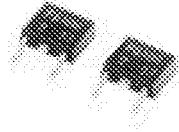


FS10ASH-2

HIGH-SPEED SWITCHING USE

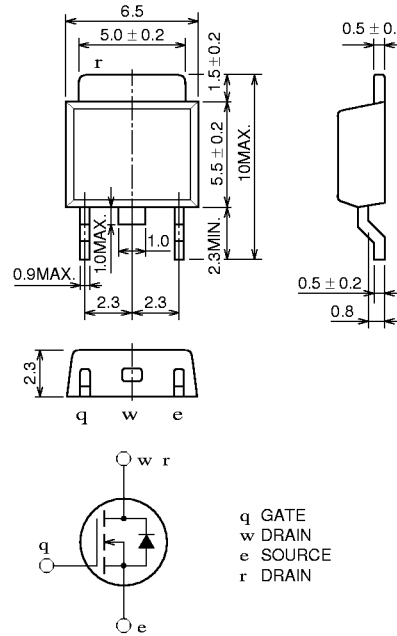
FS10ASH-2



- ˆ 2.5V DRIVE
- ˆ V_{DS} 100V
- ˆ $r_{DS(ON)}$ (MAX) 0.21Ω
- ˆ I_D 10A
- ˆ Integrated Fast Recovery Diode (TYP.) 95ns

OUTLINE DRAWING

Dimensions in mm



MP-3

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	$V_{GS} = 0V$	100	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	±10	V
I_D	Drain current		10	A
I_{DM}	Drain current (Pulsed)		40	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 100\mu H$	10	A
I_S	Source current		10	A
I_{SM}	Source current (Pulsed)		40	A
P_D	Maximum power dissipation		30	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	0.26	g

PERFORMANCE CURVES

Case Temperature T_c (°C)	Power Dissipation P_d (W)
0	30
30	30
50	25
100	10
150	0

Figure 10 is a graph showing the Drain Current I_D (A) versus the Drain-Source Voltage V_{DS} (V) for the 2N7000 MOSFET. The graph includes curves for various Gate-Source Voltages V_{GS} (5V, 4V, 3V, 2.5V, 2.0V, and 1.5V). A dashed line indicates the Power Dissipation Limit $P_D = 30W$. The test conditions are $T_C = 25^\circ C$ and Pulse Test.

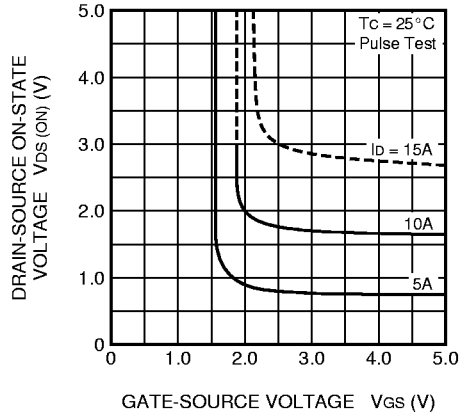
Figure 10 is a graph showing the Drain Current I_D (A) versus the Drain-Source Voltage V_{DS} (V) for the 2N7000 MOSFET at $T_C = 25^\circ\text{C}$. The graph is labeled "Pulse Test". The Y-axis ranges from 0 to 10 A, and the X-axis ranges from 0 to 2.0 V. Five curves are plotted for different Gate-Source Voltages V_{GS} :

- $V_{GS} = 5\text{V}$: Linear relationship, passing through (0,0) and (1.6, 10).
- $V_{GS} = 2\text{V}$: Linear relationship, passing through (0,0) and (1.6, 8).
- $V_{GS} = 4\text{V}$: Linear relationship, passing through (0,0) and (1.6, 6.5).
- $V_{GS} = 2.5\text{V}$: Linear relationship, passing through (0,0) and (1.6, 5).
- $V_{GS} = 1.5\text{V}$: Non-linear relationship, saturating at approximately 4 A for $V_{DS} > 1.0\text{V}$.

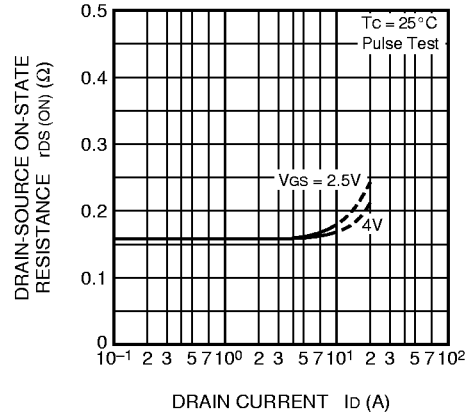
FS10ASH-2

HIGH-SPEED SWITCHING USE

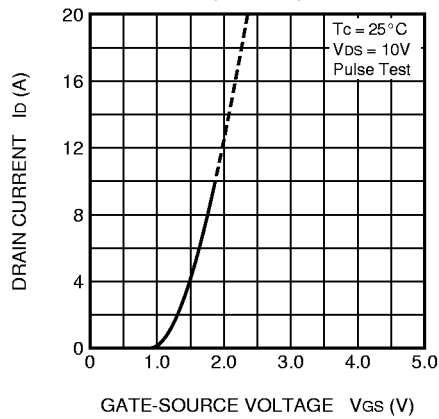
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



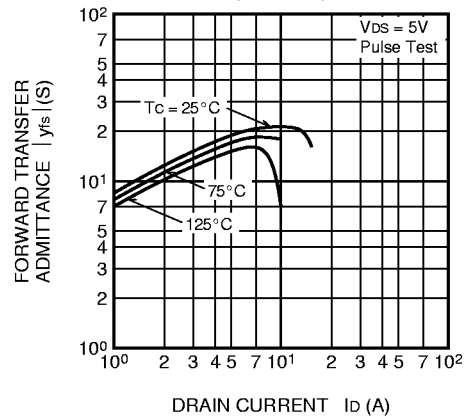
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



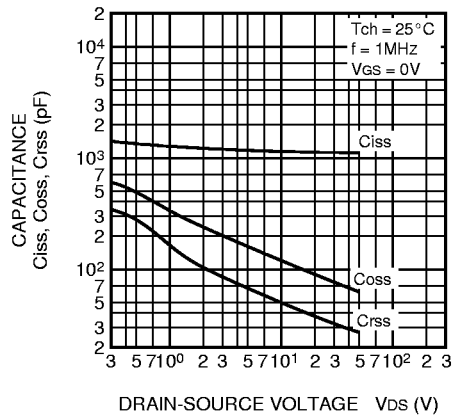
TRANSFER CHARACTERISTICS
(TYPICAL)



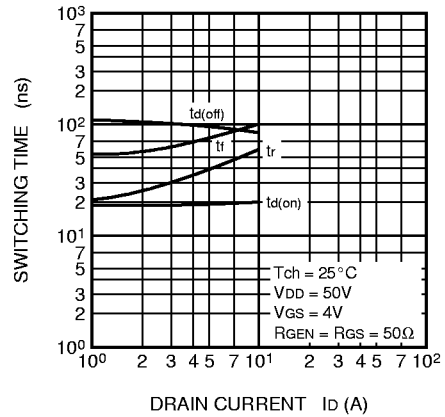
FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



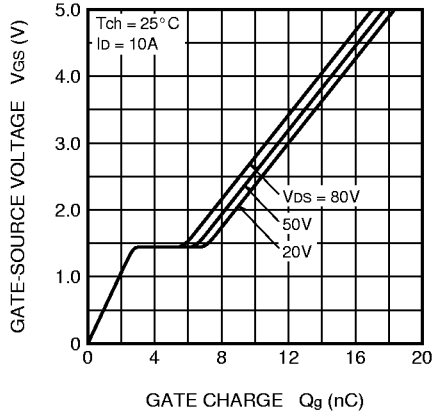
SWITCHING CHARACTERISTICS
(TYPICAL)



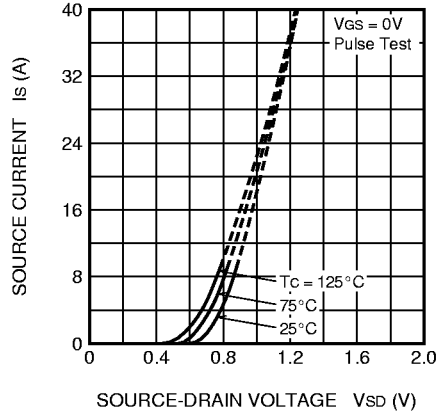
FS10ASH-2

HIGH-SPEED SWITCHING USE

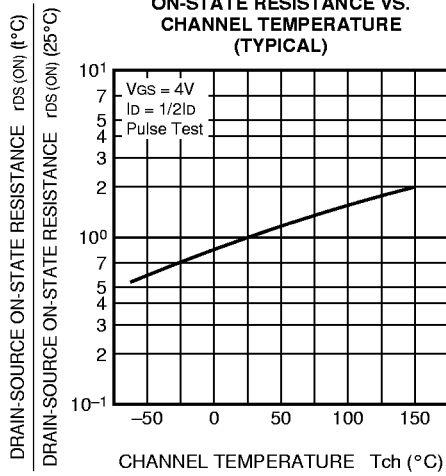
**GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)**



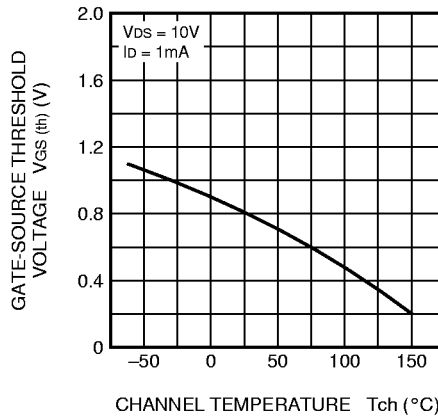
**SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)**



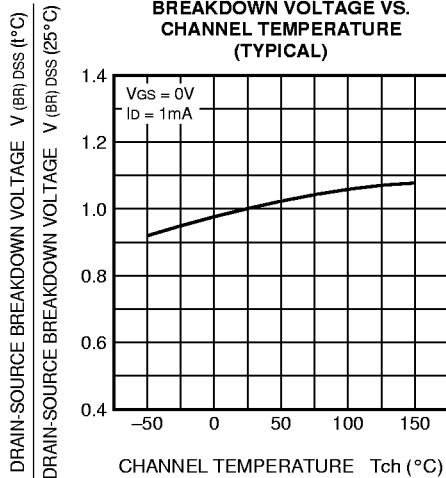
**ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



**THRESHOLD VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



**BREAKDOWN VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



**TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS**

