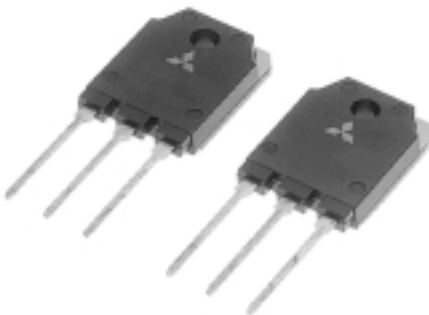


FS22SM-12A

HIGH-SPEED SWITCHING USE

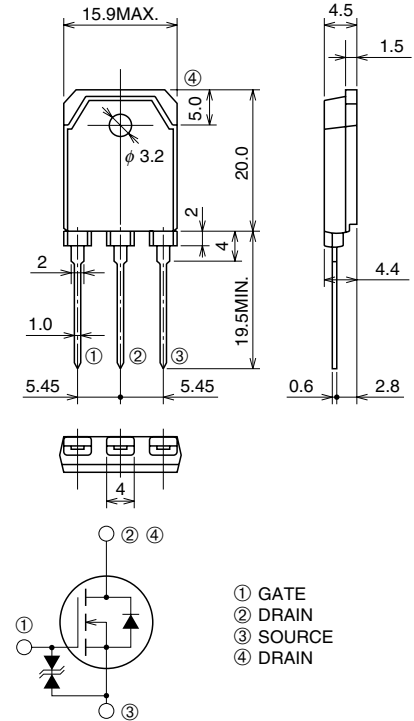
FS22SM-12A



- 10V DRIVE
- V_{DS} 600V
- $r_{DS(ON)}(MAX)$ 0.30 Ω
- I_D 22A

OUTLINE DRAWING

Dimensions in mm



① GATE
② DRAIN
③ SOURCE
④ DRAIN

TO-3P

APPLICATION

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

MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	600	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		22	A
I_{DM}	Drain current (Pulsed)		66	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 200\mu H$	22	A
P_D	Maximum power dissipation		200	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	4.8	g

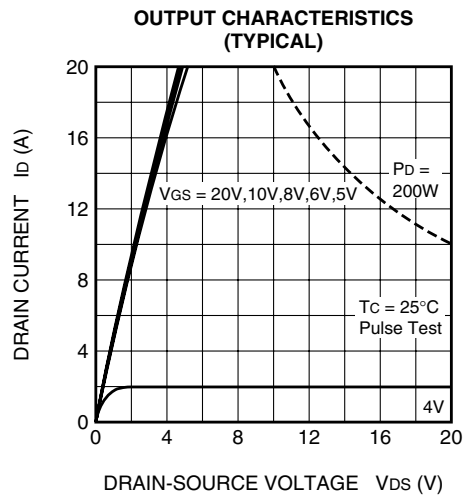
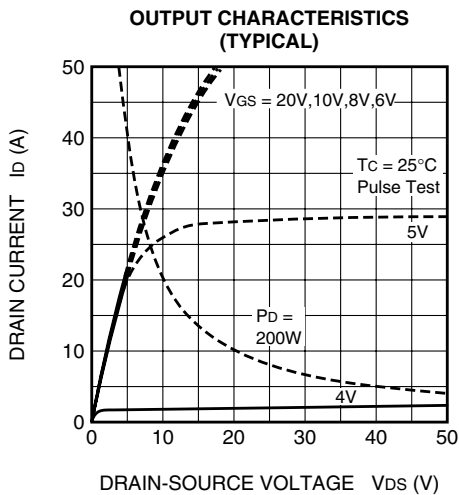
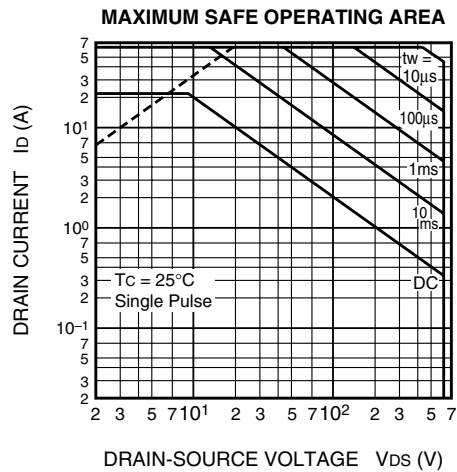
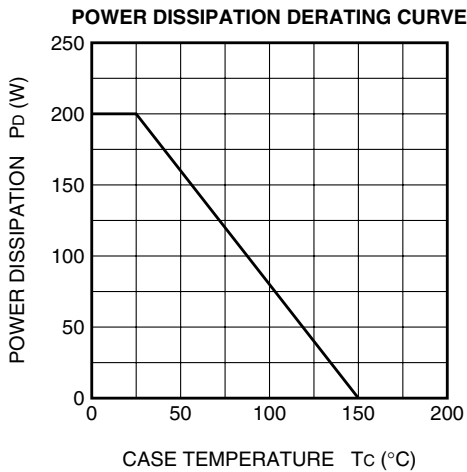
FS22SM-12A

HIGH-SPEED SWITCHING USE

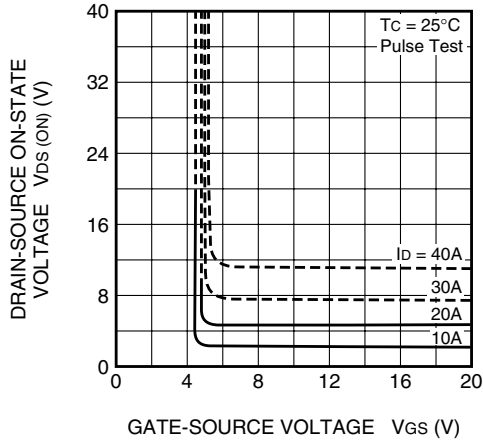
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	Id = 1mA, Vgs = 0V	600	—	—	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 = 600V, 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 = 11A, Vgs = 10V	—	0.23	0.30	Ω
VDS (ON)	Drain-source on-state voltage	Id = 11A, Vgs = 10V	—	2.53	3.30	V
yfs	Forward transfer admittance	Id = 11A, Vds = 10V	14.4	24.0	—	S
Ciss	Input capacitance	Vds = 25V, Vgs = 0V, f = 1MHz	—	4600	—	pF
Coss	Output capacitance		—	420	—	pF
Crss	Reverse transfer capacitance		—	100	—	pF
td (on)	Turn-on delay time	VDD = 200V, Id = 11A, Vgs = 10V, RGEN = RGS = 50Ω	—	60	—	ns
tr	Rise time		—	100	—	ns
td (off)	Turn-off delay time		—	630	—	ns
tf	Fall time		—	140	—	ns
VSD	Source-drain voltage	Is = 11A, Vgs = 0V	—	1.5	2.0	V
Rth (ch-c)	Thermal resistance	Channel to case	—	—	0.625	°C/W

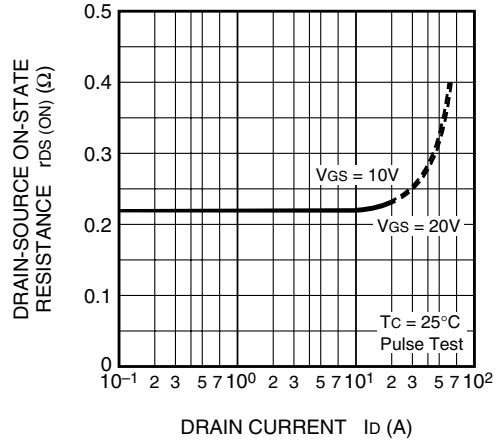
PERFORMANCE CURVES



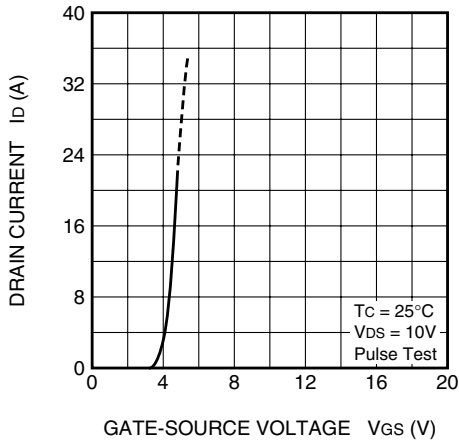
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



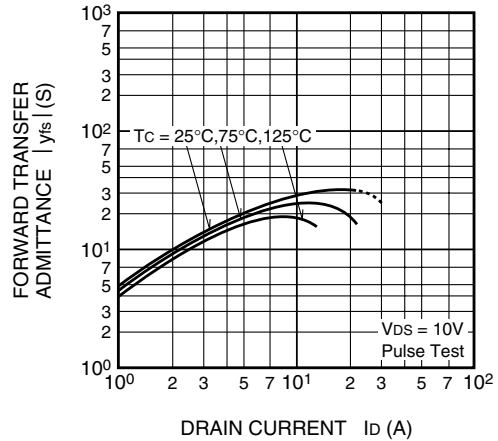
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



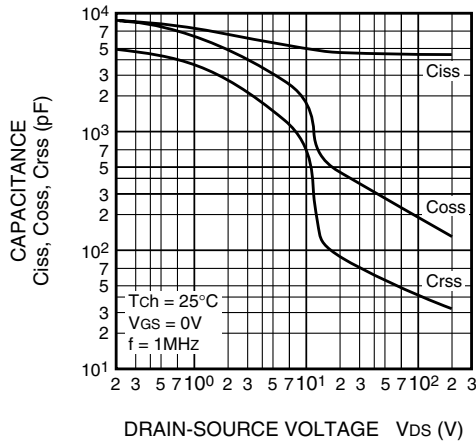
TRANSFER CHARACTERISTICS (TYPICAL)



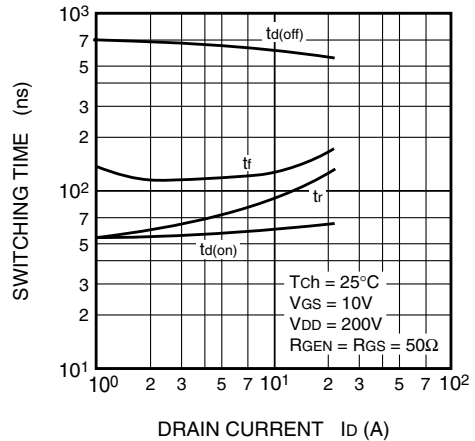
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



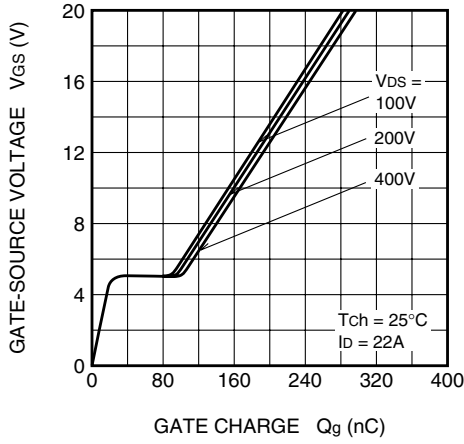
CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



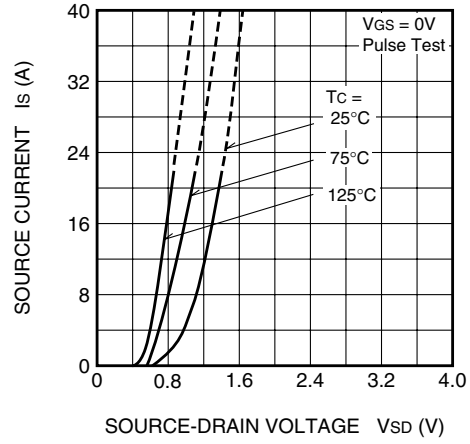
SWITCHING CHARACTERISTICS (TYPICAL)



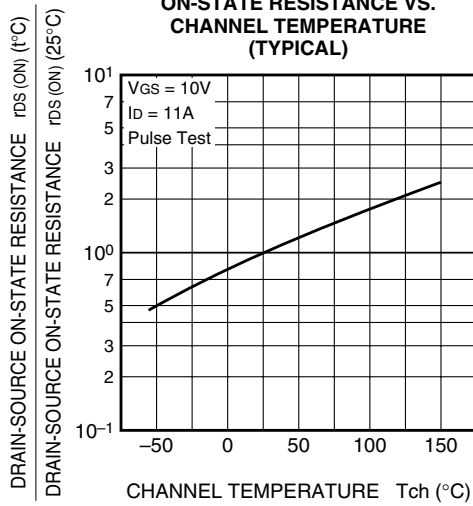
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



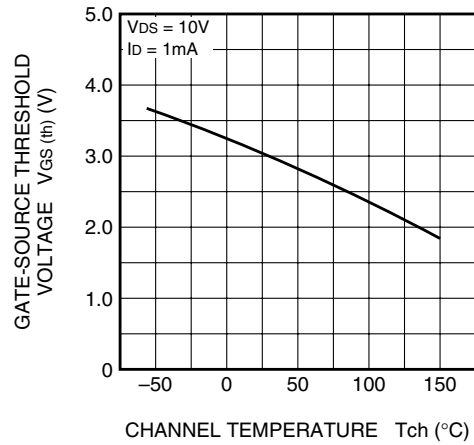
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



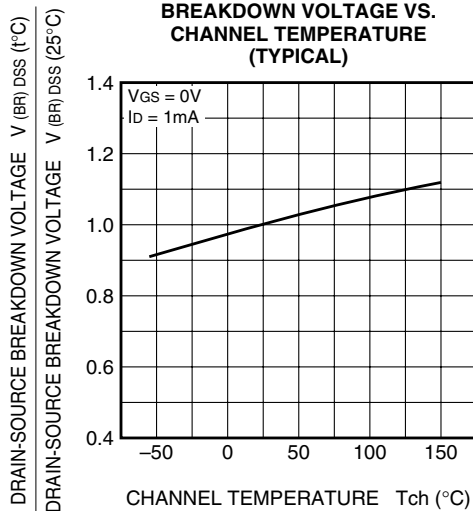
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

