

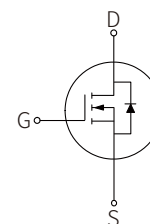
FEATURES

- | Green Device Available
- | Super Low Gate Charge
- | Advanced high cell density Trench technology



APPROVALS

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



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Conditions	Rating	Unit
Drain-Source Voltage	V_{DS}		60	V
Gate-Source Voltage	V_{GS}		± 20	V
Continuous Drain Current, V_{GS} @ 10V ¹	I_D	@ $T_c=25^\circ\text{C}$	5	A
Continuous Drain Current, V_{GS} @ 10V ¹	I_D	@ $T_c=100^\circ\text{C}$	3.5	A
Pulsed Drain Current ²	I_{DM}		15	A
Single Pulse Avalanche Energy ³	EAS		3.5	mJ
Avalanche Current	I_{AS}		5	A
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$		62	$^\circ\text{C/W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$		3	$^\circ\text{C/W}$
Storage Temperature Range	T_{STG}		-55~+150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J		-55~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	60			V
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain-Source Leakage Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V, T _J =25°C			1	μA
		V _{DS} =48V, V _{GS} =0V, T _J =55°C			5	μA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	1.2		2.5	V
Static Drain-Source On-Resistance ²	R _{DS(on)}	V _{GS} =10V, I _D =5A			75	mΩ
		V _{GS} =4.5V, I _D =5A			90	mΩ
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =5A		7		S
Total Gate Charge (-10V)	Q _g	V _{DS} = 12 V, V _{GS} = 10 V I _D = 5A		5.5		nC
Gate-Source Charge	Q _{gs}			1.8		nC
Gate-Drain Charge	Q _{gd}			2.4		nC
Turn-on Delay Time	t _{d(on)}	V _{DD} =12V, V _{GS} =10V R _G =3.3Ω, I _D =5A		6		ns
Rise Time	t _r			10		ns
Turn-Off Delay Time	t _{d(off)}			15		ns
Fall Time	t _f			7		ns
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f=1MHz		695		pF
Output Capacitance	C _{oss}			148		pF
Reverse Transfer Capacitance	C _{rss}			7		pF
Continuous Source Current ^{1,5}	I _S	V _G =V _D =0V, Force Current			17	A
Pulsed Source Current ^{2,5}	I _{SM}				50	A
Diode Forward Voltage ²	V _{DS}	V _{GS} =0V, I _S =1A, T _J =25°C			1.2	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=15A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation

PARAMETER CHARACTERISTIC CURVE

Figure 1: Typical Output Characteristics

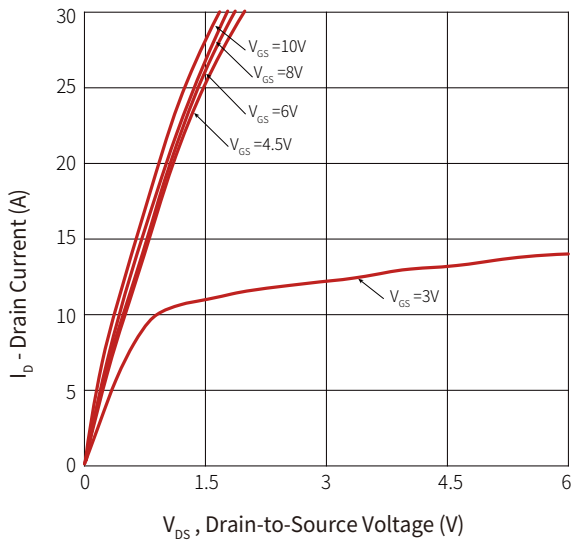


Figure 2: On-Resistance vs G-S Voltage

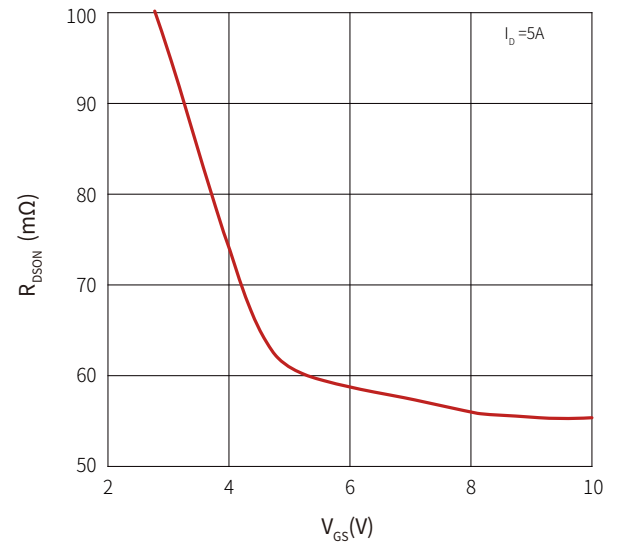


Figure 3: Source Drain Forward Characteristics

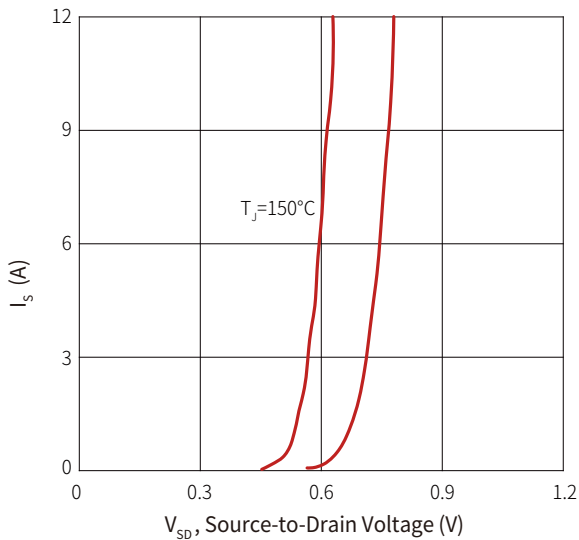
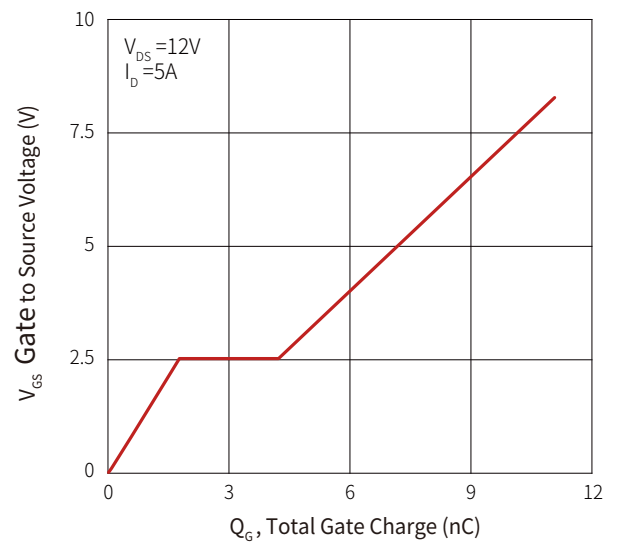


Figure 4: Gate-Charge Characteristics



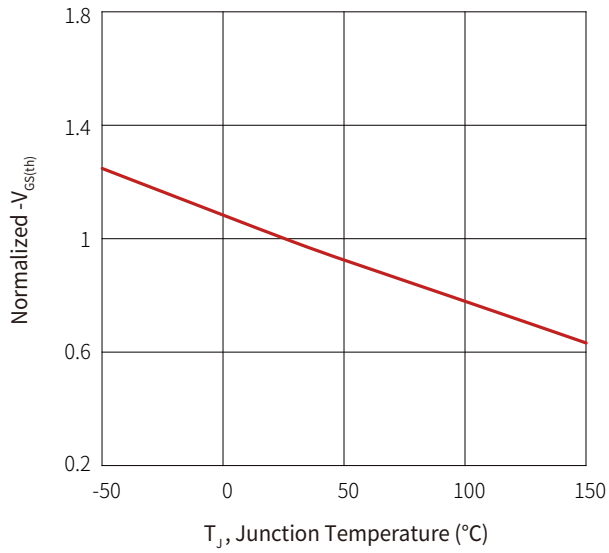
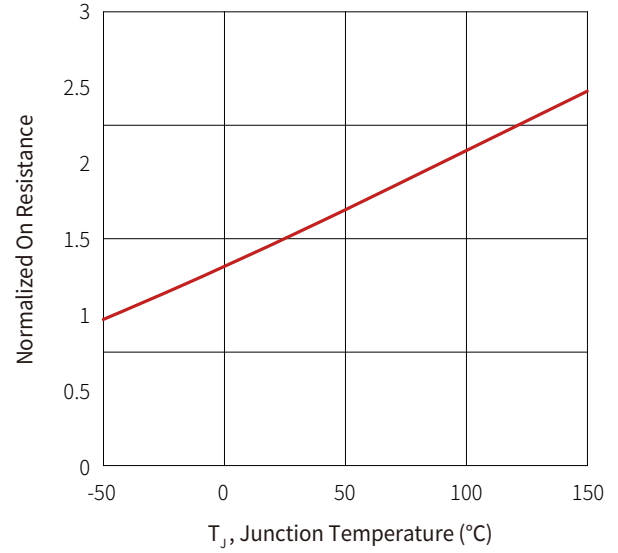
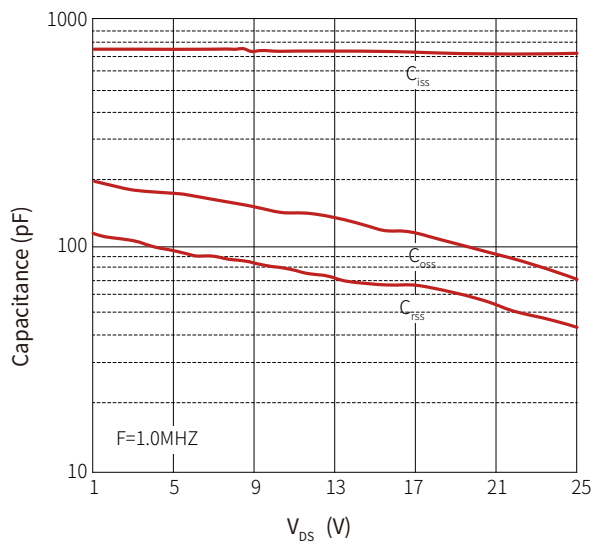
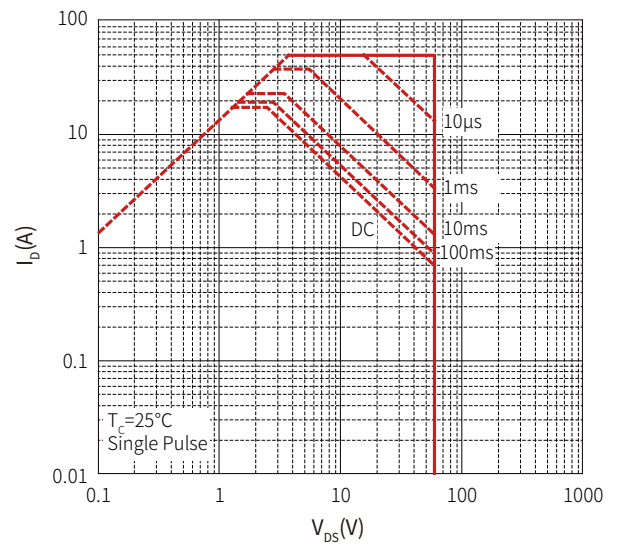
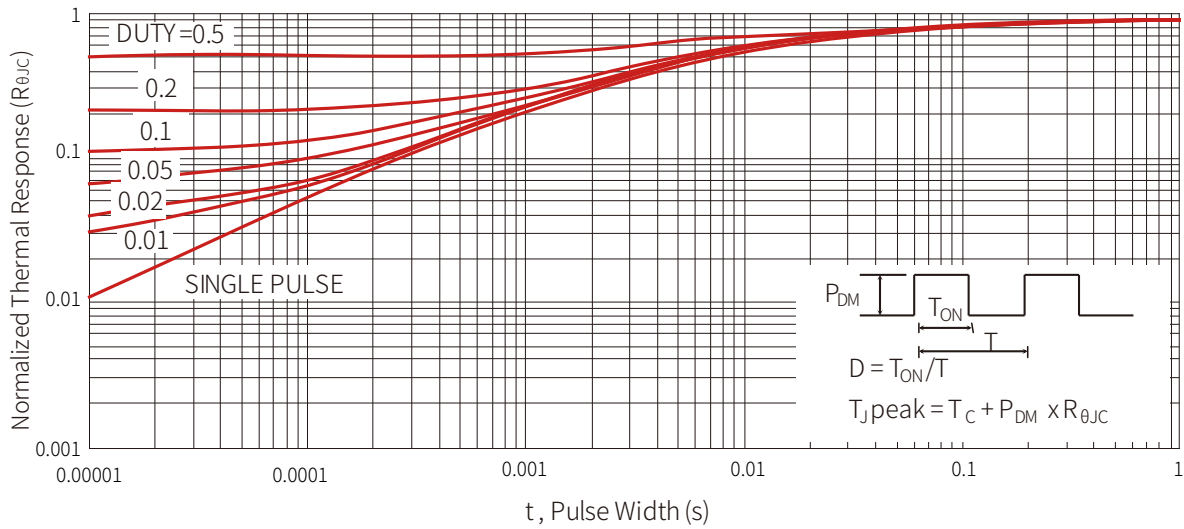
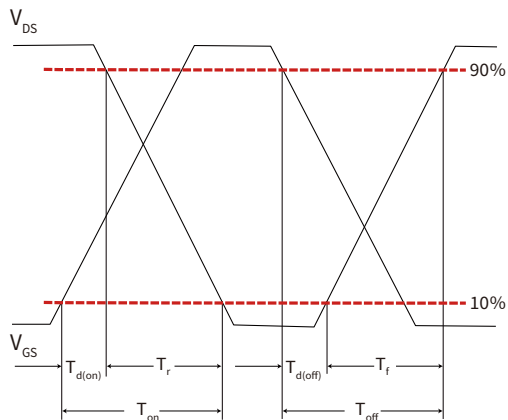
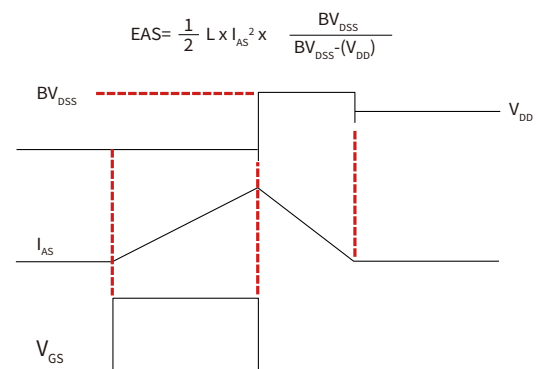
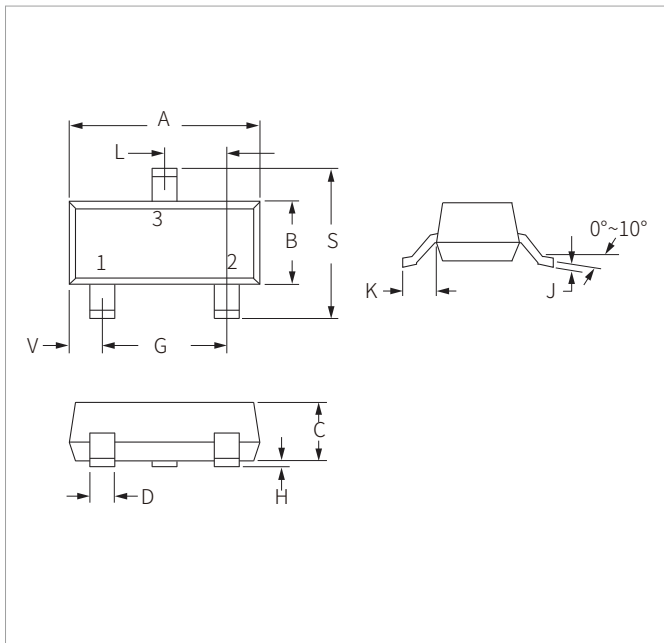
**Figure 5: Normalized $V_{GS(th)}$ vs T_J** **Figure 6: Normalized $R_{DS(on)}$ vs T_J** **Figure 7: Capacitance****Figure 8: Safe Operating Area**

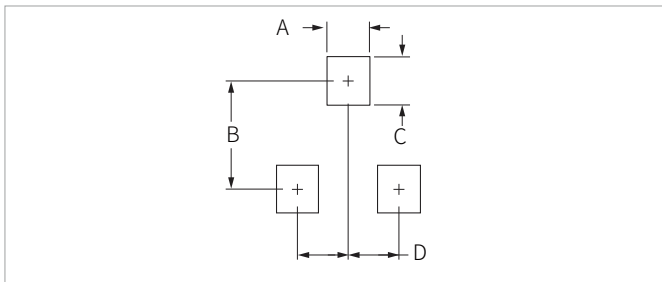
Figure 9: Normalized Maximum Transient Thermal Impedance

Figure 10: Switching Time Waveform

Figure 11: Unclamped Inductive Waveform


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	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SNM3422AS	SOT-23-3L	ARDP 𐄂	3000PCS	7"

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