

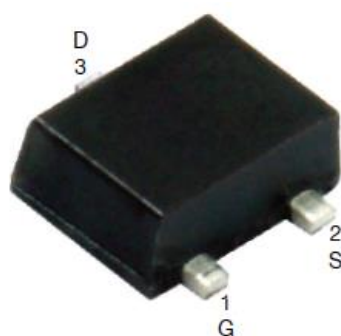
N-Channel Enhancement Mode Power MOSFET

Features

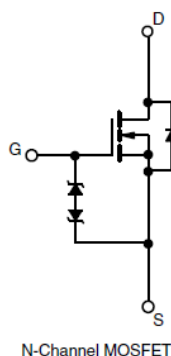
 $V_{DS} = 20V$,

 $I_D = 0.67A$
 $R_{DS(ON)} @ V_{GS} = 4.5V$, TYP 255m Ω
 $R_{DS(ON)} @ V_{GS} = 2.5V$, TYP 348m Ω
 $R_{DS(ON)} @ V_{GS} = 1.8V$, TYP 542m Ω

Pin Configurations



SOT523



General Description

- Load / power switching for portable devices
- Battery operated systems
- Power supply converter circuits

Absolute Maximum Ratings @T_A=25°C unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	± 10	V
Drain Current (Continuous) *AC	T _A =25°C	I_D	0.67	A
	T _A =70°C		0.53	
Drain Current (Pulse) *B		I_{DM}	2	A
Power Dissipation	T _A =25°C	P_D	0.22	W
Operating Temperature/ Storage Temperature		T _J /T _{STG}	-55~150	°C

Thermal Resistance Ratings

Parameter		Symbol	Maximum	Unit
Maximum Junction-to-Ambient	t ≤ 5s	R _{thJA}	530	°C/W

● **Electrical Characteristics** @T_A=25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static *D						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V	--	--	1	μA
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = 250μA	0.4	--	0.85	V
Gate Leakage Current	I _{GSS}	V _{GS} = ± 8V, V _{DS} = 0V	--	--	±5	μA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.5A	--	255	332	mΩ
	R _{DS(on)}	V _{GS} = 2.5V, I _D = 0.2A	--	348	452	mΩ
	R _{DS(on)}	V _{GS} = 1.8V, I _D = 0.1A	--	542	705	mΩ
Diode Forward Voltage	V _{SD}	I _{SD} = 0.5A , V _{GS} =0V	--	--	1.2	V
Diode Forward Current *AC	I _S	T _A = 25°C	--	--	0.18	A
Switching						
Total Gate Charge	Q _g	V _{DS} = 10V, I _D = 0.5A, V _{GS} = 4.5V	--	1	--	nC
Gate-Source Charge	Q _{gs}		--	0.16	--	nC
Gate-Drain Charge	Q _{gd}		--	0.13	--	nC
Turn-on Delay Time	t _{d (on)}	V _{DD} = 10V, I _D = 0.4A, V _{GS} = 4.5V, R _{GEN} = 1Ω	--	2	--	ns
Turn-on Rise Time	t _r		--	14	--	ns
Turn-off Delay Time	t _{d(off)}		--	16	--	ns
Turn-Off Fall Time	t _f		--	11	--	ns
Dynamic						
Input Capacitance	C _{iss}	V _{DS} = 10V,V _{GS} =0V, f=1.0MHz	--	43	--	pF
Output Capacitance	C _{oss}		--	14	--	pF
Reverse Transfer Capacitance	C _{rss}		--	8	--	pF

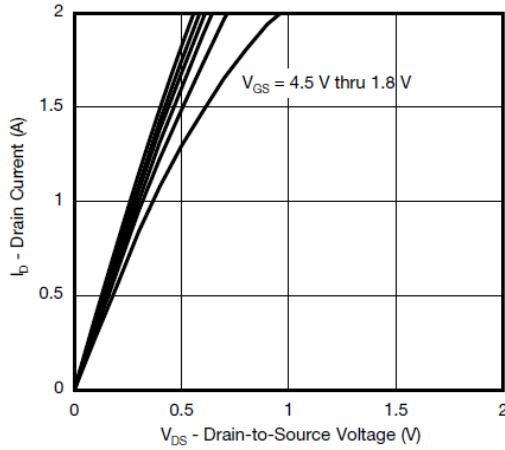
A: The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

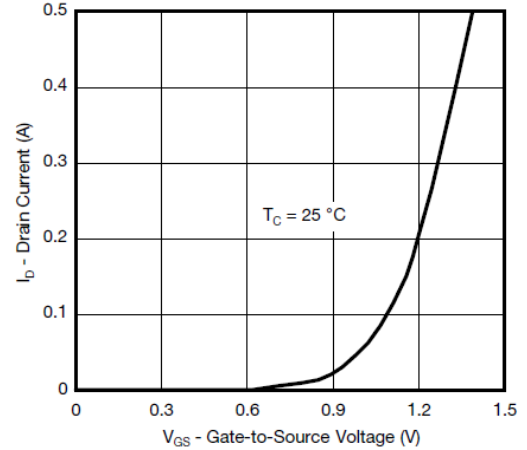
C: The current rating is based on the t_s ≤ 10s junction to ambient thermal resistance rating.

D: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

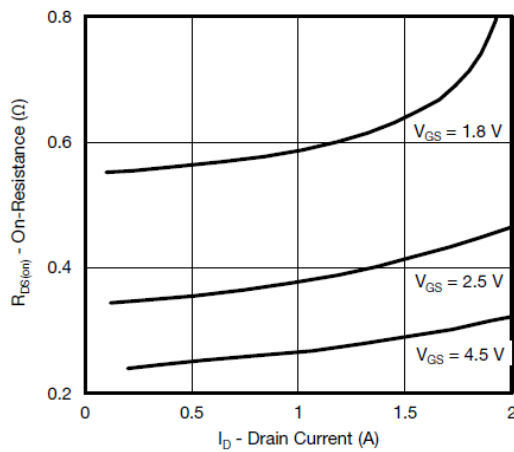
● Typical Performance Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)



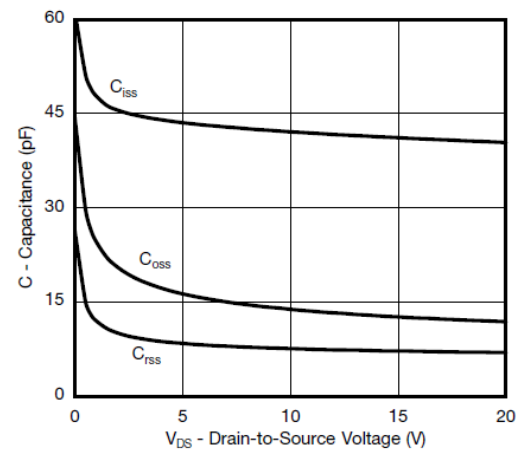
Output Characteristics



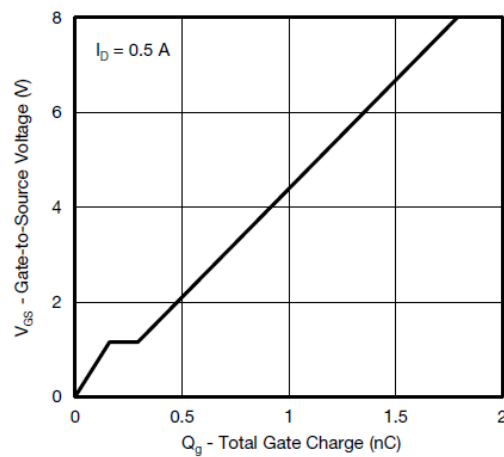
Transfer Characteristics



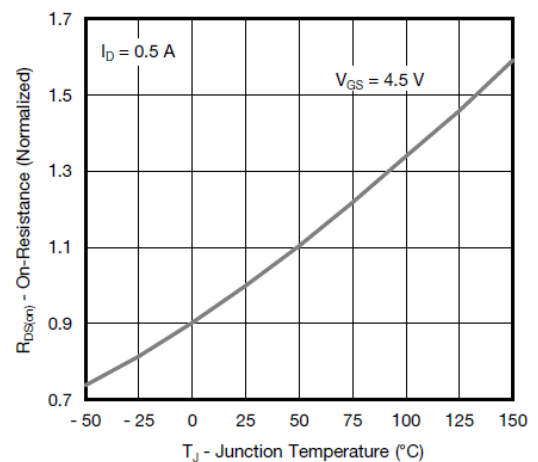
On-Resistance vs. Drain Current



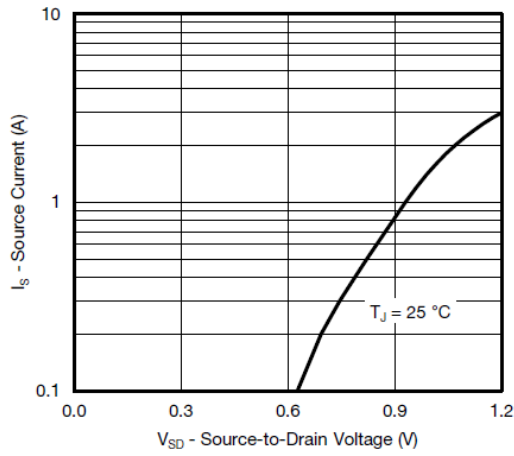
Capacitance



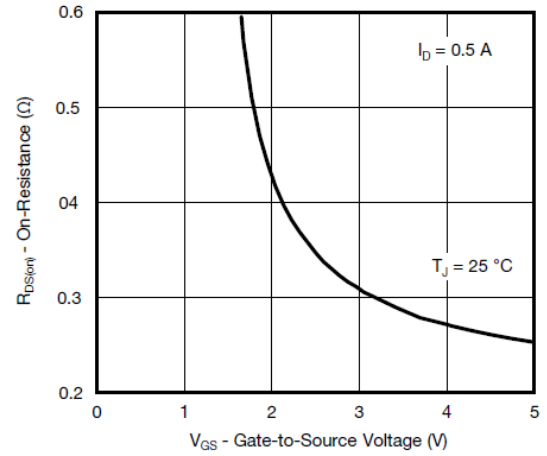
Gate Charge



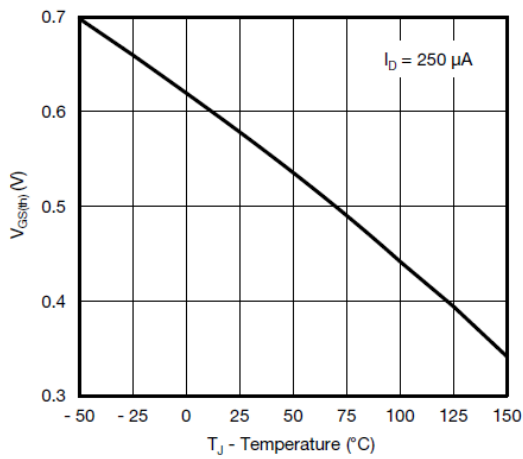
On-Resistance vs. Junction Temperature



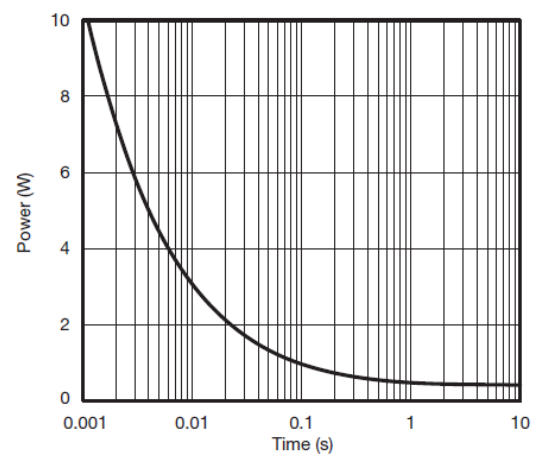
Source-Drain Diode Forward Voltage



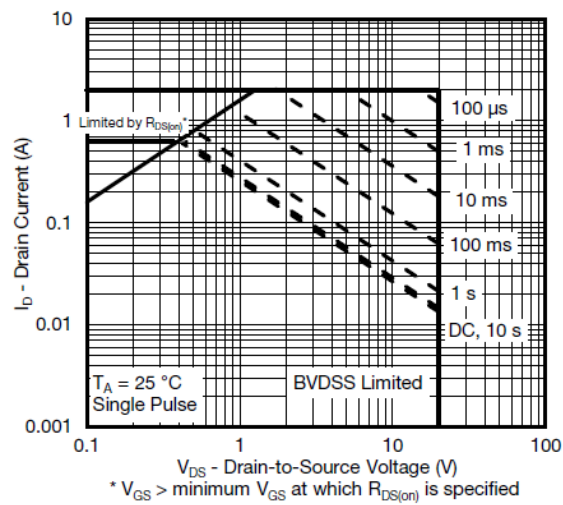
On-Resistance vs. Gate-to-Source Voltage



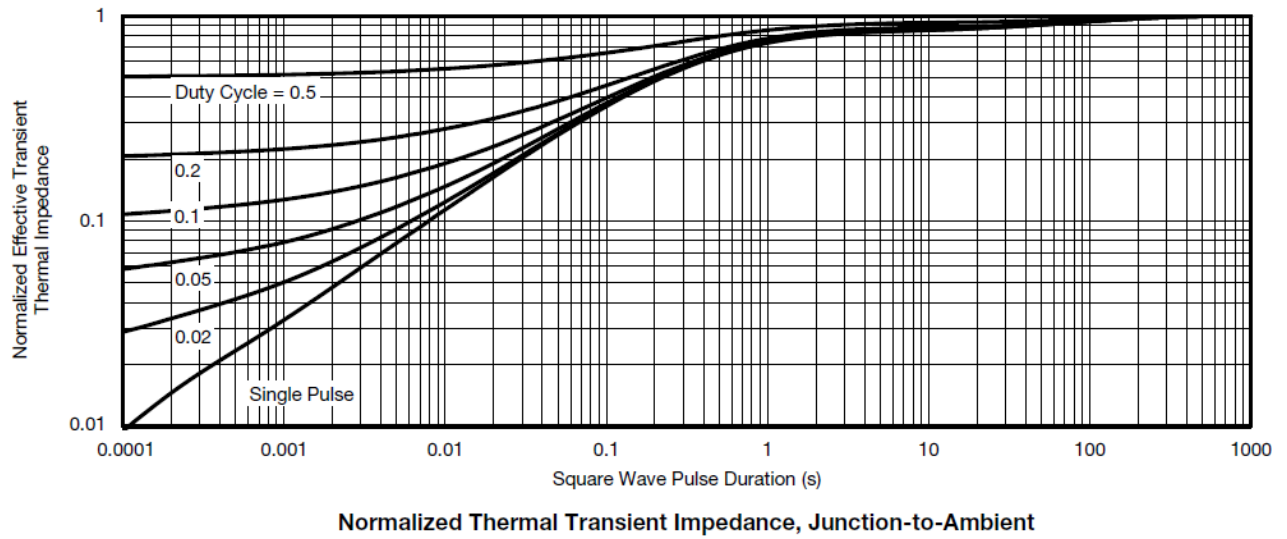
Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Safe Operating Area, Junction-to-Ambient



- Package Information

