

FEATURES

| $V_{DS}=120V, I_D=10A$

| $R_{DS(ON) Typ} = 125m\Omega @ V_{GS} = 10V$

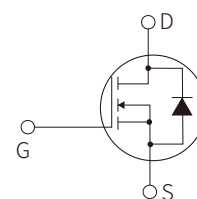
| $R_{DS(ON) Typ} = 130m\Omega @ V_{GS} = 4.5V$

| Advanced Split Gate Trench Technology

| Excellent $R_{DS(ON)}$ and Low Gate Charge

| 100% UIS TESTED!

| 100% ΔV_{ds} TESTED!



Schematic Symbol

APPLICATION

| Load Switch

| PWM Application

| Power Management

APPROVALS

RoHS Compliance with 2011/65/EU

HF Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	120	V
Pulse Drain Current Tested	I_{DM}	40	A
Continuous Drain Current	I_D	$T_C=25^{\circ}C$ 10	A
		$T_C=100^{\circ}C$ 6	A
Gate-Source Voltage	V_{GSS}	± 20	V
Power Dissipation ($T_C=25^{\circ}C$)	P_D	35	W
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	18	mJ
Junction Temperature	T_J	-55 ~ +150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}C$
Thermal Resistance- Junction to Case	$R_{\theta JC}$	3.6	$^{\circ}C/W$

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	120			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _{DS} =250μA	1.2	1.8	2.4	V
Drain Leakage Current	I _{DSS}	V _{DS} =120V,V _{GS} =0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
On-State Resistance ⁽³⁾	R _{DS(on)}	V _{GS} =10V,I _D =5A		125	162	mΩ
		V _{GS} =4.5V,I _D =5A		130	169	mΩ
Dynamic Characteristics						
Total Gate Charge	Q _g	V _{GS} = 0 to 10V V _{DS} =96V,I _D =4A		16		nC
Gate Source Charge	Q _{gs}			1.5		nC
Gate Drain("Miller") Charge	Q _{gd}			5.2		nC
Input capacitance	C _{iss}	V _{GS} =0V,V _{DS} =25V, f=1MHz		623		pF
Output capacitance	C _{oss}			37		pF
Reverse transfer capacitance	C _{rss}			30		pF
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =60V,V _{GS} =10V R _{GEN} = 3Ω, I _D =4A		7		nS
Turn-on Rise Time	t _r			11		nS
Turn-Off Delay Time	t _{d(off)}			15		nS
Turn-Off Fall Time	t _f			6		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V _{SD}	I _S =5A,V _{GS} =0V			1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =4A di/dt = 100A/us		45		nS
Body Diode Reverse Recovery Charge	Q _{rr}			110		nC
Maximum Continuous Drain to Source Diode Forward Current	I _S				10	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}				40	A

Notes:

- 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2.E_{AS} condition: Starting T_J=25°C, V_{DD}=60V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=8.5A
- 3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

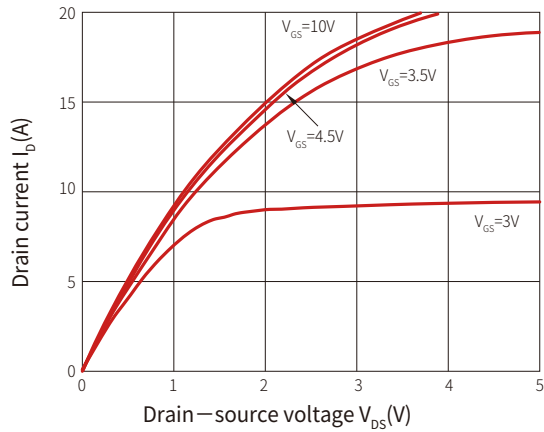


Figure 2: Transfer Characteristics

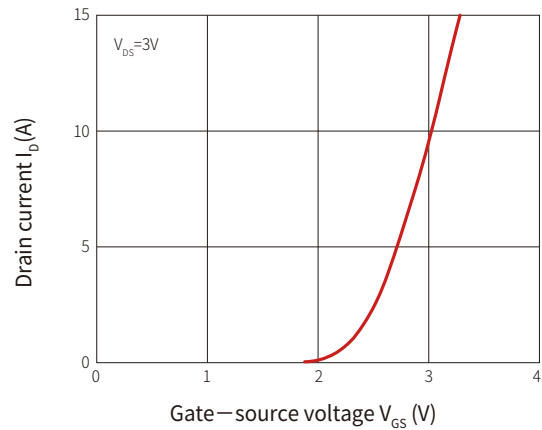


Figure 3: Forward Characteristics of Reverse

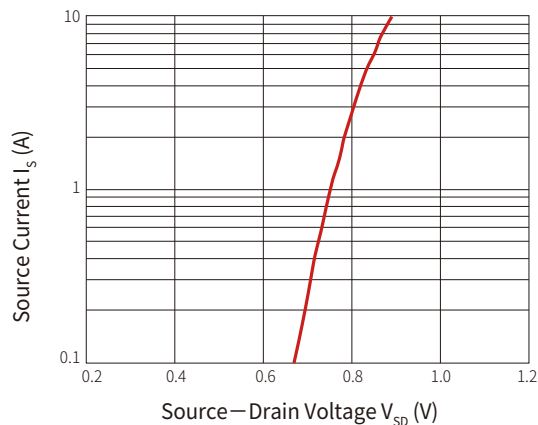


Figure 4: $R_{DS(on)}$ vs. V_{GS}

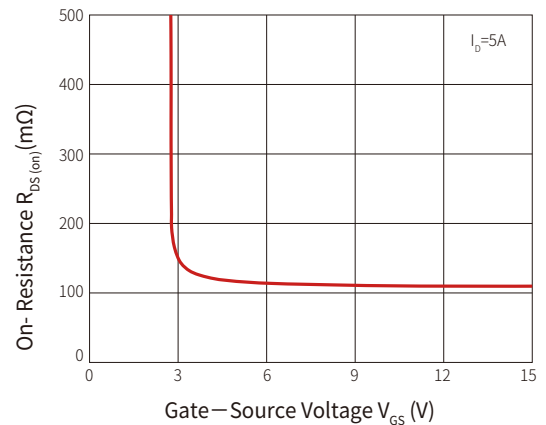


Figure 5: $R_{DS(on)}$ vs. I_D

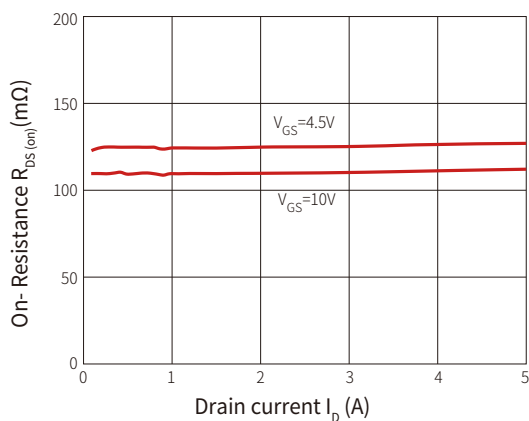


Figure 6: Normalized $R_{DS(on)}$ vs. Temperature

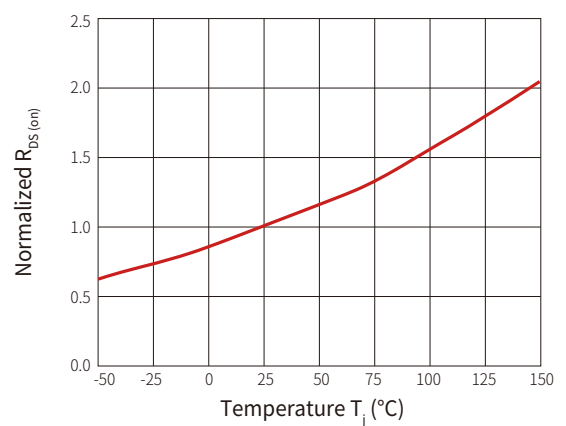
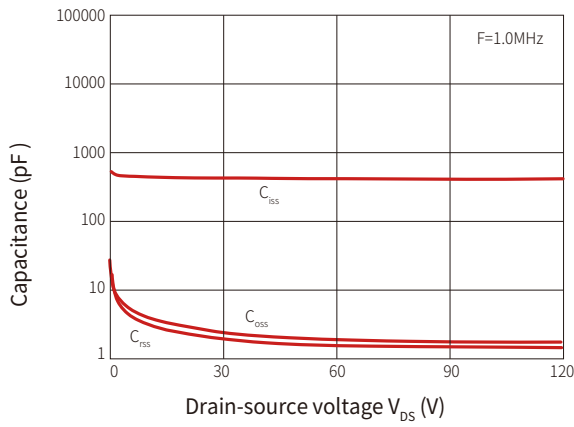
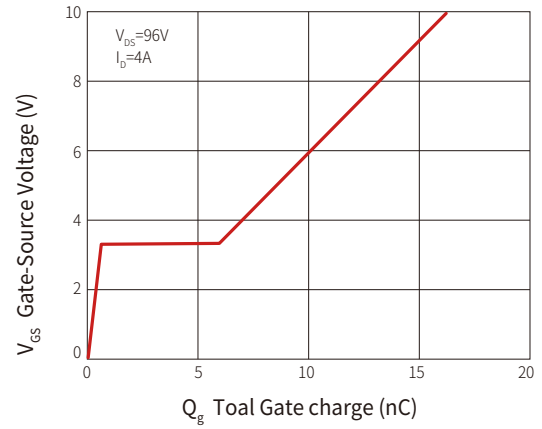
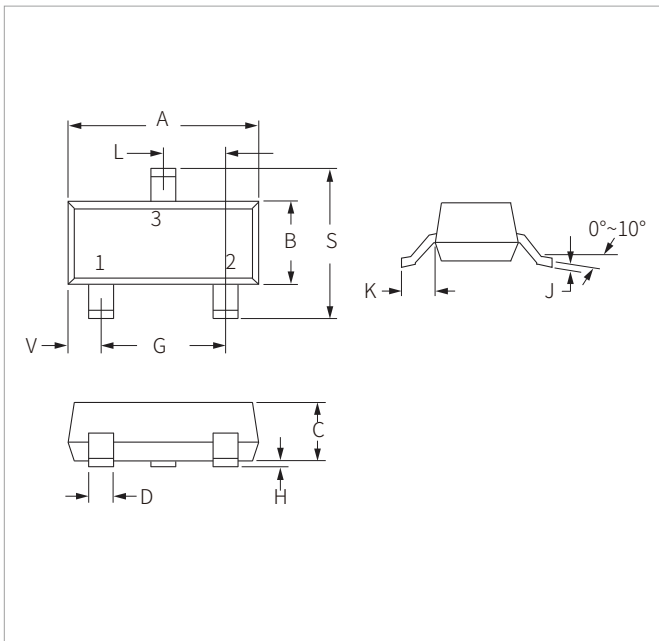


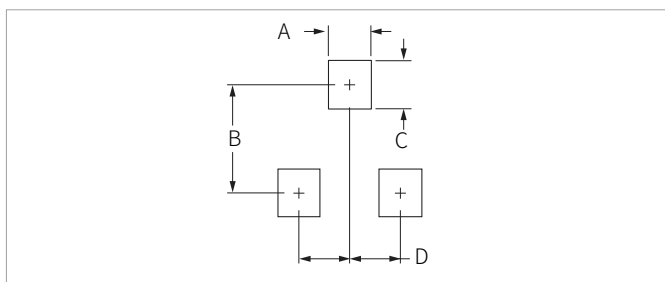
Figure 7: Capacitance Characteristics

Figure 8: Gate Charge Characteristics


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
SNM10N12A	SOT-23-3L	3000PCS	7"

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By QR Code

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