

Single N-Channel, 50V, 220mA, MOSFET

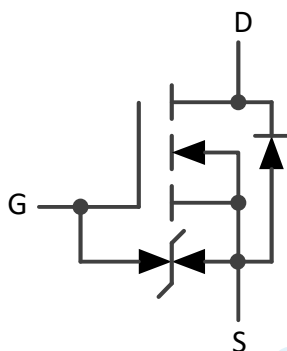
Features

- ✧ High density cell design for Low $R_{DS(on)}$
- ✧ Voltage controlled small signal switch
- ✧ Rugged and reliable

V_{DS} (V)	Max. $R_{DS(on)}$ (Ω)
50	3.5 @ $V_{GS}=10V$
	6 @ $V_{GS}=4.5V$

Applications

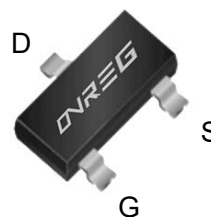
- ✧ DC/DC Converter
- ✧ Load Switch for Portable Devices
- ✧ Battery Switch



Circuit Diagram

Mechanical Data

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



SOT-323

Absolute Maximum Rating at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	220	mA
Power Dissipation	P_D	0.30	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-50~ +150	$^{\circ}\text{C}$

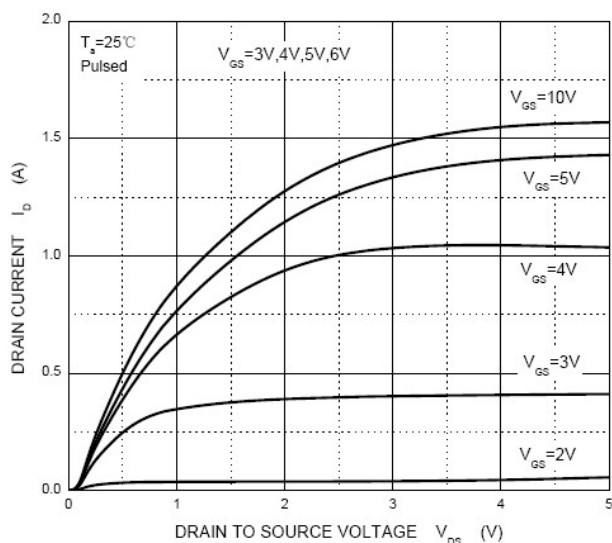
Electrical Characteristics at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=250uA	50			V
Gate-Threshold voltage(note1)	V GS (th)	VDS=VGS, ID=1mA	0.5		1.5	V
Gate-body Leakage	IGSS	VDS=0V, VGS=± 20V			±10	uA
Zero Gate Voltage Drain current	IDSS	VDS=50V, VGS=0V			1	uA
Drain-Source On-Resistance (note1)	RDS(ON)	VGS=10V, ID=0.22A			3.5	Ω
		VGS=4.5V, IC=0.22A			6	
Forward trans conductance (note1)	gfs	VDS=10V, ID=0.22A	0.12			S
Diode forward voltage(note1)	VSD	IS=0.44A, VGS=0V			1.2	V
Dynamic(note2)						
Input capacitance	Ciss	VDS=25V, VGS=0V,f=1MHz		27		pF
Output capacitance	Coss			13		
Reverse Transfer capacitance	Crss			6		
Switching(note1,2)						
Turn-on Time	td(on)	VDD=30V, RGEN=6Ω, VGS=10V, ID=0.29A,			5	ns
Rise time	tr				18	
Turn-off Time	td(off)				36	
Fall time	tf				14	
Reverse Recovery Time	tRR			8.8		ns
Reverse Recovery Charge	QRR			2.6		nC
Total Gate Charge(VGS=4.5V)	Qg	VDS=25V, ID=0.2A,		0.45		nC
Total Gate Charge(VGS=10V)	Qg			0.95		
Gate-Source Charge	Qgs			0.10		
Gate-Drain Charge	Qgd			0.14		
Gate Resistance	Rg			69		Ω

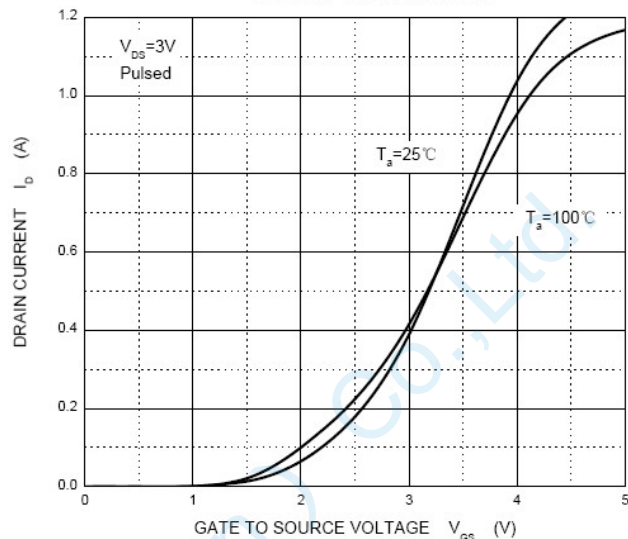
Notes: 1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycles $\leq 2\%$.
2. These parameters have no way to verify.

Typical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

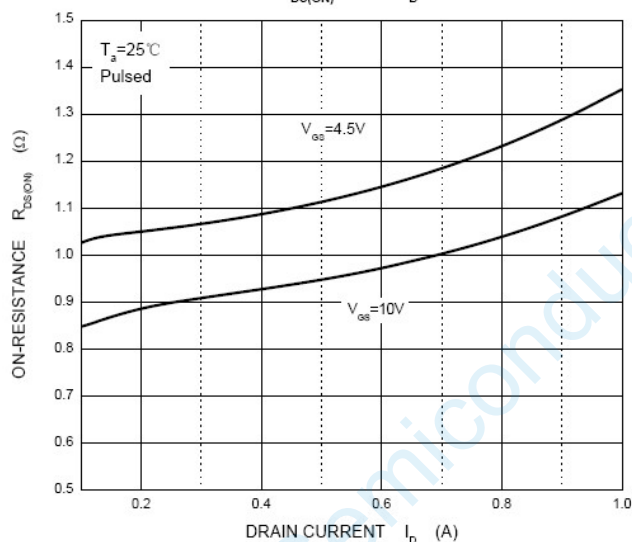
Output Characteristics



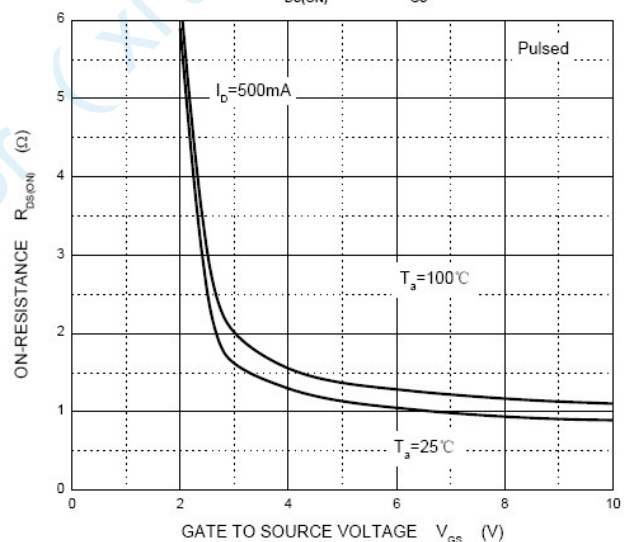
Transfer Characteristics



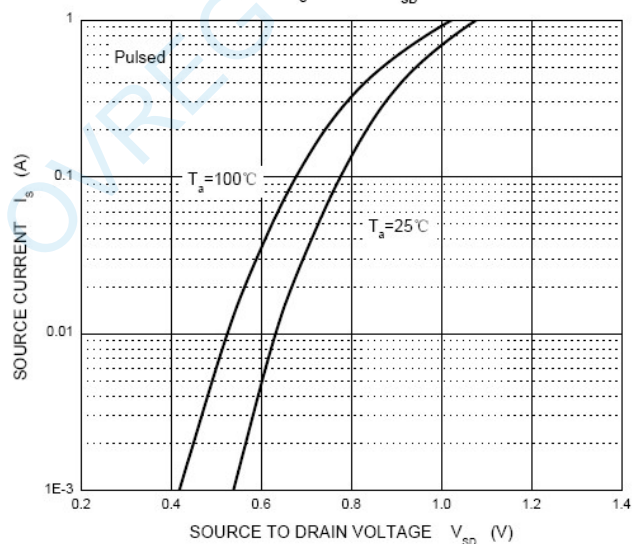
$R_{DS(ON)}$ — I_D



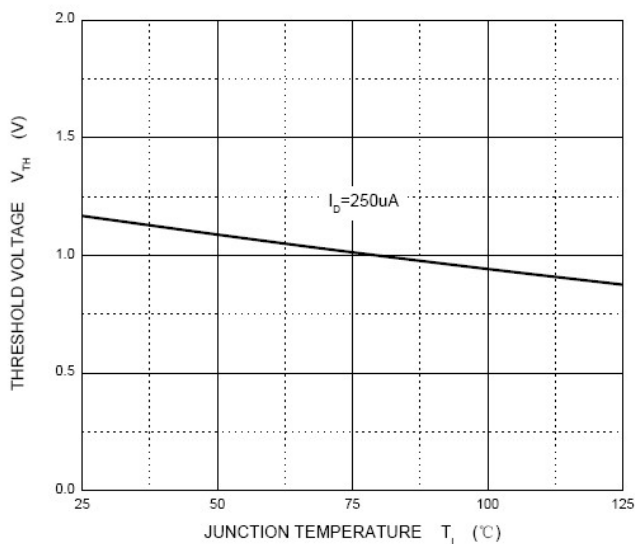
$R_{DS(ON)}$ — V_{GS}



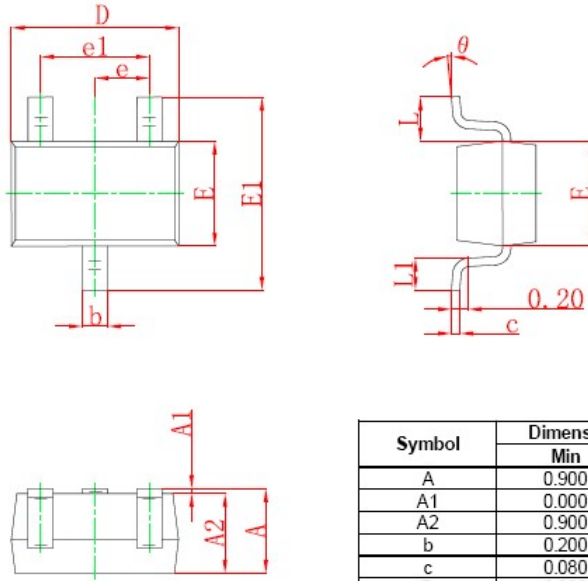
I_S — V_{SD}



Threshold Voltage

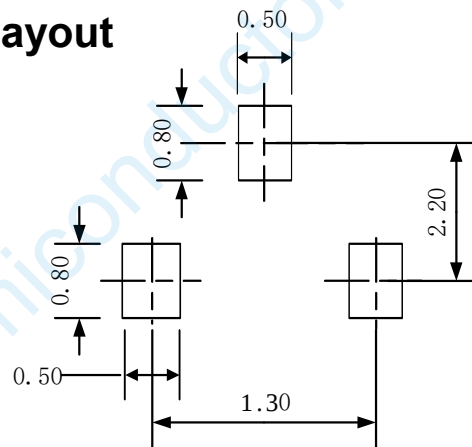


Package Information



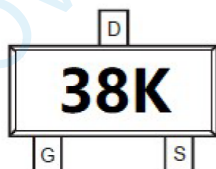
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	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
OVM50N6RT3	GREEN	T/R	7 inch	3k/reel	10reel= 30k/box	4boxes=120k/carton