

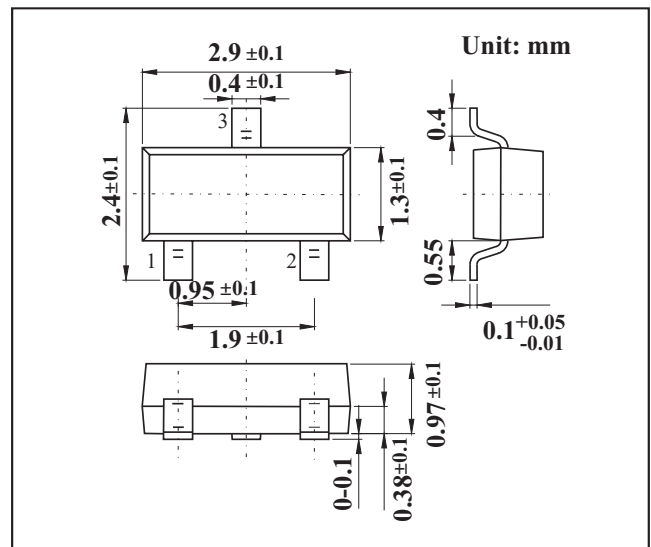
SOT-23 Plastic-Encapsulate MOSFETS

Features

- TrenchFET
- PowerMOSFET ESD Protected: 3000 V
- N-Channel 20-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	5secs	Steady State	Unit
Drain-Source Voltage	V _{DS}	20		V
Gate-Source Voltage	V _{GS}	±12		
Continuous Drain Current (T _J =150°C) *1	I _D	4.9	3.77	A
		3.9	3	
Pulsed Drain Current	I _{DM}	15		
Avalanche Current*2	I _{AS}	15		
Single Avalanche Energy	E _{AS}	11.25		
Continuous Source Current (Diode Conduction)*1	I _S	1		
Power Dissipation *1	P _D	1.25	0.75	W
		0.8	0.48	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C

* 1 Surface Mounted on 1"X 1" FR4 Board.

* 2 Pulse width limited by maximum junction temperature. Thermal Resistance Ratings

Parameter	t ≤ 5 sec	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *		R _{thJA}	75	100	°C/W
	Steady-State		120	166	
Maximum Junction-to-Foot (Drain)	Steady-State	R _{thJF}	40	50	

* Surface Mounted on 1"X 1" FR4 Board.

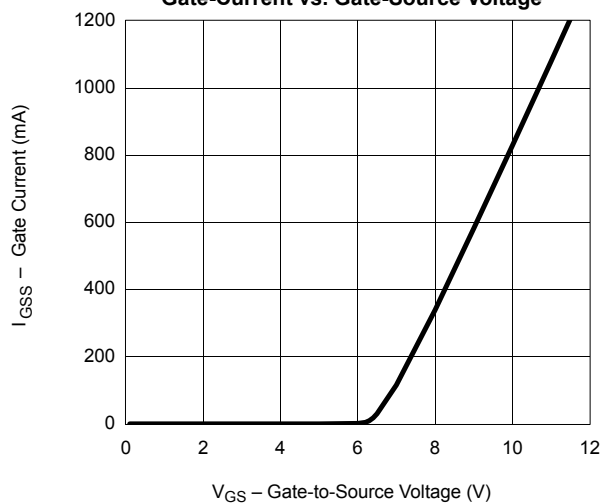
MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	V _{GS} = 0 V, I _D = 250 μA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.45			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±4 . 5 V			±1.5	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0 V			1	μA
		V _{DS} = 16V, V _{GS} = 0 V, T _J = 70 °C			75	
On-State Drain Current*	I _{D(on)}	V _{DS} ≥ 10 V, V _{GS} = 4 . 5 V	15			A
DrainSourceOn State Resistance*	R _{DS(on)}	V _{GS} = 4 . 5 V, I _D = 5.0A		0.027	0.033	Ω
		V _{GS} = 2 . 5 V, I _D = 4.5A		0.033	0.040	
		V _{GS} = 1 . 8 V, I _D = 4.0A		0.042	0.051	
Forward Transconductance	g _{fs}	V _{DS} = 15V, I _D = 5 . 0 A		40		S
Schottky Diode Forward Voltage*	V _{SD}	I _S = 1 . 0 A, V _{GS} = 0 V		0 . 8	1 . 2	V
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4 . 5 V, I _D = 5 . 0 A		11.0	14.0	nC
Gate-Source Charge	Q _{gs}			1.5		
Gate-Drain Charge	Q _{gd}			2.1		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10V, R _L = 10 Ω I _D = 1.0A, V _{GEN} = 4.5V, R _G = 6 Ω *		0.53	0.8	ns
Rise Time	t _r			1.4	2.2	
Turn-Off Delay Time	t _{d(off)}			13.5	20	
Fall Time	t _f			5.9	9	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1 . 0 A, d i /d t = 100 A / μs		13	25	ns

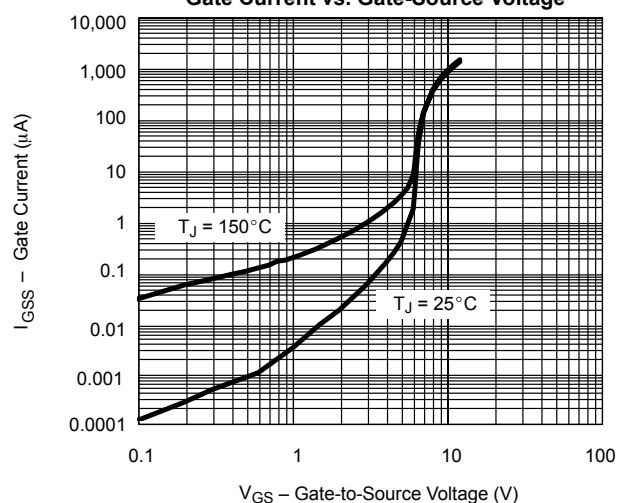
* Pulse test : Pulse width ≤ 300 μ s, duty cycle ≤ 2%

RATINGS AND CHARACTERISTIC CURVES

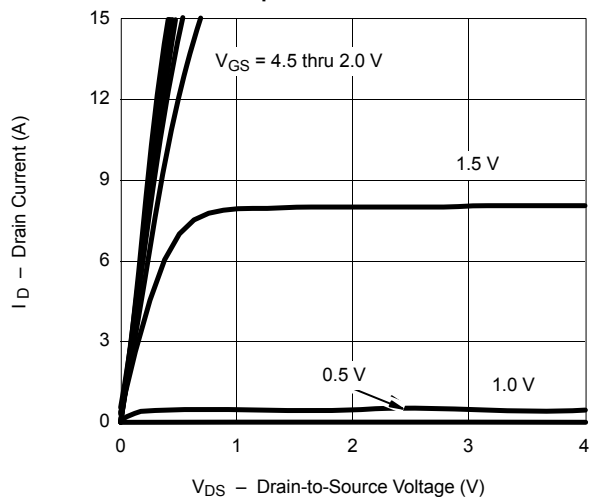
Gate-Current vs. Gate-Source Voltage



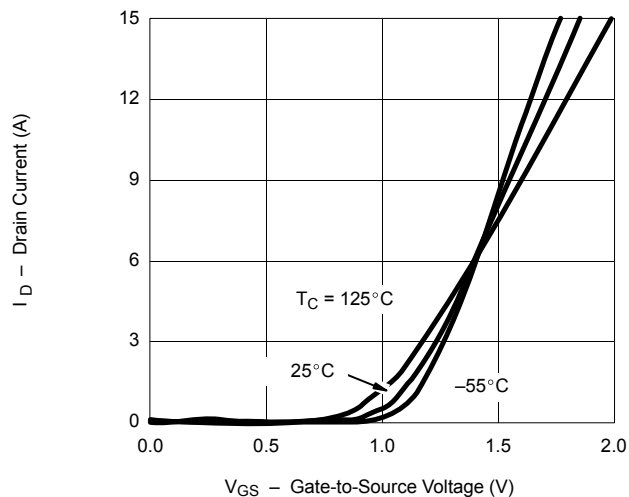
Gate Current vs. Gate-Source Voltage



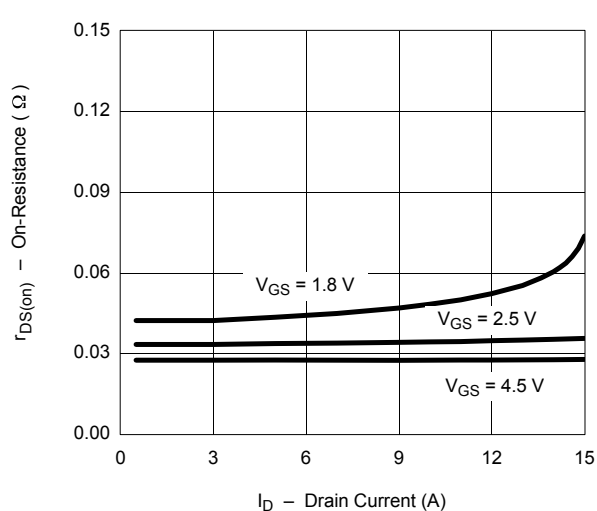
Output Characteristics



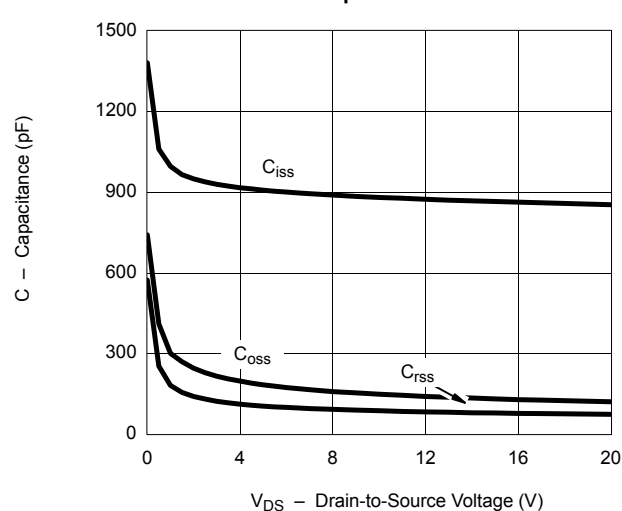
Transfer Characteristics



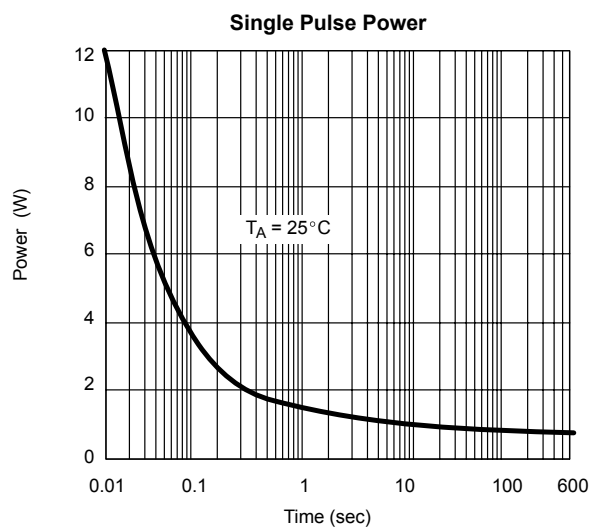
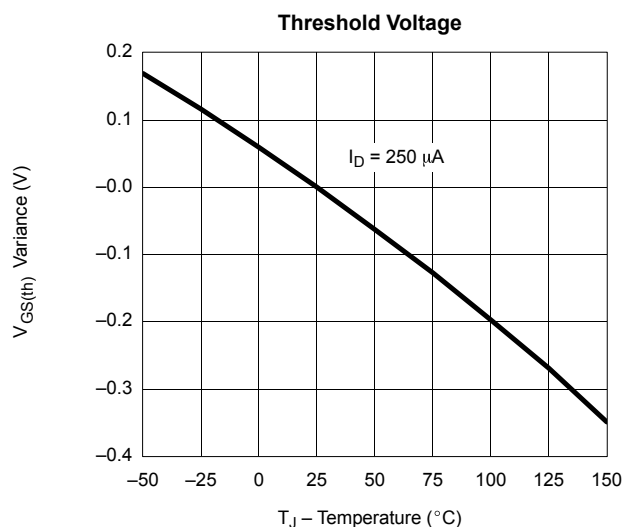
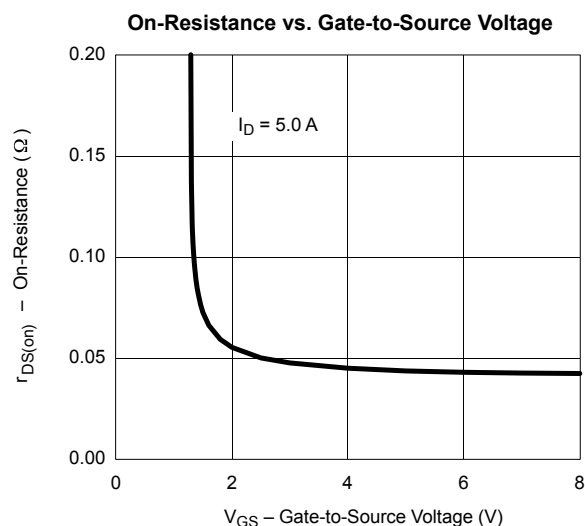
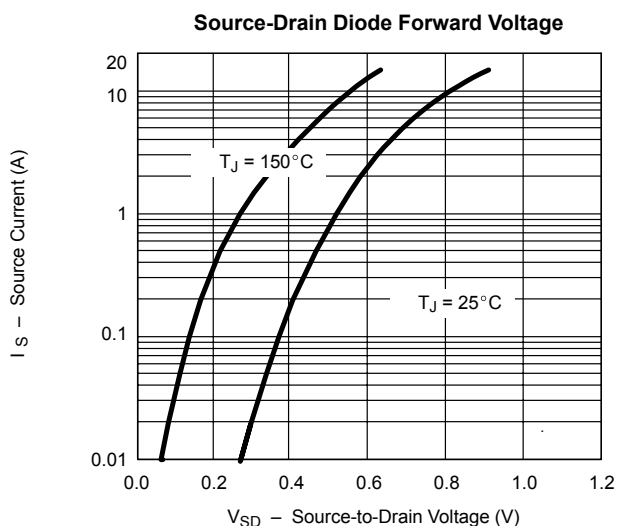
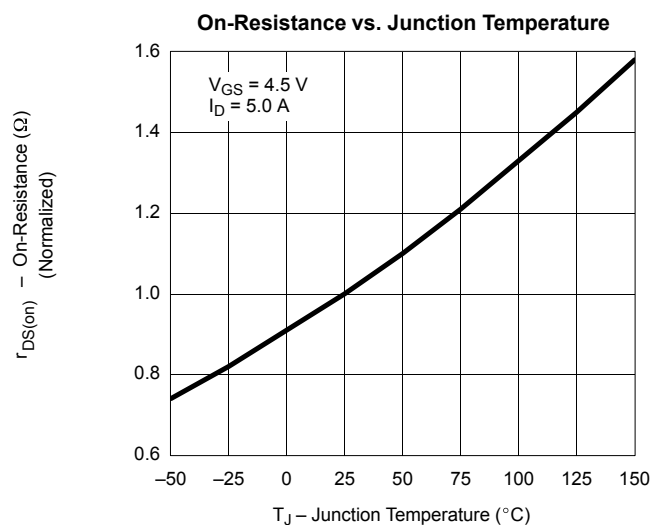
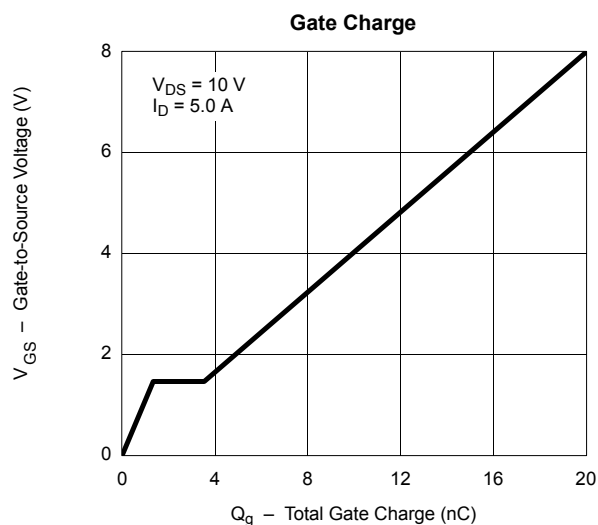
On-Resistance vs. Drain Current



Capacitance



RATINGS AND CHARACTERISTIC CURVES



RATINGS AND CHARACTERISTIC CURVES

