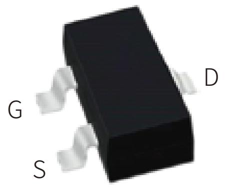
SEMIWARE®

SNM3200S

N-Channel MOSFET

FEATURES

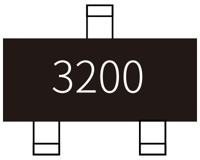
- Surface-mounted package
- Advanced trench cell design
- Extremely low threshold voltage



SOT-23

APPLICATION

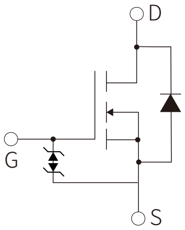
- Portable appliances



Marking

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage T_A=25°C	V_{DS}	30	V
Drain Current (Pulsed) T_A=25°C V_{GS}=4.5V	$I_{DM}^{*,**}$	8	A
Drain Current T_A=25°C V_{GS}=4.5V	I_D^*	2	A
Gate-Source Voltage T_A=25°C	V_{GS}	±10	V
Total Power Dissipation T_A=25°C	P_{tot}^*	0.83	W
Diode Forward Current T_A=25°C	I_S^*	2	A
Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Thermal Resistance –Junction to Ambient	$R_{\theta JA}^*$	150	°C/W

Notes:

* Surface Mounted on 1 in^2 pad area, t⩽ 10 sec
** Pulse width ⩽300 µs, duty cycle ⩽ 2 %
*** limited by bonding wire

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	0.5		1.0	V
Drain Leakage Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	μA
		V_{DS}=24V,V_{GS}=0V,T_J = 85°C			30	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±10V ,V_{DS}=0V			±3	μA
On-State Resistance	$R_{DS(on)}$[a]	V_{GS}=4.5V,I_{DS}=2.0A		96	115	mΩ
		V_{GS}=2.5V,I_{DS}=1.5A		125	156	mΩ
		V_{GS}=1.8V,I_{DS}=1.0A		173	225	mΩ
Diode Characteristics						
Diode Forward Voltage	V_{SD}[a]	I_{SD}=2A,V_{GS}=0V			1.3	V
Reverse Recovery Time	t_{rr}	I_{DS}=2A,V_{GS}=0V dI_{SD}/dt=100A/μs		5.6		nS
Reverse Recovery Charge	Q_{rr}			2.6		nC
Dynamic Characteristics[b]						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=15V, Frequency = 1 MHz		179		pF
Output capacitance	C_{oss}			18		pF
Reverse transfer capacitance	C_{rss}			17		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=15V,V_{GEN}=4.5V R_G= 4.5Ω, R_L=7.5Ω, I_{DS}=2A		435		nS
Turn-on Rise Time	t_r			26		nS
Turn-Off Delay Time	$t_{d(off)}$			14		nS
Turn-Off Fall Time	t_f			19		nS
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=4.5V,I_{DS}=2A		2.5		nC
Gate-Source Charge	Q_{gs}			0.8		nC
Gate-Drain Charge	Q_{gd}			0.5		nC

Notes:
a : Pulse test ; pulse width⩽300μs, duty cycle⩽2 %
b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

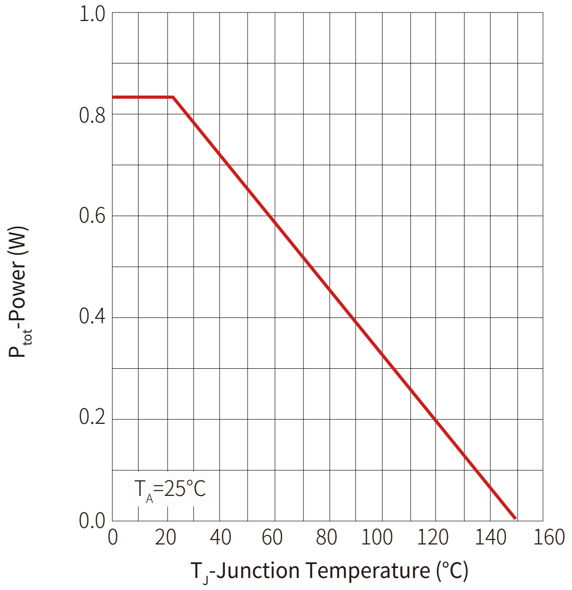


Figure2: Drain Current

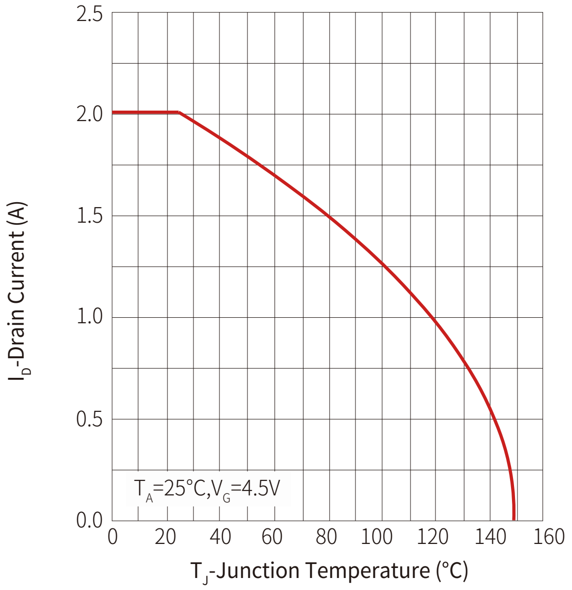


Figure3: Safe Operation Area

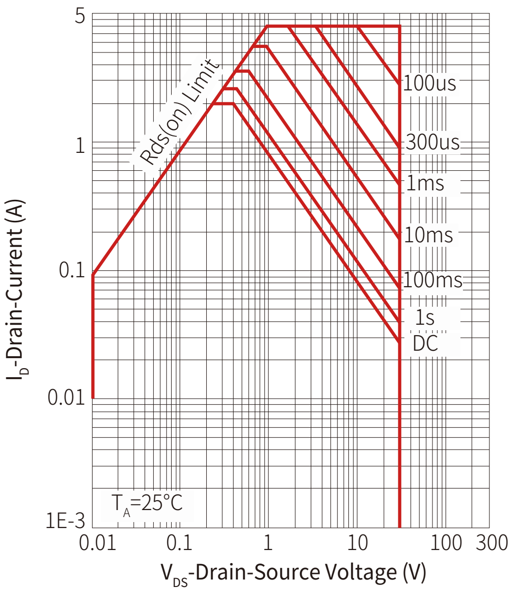


Figure 4: Transient Thermal Impedance

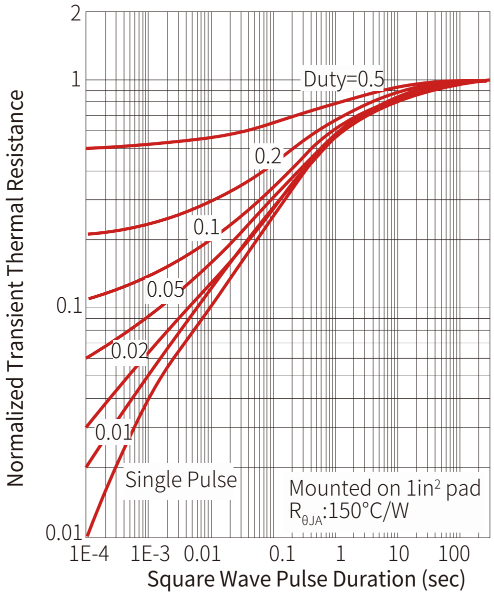


Figure 5:Output Characteristics

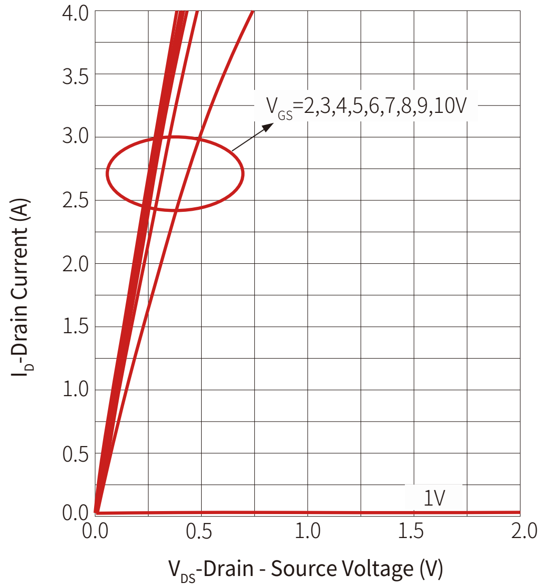


Figure 6: On Resistance

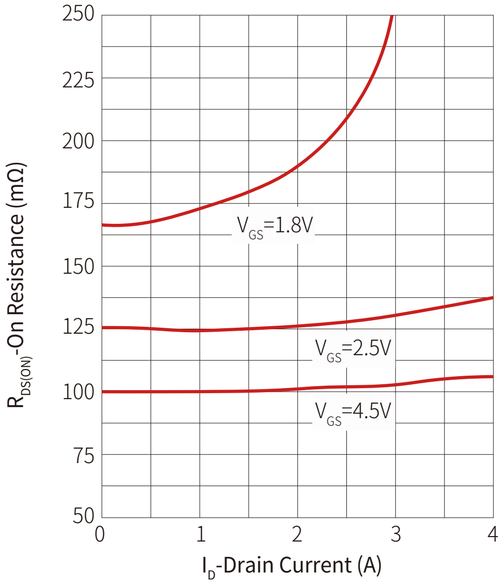


Figure 7:Transfer Characteristics

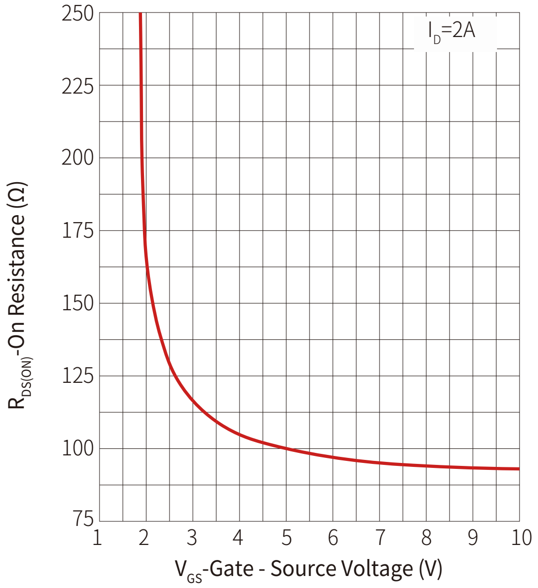


Figure 8: Normalized Threshold Voltage

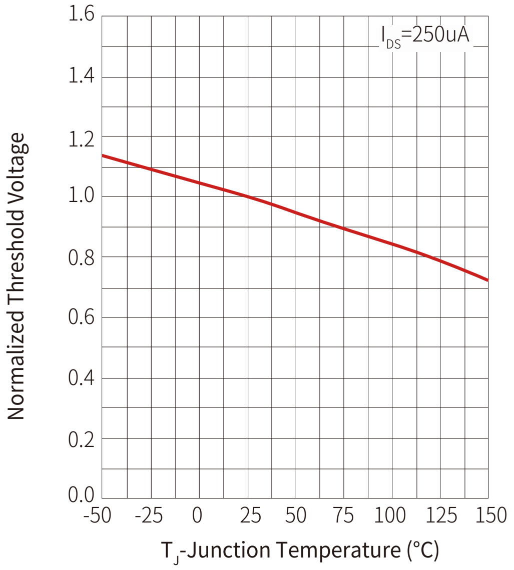


Figure 9:Normalized On Resistance

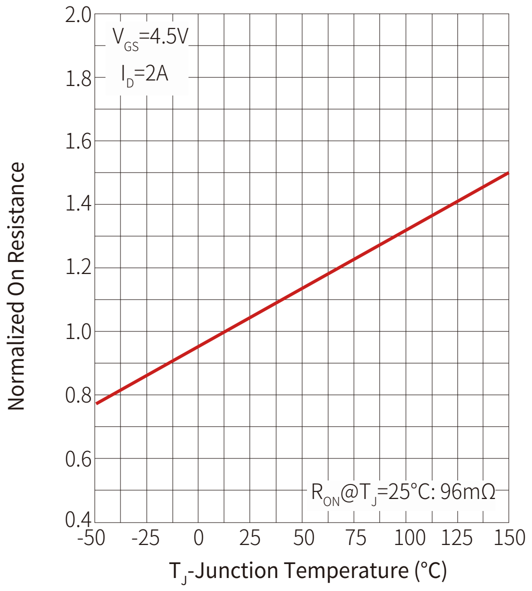


Figure 10: Diode Forward Current

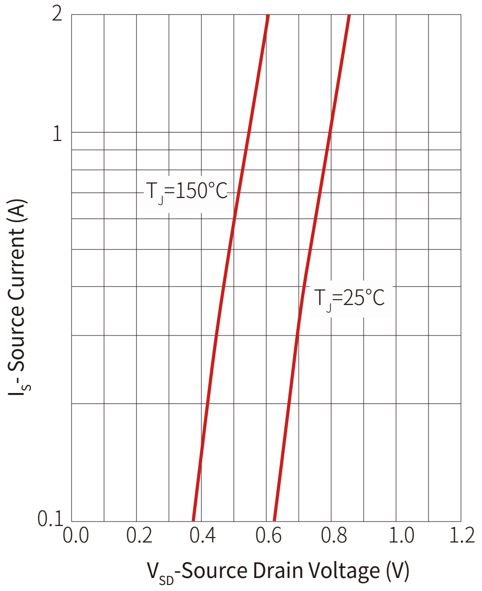


Figure 11:Capacitance

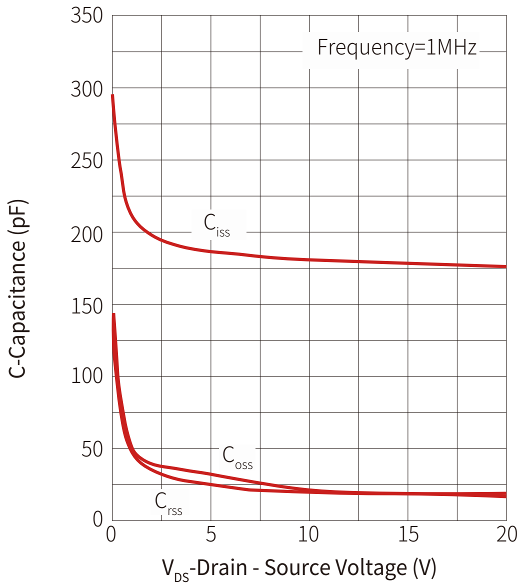
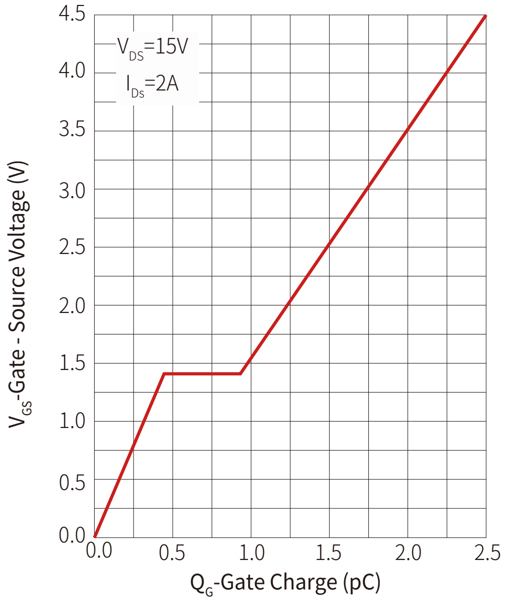
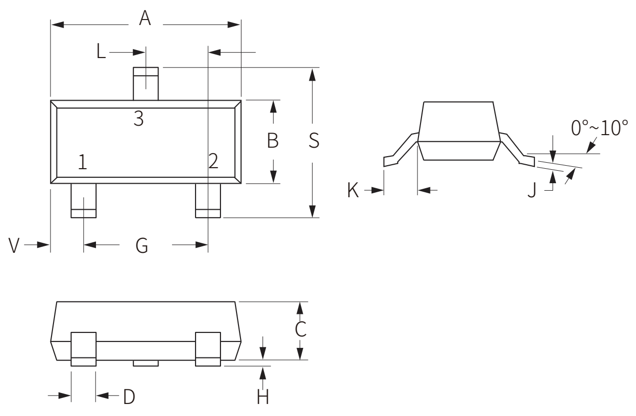


Figure 12: Gate Charge

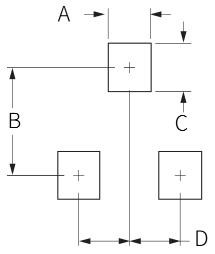


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM3200S	SOT-23	3000PCS	7”

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By QR Code

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