



N-Channel Enhancement Mode MOSFET

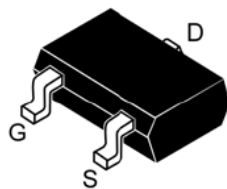
Features

- 30V/5.8A ,
- $R_{DS(ON)} = 29m\Omega(\text{typ.}) @ V_{GS} = 10V$
- $R_{DS(ON)} = 38m\Omega(\text{typ.}) @ V_{GS} = 4.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

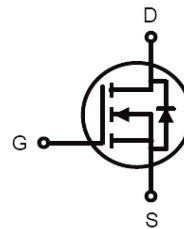
General Description

Power Management in Notebook Computer ,
 Portable Equipment and Battery Powered Systems.

Pin Configuration



SOT23-3L



Absolute Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	30	V	
V_{GSS}	Gate-Source Voltage	± 12		
I_D	Continuous Drain Current (Notes)	5.8	A	
I_{DM}	300 μs Pulsed Drain Current			30
I_S	Diode Continuous Forward Current	1.5	A	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150		
P_D	Maximum Power Dissipation	$T_A = 25^\circ\text{C}$	1.4	W
		$T_A = 100^\circ\text{C}$	0.5	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	90	$^\circ\text{C/W}$	

Notes:

mounted on a 1in² FR-4 board with 2oz. Copper in a still air environment at 25°C, the current rating is based on the DC (<10s) test conditions , for each single die. Pulse Test: Pulse Width < 300 μS , Duty Cycle < 2%.



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
B_{VDSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	25°C		1	μA
			55°C		5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5		1.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=5.8A$		29	35	m Ω
		$V_{GS}=4.5V, I_{DS}=5A$		38	45	
V_{SD}	Diode Forward Voltage	$I_{SD}=1.25A, V_{GS}=0V$		0.7	1	V
Gate Charge Characteristics						
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=4.5V,$ $I_{DS}=6A$		56	8	nC
Q_{gs}	Gate-Source Charge			1.3		
Q_{gd}	Gate-Drain Charge			1.8		
Dynamic Characteristics						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	2	3	4	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=15V,$ Frequency=1.0MHz		600		pF
C_{oss}	Output Capacitance			80		
C_{riss}	Reverse Transfer Capacitance			50		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DS}=15V, R_L=2.6\Omega, I_{DS}=1A,$ $V_{GEN}=10V, R_G=3\Omega$		5		ns
T_r	Turn-on Rise Time			3		
$t_{d(OFF)}$	Turn-off Delay Time			20		
T_f	Turn-off Fall Time			5		

NOTE:

- 1、mounted on a 1in2 FR-4 board with 2oz. Copper in a still air environment at 25°C, the current rating is based on the DC (<10s) test conditions
- 2、Pulse test ; pulse width $\leq 300\mu s$, duty cycles $\leq 2\%$.



Typical Performance Characteristics

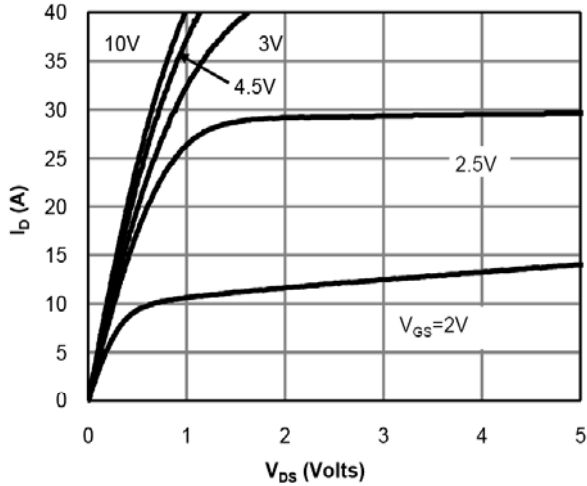


Fig 1: On-Region Characteristics (Note E)

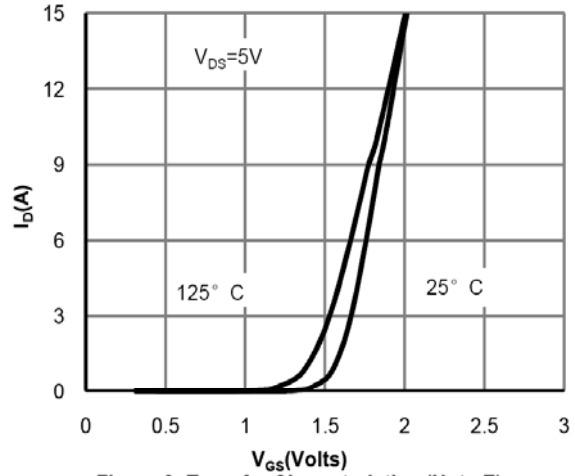


Figure 2: Transfer Characteristics (Note E)

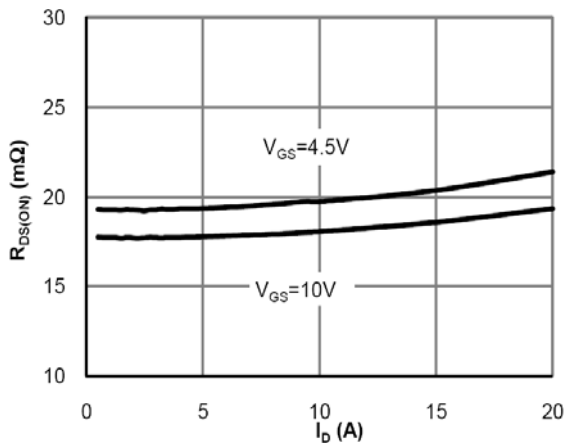


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

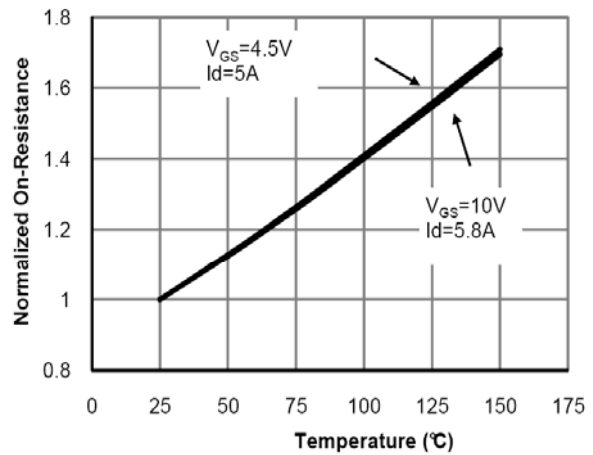


Figure 4: On-Resistance vs. Junction Temperature (Note E)

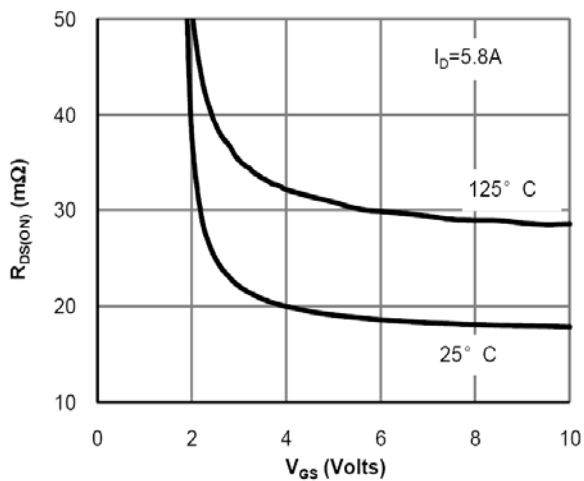


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

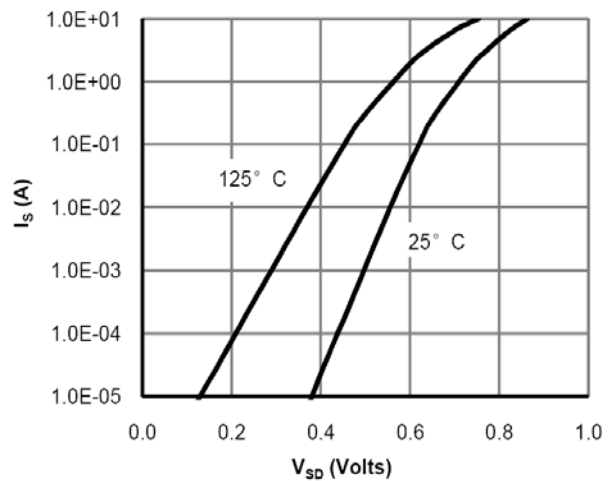


Figure 6: Body-Diode Characteristics (Note E)

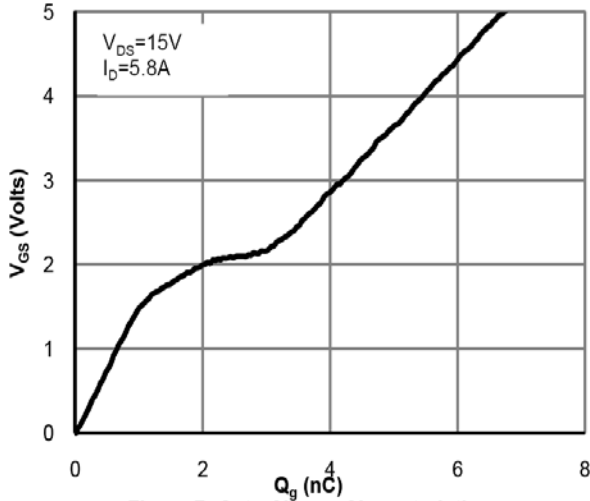


Figure 7: Gate-Charge Characteristics

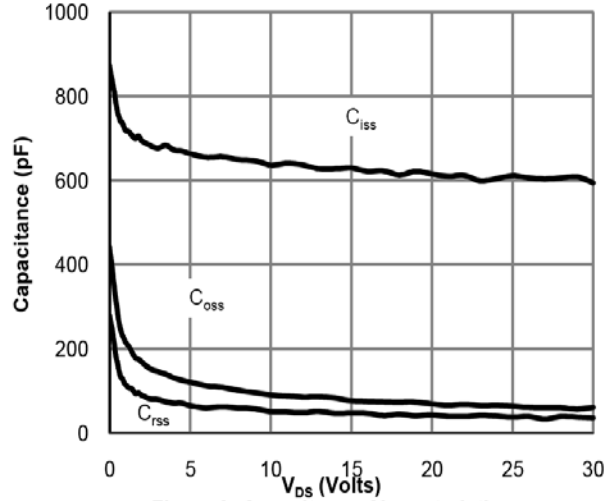


Figure 8: Capacitance Characteristics

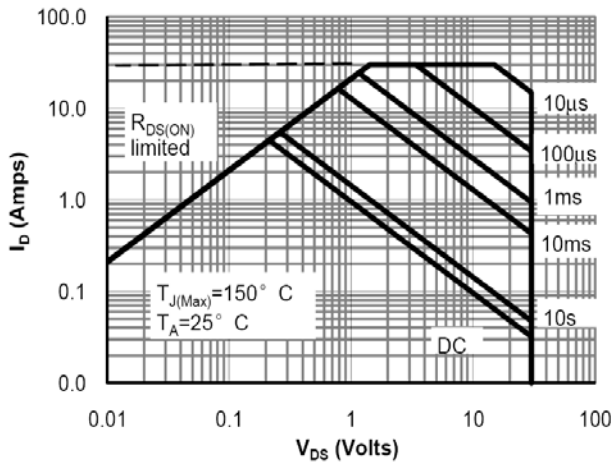


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

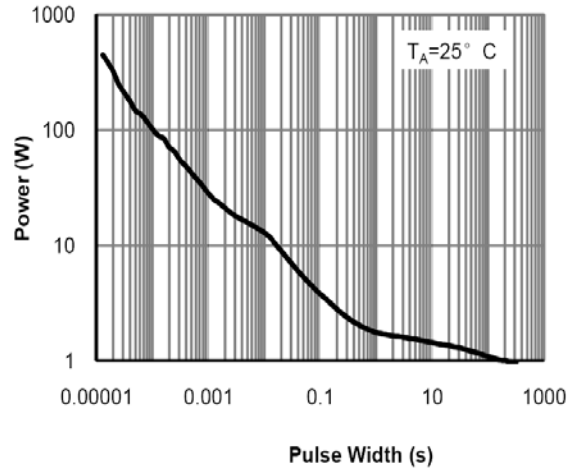


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

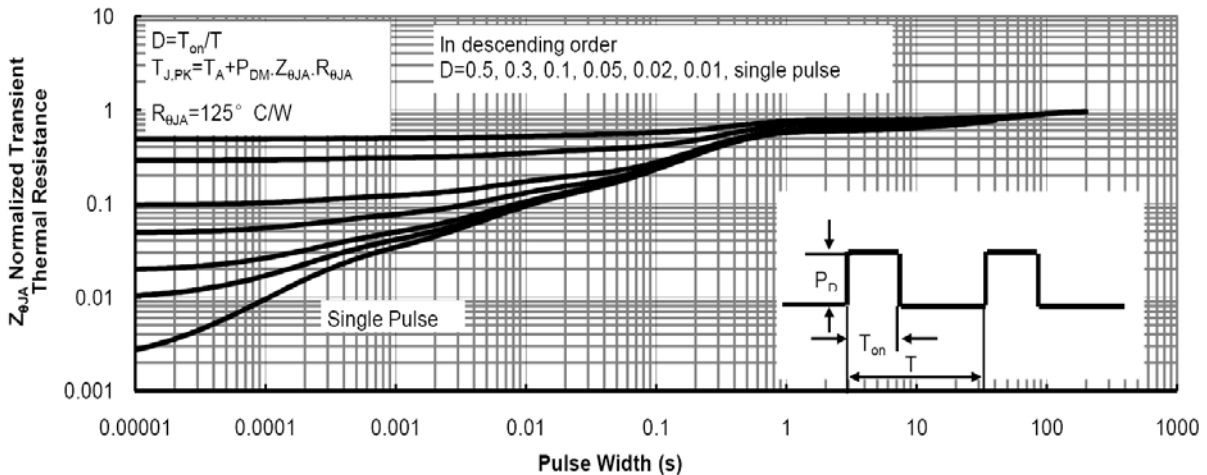
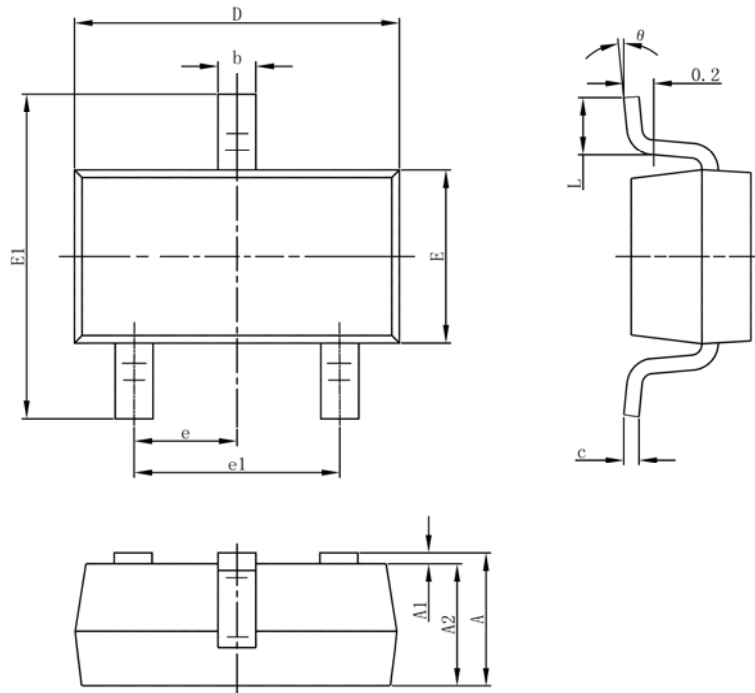


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)



● 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				