Single N-Channel, 30V, 5.8A, Power MOSFET

Features

- ✧ Trench Technology
- ✧ Supper high density cell design
- ✧ Excellent ON resistance
- ✧ Extremely Low Threshold Voltage
- ✧ Small package SOT23-3L

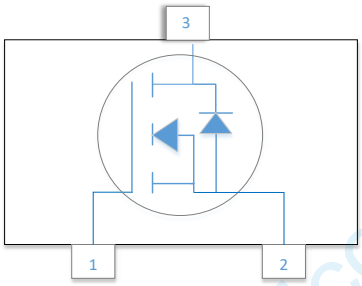
V_{DS} (V)	Typical $R_{DS(on)}$ (mΩ)
30	21 @ V_{GS}=10V
	25 @ V_{GS}=4.5V
	34 @ V_{GS}=2.5V

Applications

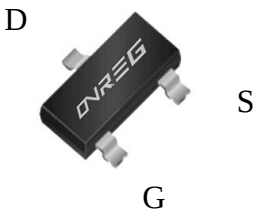
- ✧ DC/DC converters
- ✧ Power supply converters circuit
- ✧ Load/Power Switching for portable device

Mechanical Data

- ✧ UL Flame Rating : UL94V-0
- ✧ Reel Size : 7 inch
- ✧ RoHS/WEEE Complain



Circuit Diagram



SOT23-3L

Absolute Maximum Rating at T_A = 25℃, unless otherwise specified

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	T_A=25°C	I_D	5.8	A
Maximum Power Dissipation		P_D	1.3	W
Pulsed Drain Current		I_{DM}	23	A
Operating Junction Temperature		T_J	-55 to 150	°C
Lead Temperature		T_L	260	°C
Storage Temperature Range		T_{stg}	-55 to 150	°C

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Electronics Characteristics (Ta=25°C, unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
		T_J=125°C			30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	0.5	0.7	1.4	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V			±100	nA
$R_{DS(ON)}$ ⑤	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=5A		21	30	mΩ
		V_{GS}=4.5V, I_{DS}=4A		25	40	mΩ
		V_{GS}=2.5V, I_{DS}=2A		34	55	mΩ
Diode Characteristics						
V_{SD} ⑤	Diode Forward Voltage	I_{SD}=3A, V_{GS}=0V		0.81	1.5	V
t_{rr}	Reverse Recovery Time	I_{SD}=3A, dI_{SD}/dt=100A/μs		8		ns
Q_{rr}	Reverse Recovery Charge			2.3		nC
Dynamic Characteristics ⑥						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		1		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz		680		pF
C_{oss}	Output Capacitance			105		
C_{rss}	Reverse Transfer Capacitance			70		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=10V, I_{DS}=3A, V_{GEN}=10V,R_G=6Ω		4		ns
t_r	Turn-on Rise Time			5		
$t_{d(OFF)}$	Turn-off Delay Time			27		
t_f	Turn-off Fall Time			5		
Gate Charge Characteristics ⑥						
Q_g	Total Gate Charge	V_{DS}=24V, V_{GS}=10V, I_{DS}=3A		10		nC
Q_{gs}	Gate-Source Charge			2		
Q_{gd}	Gate-Drain Charge			3		

Notes:
①Pulse width limited by safe operating area.
②Calculated continuous current based on maximum allowable junction temperature.
③When mounted on 1 inch square copper board, t≤10sec. The value in any given application depends on the user's specific board design.
④Limited by $T_{Jmax.}$ Starting T_J = 25°C.
⑤Pulse test;Pulse width≤300μs, duty cycle≤2%.
⑥Guaranteed by design, not subject to production testing.

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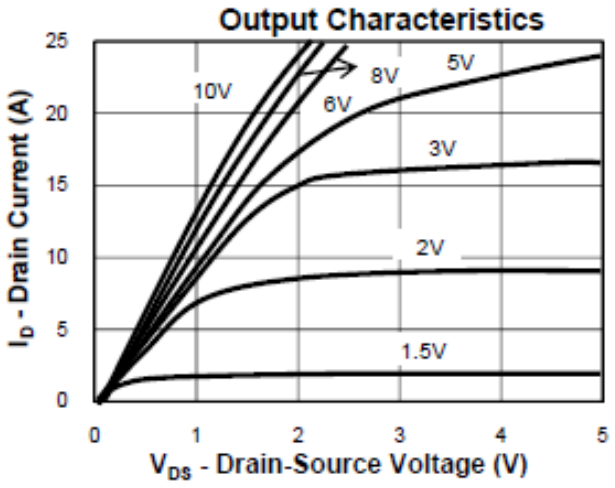
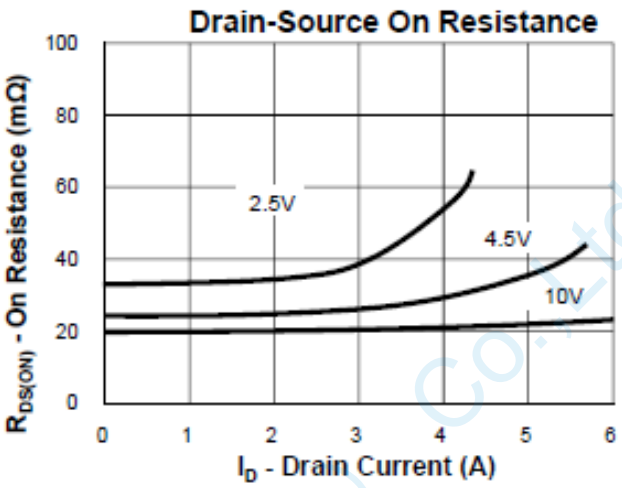
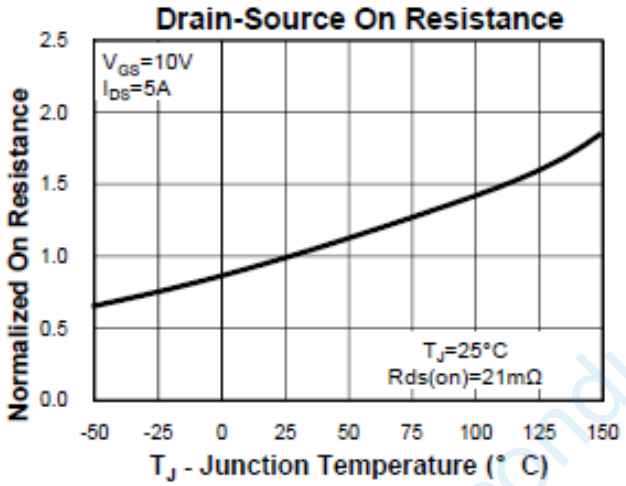
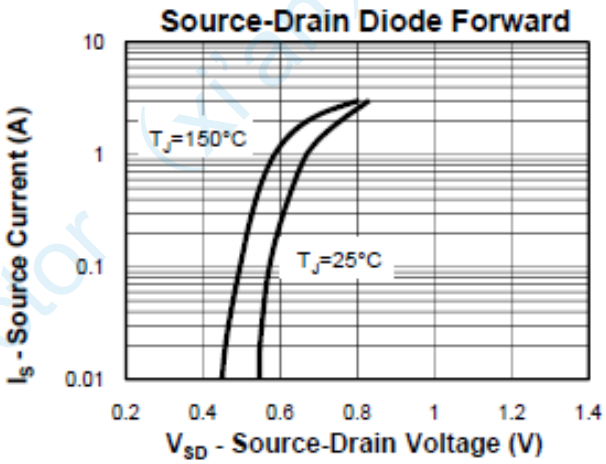
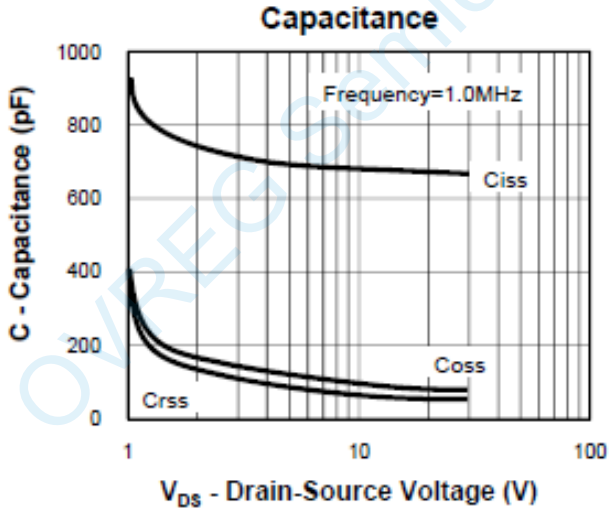
Electronics Characteristics (Ta=25°C, unless otherwise noted)

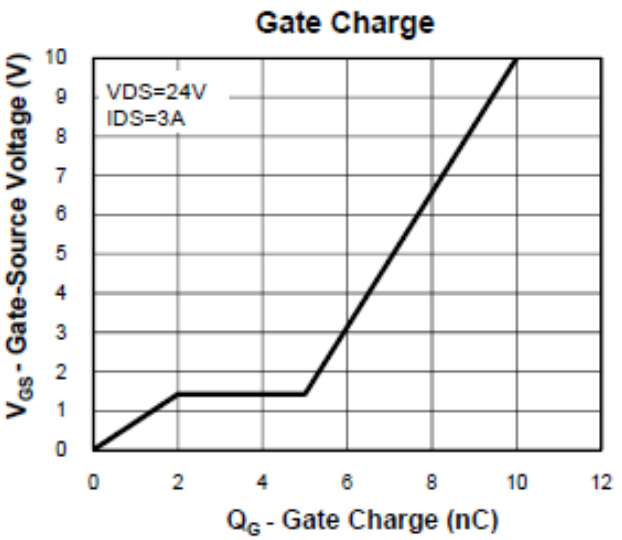












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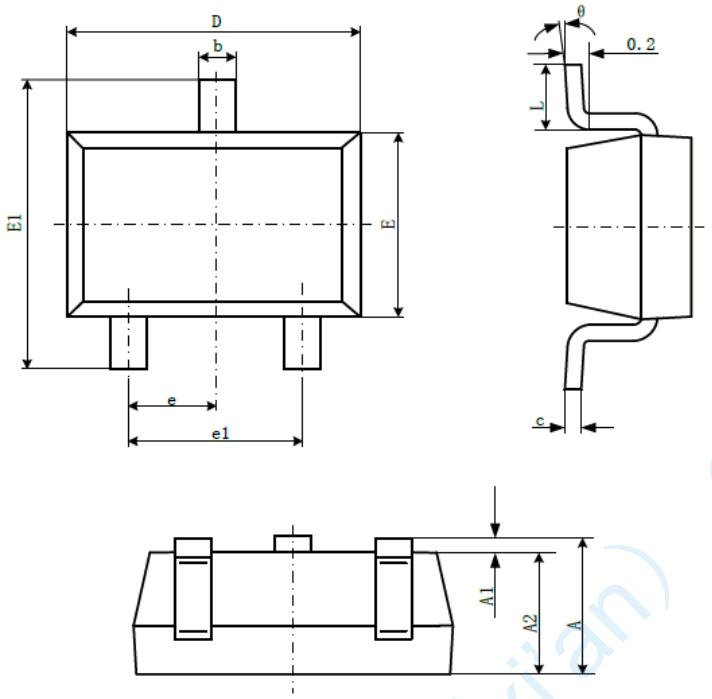
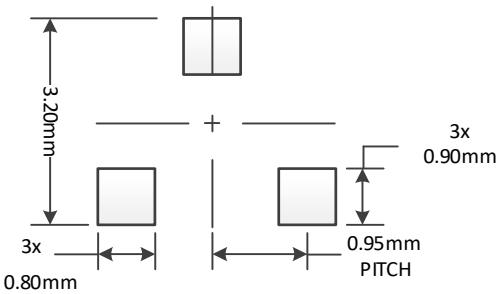
Package information



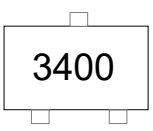
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Recommend PCB Layout



Notes: This PCB Layout Is For Reference Purposes Only

Marking



Ordering Information

Part number	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
OVM30N21T1	GREEN	T/R	7 inch	3k/reel	10reel= 30k/box	4boxes=120k/carton

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