

N-Channel Enhancement Mode MOSFET

- **Features**

$V_{DS}=20V$

$R_{DS(ON)} = 21m\Omega @ V_{GS} = 4.5V, I_D = 5.0A$

$R_{DS(ON)} = 24m\Omega @ V_{GS} = 2.5V, I_D = 4.5A$

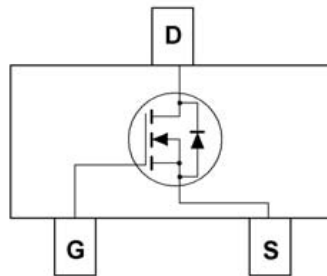
$R_{DS(ON)} = 50m\Omega @ V_{GS} = 1.8V, I_D = 4.0A$

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

SOT23-3L for Surface Mount Package

- **Pin Configurations**



SOT23-3L

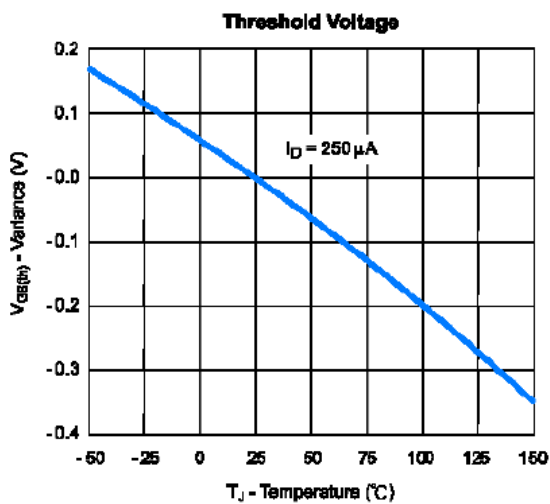
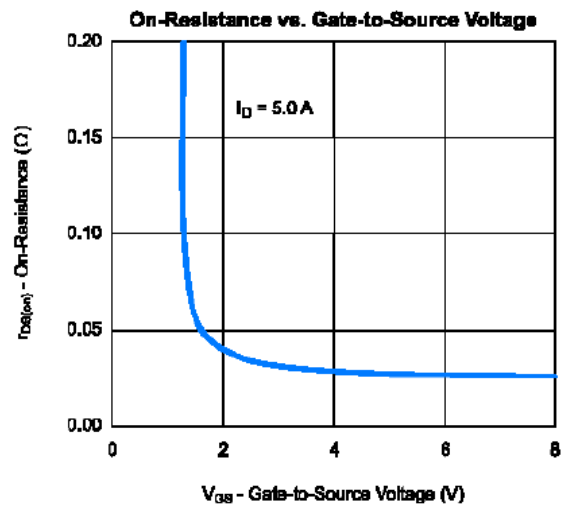
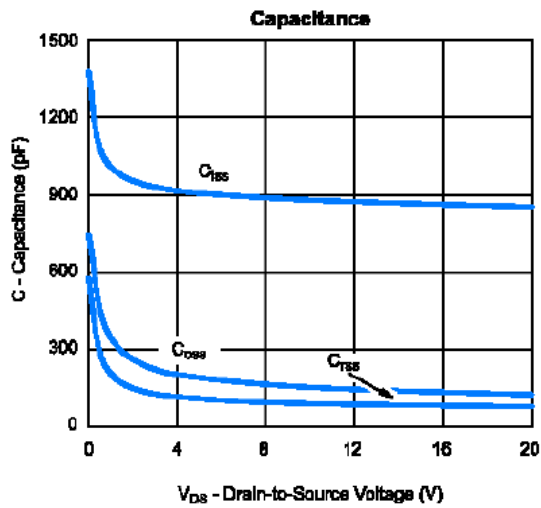
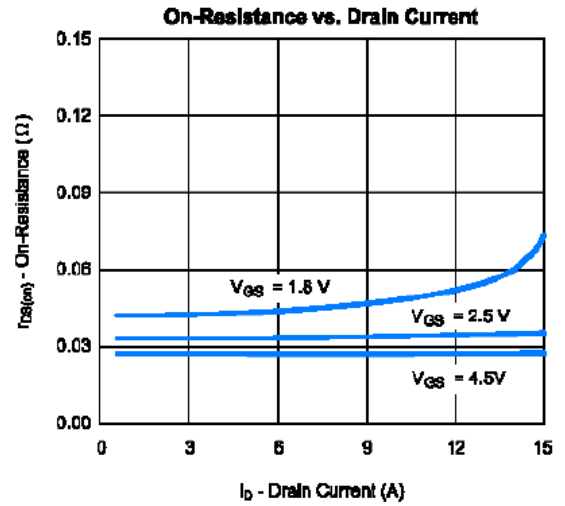
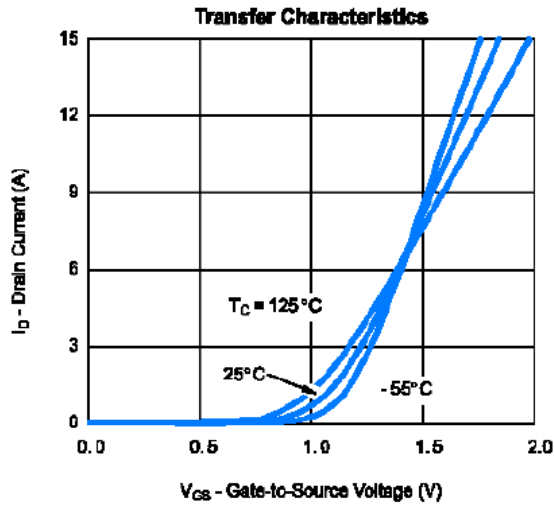
- **Absolute Maximum Ratings** @ $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Ratings	Unit	
Drain-Source Voltage	V_{DS}	20	V	
Gate-Source Voltage	V_{GS}	± 8		
Drain Current-Continuous	I_D	4.9	A	
Pulsed Drain Current	I_{DM}	15		
Maximum Power Dissipation	P_D	$T_A = 25^\circ C$	0.75	W
		$T_A = 75^\circ C$	0.48	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$	
Junction-to-Ambient Thermal Resistance (PCB mounted)	R_{JA}	140	$^\circ C/W$	

● **Electrical Characteristics** @ $T_A=25^\circ\text{C}$ unless otherwise noted

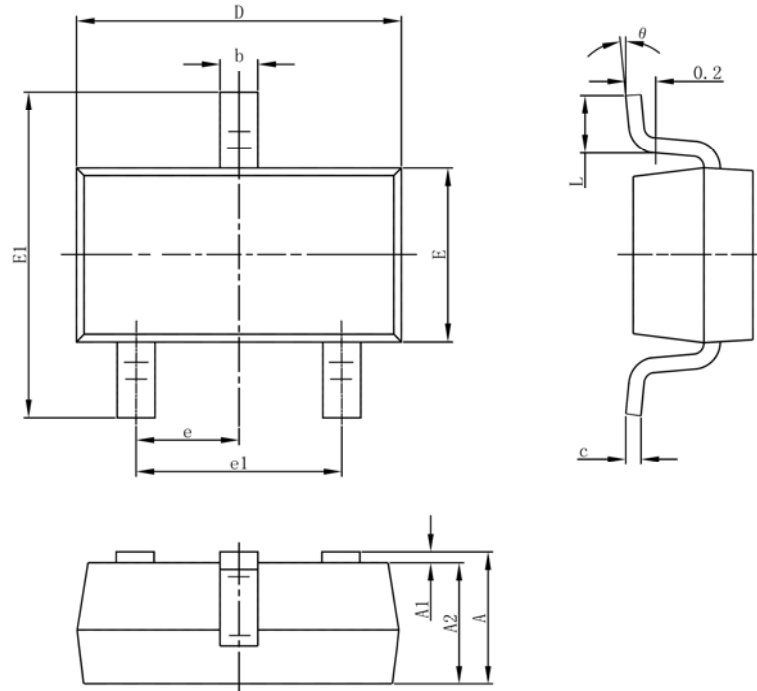
Parameter	Symbol	Test Conditions	Min	Typ.	Max	Units
Static						
Drain to Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	--	--	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	--	--	1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	$V_{GS}=8V, V_{DS}=0V$	--	--	100	nA
Gate Body Leakage Current, Reverse	I_{GSSR}	$V_{GS}=-8V, V_{DS}=0V$	--	--	-100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.4	--	1	V
Static Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=5.0A$	--	21	31	m Ω
		$V_{GS}=2.5V, I_D=4.5A$	--	24	37	m Ω
		$V_{GS}=1.8V, I_D=4.0A$		50	85	m Ω
Forward Transconductance	g_{fs}	$V_{DS}=15V, I_D=5.0A$		40		S
Drain-Source Diode Characteristics and Maximum Ratings						
Max. Diode Forward Current	I_S				1.7	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1.8A$	--	--	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=5.0A,$ $V_{GS}=4.5V$		11.2	14	nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, R_L=10\Omega, I_D=1A,$ $V_{GEN}=4.5V, R_G=6\Omega$		15	25	ns
Turn-On Rise Time	t_r			40	60	
Turn-Off Delay Time	$t_{d(off)}$			48	70	
Turn-Off Fall Time	t_f			31	45	
Input Capacitance	C_{iss}	$V_{DS}=8V, V_{GS}=0V$ $F=1MHz$		22	45	pF
Output Capacitance	C_{oss}			11	24	
Reverse Transfer Capacitance	C_{rss}			2	5	

- Typical Performance Characteristics



- Package Information

SOT-23-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°
UNIT:mm				