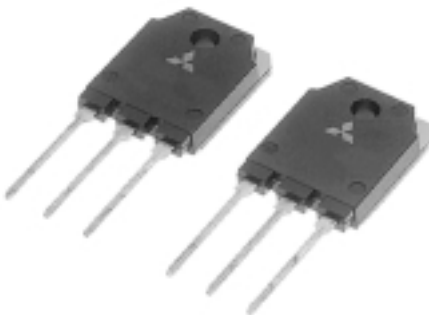


FS25SM-9A

HIGH-SPEED SWITCHING USE

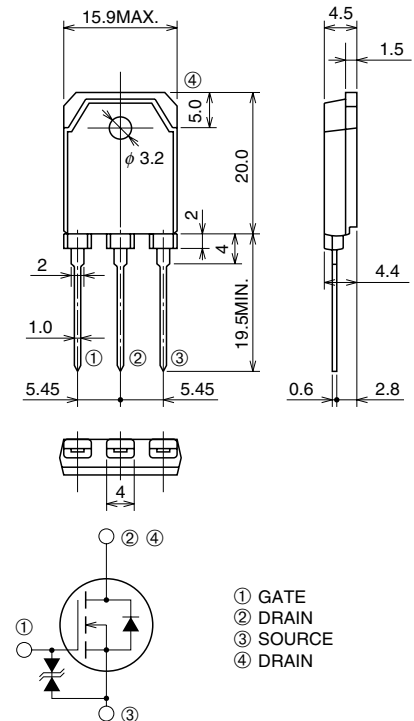
FS25SM-9A



- 10V DRIVE
- V_{DSS} 450V
- $r_{DS(ON)}(MAX)$ 0.16 Ω
- I_D 25A

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_{DSS}	Drain-source voltage	$V_{GS} = 0V$	450	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		25	A
I_{DM}	Drain current (Pulsed)		75	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 200\mu H$	25	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

FS25SM-9A

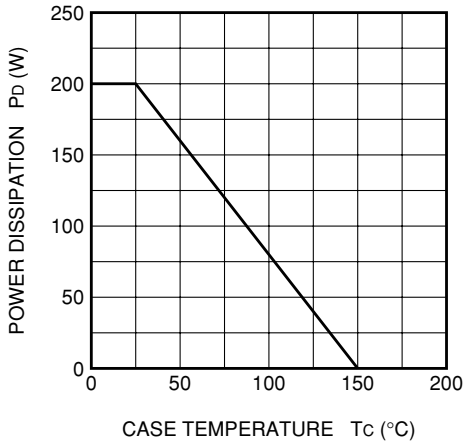
HIGH-SPEED SWITCHING USE

ELECTRICAL CHARACTERISTICS (T_{ch} = 25°C)

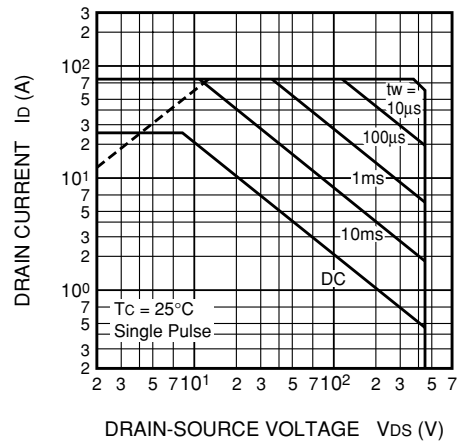
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	I _D = 1mA, V _{GS} = 0V	450	—	—	V
V (BR) GSS	Gate-source breakdown voltage	I _G = ±100μA, V _{DS} = 0V	±30	—	—	V
I _{GSS}	Gate-source leakage current	V _{GS} = ±25V, V _{DS} = 0V	—	—	±10	μA
I _{DSS}	Drain-source leakage current	V _{DS} = 450V, V _{GS} = 0V	—	—	1	mA
V _{GS} (th)	Gate-source threshold voltage	I _D = 1mA, V _{DS} = 10V	2.5	3.0	3.5	V
r _{DS} (ON)	Drain-source on-state resistance	I _D = 12A, V _{GS} = 10V	—	0.13	0.16	Ω
V _{DS} (ON)	Drain-source on-state voltage	I _D = 12A, V _{GS} = 10V	—	1.56	1.92	V
y _{fs}	Forward transfer admittance	I _D = 12A, V _{DS} = 10V	15.6	26.0	—	S
C _{iss}	Input capacitance	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz	—	4600	—	pF
C _{oss}	Output capacitance		—	500	—	pF
C _{rss}	Reverse transfer capacitance		—	100	—	pF
t _d (on)	Turn-on delay time	V _{DD} = 200V, I _D = 12A, V _{GS} = 10V, R _{GEN} = R _{GS} = 50Ω	—	60	—	ns
t _r	Rise time		—	100	—	ns
t _d (off)	Turn-off delay time		—	630	—	ns
t _f	Fall time		—	140	—	ns
V _{SD}	Source-drain voltage	I _S = 12A, V _{GS} = 0V	—	1.5	2.0	V
R _{th} (ch-c)	Thermal resistance	Channel to case	—	—	0.625	°C/W

PERFORMANCE CURVES

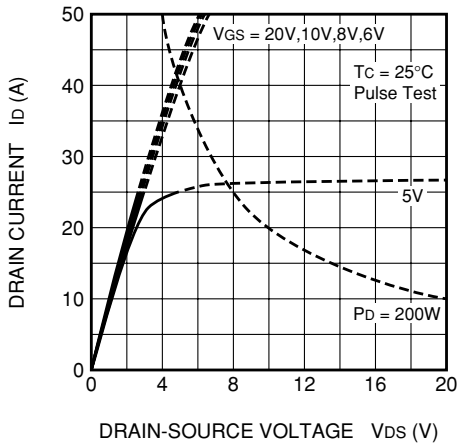
POWER DISSIPATION DERATING CURVE



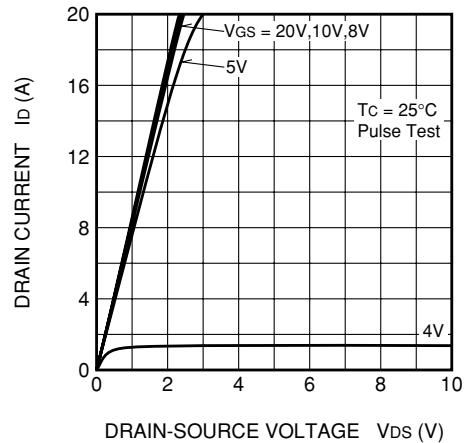
MAXIMUM SAFE OPERATING AREA



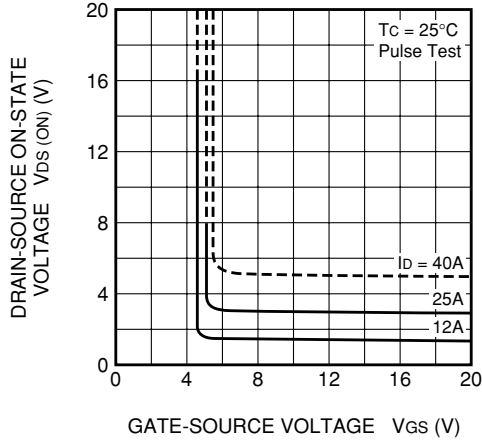
OUTPUT CHARACTERISTICS (TYPICAL)



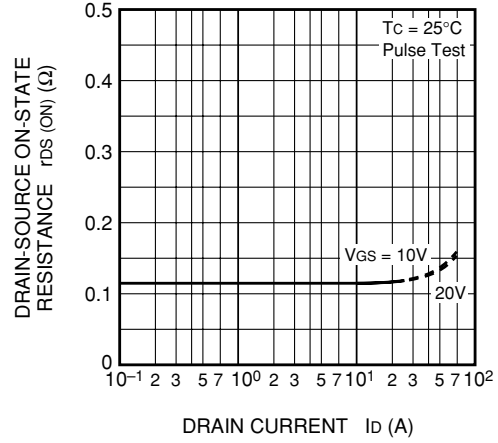
OUTPUT CHARACTERISTICS (TYPICAL)



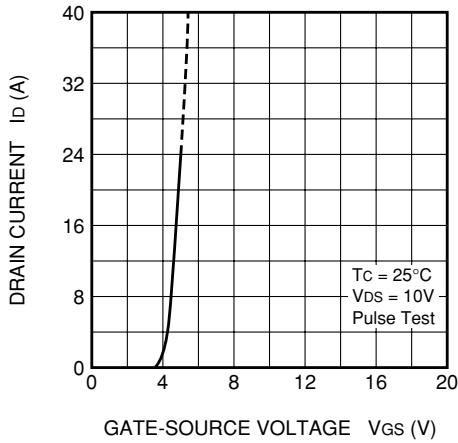
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



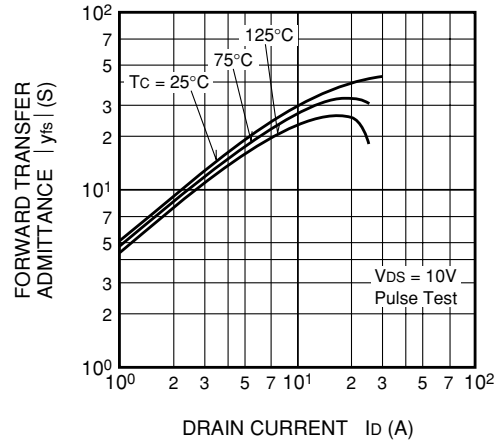
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



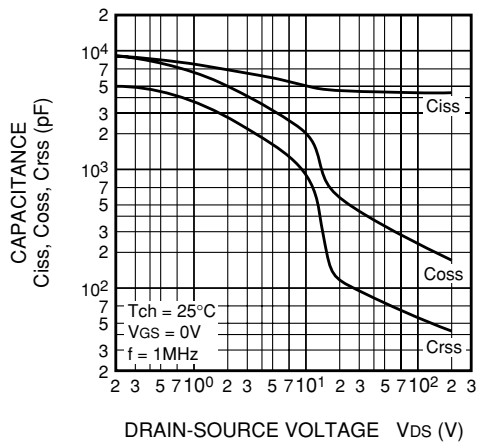
TRANSFER CHARACTERISTICS (TYPICAL)



FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



SWITCHING CHARACTERISTICS (TYPICAL)

