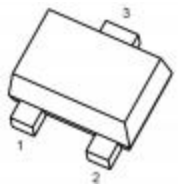
N-Channel MOSFET

Product Summary

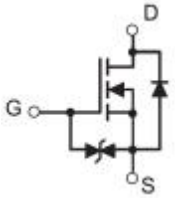
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	220mΩ@4.5V	0.8A
	290mΩ@2.5V	

SOT-523



PIN1: GATE
PIN2: SOURCE
PIN3: DRAIN

Schematic diagram



Features

Lead Free Product is Acquired
Surface Mount Package
N-Channel Switch with Low RDS(on)
Operated at Low Logic Level Gate Drive
ESD Protected Up to 2.0KV (HBM)

Applications

Load/Power Switching
Interfacing Switching
Battery Management for Ultra Small Portable Electronics
Logic Level Shift

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	20	V
Gate - Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_C = 25℃	I_D	0.8	A
Continuous Drain Current	T_A = 75℃		0.4	A
Pulsed Drain Current [1]		I_{DM}	2	A
Power Dissipation [2]		P_D	150	mW
Thermal Resistance from Junction to Ambient [2]		$R_{\theta JA}$	833	℃/ W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

N-Channel MOSFET

Maximum ratings (T_a=25℃ unless otherwise noted)

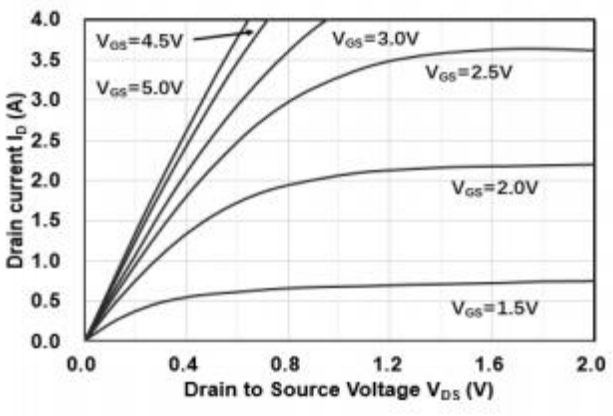
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ± 10V, V_{DS} = 0V			±10	μA
Gate Threshold Voltage [3]	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250μA	0.4	0.7	1	V
Drain-source On-resistance [3]	$R_{DS(on)}$	V_{GS}= 4.5V, I_D=0.5A		220	350	mΩ
		V_{GS}= 2.5V, I_D=0.45A		290	450	
		V_{GS}= 1.8V, I_D=0.4A		450	700	
Dynamic Characteristics [4]						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHZ		33		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Gate Resistance	R_g	f=1MHz, Open Drain		50		Ω
Switching Characteristics [4]						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=0.5A		0.8		nC
Gate-source Charge	Q_{gs}			0.3		
Gate-drain Charge	Q_{gd}			0.15		
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=4.5V,V_{DD}=10V,R_G=10Ω , I_D=500mA		4		ns
Turn-on Rise Time	t_r			18.8		
Turn-off Delay Time	$t_{d(off)}$			10		
Turn-off Fall Time	t_f			23		
Source - Drain Diode Characteristics						
Diode Forward Voltage [3]	V_{SD}	V_{GS} = 0V, I_S = 0.5A			1.2	V

Notes :

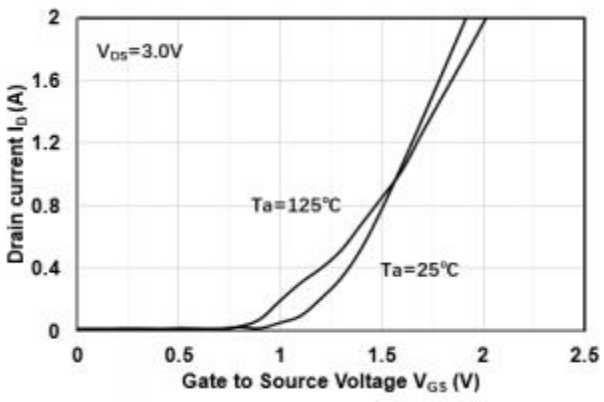
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at Ta=25℃.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.
4. These parameters have no way to verify.

N-Channel MOSFET

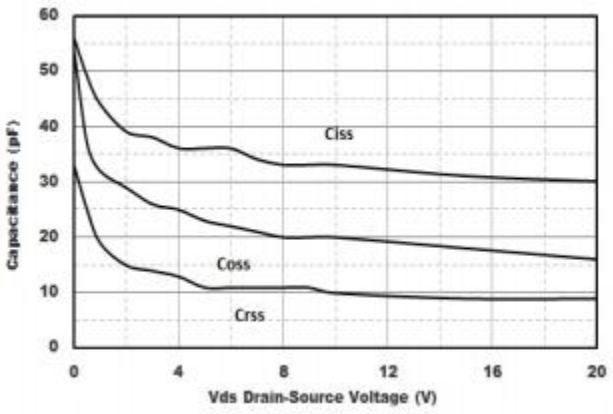
Typical Characteristic



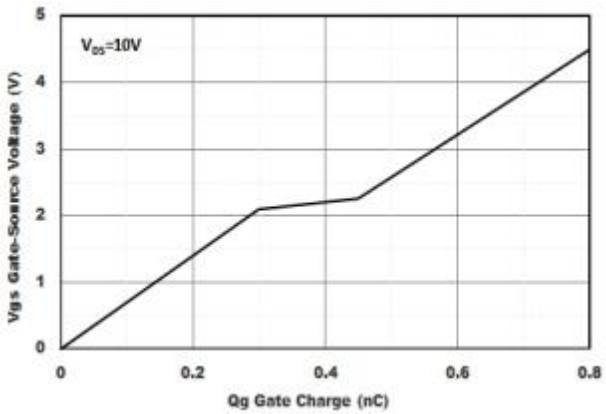
Output Characteristics



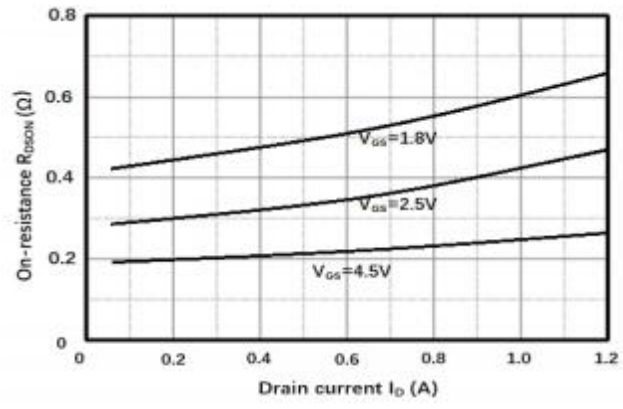
Transfer Characteristics



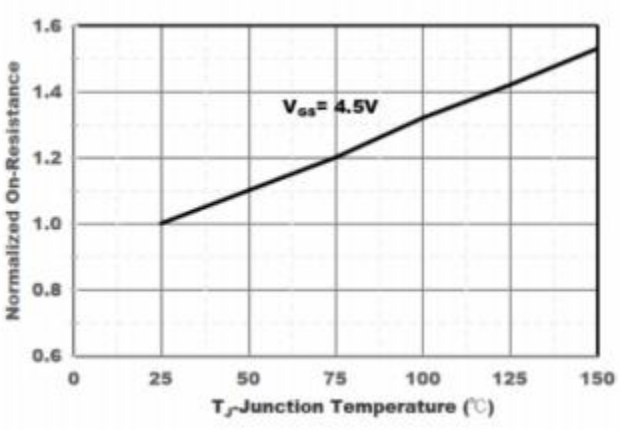
Capacitance Characteristics



Gate Charge

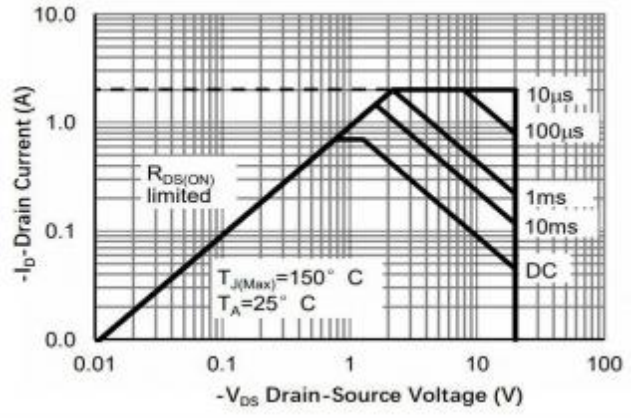


Drain-Source on Resistance

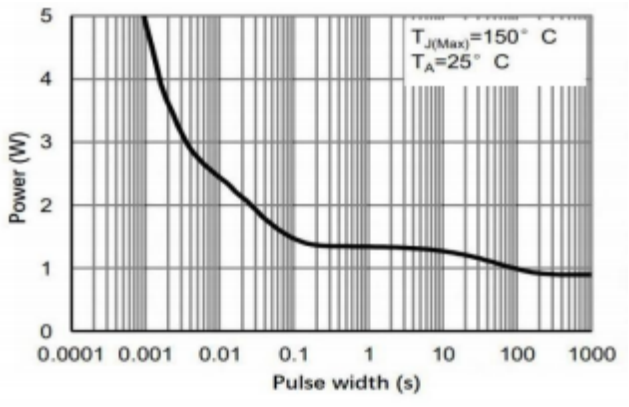


Drain-Source on Resistance

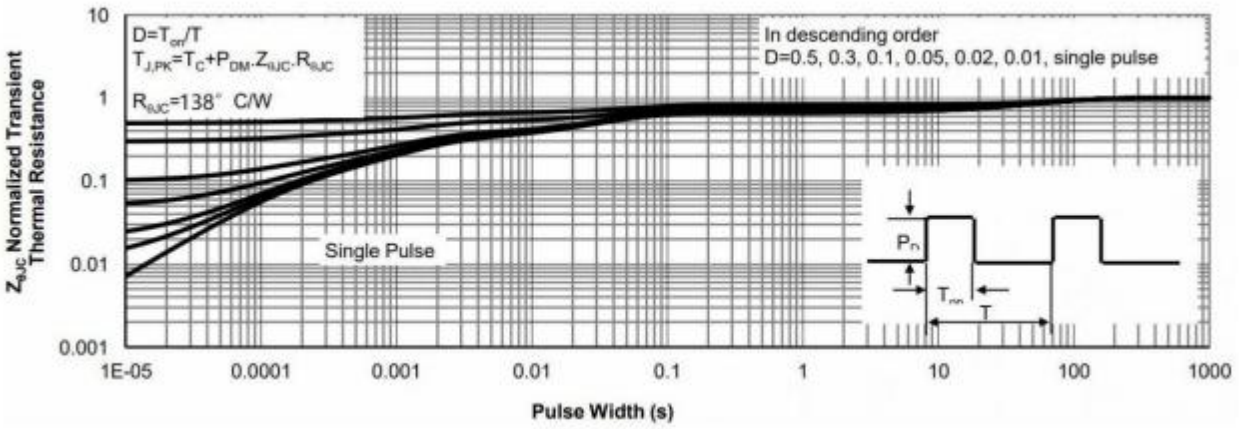
N-Channel MOSFET



Safe Operation Area



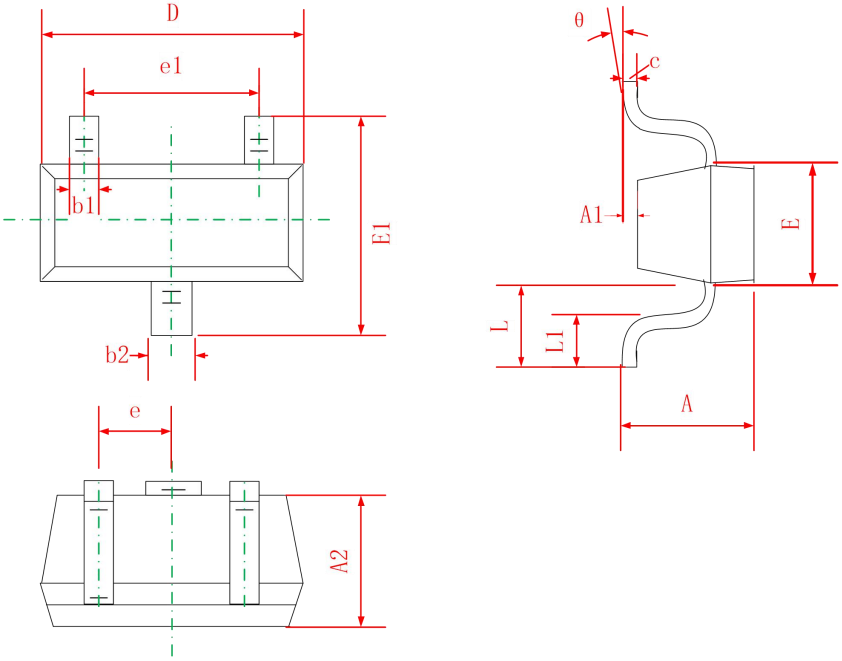
Pulse Power Rating Junction-to Ambient



Normalized Maximum Transient Thermal Impedance

N-Channel MOSFET

SOT-523 Package Information



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
C	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500 TYP	
e1	0.900	1.100
L	0.400 REF	
L1	0.260	0.460
θ	0°	8°

SOT-523 Suggested Pad Layout

