N-Channel 30-V (D-S) MOSFET

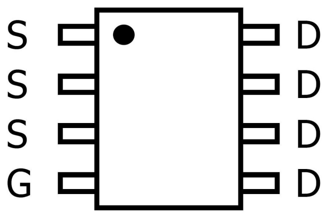
● FEATURES

V_{DS}	30V
I_D (at V_{GS}=10V)	12A
$R_{DS(ON)}$ (at V_{GS}=10V)	11mΩ (TYP)
$R_{DS(ON)}$ (at V_{GS} = 4.5V)	15mΩ (TYP)
ESD Protected	

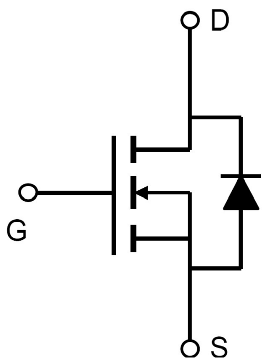
● GENERAL DESCRIPTION

The FS4468 combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

● PIN CONFIGURATION



SOP8



● Absolute Maximum Ratings

T_A=25°C unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	13.5	A
	T_A=70°C		12	
Pulsed Drain Current [C]		I_{DM}	53	
Avalanche Current [C]		I_{AS}, I_{AR}	22	A
Avalanche energy L=0.1mH [C]		E_{AS}, E_{AR}	18	mJ
Power Dissipation [B]	T_A=25°C	P_D	3.1	W
	T_A=70°C		2	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃

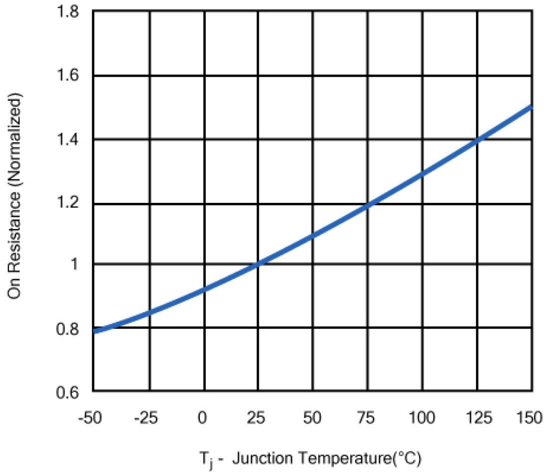
Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250uA, V_{GS}=0V	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	uA
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}=±20V			±15	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250uA	1	1.8	3	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=10A		11	14	mΩ
		V_{GS}=4.5V, I_D=8A		15	22	
V_{SD}	Diode Forward Voltage	I_S=2.3A,V_{GS}=0V		0.75		V
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		720		pF
C_{oss}	Output Capacitance			120		
C_{rss}	Reverse Transfer Capacitance			37		
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz		0.8		Ω
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=15V, I_D=10A		19		nC
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=15V, I_D=10A		9.7		
Q_{gs}	Gate Source Charge			3.8		
Q_{gd}	Gate Drain Charge			4		
$t_{D(on)}$	Turn-On DelayTime	V_{DD}=25V, R_L =25Ω I_D=1A, V_{GEN}=10V R_G=6Ω		12		ns
t_r	Turn-On Rise Time			9		
$t_{D(off)}$	Turn-Off DelayTime			42		
t_f	Turn-Off Fall Time			6		

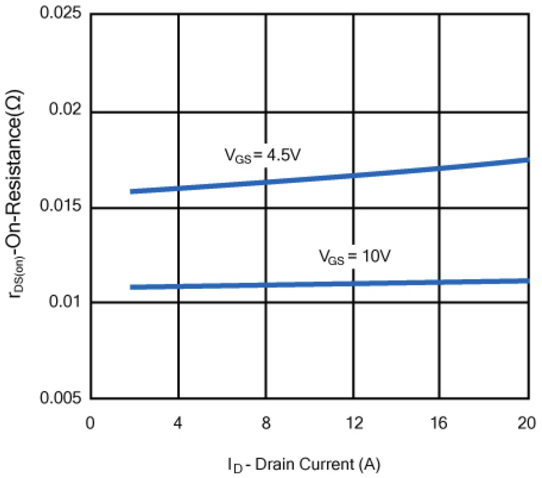
A. The value of $R_{θJA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The value in any given application depends on the user's specific board design.
B. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using≤10s junction-to-ambient thermal resistance.
C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initialT_J=25°C.
D. The $R_{θJA}$ is the sum of the thermal impedence from junction to lead $R_{θJL}$ and lead to ambient.
E. The static characteristics in Figures 1 to 6 are obtained using <300us pulses, duty cycle 0.5% max.
F. These curves are based on the junction-to-ambient thermal impedence which is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}$=150°C. The SOA curve provides a single pulse rating.

● TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

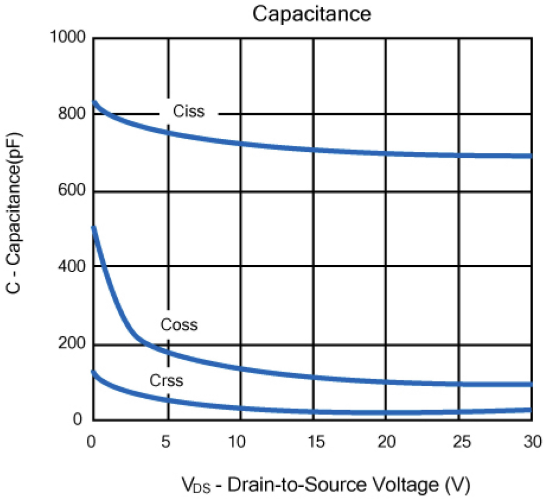
On Resistance vs. Junction Temperature



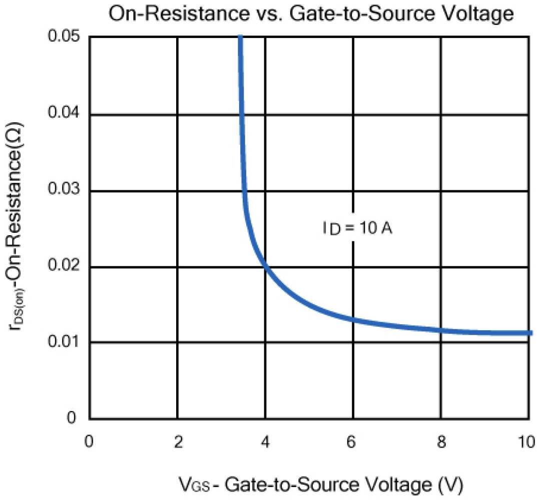
On-Resistance vs. Drain Current



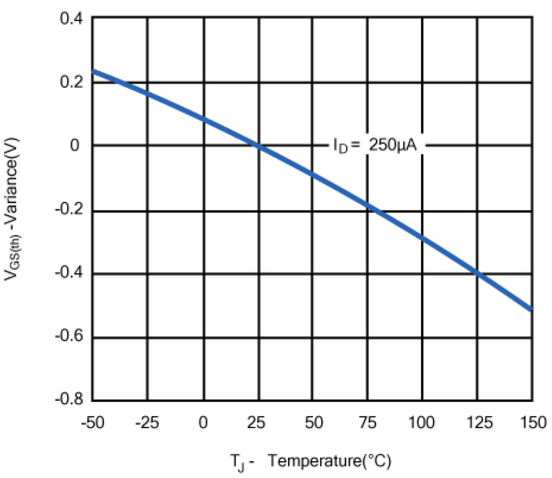
Capacitance



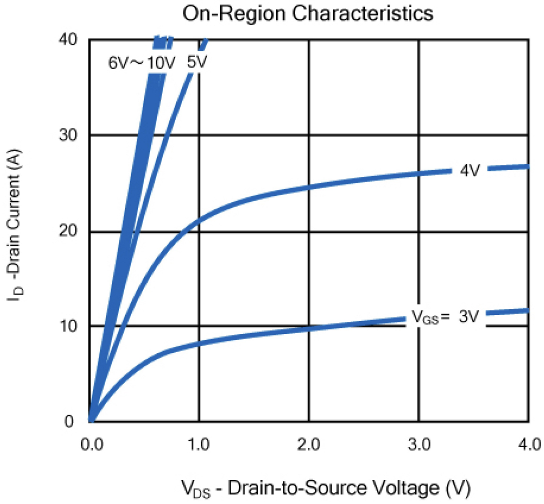
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics



- **TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS**