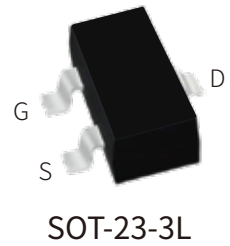


FEATURES

- Super Low Gate Charge
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced Trench MOS Technology



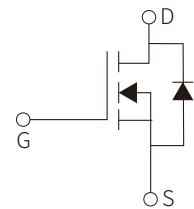
DESCRIPTION

- The SNM0424AS is the high cell density trench N ch MOSFETs, which provide excellent $R_{DS(on)}$ and gate charge for most of the synchronous buck converter applications.



APPROVALS

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



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Continuous Drain Current @10V ¹	I_D	7	A
		4	
Pulsed Drain Current	I_{DM}	32.8	A
Gate Source Voltage	V_{GS}	± 20	V
Total Power Dissipation ² $T_c=25^{\circ}\text{C}$	P_D	73	W
Avalanche Current	I_{AS}	2	A
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =250μA	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.9	1.3	1.7	V
Drain Cut-Off Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain Source ON Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.5A		18.3	24.1	mΩ
		V _{GS} =4.5V, I _D =2.0A		21.1	28	mΩ
Dynamic Characteristics						
Total Gate Charge	Q _g	V _{DS} =20V, V _{GS} =10V, I _D =8A		12		nC
Gate-Source Charge	Q _{gs}			3.2		nC
Gate-Drain Charge	Q _{gd}			3.1		nC
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V, f=1.0MHz		633		pF
Output capacitance	C _{oss}			67		pF
Reverse transfer capacitance	C _{rss}			58		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} =20V, V _{GS} =10V R _L =2.5Ω, R _{GEN} =3.0Ω		4		ns
Turn-on Rise Time	t _r			3		ns
Turn-Off Delay Time	t _{d(off)}			15		ns
Turn-Off Fall Time	t _f			2		ns
Drain Source Body Diode Characteristics						
Source Drain Diode Forward Voltage	V _{SD}	I _S =8A, V _{GS} =0V			1.2	V
Maximum Continuous Drain to Source Diode Forward Current	I _S				7	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}				32	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

PARAMETER CHARACTERISTIC CURVE

Figure 1: Output Characteristics

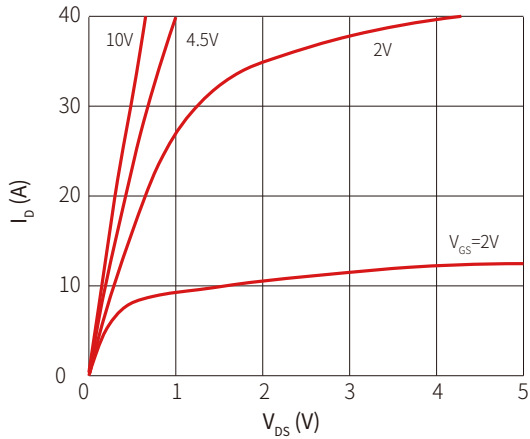


Figure 2: Typical Transfer Characteristics

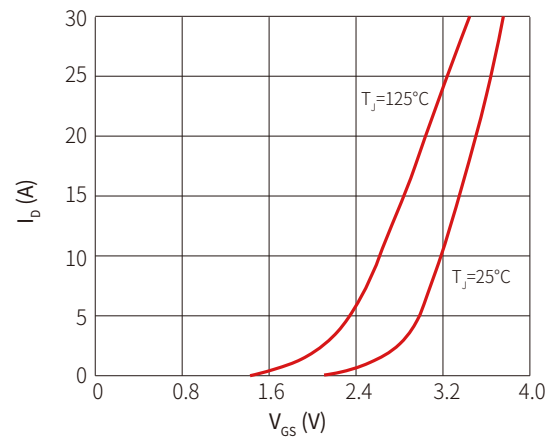


Figure 3: On-resistance vs. Drain Current

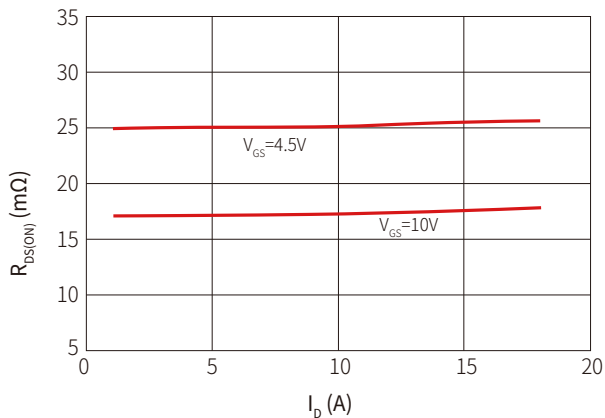


Figure 4: Body Diode Characteristics

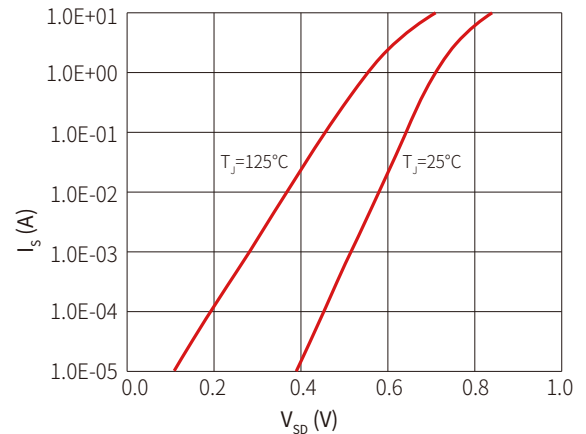


Figure 5: Gate Charge Characteristics

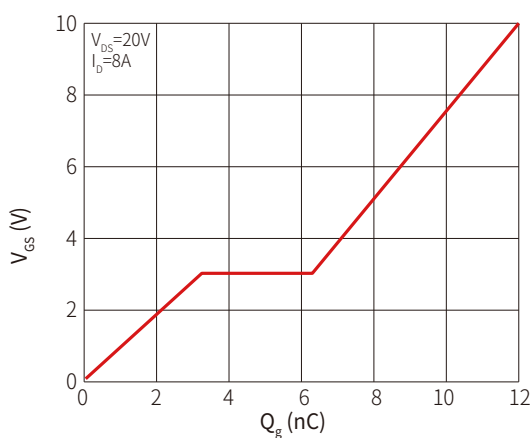


Figure 6: Capacitance Characteristics

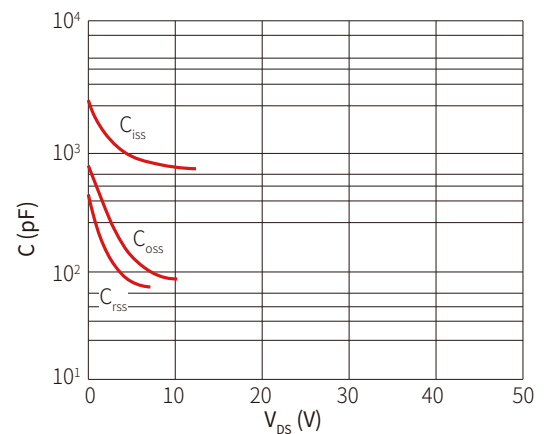
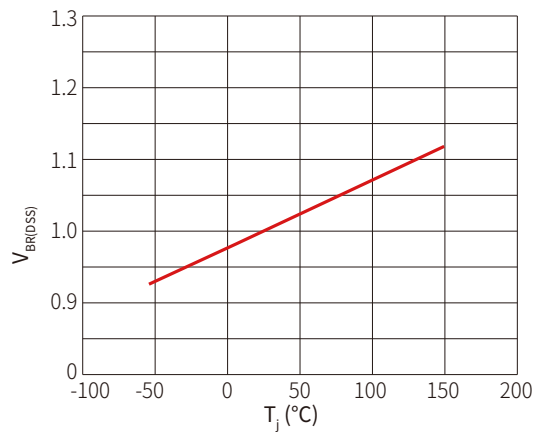
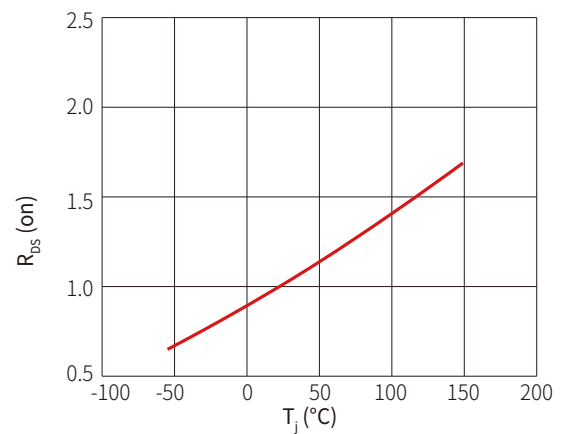
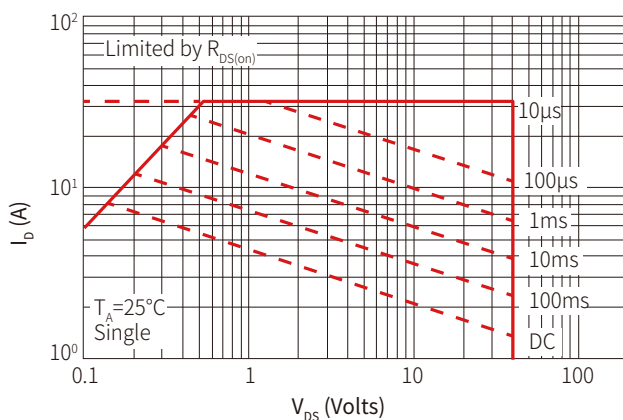
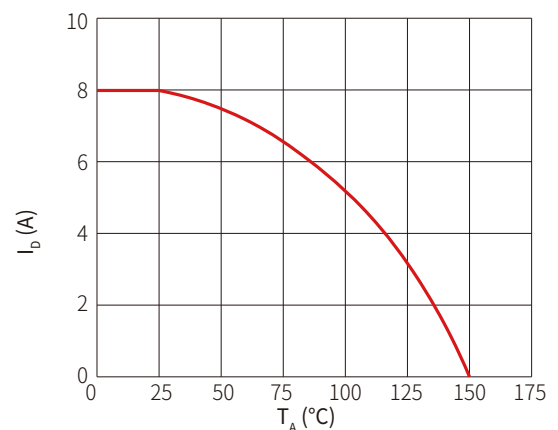
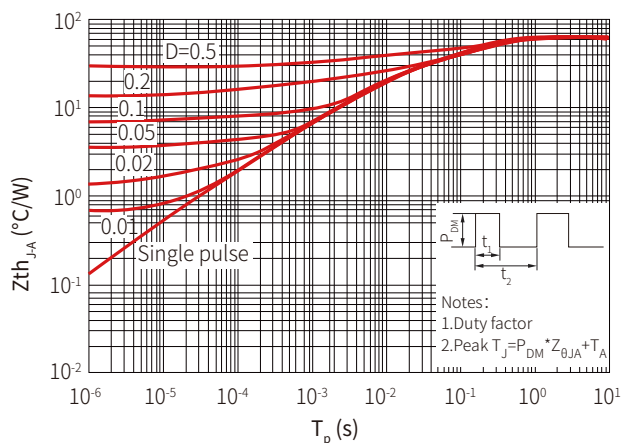
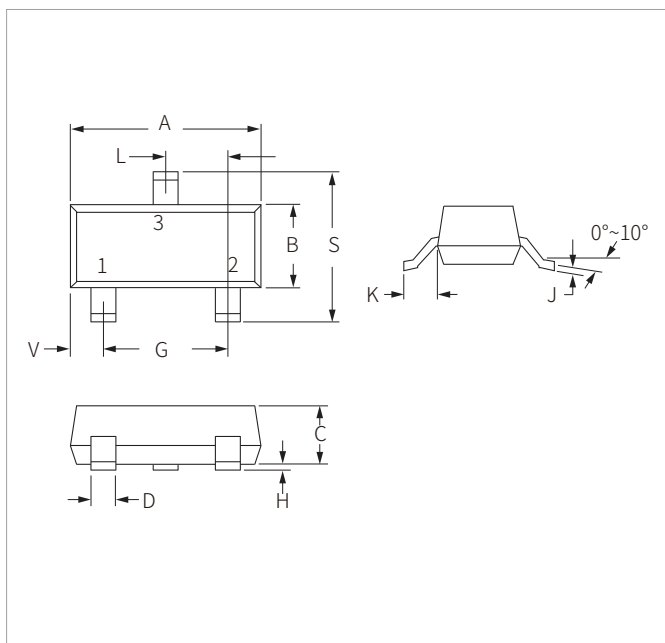


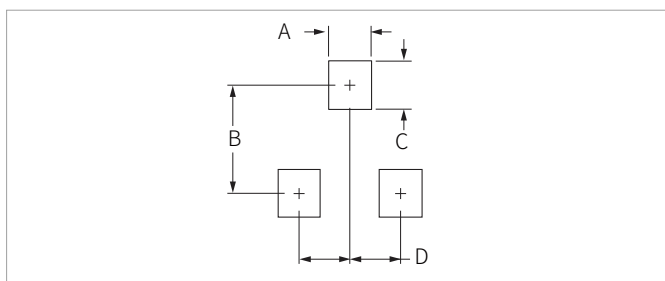
Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

Figure 8: Normalized on Resistance vs. Junction Temperature

Figure 9: Maximum Safe Operating Area

Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient


SOT-23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
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
SNM0424A	SOT-23-3L	3000PCS	7"

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code

Website



Wechat

To find your local partner within Semiware's global website: www.semiware.com

© 2022 Semiware Semiconductor Inc.

The content of this document has been carefully checked and understood. However, neither Semiware nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiware does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiware. Latest publications and a complete disclaimer can be downloaded from the Semiware website. All trademarks recognized.