

FS30VSJ-3

HIGH-SPEED SWITCHING USE

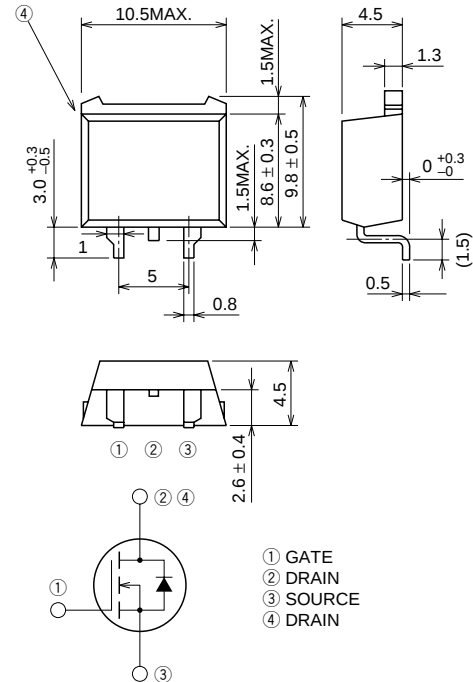
FS30VSJ-3



- 4V DRIVE
- V_{DS} 150V
- $r_{DS} (ON) (MAX)$ 86m Ω
- I_D 30A
- Integrated Fast Recovery Diode (TYP.) 100ns

OUTLINE DRAWING

Dimensions in mm



TO-220S

APPLICATION

Motor control, Lamp control, Solenoid control
DC-DC converter, etc.

MAXIMUM RATINGS (T_c = 25°C)

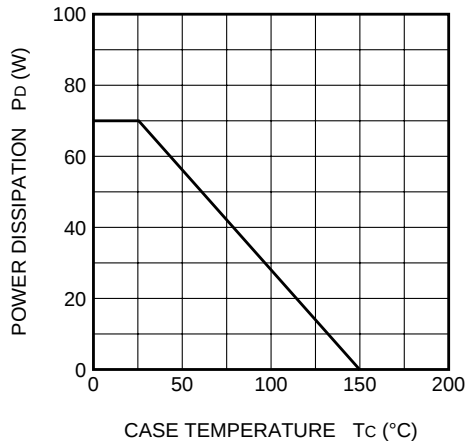
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	150	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	±20	V
I_D	Drain current		30	A
I_{DM}	Drain current (Pulsed)		120	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	30	A
I_S	Source current		30	A
I_{SM}	Source current (Pulsed)		120	A
P_D	Maximum power dissipation		70	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	1.2	g

ELECTRICAL CHARACTERISTICS (Tch = 25°C)

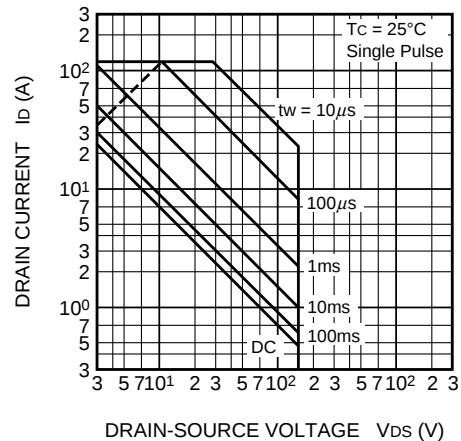
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	Id = 1mA, Vgs = 0V	150	—	—	V
IGSS	Gate-source leakage current	Vgs = ±20V, Vds = 0V	—	—	±0.1	μA
IdSS	Drain-source leakage current	Vds = 150V, Vgs = 0V	—	—	0.1	mA
VGS (th)	Gate-source threshold voltage	Id = 1mA, Vds = 10V	1.0	1.5	2.0	V
rDS (ON)	Drain-source on-state resistance	Id = 15A, Vgs = 10V	—	66	86	mΩ
rDS (ON)	Drain-source on-state resistance	Id = 15A, Vgs = 4V	—	69	90	mΩ
VDS (ON)	Drain-source on-state voltage	Id = 15A, Vgs = 10V	—	0.99	1.29	V
yfs	Forward transfer admittance	Id = 15A, Vds = 10V	—	38	—	S
Ciss	Input capacitance	Vds = 10V, Vgs = 0V, f = 1MHz	—	3000	—	pF
Coss	Output capacitance		—	320	—	pF
Crss	Reverse transfer capacitance		—	160	—	pF
td (on)	Turn-on delay time	VDD = 80V, Id = 15A, Vgs = 10V, RGEN = RGS = 50Ω	—	22	—	ns
tr	Rise time		—	42	—	ns
td (off)	Turn-off delay time		—	280	—	ns
tf	Fall time		—	130	—	ns
VSD	Source-drain voltage	Is = 15A, Vgs = 0V	—	1.0	1.5	V
Rth (ch-c)	Thermal resistance	Channel to case	—	—	1.78	°C/W
trr	Reverse recovery time	Is = 30A, dis/dt = -100A/μs	—	100	—	ns

PERFORMANCE CURVES

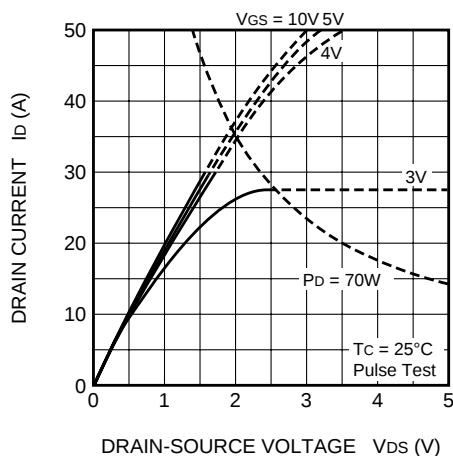
POWER DISSIPATION DERATING CURVE



MAXIMUM SAFE OPERATING AREA



OUTPUT CHARACTERISTICS (TYPICAL)



OUTPUT CHARACTERISTICS (TYPICAL)

