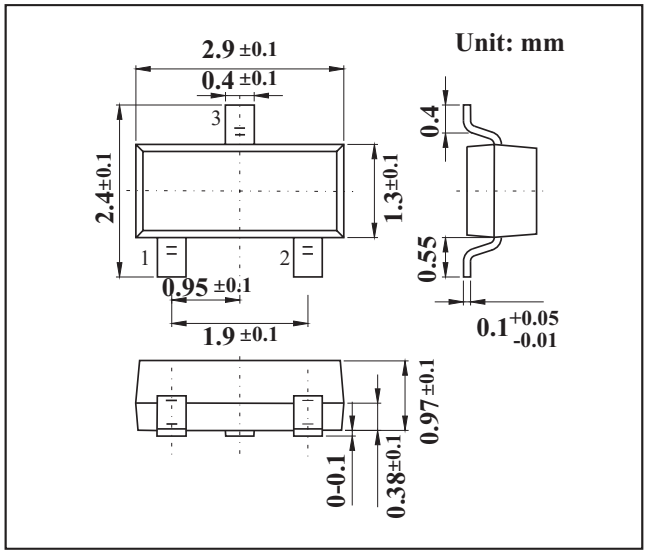
SOT-23 Plastic-Encapsulate MOSFETS

FEATURE

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

MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current (TJ = 150℃) *2 Ta = 25℃	I_D	2.5	A
Ta=70℃		2.0	
Pulsed Drain Current *1	I_{DM}	10	
Continuous Source Current (Diode Conduction)*2	I_S	1.25	
Power Dissipation *2 Ta = 25℃	P_D	1.25	W
Ta=70℃		0.80	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	℃
Maximum Junction-to-Ambientb	R_{thJA}	100	℃/W
Maximum Junction-to-Ambientc		166	

*1 Pulse width limited by maximum junction temperature.

*2 Surface Mounted on FR4 Board, t ≤ 5 sec.

*3 Surface Mounted on FR4 Board.

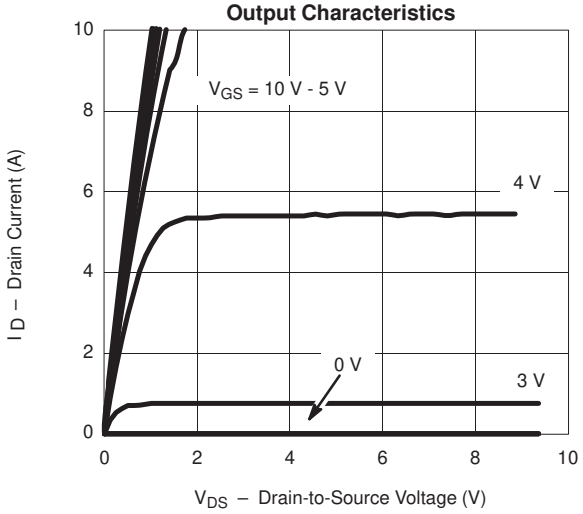
MOSFET ELECTRICAL CHARACTERISTICS Ta=25 ℃ unless otherwise specified

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250μA	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	1.5			
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30 V, V_{GS} = 0 V			0.5	μA
		V_{DS} = 30 V, V_{GS} = 0 V, TJ = 55℃			10	
		V_{DS} = 30 V, V_{GS} = 1.0 V, TJ = 25℃			1	
On-State Drain Current *	$I_{D(on)}$	V_{DS} ≥ 4.5 V, V_{GS} = 10 V	6			A
		V_{DS} ≥ 4.5 V, V_{GS} = 4.5 V	4			
Drain-Source On-Resistance *	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 2.5 A		0.092	0.117	Ω
		V_{GS} = 4.5 V, I_D = 2.0 A		0.142	0.190	
Forward Transconductance *	g_{fs}	V_{DS} = 4.5 V, I_D = 2.5 A		4.6		S
Diode Forward Voltage	V_{SD}	I_S = 1.25 A, V_{GS} = 0 V		0.77	1.2	V
Gate Charge	Q_g	V_{DS} = 15 V, V_{GS} = 5 V, I_D = 2.5 A		2.4	4	nC
Total Gate Charge	Q_{gt}	V_{DS}=15V,V_{GS}=10V,I_D=2.5A		4.5	10	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		240		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			17		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V,R_L=15Ω I_D=1A,V_{GEN}=10V,R_G=6Ω		8	20	ns
Rise Time	t_r			12	30	
Turn-Off Delay Time	$t_{d(off)}$			17	35	
Fall-Time	t_f			8	20	

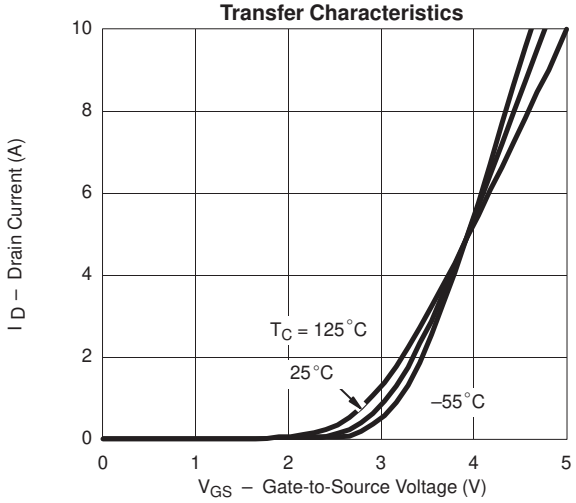
*Pulse test: PW ≤300 μs duty cycle≤2%..

RATINGS AND CHARACTERISTIC CURVES

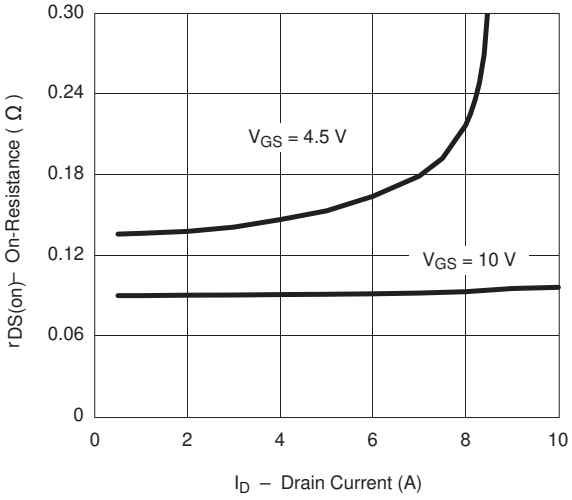
Output Characteristics



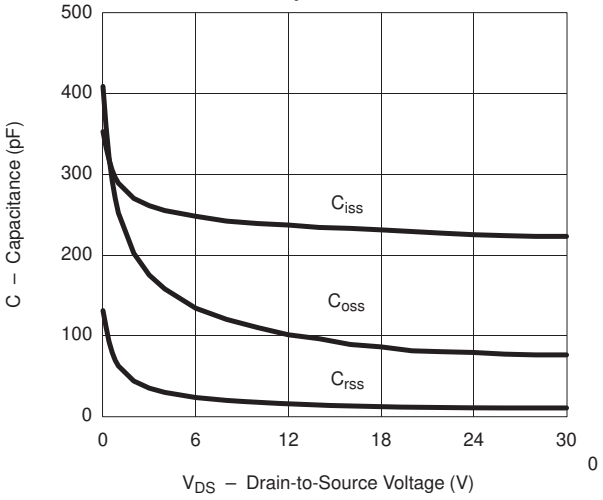
Transfer Characteristics



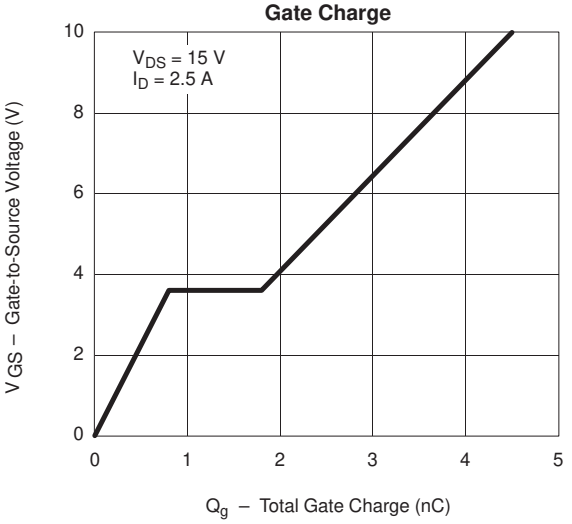
On-Resistance vs. Drain Current



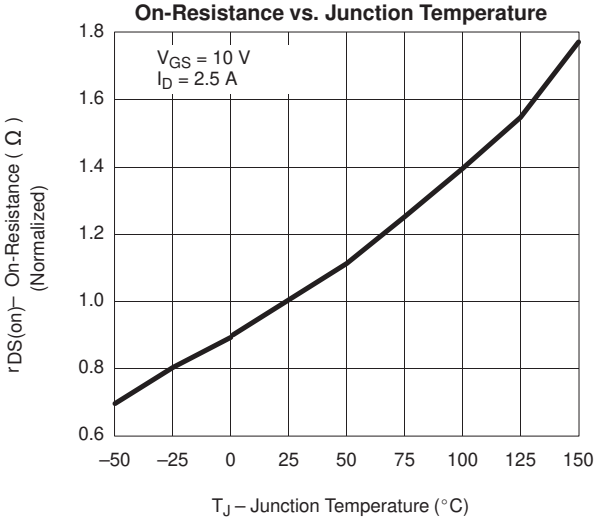
Capacitance



Gate Charge

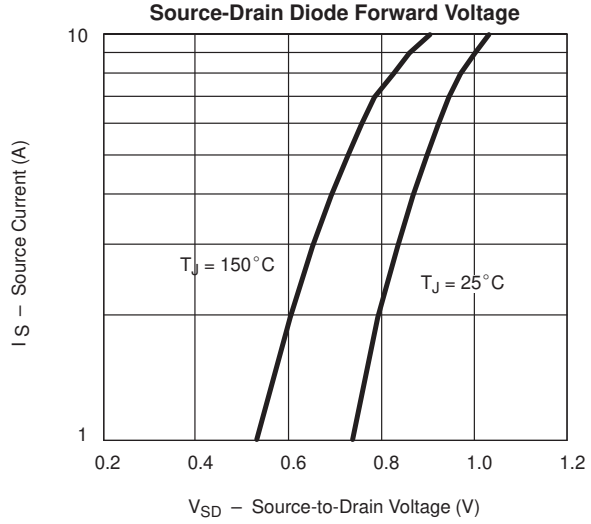


On-Resistance vs. Junction Temperature

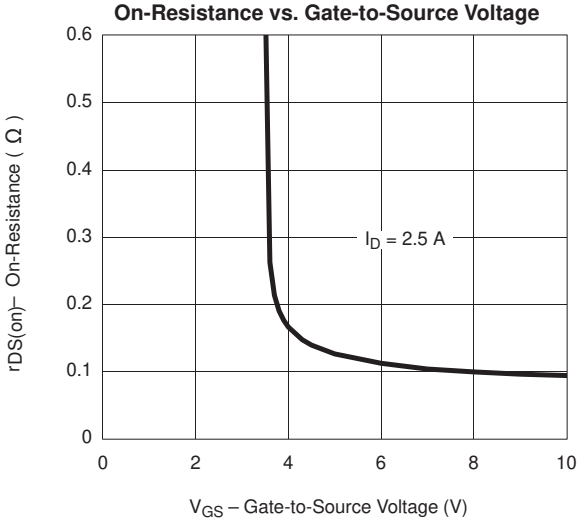


RATINGS AND CHARACTERISTIC CURVES

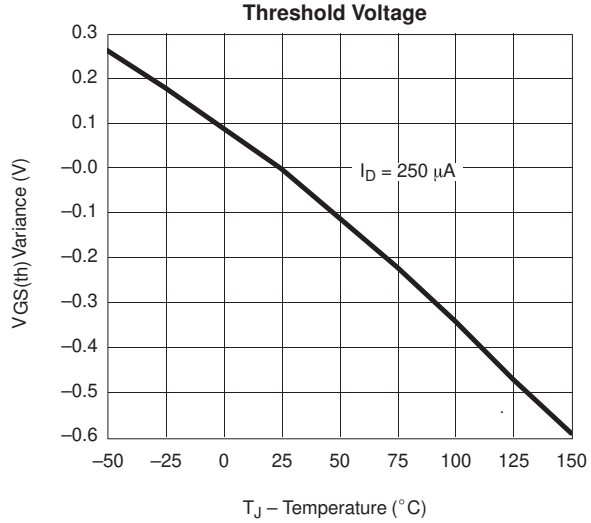
Source-Drain Diode Forward Voltage



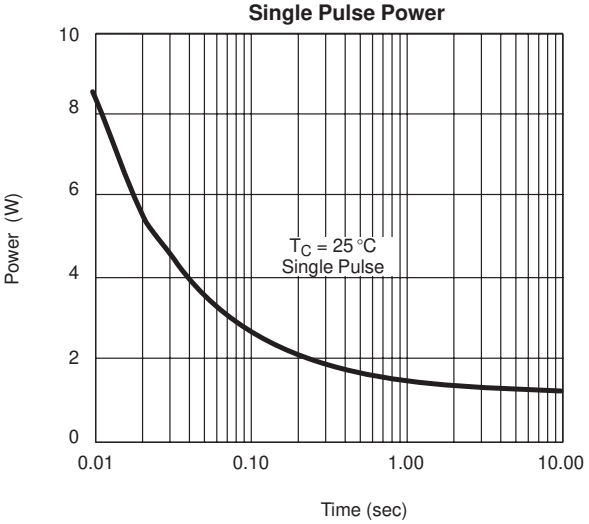
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient