

FS5AS-06

HIGH-SPEED SWITCHING USE

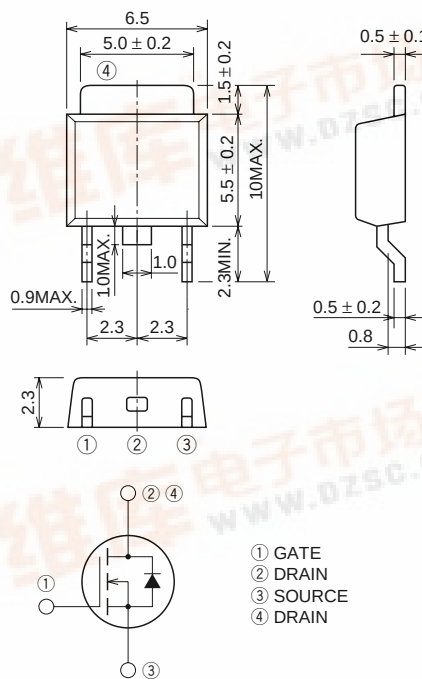
FS5AS-06



- 10V DRIVE
- V_{DS} 60V
- $r_{DS(ON)} (MAX)$ 0.16Ω
- I_D 5A
- Integrated Fast Recovery Diode (TYP.) 45ns

OUTLINE DRAWING

Dimensions in mm



MP-3

APPLICATION

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

MAXIMUM RATINGS (Tc = 25°C)

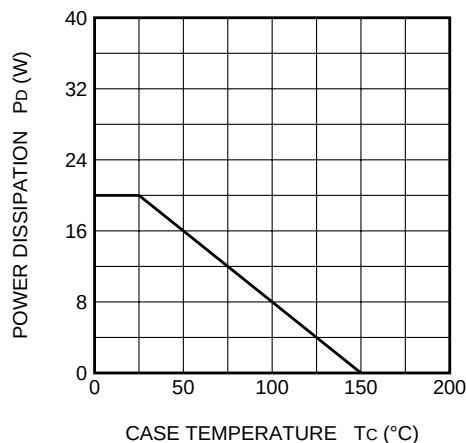
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	60	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 20	V
I_D	Drain current		5	A
I_{DM}	Drain current (Pulsed)		20	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	5	A
I_S	Source current		5	A
I_{SM}	Source current (Pulsed)		20	A
P_D	Maximum power dissipation		20	W
T_{ch}	Channel temperature		$-55 \sim +150$	°C
T_{stg}	Storage temperature		$-55 \sim +150$	°C
—	Weight	Typical value	0.26	g

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

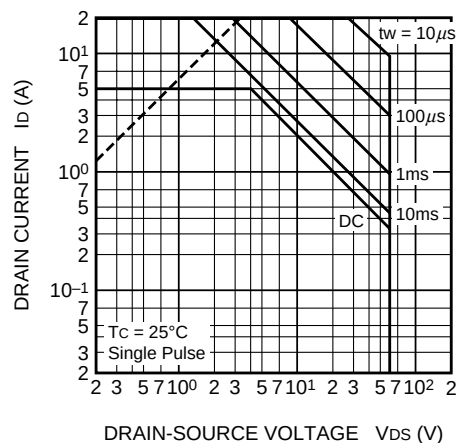
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V(BR) _{DSS}	Drain-source breakdown voltage	I _D = 1mA, V _{GS} = 0V	60	—	—	V
I _{GSS}	Gate-source leakage current	V _{GS} = ±20V, V _{DS} = 0V	—	—	±0.1	μA
I _{DSS}	Drain-source leakage current	V _{DS} = 60V, V _{GS} = 0V	—	—	0.1	mA
V _{GS} (th)	Gate-source threshold voltage	I _D = 1mA, V _{DS} = 10V	2.0	3.0	4.0	V
r _{DS} (ON)	Drain-source on-state resistance	I _D = 2A, V _{GS} = 10V	—	0.12	0.16	Ω
V _{DS} (ON)	Drain-source on-state voltage	I _D = 2A, V _{GS} = 10V	—	0.24	0.32	V
y _{fs}	Forward transfer admittance	I _D = 2A, V _{DS} = 5V	—	4.0	—	S
C _{iss}	Input capacitance	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz	—	280	—	pF
C _{oss}	Output capacitance		—	120	—	pF
C _{rss}	Reverse transfer capacitance		—	35	—	pF
t _d (on)	Turn-on delay time	V _{DD} = 30V, I _D = 2A, V _{GS} = 10V, R _{GEN} = R _{GS} = 50Ω	—	15	—	ns
t _r	Rise time		—	8	—	ns
t _d (off)	Turn-off delay time		—	18	—	ns
t _f	Fall time		—	9	—	ns
V _{SD}	Source-drain voltage	I _S = 2A, V _{GS} = 0V	—	1.0	1.5	V
R _{th} (ch-c)	Thermal resistance	Channel to case	—	—	6.25	°C/W
t _{rr}	Reverse recovery time	I _S = 5A, di _s /dt = -100A/μs	—	45	—	ns

PERFORMANCE CURVES

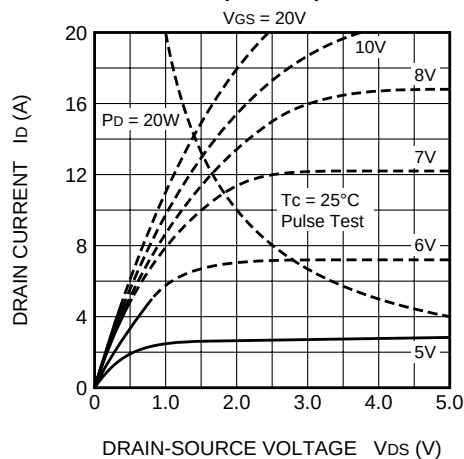
POWER DISSIPATION DERATING CURVE



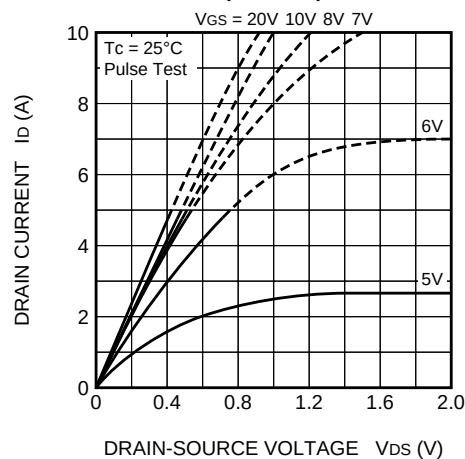
MAXIMUM SAFE OPERATING AREA

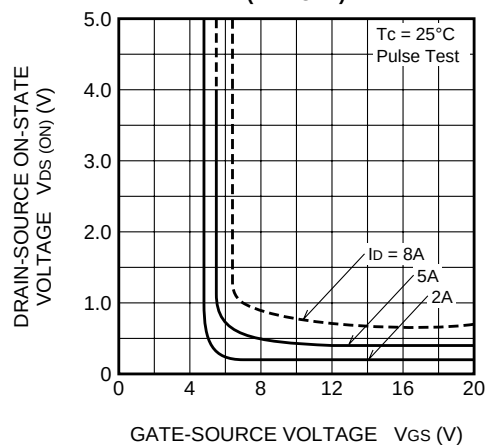
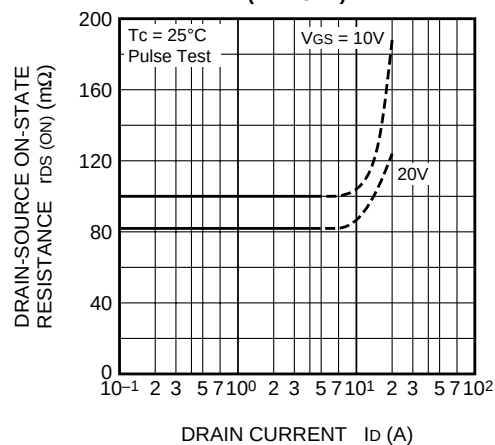
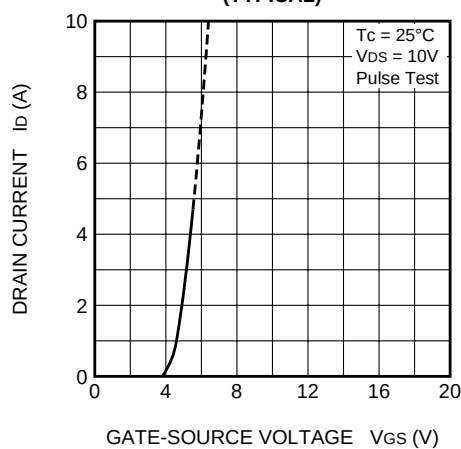
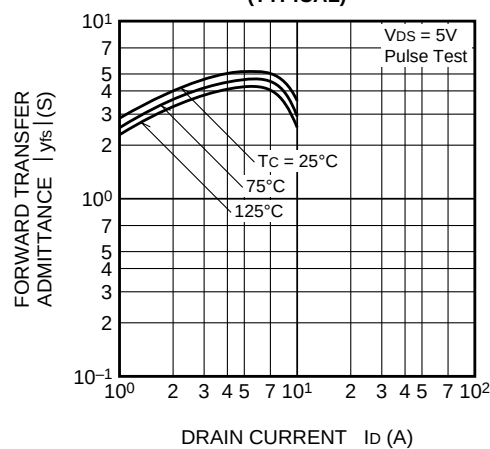
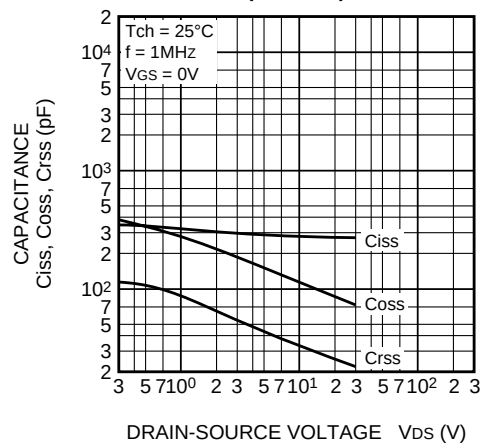


OUTPUT CHARACTERISTICS (TYPICAL)



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)