

FS70VS-06

HIGH-SPEED SWITCHING USE

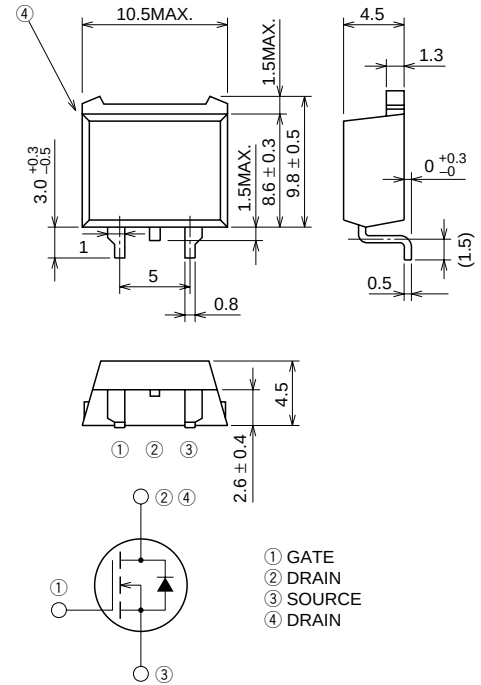
FS70VS-06



- 10V DRIVE
- V_{DS} 60V
- $r_{DS(ON)}(MAX)$ 7.5m Ω
- I_D 70A
- Integrated Fast Recovery Diode (TYP.) 85ns

OUTLINE DRAWING

Dimensions in mm



TO-220S

APPLICATION

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

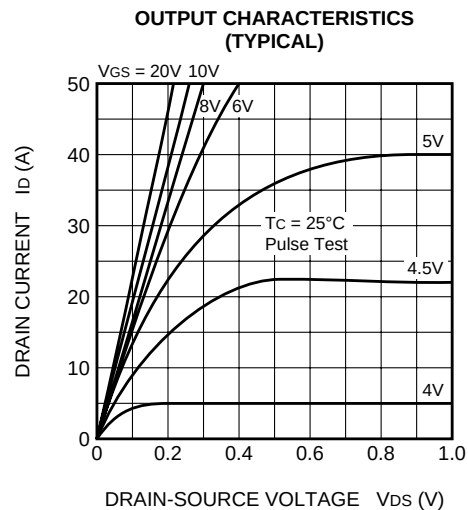
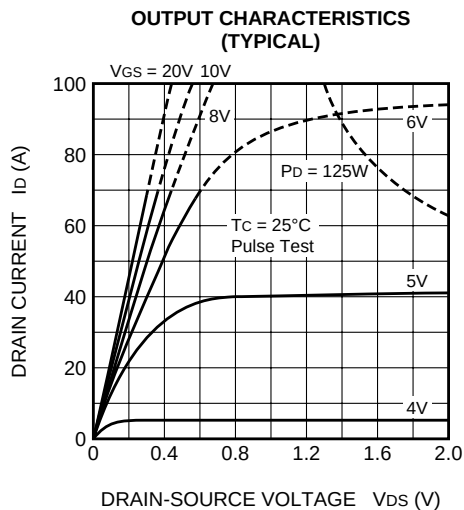
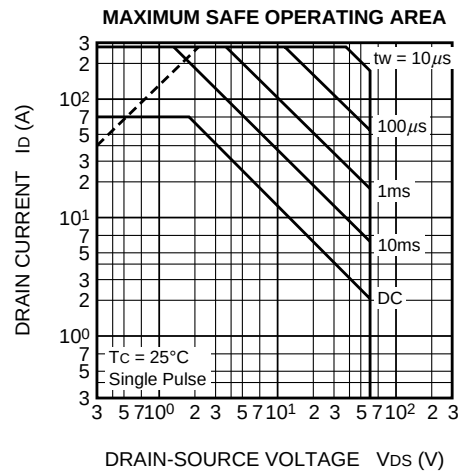
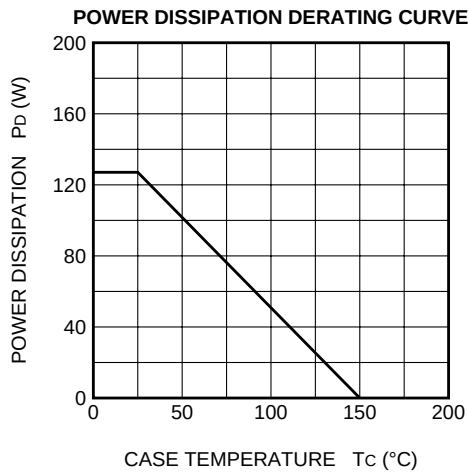
MAXIMUM RATINGS (T_c = 25°C)

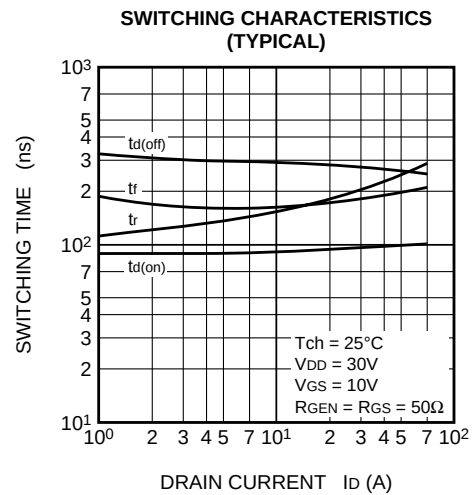
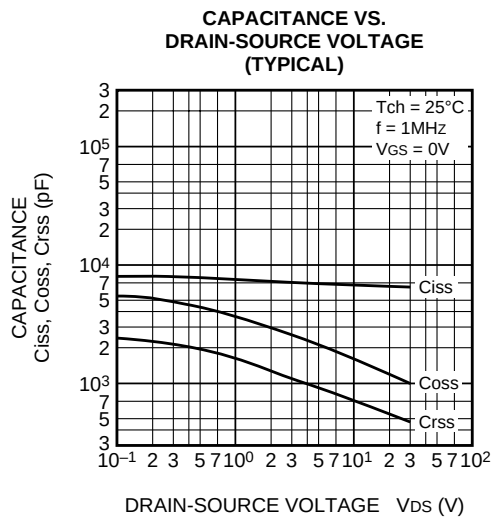
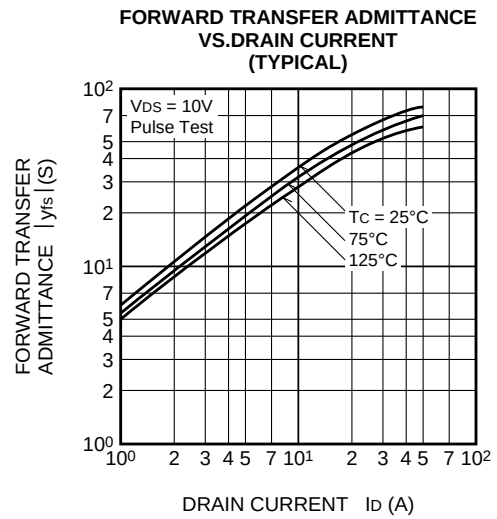
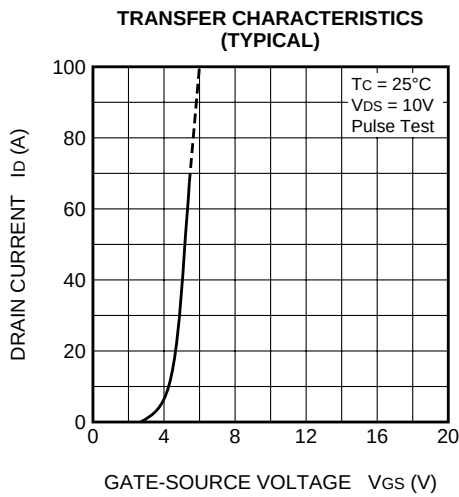
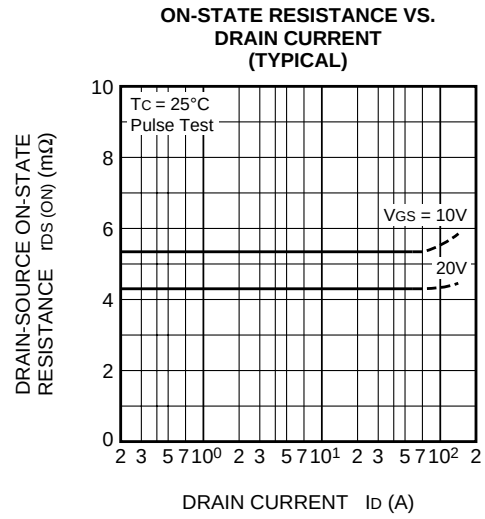
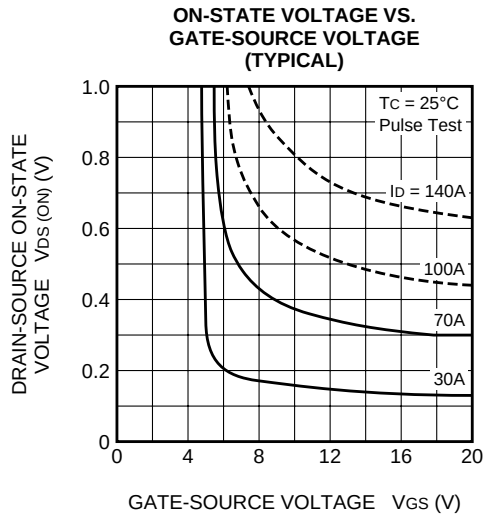
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	60	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	±20	V
I_D	Drain current		70	A
I_{DM}	Drain current (Pulsed)		280	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	70	A
I_S	Source current		70	A
I_{SM}	Source current (Pulsed)		280	A
P_D	Maximum power dissipation		125	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	4.8	g

ELECTRICAL CHARACTERISTICS (Tch = 25°C)

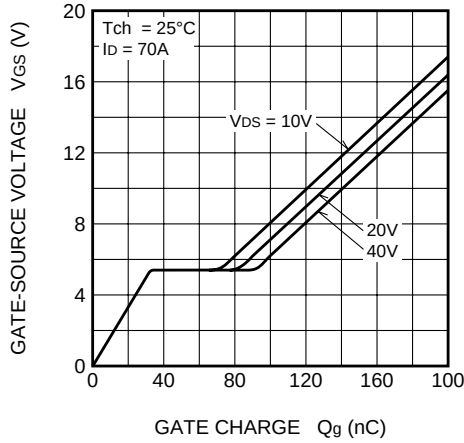
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V(BR)DSS	Drain-source breakdown voltage	Id = 1mA, VGS = 0V	60	—	—	V
IGSS	Gate-source leakage current	VGS = ±20V, VDS = 0V	—	—	±0.1	μA
IDSS	Drain-source leakage current	VDS = 60V, VGS = 0V	—	—	0.1	mA
VGS(th)	Gate-source threshold voltage	Id = 1mA, VDS = 10V	2.0	3.0	4.0	V
rDS(on)	Drain-source on-state resistance	Id = 35A, VGS = 10V	—	5.7	7.5	mΩ
VDS(on)	Drain-source on-state voltage	Id = 35A, VGS = 10V	—	0.200	0.263	V
yfs	Forward transfer admittance	Id = 35A, VDS = 10V	50	70	—	S
Ciss	Input capacitance	VDS = 10V, VGS = 0V, f = 1MHz	—	6540	—	pF
Coss	Output capacitance		—	1640	—	pF
Crss	Reverse transfer capacitance		—	790	—	pF
td(on)	Turn-on delay time	VDD = 30V, Id = 35A, VGS = 10V, RGEN = RGS = 50Ω	—	95	—	ns
tr	Rise time		—	195	—	ns
td(off)	Turn-off delay time		—	290	—	ns
tf	Fall time		—	210	—	ns
VSD	Source-drain voltage	Is = 35A, VGS = 0V	—	1.0	1.5	V
Rth(ch-c)	Thermal resistance	Channel to case	—	—	1.0	°C/W
trr	Reverse recovery time	Is = 70A, dis/dt = -100A/μs	—	85	—	ns

PERFORMANCE CURVES

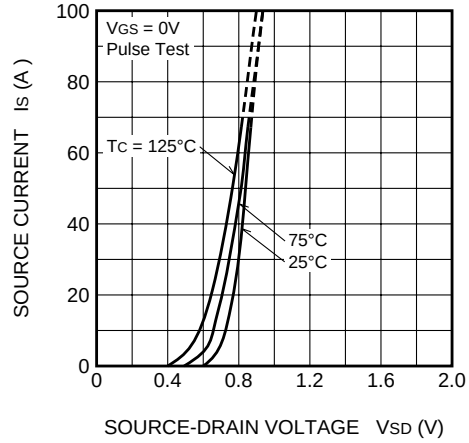




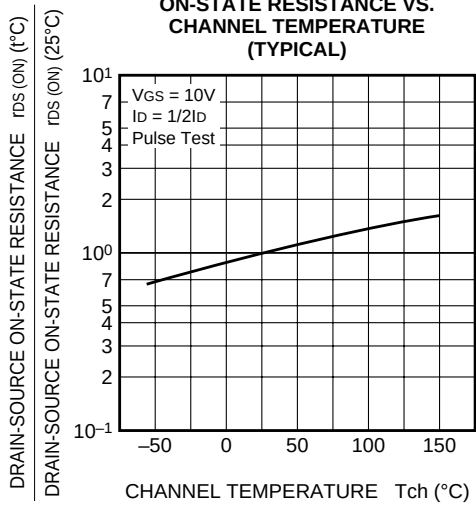
GATE-SOURCE VOLTAGE
VS.GATE CHARGE
(TYPICAL)



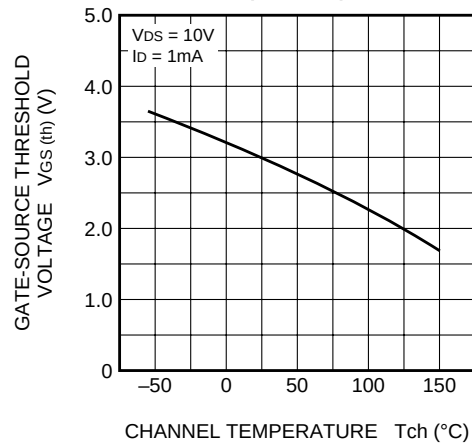
SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)



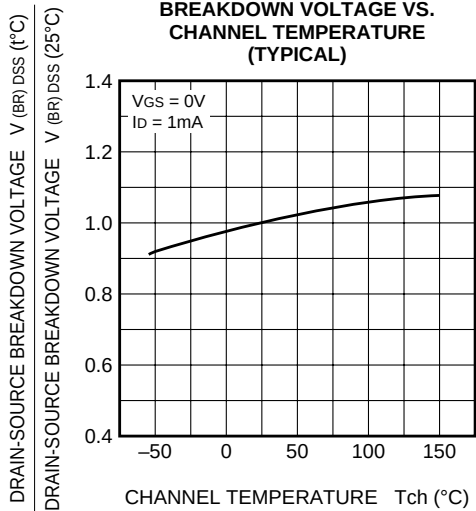
ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)



THRESHOLD VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



BREAKDOWN VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS

