100V N-Channel MOSFET

Features

100V/3.1A ,

$R_{DS(ON)}$ <78mΩ @ V_{GS}= 10V

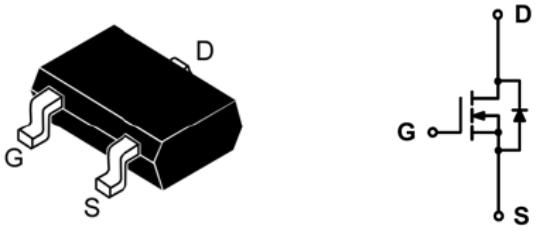
$R_{DS(ON)}$ < 100mΩ @ V_{GS}= 4.5V

Lead Free Available (RoHS Compliant)

General Description

The FS2308T combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. this device is well suited for high current load applications.

Pin Configuration



SOT23-3L

Absolute Maximum Ratings T_A=25°C unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current(T_J=150°C)[a]	T_A=25°C	I_D	3.1	A
	T_A=70°C		2.5	
Pulsed Drain Current [b]		I_{DM}	15	
Avalanche Current [b]	L=0.1mH	I_{AS}	15	
Avalanche energy		E_{AS}	1.8	mJ
Power Dissipation [a]	T_A=25°C	P_D	0.75	W
	T_A=70°C		0.5	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics					
Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [a]	t ≤ 5s	$R_{\theta JA}$	78	100	°C/W
	Steady-State		120	150	
Maximum Junction-to-Lead		$R_{\theta JL}$	40	50	

Notes

a. Surface Mounted on 1x1FR4 Board.

b. Pulse width limited maximum junction temperature

● Electrical Characteristics (T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions		Min	Typ	Max	Units
STATIC PARAMETERS							
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=1mA, V_{GS}=0V		100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0	T_A=25°C			1	uA
			T_A=70°C			60	
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}=±20V				±0.1	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=VGS I_D=250μA		2		4	V
$I_{D(ON)}$	On state drain current [a]	V_{GS}=10V, V_{DS}≥15V		10.8			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance[a]	V_{GS}=10V, I_D=10A				78	mΩ
		V_{GS}=8V, I_D=10A				100	
g_{FS}	Forward Trans conductance[a]	V_{DS}=15V, I_D=10A			6.5		S
V_{SD}	Diode Forward Voltage	I_S=10A,V_{GS}=0V		0.3		1.2	V
I_S	Maximum Body-Diode Continuous Current					1.2	A
Dynamic[b]							
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=3A			3.2		nC
Q_{gs}	Gate - Source Charge				0.45		
Q_{gd}	Gate - Drain Charge				1.6		
R_g	Gate resistance			0.5		2.5	Ω
Switching							
$t_{D(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=50V, R_L=30Ω, R_{GEN}=6Ω,I_D=0.5A			7	12	ns
t_r	Turn-On Rise Time				9.5	17	
$t_{D(off)}$	Turn-Off Delay Time				8	15	
t_f	Turn-Off Fall Time				10	15	
t_{rr}	Body Diode Reverse Recovery Time	I_F=3A, dI/dt=100A/μs			40	90	

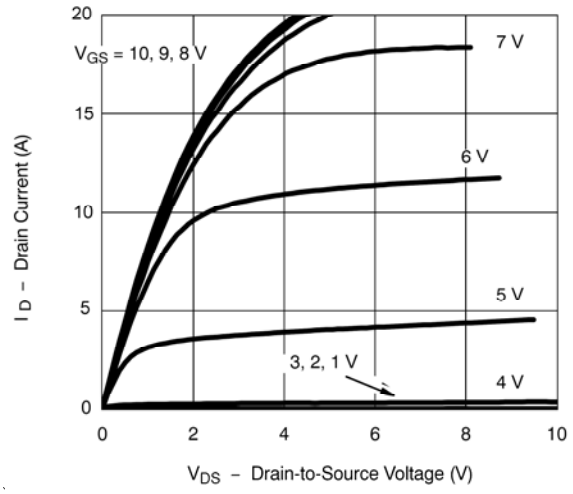
Notes

a. Pulse test: PW≤300 us duty cycle ≤2%

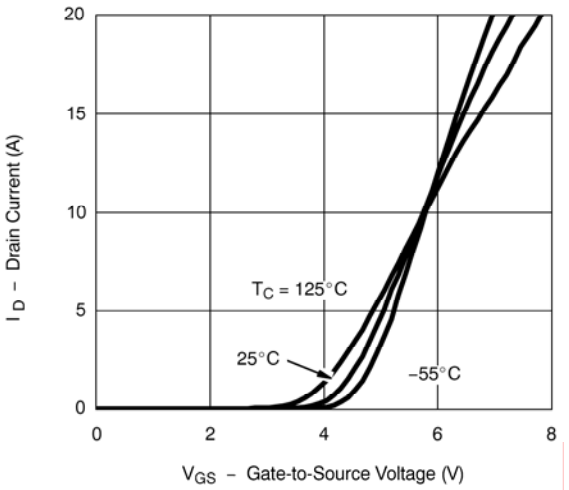
b. Guaranteed by design, not subiect to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

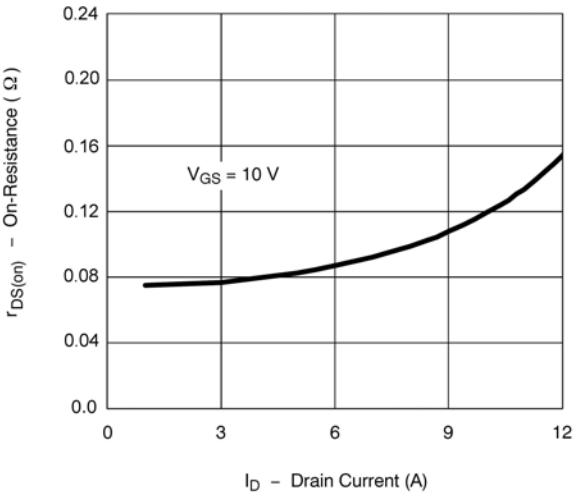
Output Characteristics



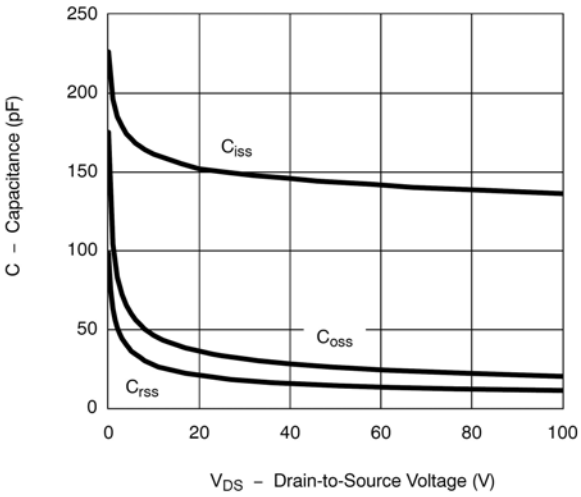
Transfer Characteristics



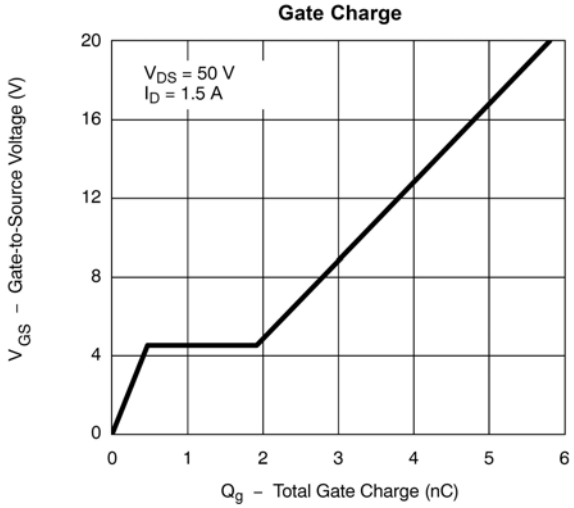
On-Resistance vs. Drain Current



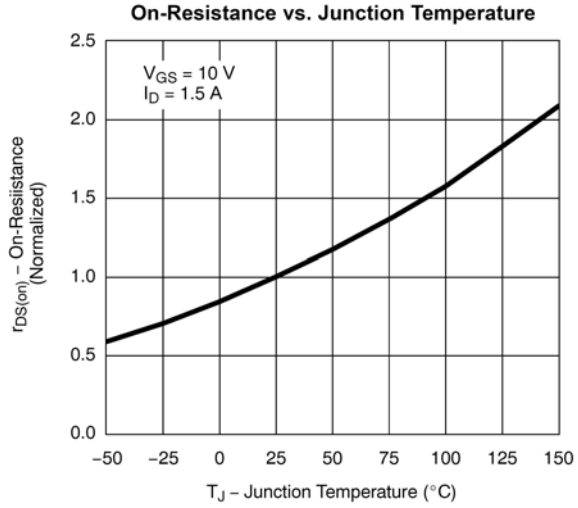
Capacitance



Gate Charge

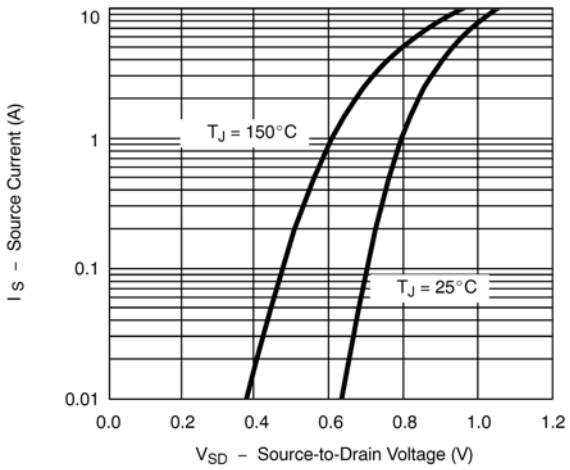


On-Resistance vs. Junction Temperature

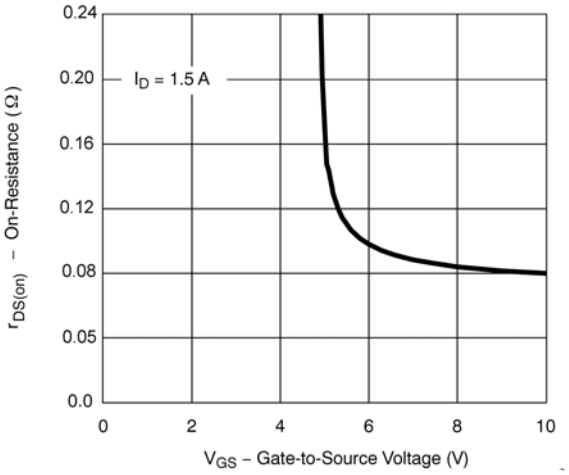


- **TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

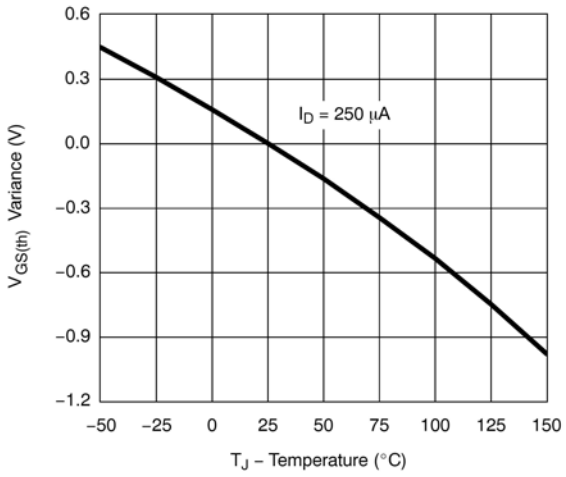
Source-Drain Diode Forward Voltage



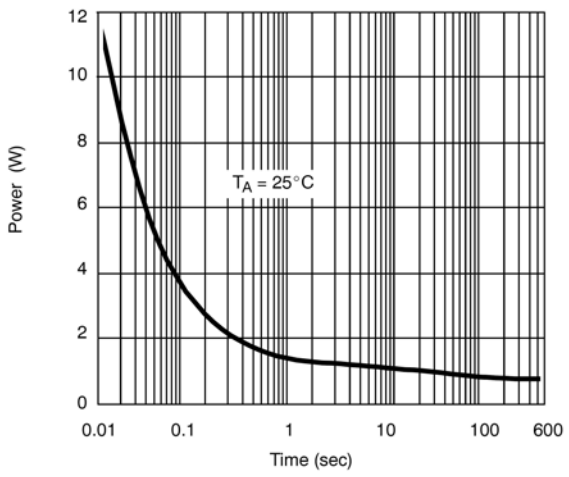
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient