Single P-Channel, -30V, -4.0A, Power MOSFET

Features

V_{DS} (V)	Typical $R_{DS(on)}$ (mΩ)
-30	45 @ V_{GS}=-10V
	58 @ V_{GS}=-4.5V

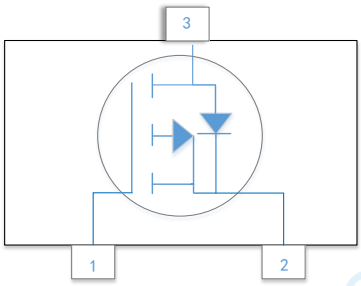
- ✧ Trench Technology
- ✧ Supper high density cell design
- ✧ Excellent ON resistance
- ✧ Extremely Low Threshold Voltage
- ✧ Small package SOT23-3L

Applications

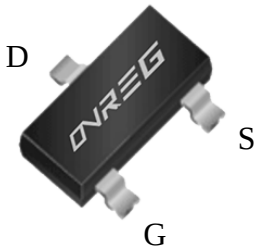
- ✧ PWM applications
- ✧ Power supply converters circuit
- ✧ Load/Power Switching for portable device

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}	±20	
Continuous Drain Current	T_A=25°C	I_D	-4.0	A
	T_A=70°C		-3.5	A
Maximum Power Dissipation		P_D	1.3	W
Pulsed Drain Current		I_{DM}	-18	A
Operating Junction Temperature		T_J	-55 to 150	℃
Lead Temperature		T_L	260	℃
Storage Temperature Range		T_{stg}	-55 to 150	℃

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V	-	-	-1	μA
Gate-body leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.9	-1.3	-2	V
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-4A	-	45	62	mΩ
		V_{GS}=-4.5V, I_D=-3A	-	58	86	
Forward transconductance	gfs	V_{GS}=-5V, I_D=-4.2A	-	5	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	V_{DS}=-10V ,V_{GS}=0V f=1.0MHz	-	600	-	pF
Output capacitance	C_{OSS}		-	85	-	
Reverse transfer capacitance	C_{RSS}		-	65	-	
Gate resistance	Rg	V_{DS}=15mV， f=1.0MHz		10		Ω
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	V_{DD}=-15V I_D=-4.2A V_{GEN}=-10V R_L=10ohm R_{GEN}=6ohm	-	3.0	3.5	ns
Rise time	tr		-	31	35	
Turn-off delay time	$t_{D(OFF)}$		-	33	40	
Fall time	tf		-	8	12	
Total gate charge	Qg	V_{DS}=-15V,I_D=-4.2A V_{GS}=-4.5V	-	6.2	-	nC
Gate-source charge	Qgs		-	1.7	-	
Gate-drain charge	Qgd		-	2.5	-	
Body Diode Reverse Recovery Time	trr	IF=-4.2A, dI/dt=100A/ms		24		nS
Body Diode Reverse Recovery Charge	Qrr	IF=-4.2A, dI/dt=100A/ms		1.8		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V_{SD}	V_{GS}=0V,Is=-4.2A	-	-0.81	-1.2	V

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$	100	125	℃/W
Maximum Junction-to-Lead	$R_{\theta JL}$	63	80	℃/W

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

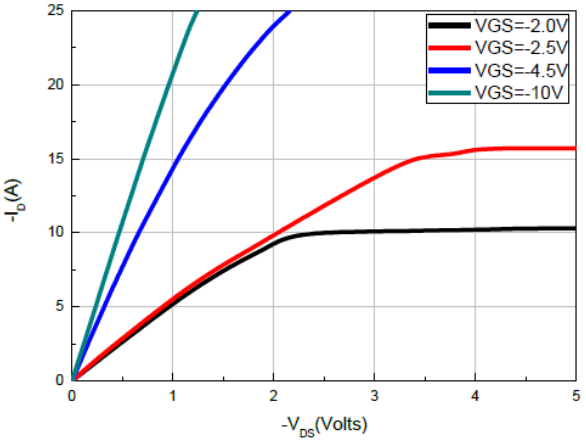

Fig 1：On-Region Characteristics

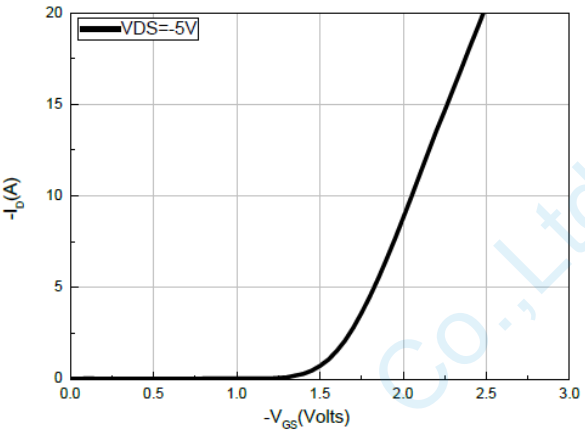

Fig 2：Transfer Characteristics

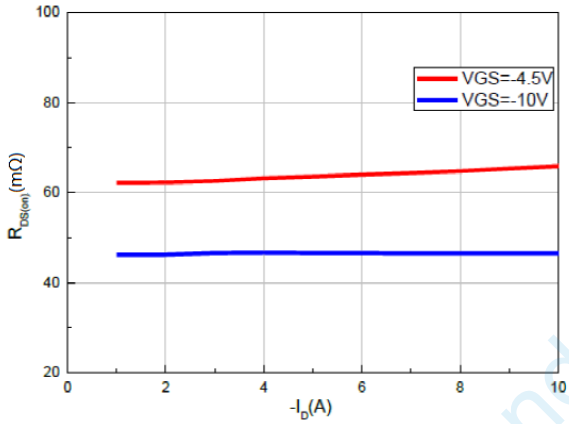

Fig 3：On-Resistance vs. Drain Current and Gate Voltage

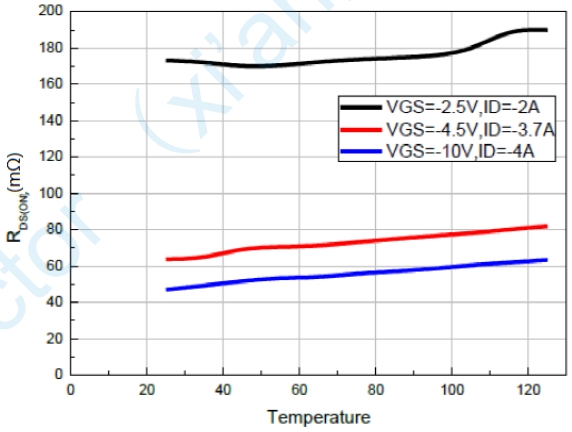

Fig 4：On-Resistance vs. Junction Temperature

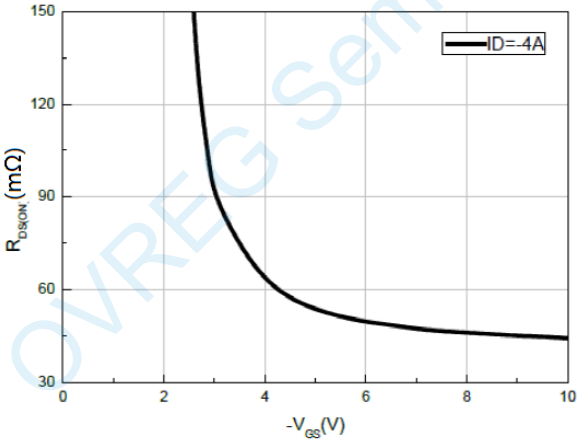

Fig 5：On-Resistance vs. Gate-Source Voltage

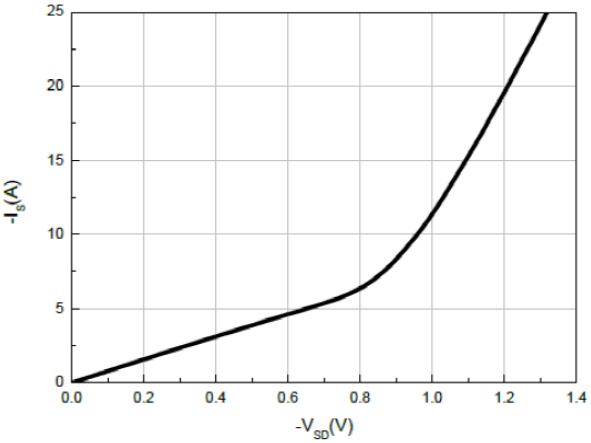

Fig 6：Body-Diode Characteristics

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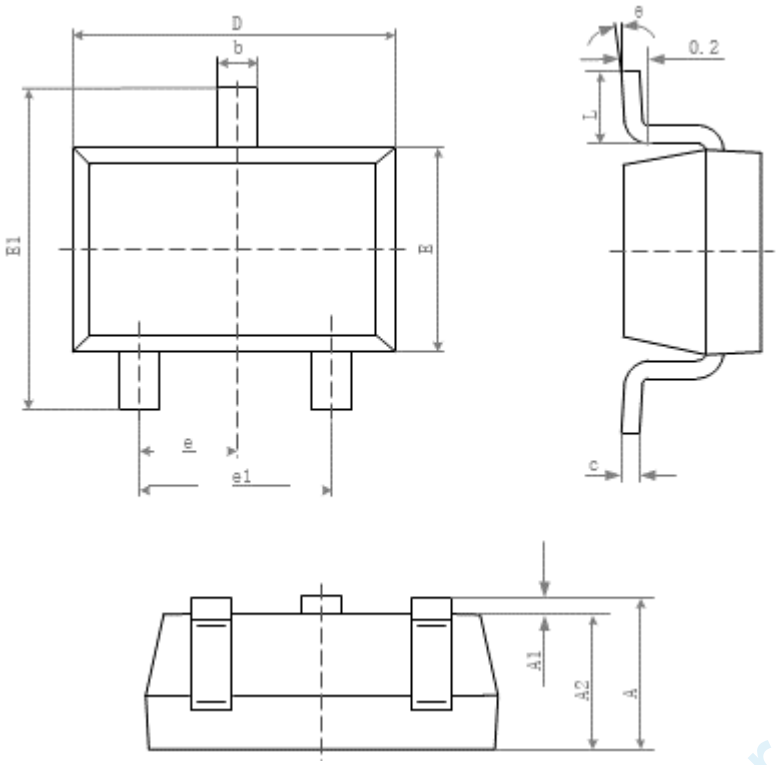
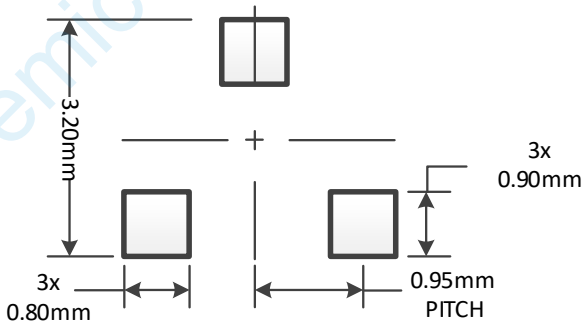
Package information



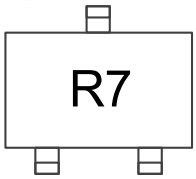
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
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
OVM30P58T	GREEN	T/R	7 inch	3k/reel	10reel= 30k/box	4boxes=120k/carton

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