$	$^\circ\text{C}$
V_{iso}	Isolation voltage	AC for 1minute, Terminal to case	2000	V
—	Weight	Typical value	2.0	g

FL20KM-5A

HIGH-SPEED SWITCHING USE
Nch POWER MOSFET

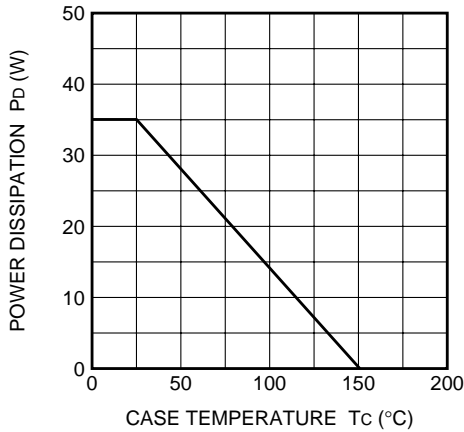
PRELIMINARY
Notice: This is not a final specification.
Some parametric limits are subject to change.

ELECTRICAL CHARACTERISTICS (Tch = 25°C)

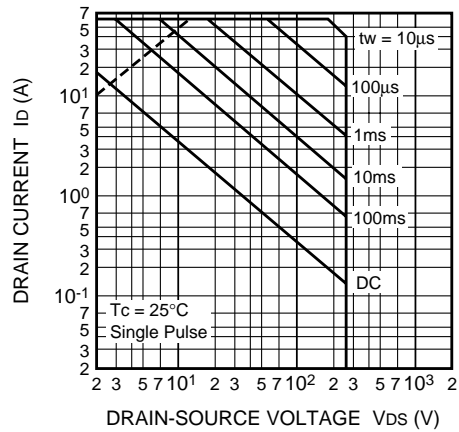
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	Id = 1mA, VGS = 0V	250	—	—	V
V (BR) GSS	Gate-source breakdown voltage	IGS = ±100μA, VDS = 0V	±30	—	—	V
IGSS	Gate-source leakage current	VGS = ±30V, VDS = 0V	—	—	±10	μA
IDSS	Drain-source leakage current	VDS = 250V, VGS = 0V	—	—	1.0	mA
VGS (th)	Gate-source threshold voltage	Id = 1mA, VDS = 10V	2.0	3.0	4.0	V
rDS (ON)	Drain-source on-state resistance	Id = 10A, VGS = 10V	—	0.15	0.19	Ω
VDS (ON)	Drain-source on-state voltage	Id = 10A, VGS = 10V	—	1.50	1.90	V
yfs	Forward transfer admittance	Id = 10A, VDS = 10V	—	12	—	S
Ciss	Input capacitance	VDS = 25V, VGS = 0V, f = 1MHz	—	1300	—	pF
Coss	Output capacitance		—	250	—	pF
Crss	Reverse transfer capacitance		—	40	—	pF
td (on)	Turn-on delay time	VDD = 150V, Id = 10A, VGS = 10V, RGEN = RGS = 50Ω	—	25	—	ns
tr	Rise time		—	50	—	ns
td (off)	Turn-off delay time		—	200	—	ns
tf	Fall time		—	80	—	ns
VSD	Source-drain voltage	IS = 10A, VGS = 0V	—	1.5	2.0	V
Rth (ch-c)	Thermal resistance	Channel to case	—	—	3.57	°C/W
Trr	Reverse recovery time	IS = 20A, VGS = 0V, dis/dt = -100A/μs	—	300	—	ns

PERFORMANCE CURVES

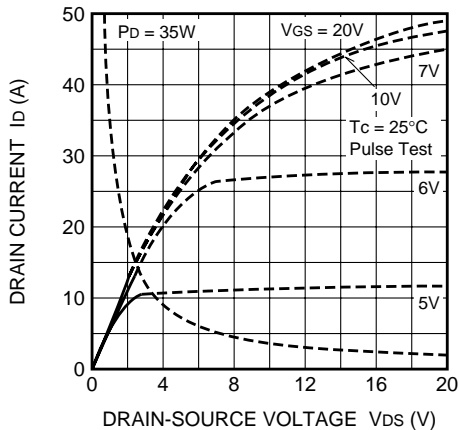
POWER DISSIPATION DERATING CURVE



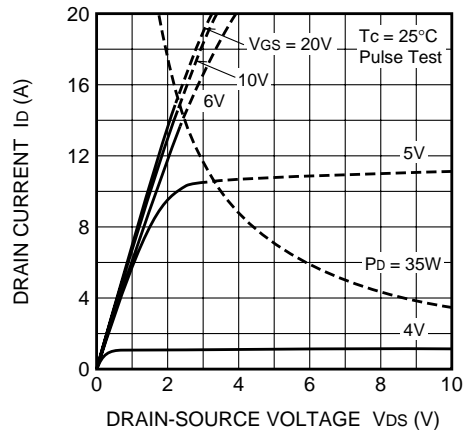
MAXIMUM SAFE OPERATING AREA



OUTPUT CHARACTERISTICS (TYPICAL)



OUTPUT CHARACTERISTICS (TYPICAL)

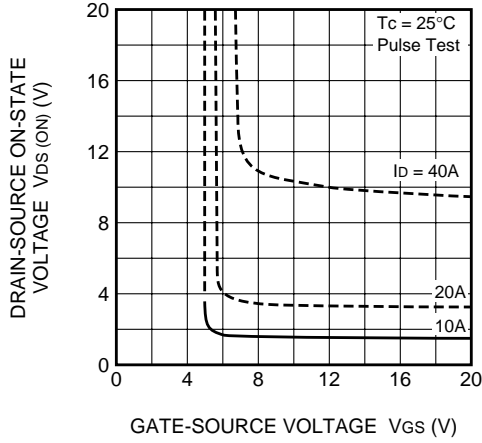


PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

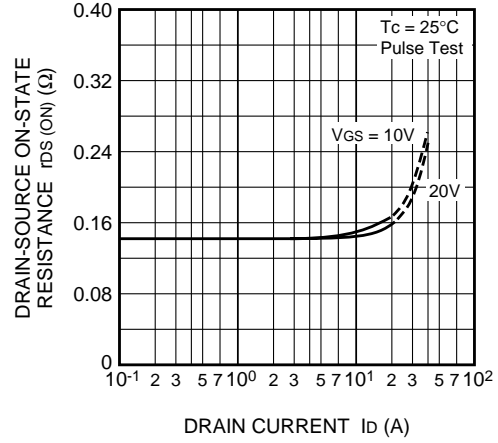
FL20KM-5A

HIGH-SPEED SWITCHING USE
 Nch POWER MOSFET

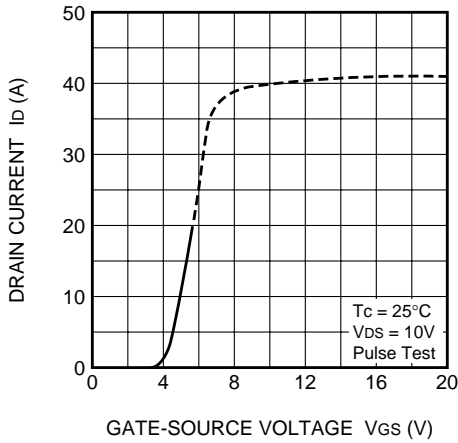
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



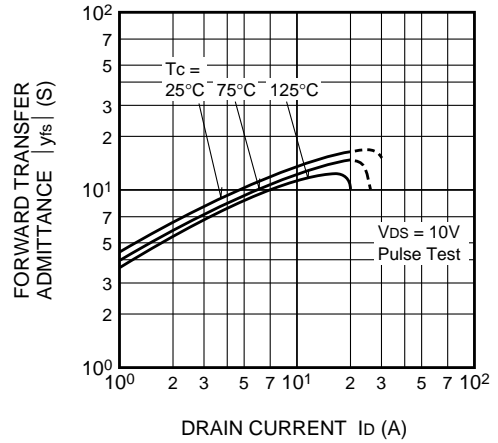
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



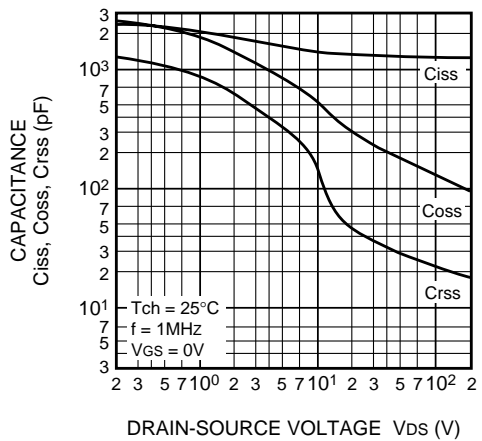
TRANSFER CHARACTERISTICS (TYPICAL)



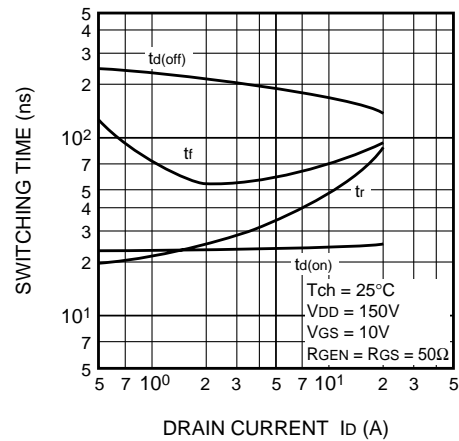
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



SWITCHING CHARACTERISTICS (TYPICAL)

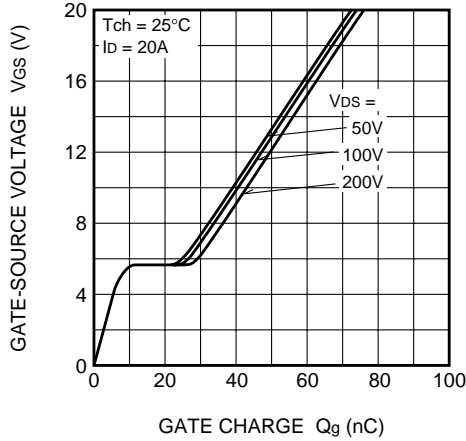


PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

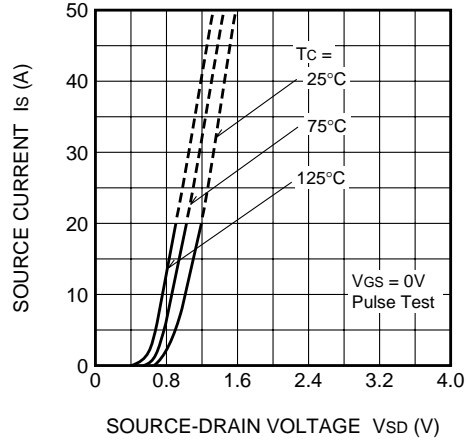
FL20KM-5A

HIGH-SPEED SWITCHING USE
 Nch POWER MOSFET

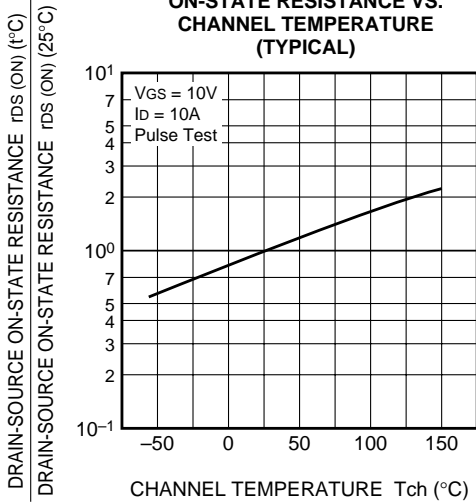
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



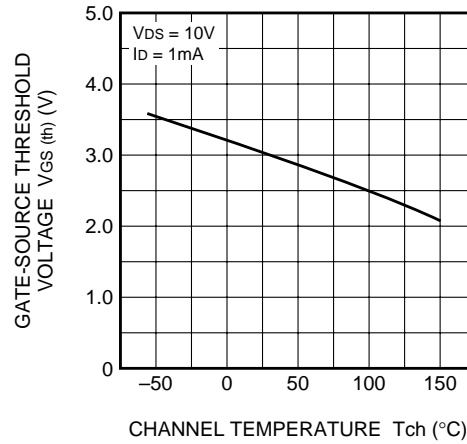
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



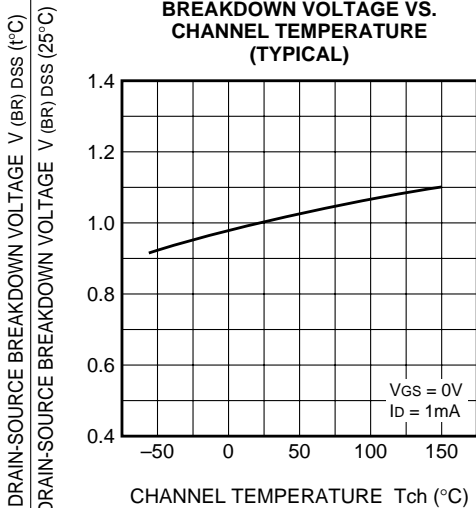
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

