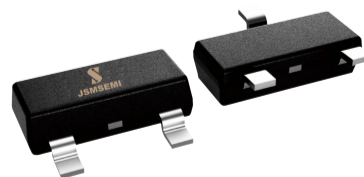


■ FEATURE

- ◆ 100V/ 5.0 A, $R_{DS(ON)}=220m\Omega$ (typ.)@ $V_{GS}=4.5V$
- ◆ 100V/ 2.5 A, $R_{DS(ON)}=280m\Omega$ (typ.)@ $V_{GS}=2.5V$
- ◆ Super high design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and Maximum DC current capability
- ◆ This is a Full RoHS compliance
- ◆ SOT23-3L package design

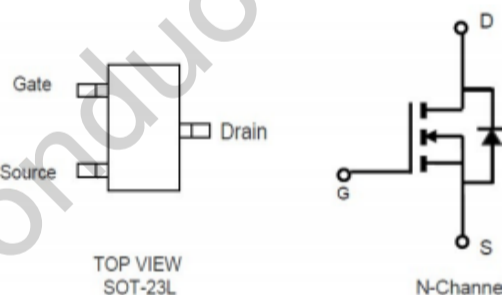


■ DESCRIPTION

The JSM5N10M is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology..

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

SOT23-3L



■ APPLICATIONS

- ◆ Power Management in Note Book
- ◆ Portable Equipment
- ◆ Battery Powered System

■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current ($T_J=150^{\circ}\text{C}$)	$V_{GS}=4.5V$	5.0	A
I_{DM}	Pulsed Drain Current		10	A
I_S	Continuous Source Current (Diode Conduction)		1	A
P_D	Power Dissipation	$T_A=25^{\circ}\text{C}$	1.25(SOT23-3L)	W
		$T_A=75^{\circ}\text{C}$	0.8(SOT23-3L)	
T_J	Operation Junction Temperature		150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-55~+150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress rating only and functional device operation is not implied

■ THERMAL DATA

Symbol	Parameter	Min	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	125	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($V_{DD}=2.75V$, $T_A=25^{\circ}C$ Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0		2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0			1	uA
		V _{DS} =80V, V _{GS} =0 T _J =85℃			5	
I _{D(ON)}	On=State Drain Current	V _{DS} ≥5V, V _{GS} =4.5V	1.5			A
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =3.0A		220	350	mΩ
		V _{GS} =4.5V, I _D =2.5A		280	400	
G _{fs}	Forward Transconductance	V _{DS} =5V, I _D =1.0A		10		S
Source-Drain Diode						
V _{SD}	Diode Forward Voltage	I _S =1.0A, V _{GS} =0V		0.8	1.0	V
Dynamic Parameters						
Q _g	Total Gate Charge	V _{DS} =50V V _{GS} =4.5V I _D =1.0A		2.1	3.9	nC
Q _{gs}	Gate-Source Charge			0.6		
Q _{gd}	Gate-Drain Charge			0.8		
C _{iss}	Input Capacitance	V _{DS} =50V V _{GS} =0V f=1MHz		295		pF
C _{oss}	Output Capacitance			40		
C _{rss}	Reverse Transfer Capacitance			15		
T _{d(on)}	Turn-On Time	V _{DS} =50V R _L =10Ω I _D =1A V _{GEN} =4.5V R _G =6Ω		3.6		nS
T _r				3.5		
T _{d(off)}	Turn-Off Time			32		
T _f				3		

Note: 1. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

2. Static parameters are based on package level with recommended wire bonding



■ TYPICAL CHARACTERISTICS (25°C Unless Note)

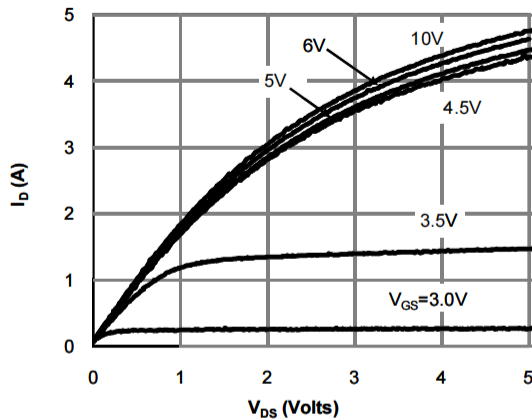


Fig 1: On-Region Characteristics (Note E)

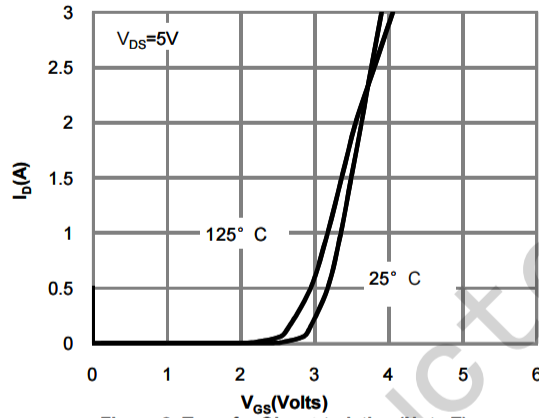


Figure 2: Transfer Characteristics (Note E)

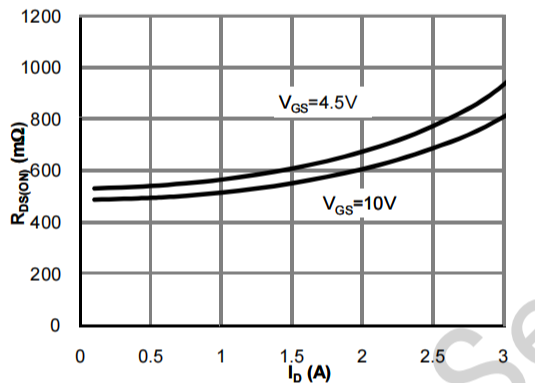


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

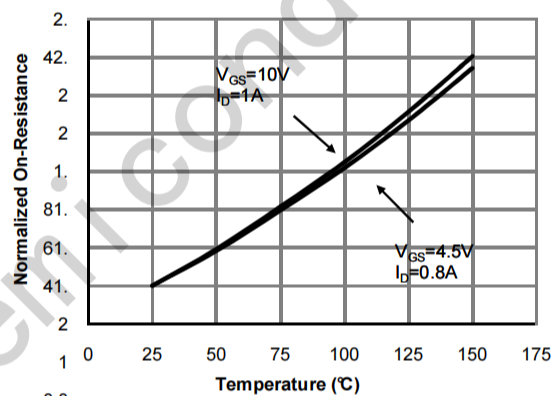


Figure 4: On-Resistance vs. Junction Temperature (Note E)

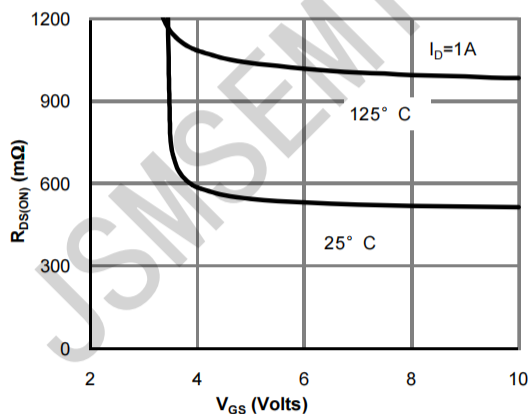


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

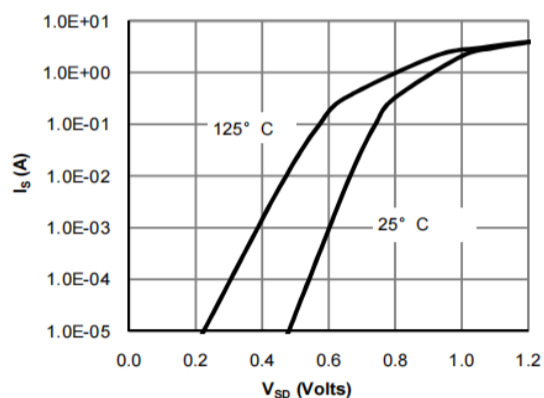
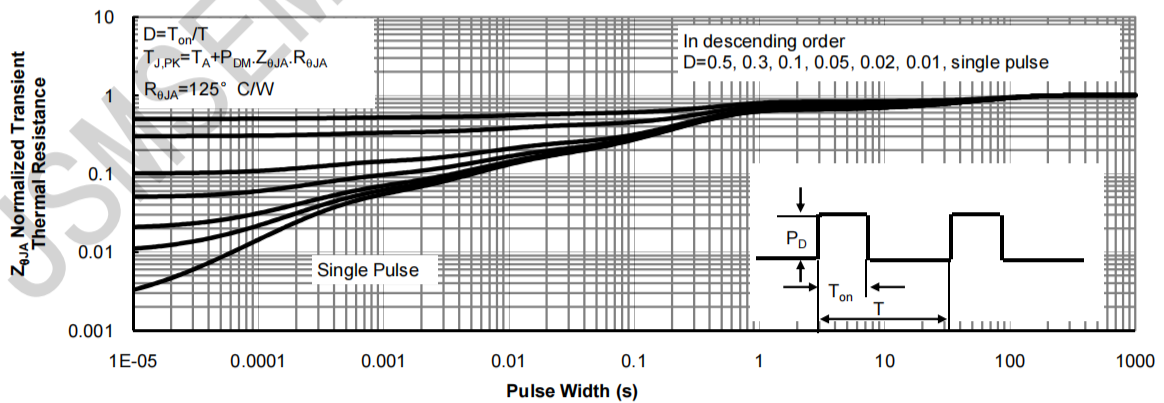
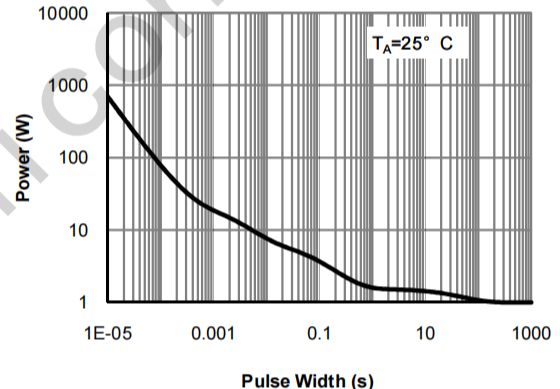
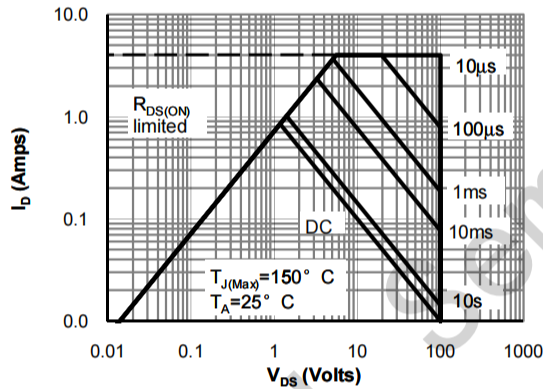
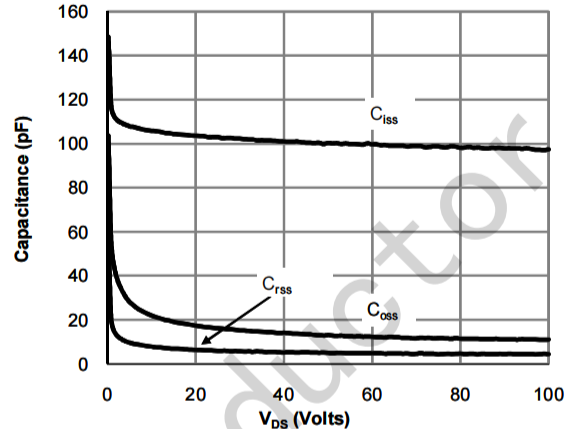
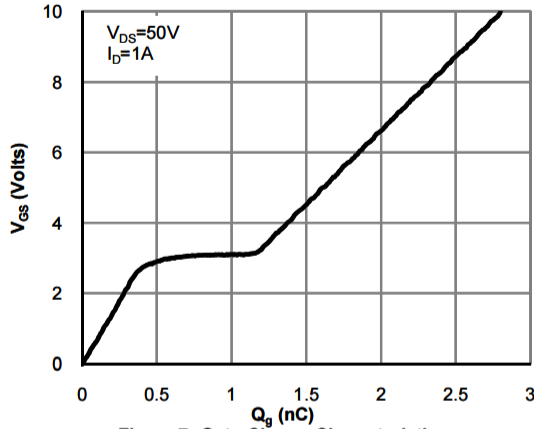
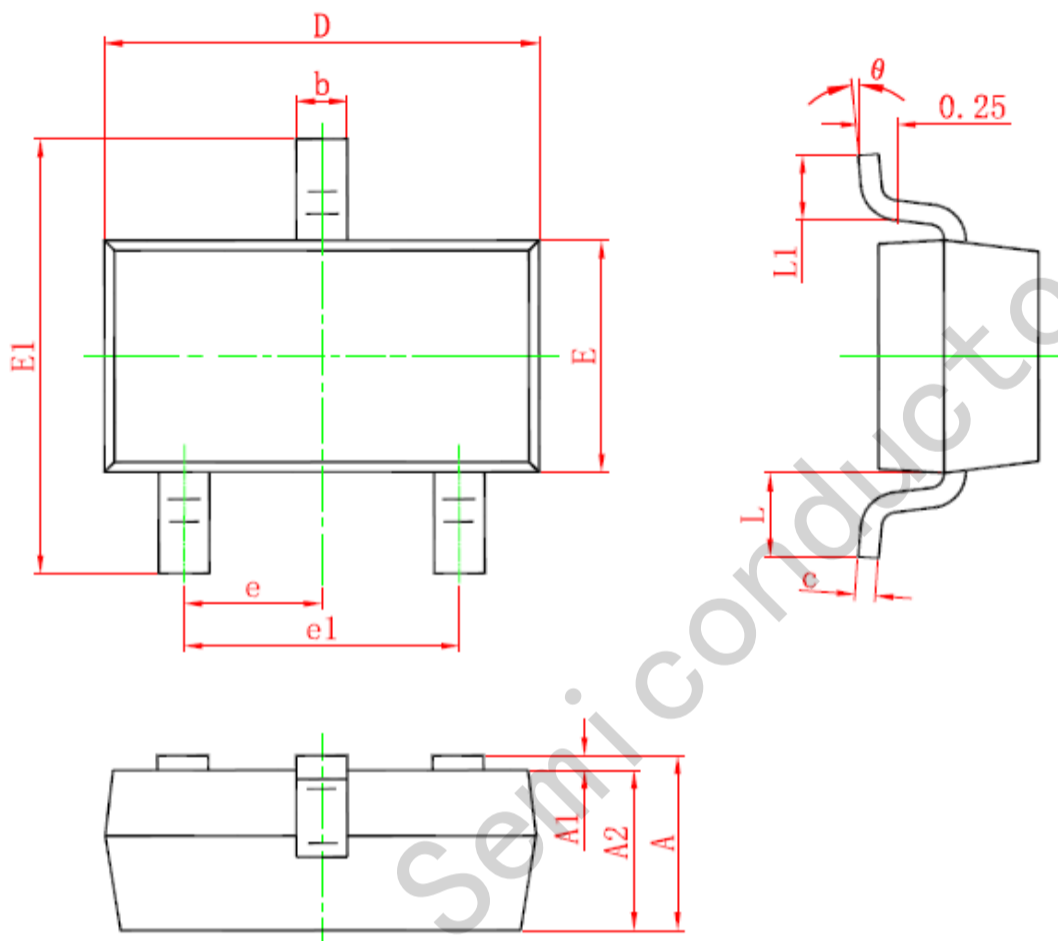


Figure 6: Body-Diode Characteristics (Note E)

■ TYPICAL CHARACTERISTICS (continuous)



■ SOT23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°