

FEATURES

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



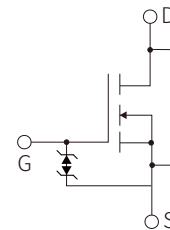
APPLICATION

- | Portable appliances



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

Notes:

- * Surface Mounted on 1 in² pad area, $t \leq 10$ sec
- ** Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$
- *** 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

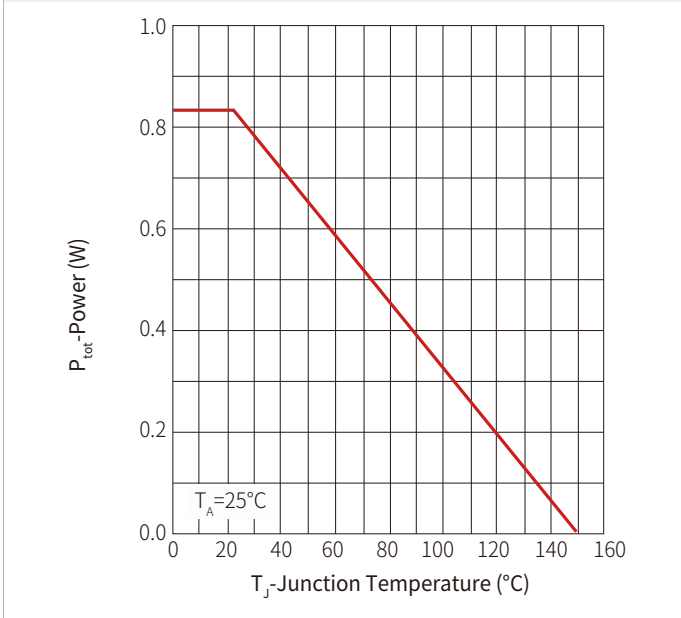


Figure2: Drain Current

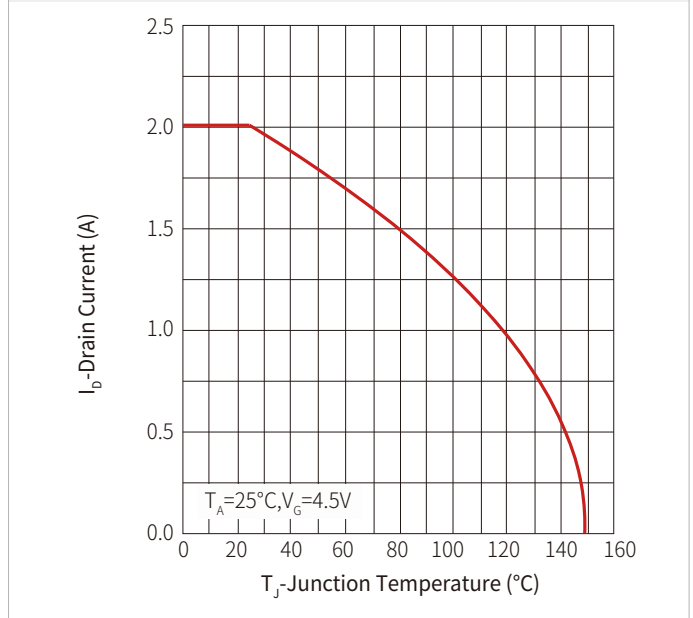


Figure3: Safe Operation Area

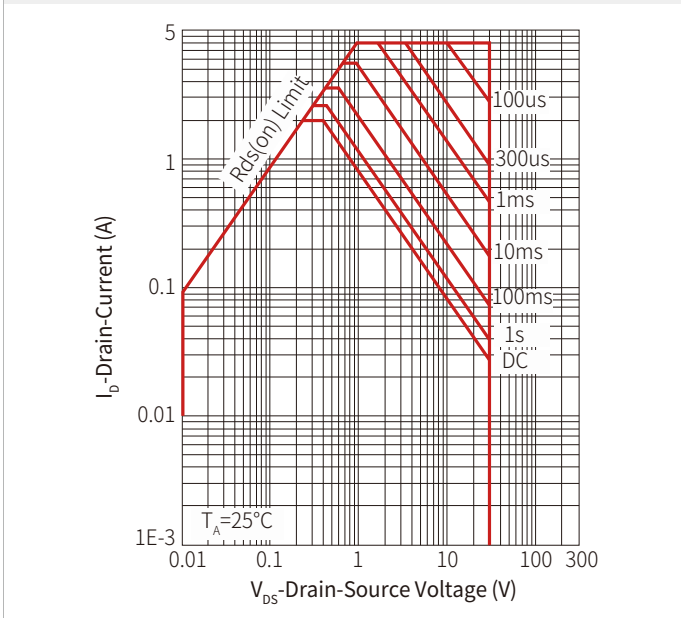


Figure 4: Transient Thermal Impedance

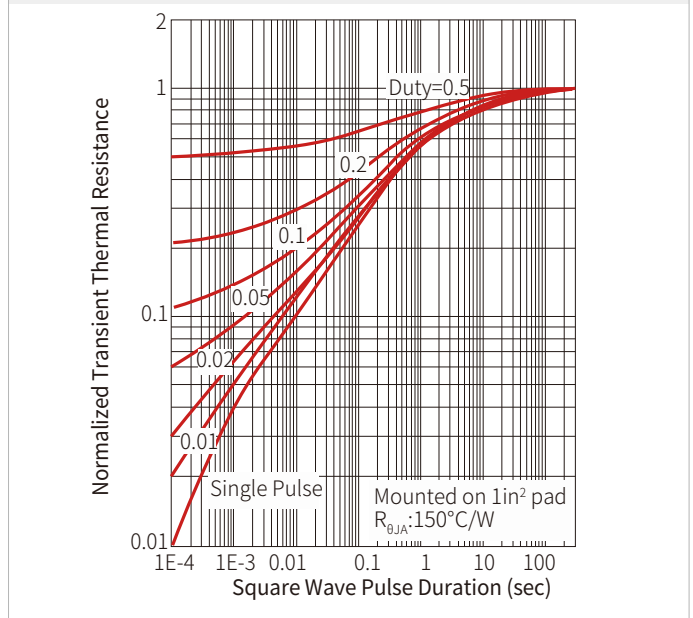


Figure 5: Output Characteristics

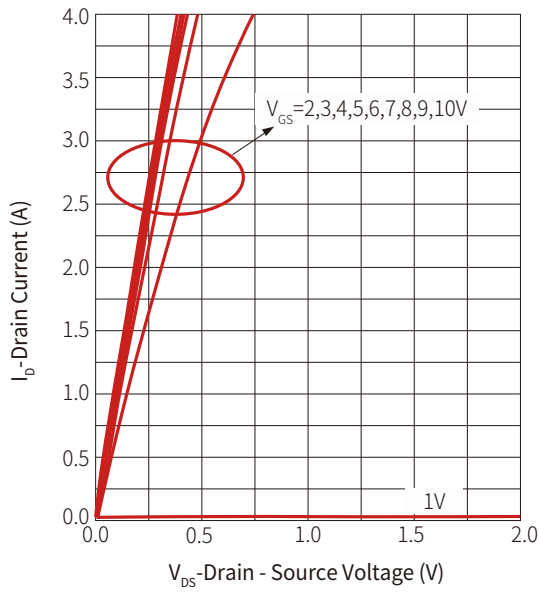


Figure 6: On Resistance

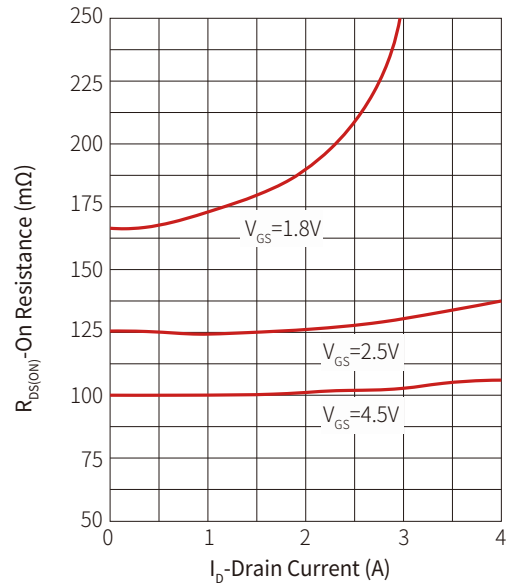


Figure 7: Transfer Characteristics

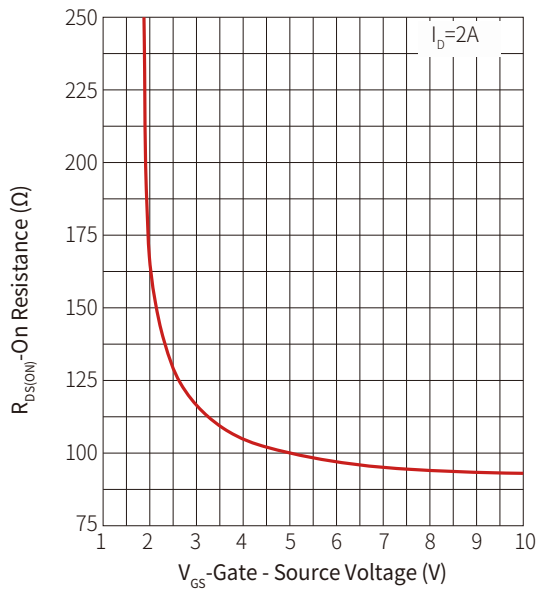


Figure 8: Normalized Threshold Voltage

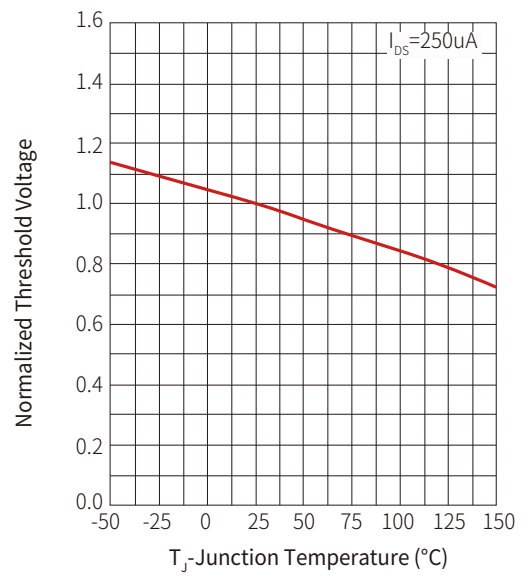


Figure 9: Normalized On Resistance

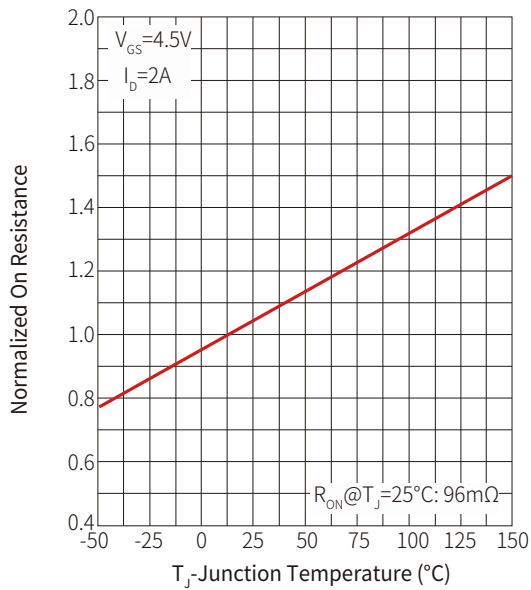


Figure 10: Diode Forward Current

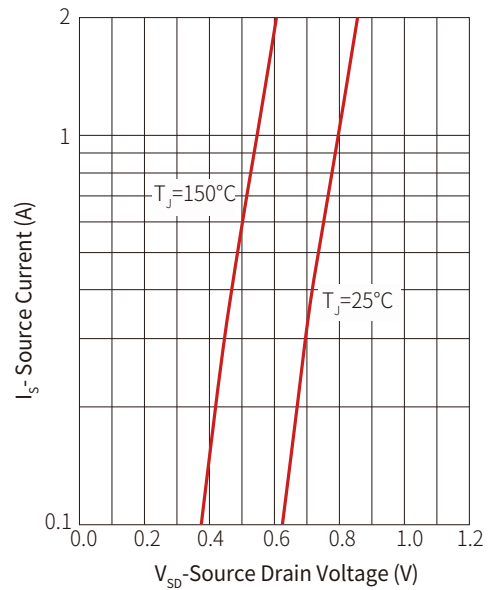


Figure 11: Capacitance

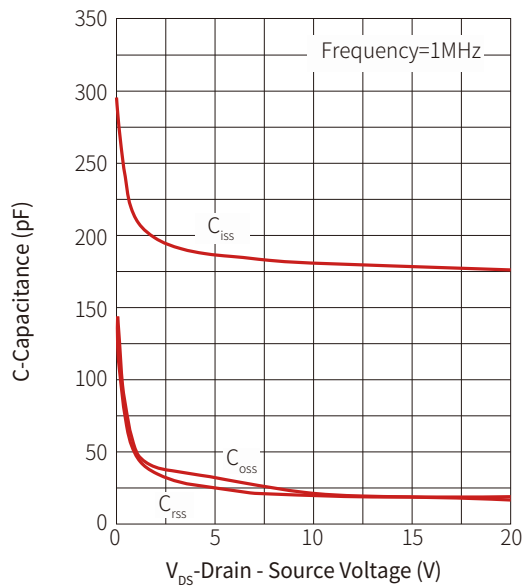
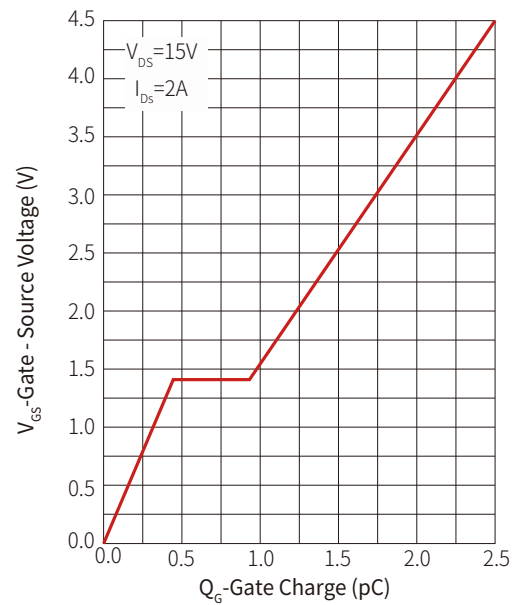
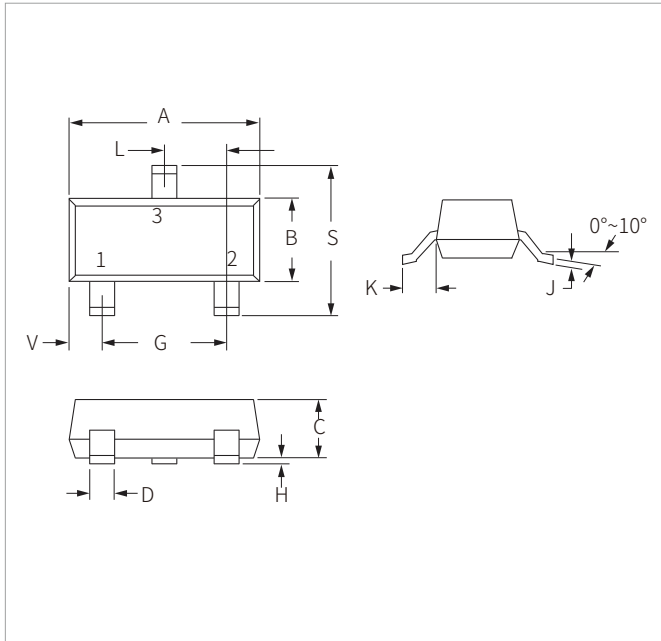


Figure 12: Gate Charge

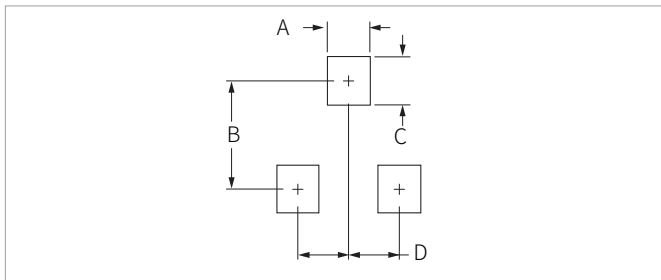


SOT-23 PACKAGE INFORMATION



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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