N-Channel Enhancement Mode MOSFET

- **Features**

V_{DS}=20V

$R_{DS(ON)}$ = 21mΩ@V_{GS} = 4.5V. I_D = 5.0A

$R_{DS(ON)}$ = 24mΩ @V_{GS} = 2.5V. I_D = 4.5A

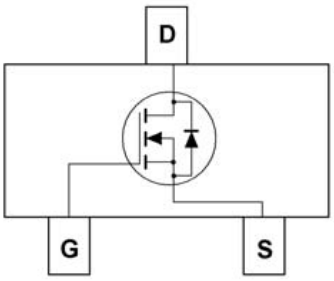
$R_{DS(ON)}$ = 50mΩ @V_{GS} = 1.8V. I_D = 4.0A

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

SOT23-3L for Surface Mount Package

- **Pin Configurations**



SOT23-3L

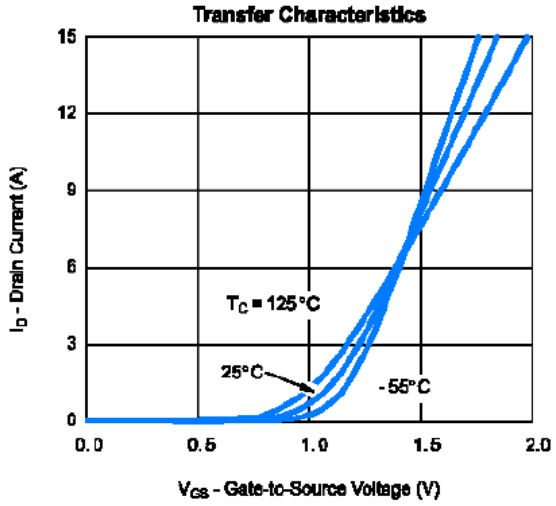
- **Absolute Maximum Ratings** @T_A=25℃ unless otherwise noted

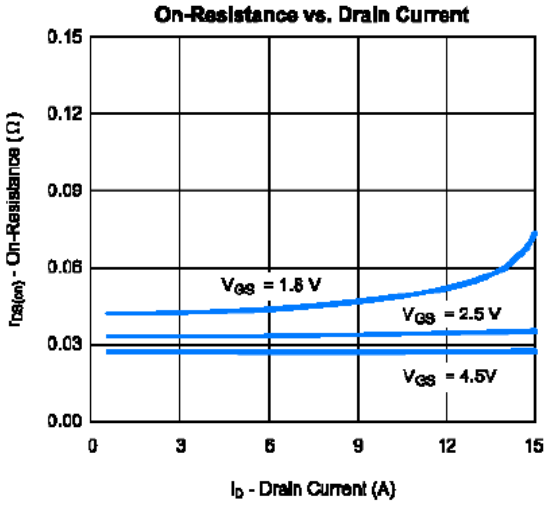
Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	
Drain Current-Continuous		I_D	4.9	A
Pulsed Drain Current		I_{DM}	15	
Maximum Power Dissipation	T_A = 25℃	P_D	0.75	W
	T_A = 75℃		0.48	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to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

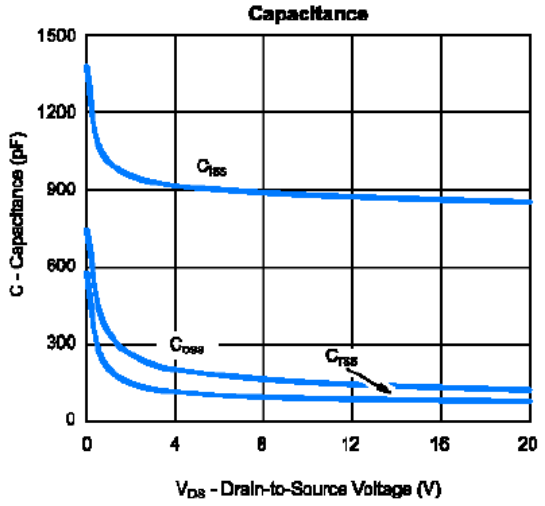
- **Electrical Characteristics** @T_A=25℃ unless otherwise noted

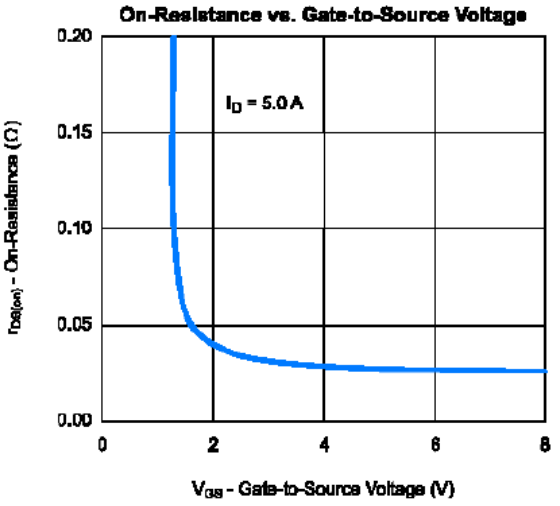
Parameter	Symbol	Test Conditions	Min	Typ.	Max	Units
Static						
Drain to Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	20	--	--	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	--	--	1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	V_{GS}=8V, V_{DS}=0V	--	--	100	nA
Gate Body 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=250μA	0.4	--	1	V
Static Drain-source On-Resistance	$R_{DS(ON)}$	V_{GS} =4.5V, I_D =5.0A	--	21	31	mΩ
		V_{GS} =2.5V, I_D =4.5A	--	24	37	mΩ
		V_{GS} =1.8V, I_D =4.0A		50	85	mΩ
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=10Ω, I_D = 1A, V_{GEN} = 4.5V R_G = 6Ω		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	

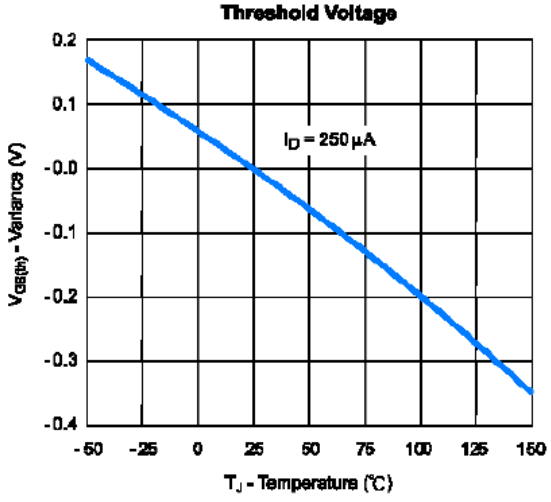
- Typical Performance Characteristics





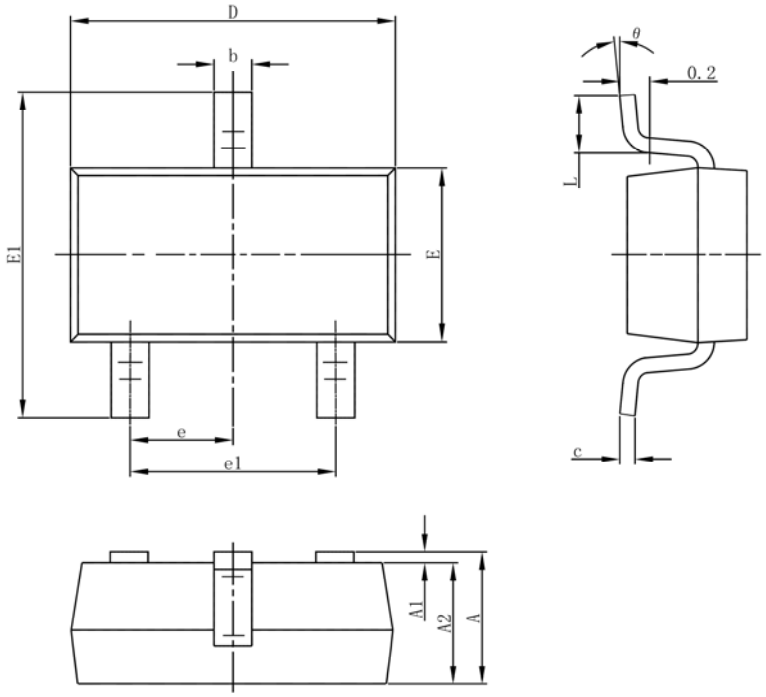






- **Package Information**

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				