Single N-Channel, 20V, 7.5A, MOSFET

Features

V_{DS} (V)	Typical $R_{DS(on)}$ (mΩ)
20	12.3 @ V_{GS}=4.5V
	15.6 @ V_{GS}=2.5V

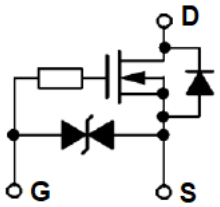
- ✧ Trench Technology
- ✧ Supper high density cell design
- ✧ Excellent ON resistance
- ✧ Extremely Low Threshold Voltage
- ✧ Small package SOT-23
- ✧ ESD Rating：HBM 2kV

Applications

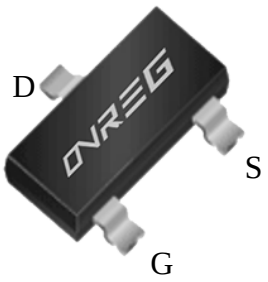
- ✧ Interfacing Switching
- ✧ Load/Power Switching for portable device

Mechanical Data

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



Circuit Diagram



SOT-23

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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	20	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±12	V
I_D	Drain Current-Continuous(T_A=25℃)	7.5	A
	Drain Current-Continuous(T_A=100℃)	4.8	A
$I_{DM\ (pluse)}$	Drain Current-Continuous@ Current-Pulsed (Note 1)	30.4	A
P_D	Maximum Power Dissipation(T_A=25℃)	1.3	W
	Maximum Power Dissipation(T_A=100℃)	0.5	W
E_{AS}	Avalanche energy (Note 2)	25	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V T_J=25℃			1	μA
		V_{DS}=20V, V_{GS}=0V T_J=125℃			100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±10V, V_{DS}=0V			±10	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.5		1	V
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=5A		13.6		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=5A T_J=25℃		12.3	16	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=2.5V, I_D=4A T_J=25℃		15.6	20	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=10V,V_{GS}=0V, f=1.0KHz		670		pF
C_{oss}	Output Capacitance			150		pF
C_{rss}	Reverse Transfer Capacitance			90		pF
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=4.5V, V_{DS}=10V, R_L=2Ω, R_{GEN}=3Ω		11		nS
t_r	Turn-on Rise Time			34		nS
$t_{d(off)}$	Turn-Off Delay Time			55		nS
t_f	Turn-Off Fall Time			51		nS
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=10V, I_D=5A		9.1		nC
Q_{gs}	Gate-Source Charge			1.6		nC
Q_{gd}	Gate-Drain Charge			2		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				7.5	A
V_{SD}	Forward on Voltage (Note 3)	V_{GS}=0V, I_S=5A			1.2	V

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
Notes 2.E_{AS} condition: T_J=25℃,V_{DD}=10V,V_G=10V, Rg=25Ω, L=0.5mH.
Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

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

Figure 1. Output Characteristics

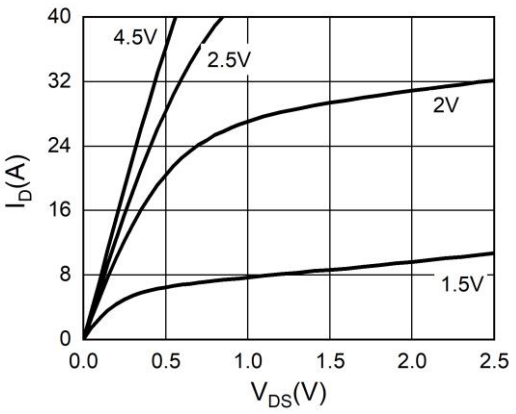


Figure 2. Transfer Characteristics

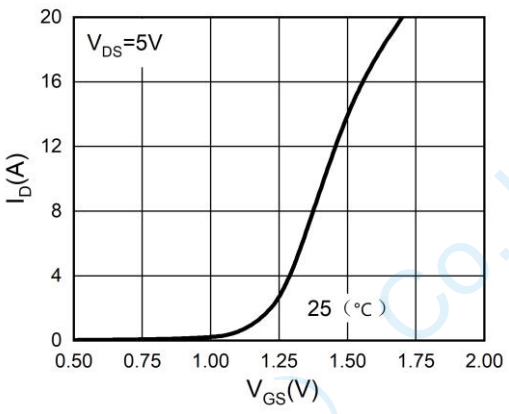


Figure 3. Power Dissipation

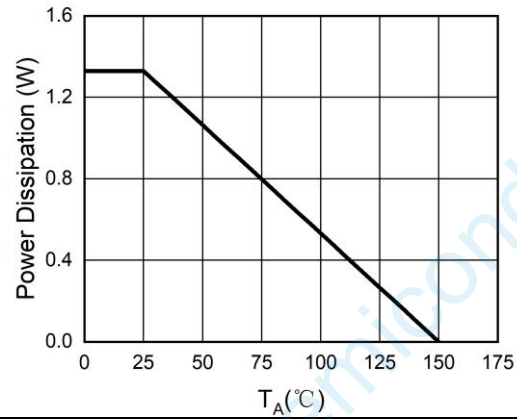


Figure 4. Drain Current

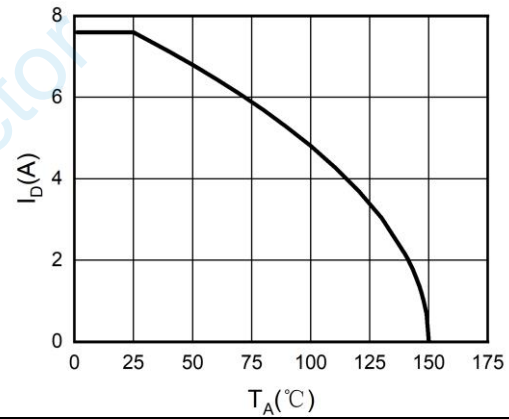


Figure 5. BV_{DSS} vs Junction Temperature

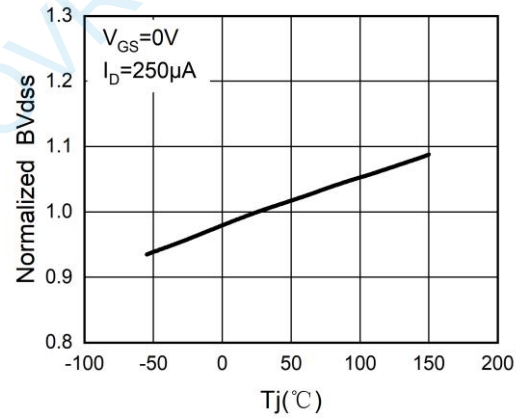
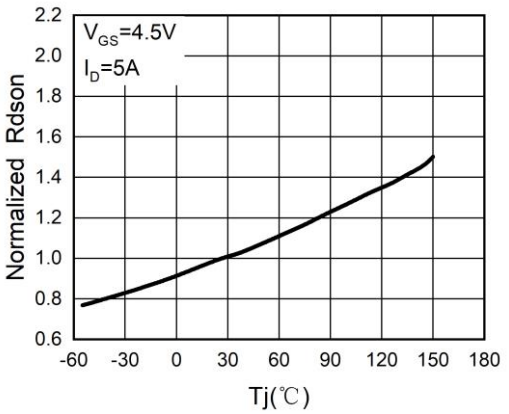


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



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

Figure 7. Gate Charge Waveforms

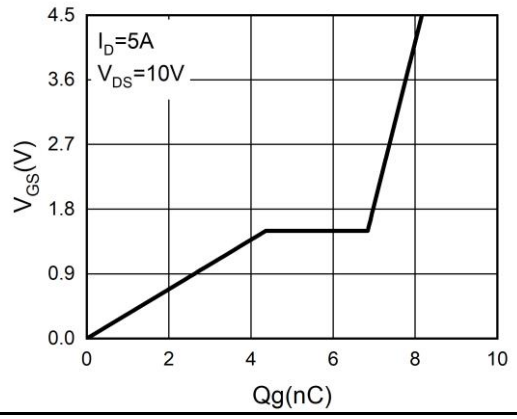


Figure 8. Capacitance

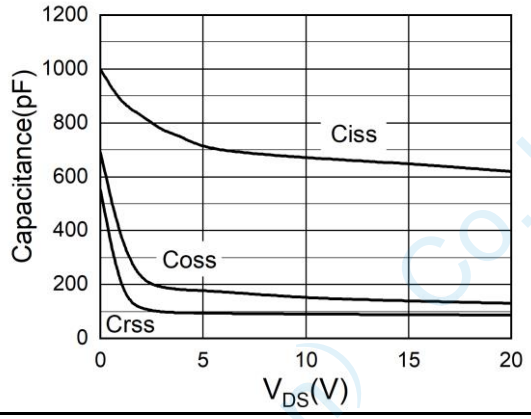


Figure 9. Body-Diode Characteristics

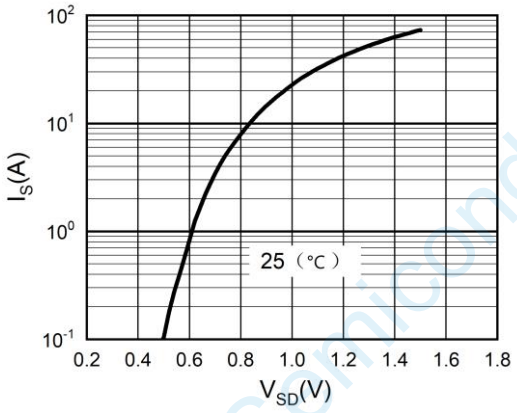
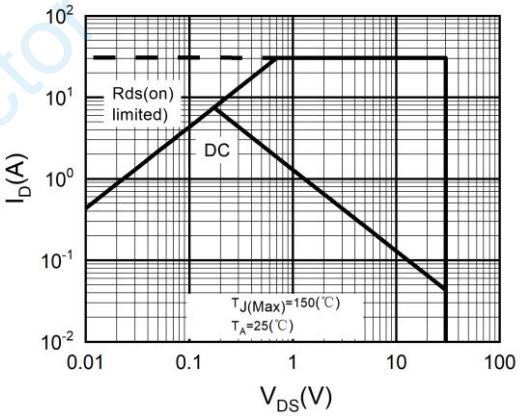
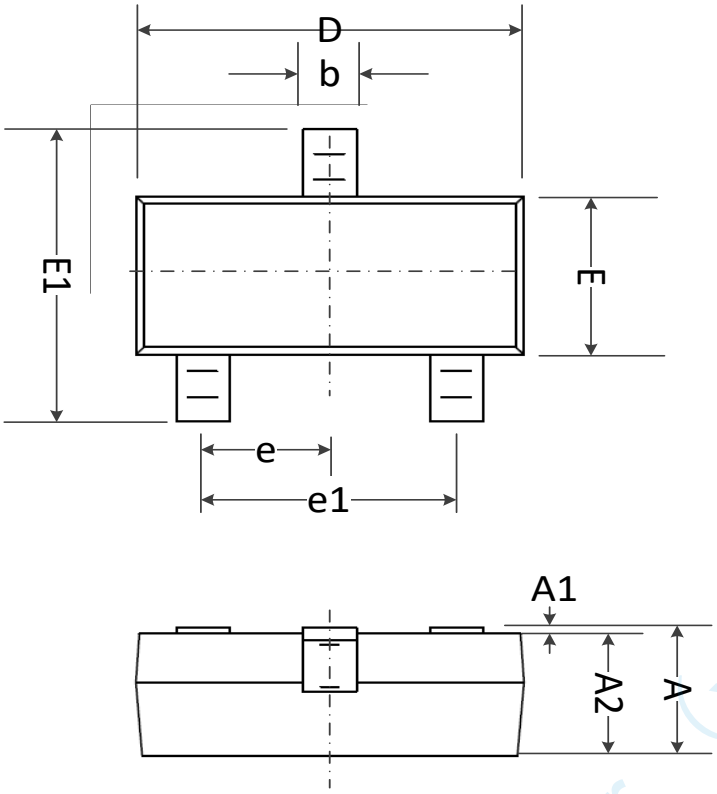


Figure 10. Maximum Safe Operating Area



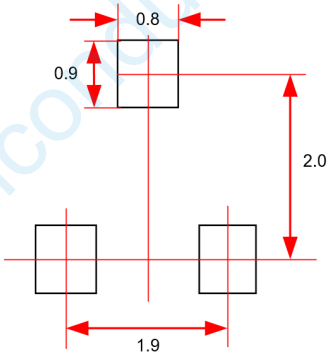
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Package information



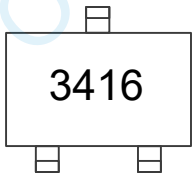
COMMON DIMENSION (MM)			
PKG	SOT23		
REF.	MIN.	NOM.	MAX.
A	0.90	-	1.15
A1	0.00	-	0.10
A2	0.90	1.00	1.05
b	0.30	-	0.50
c	0.08	-	0.15
D	2.80	2.90	3.00
E	1.20	1.30	1.40
E1	2.25	2.40	2.55
e	0.95TYP		
e1	1.80	1.90	2.00
L	0.55REF		
L1	0.30	0.45	0.50

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
OVM20N20T	GREEN	T/R	7 inch	3k/reel	10reel= 30k/box	4boxes=120k/carton

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