

FS5VS-5

HIGH-SPEED SWITCHING USE

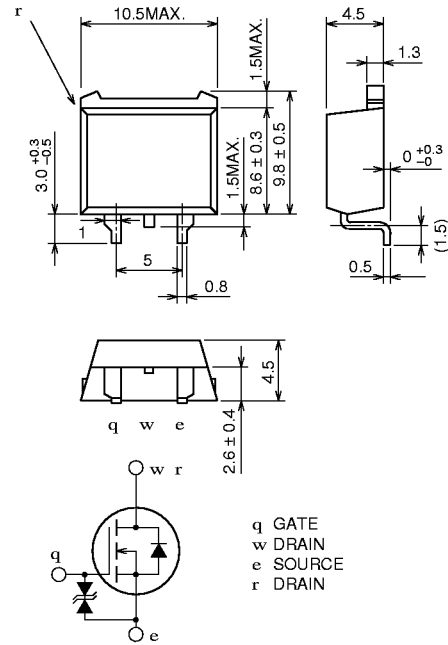
FS5VS-5



- ˘ V_{DS} 250V
- ˘ $r_{DS(ON)} (MAX)$ 1.3Ω
- ˘ I_D 5A

OUTLINE DRAWING

Dimensions in mm



TO-220S

APPLICATION

SMPS, DC-DC Converter, battery charger, power supply of printer, copier, HDD, FDD, TV, VCR, personal computer etc.

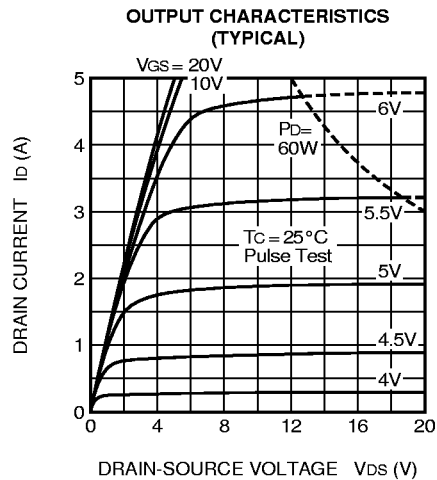
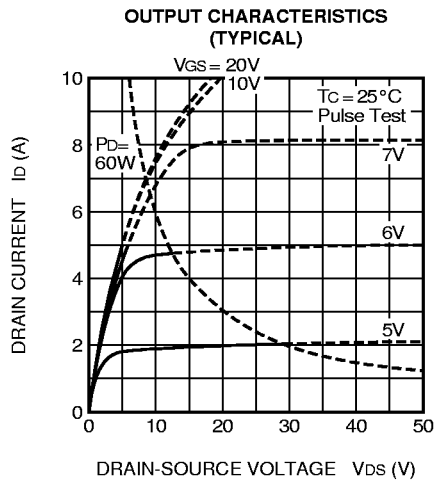
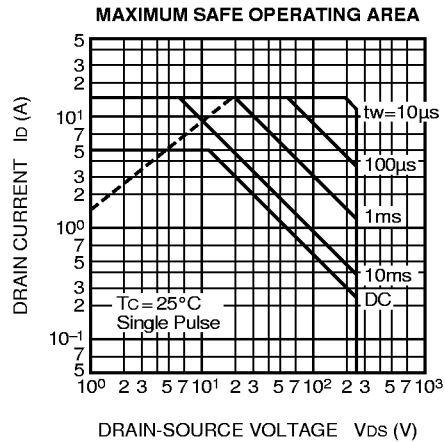
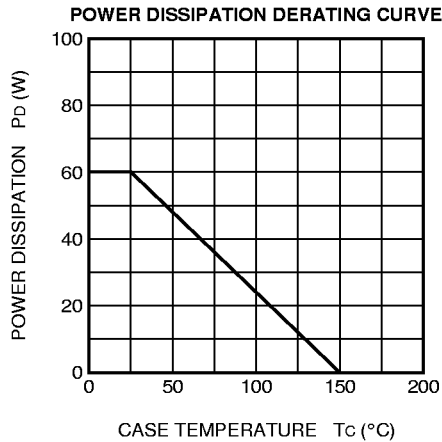
MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	250	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		5	A
I_{DM}	Drain current (Pulsed)		15	A
P_D	Maximum power dissipation		60	W
T_{ch}	Channel temperature		$-55 \sim +150$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-55 \sim +150$	$^\circ\text{C}$
—	Weight	Typical value	1.2	g

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

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V _{(BR) DSS}	Drain-source breakdown voltage	I _D = 1 mA, V _{GS} = 0 V	250	—	—	V
V _{(BR) GSS}	Gate-source breakdown voltage	I _G = ±100 μA, V _{DS} = 0 V	±30	—	—	V
I _{GSS}	Gate-source leakage current	V _{GS} = ±25 V, V _{DS} = 0 V	—	—	±10	μA
I _{DSS}	Drain-source leakage current	V _{DS} = 250 V, V _{GS} = 0 V	—	—	1	mA
V _{GS} (th)	Gate-source threshold voltage	I _D = 1 mA, V _{DS} = 10 V	2	3	4	V
r _{DS} (ON)	Drain-source on-state resistance	I _D = 2 A, V _{GS} = 10 V	—	1.0	1.3	Ω
V _{DS} (ON)	Drain-source on-state voltage	I _D = 2 A, V _{GS} = 10 V	—	2.0	2.6	V
y _{fs}	Forward transfer admittance	I _D = 2 A, V _{DS} = 10 V	1.6	2.5	—	S
C _{iss}	Input capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz	—	270	—	pF
C _{oss}	Output capacitance		—	55	—	pF
C _{rss}	Reverse transfer capacitance		—	10	—	pF
t _d (on)	Turn-on delay time	V _{DD} = 150 V, I _D = 2 A, V _{GS} = 10 V, R _{GEN} = R _{GS} = 50 Ω	—	11	—	ns
t _r	Rise time		—	13	—	ns
t _d (off)	Turn-off delay time		—	32	—	ns
t _f	Fall time		—	22	—	ns
V _{SD}	Source-drain voltage	I _S = 2 A, V _{GS} = 0 V	—	1.5	2.0	V
R _{th} (ch-c)	Thermal resistance	Channel to case	—	—	2.08	°C/W

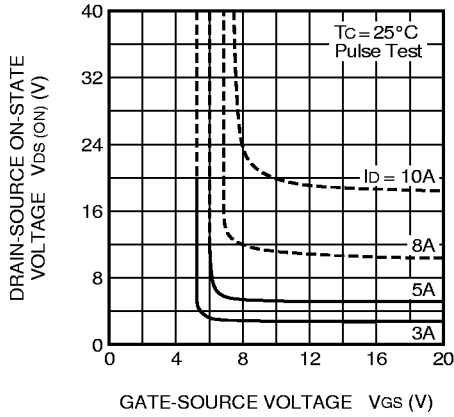
PERFORMANCE CURVES



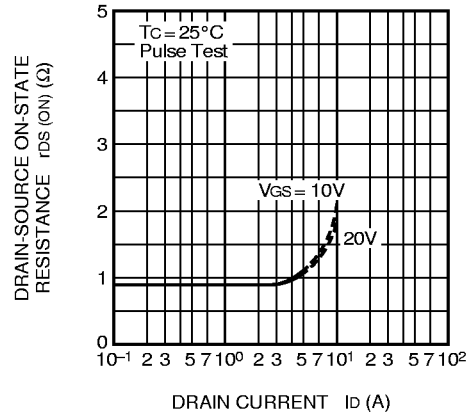
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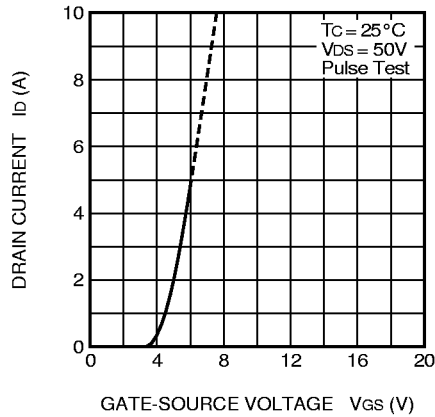
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



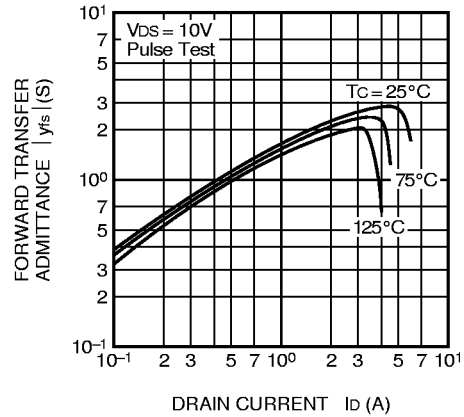
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



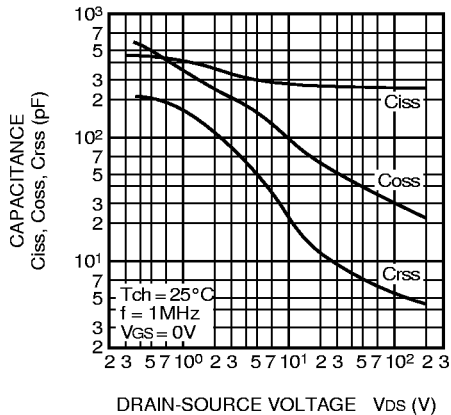
TRANSFER CHARACTERISTICS
(TYPICAL)



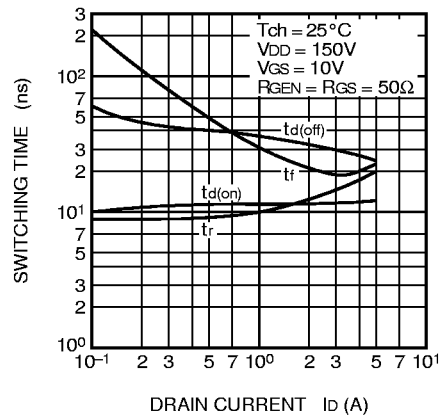
FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



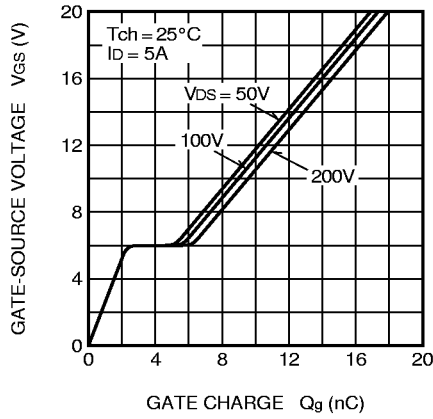
CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



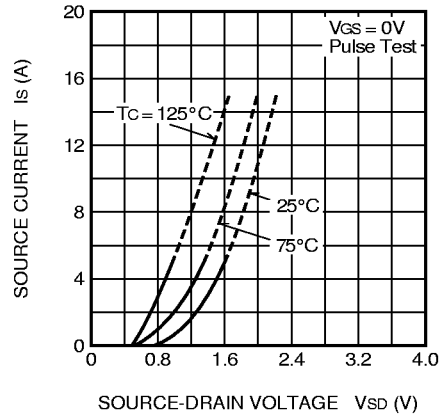
SWITCHING CHARACTERISTICS
(TYPICAL)



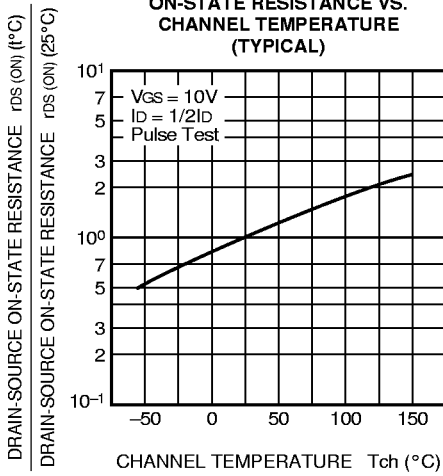
GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)



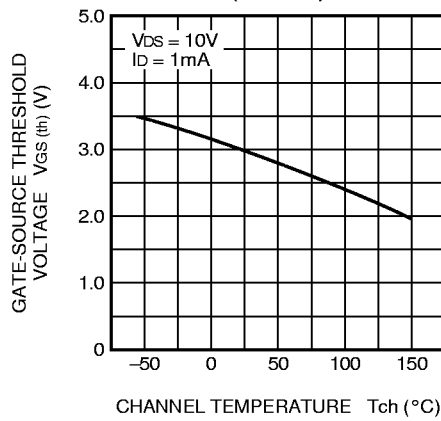
SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)



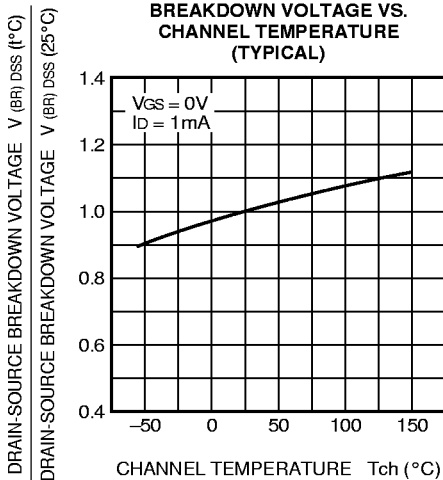
ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)



THRESHOLD VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



BREAKDOWN VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)



TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS

