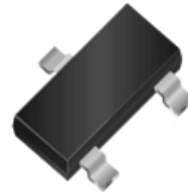
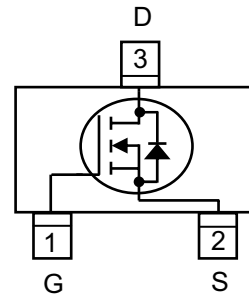


**WNM3008**
**Single N-Channel, 30V, 3.1A, Power MOSFET**
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

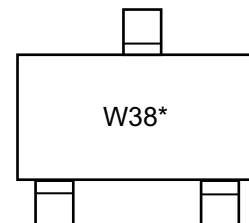
$V_{DS}$ (V)	$R_{ds(on)}$ ( $\Omega$ )
30	0.044@ $V_{GS}=10V$
	0.057@ $V_{GS}=4.5V$


**SOT-23**
**Descriptions**

The WNM3008 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNM3008 is Pb-free and Halogen-free.


**Pin configuration (Top view)**
**Features**

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- Small package SOT-23



W38 = Device Code  
\* = Month

**Applications**

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

**Marking**
**Order information**

Device	Package	Shipping
WNM3008-3/TR	SOT-23	3000/Reel&Tape

**Absolute Maximum ratings**

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	30		V
Gate-Source Voltage		$V_{GS}$	$\pm 20$		
Continuous Drain Current <sup>a</sup>	$T_A=25^\circ\text{C}$	$I_D$	3.1	2.8	A
	$T_A=70^\circ\text{C}$		2.5	2.3	
Maximum Power Dissipation <sup>a</sup>	$T_A=25^\circ\text{C}$	$P_D$	0.8	0.7	W
	$T_A=70^\circ\text{C}$		0.5	0.4	
Continuous Drain Current <sup>b</sup>	$T_A=25^\circ\text{C}$	$I_D$	2.8	2.6	A
	$T_A=70^\circ\text{C}$		2.2	2.1	
Maximum Power Dissipation <sup>b</sup>	$T_A=25^\circ\text{C}$	$P_D$	0.6	0.5	W
	$T_A=70^\circ\text{C}$		0.4	0.3	
Pulsed Drain Current <sup>c</sup>		$I_{DM}$	10		A
Operating Junction Temperature		$T_J$	150		$^\circ\text{C}$
Lead Temperature		$T_L$	260		$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	-55 to 150		$^\circ\text{C}$

**Thermal resistance ratings**

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance <sup>a</sup>	$t \leq 10 \text{ s}$	$R_{\theta JA}$	125	150	$^\circ\text{C/W}$
	Steady State		140	175	
Junction-to-Ambient Thermal Resistance <sup>b</sup>	$t \leq 10 \text{ s}$	$R_{\theta JA}$	150	180	
	Steady State		165	210	
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	60	76	

a Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

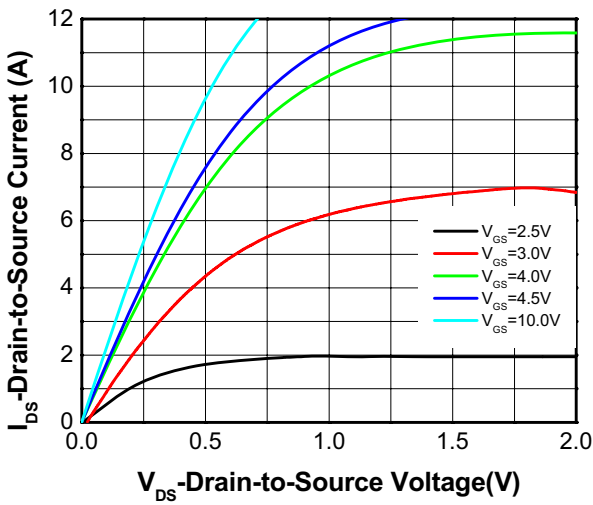
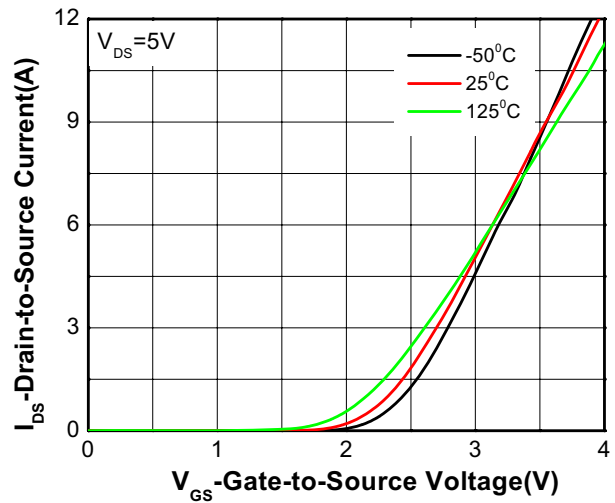
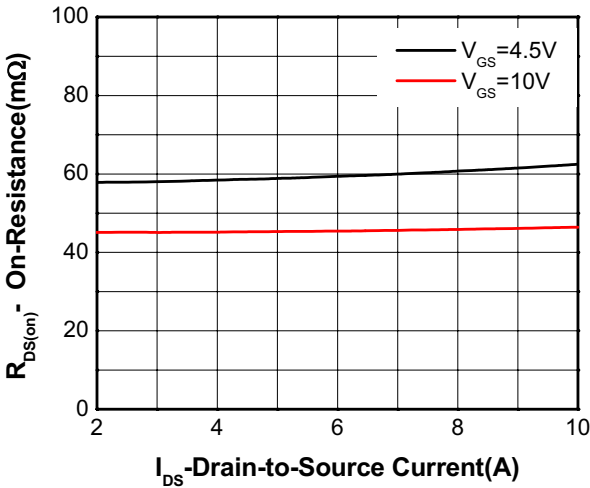
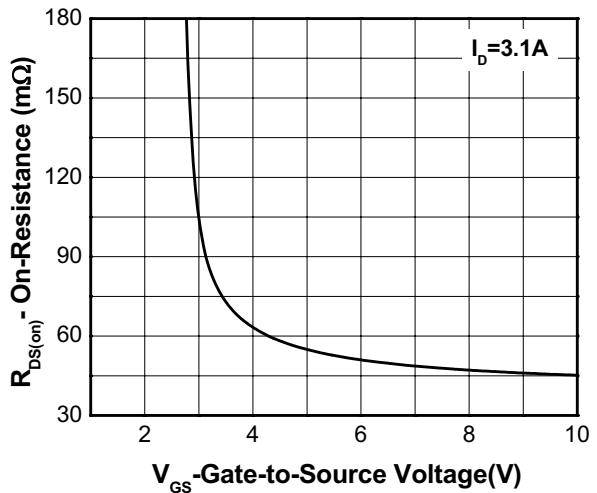
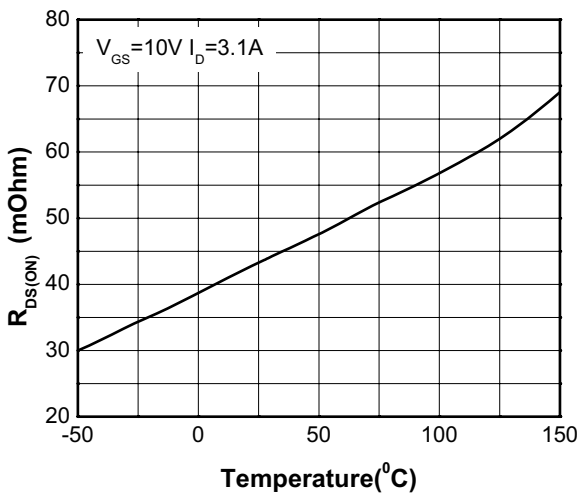
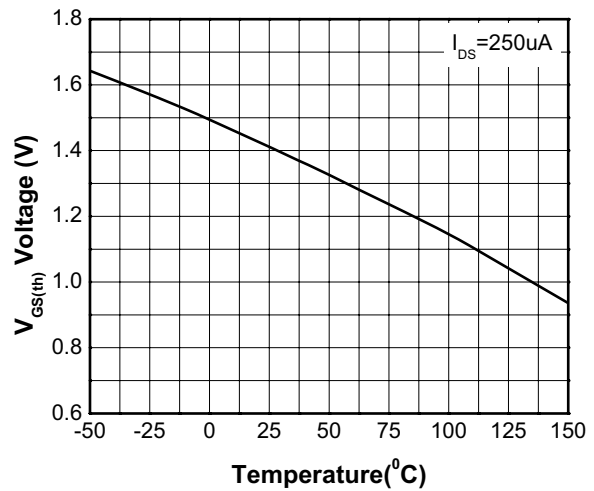
b Surface mounted on FR-4 board using minimum pad size, 1oz copper

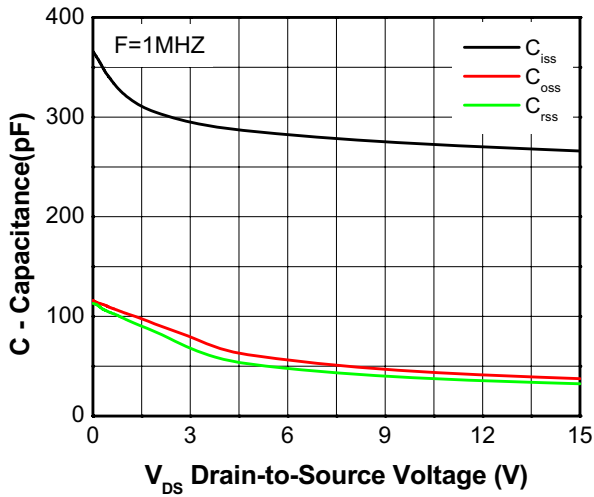
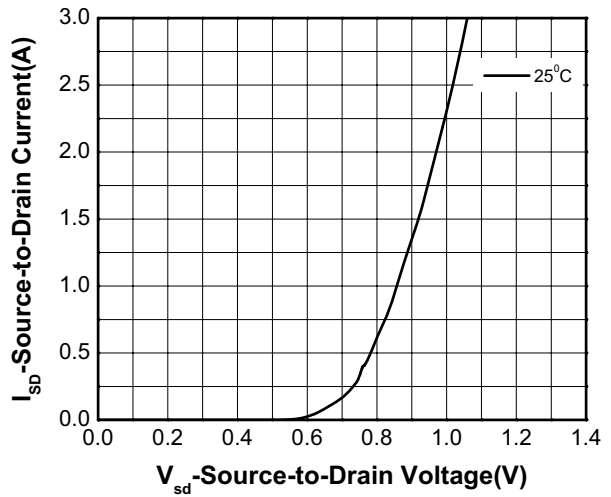
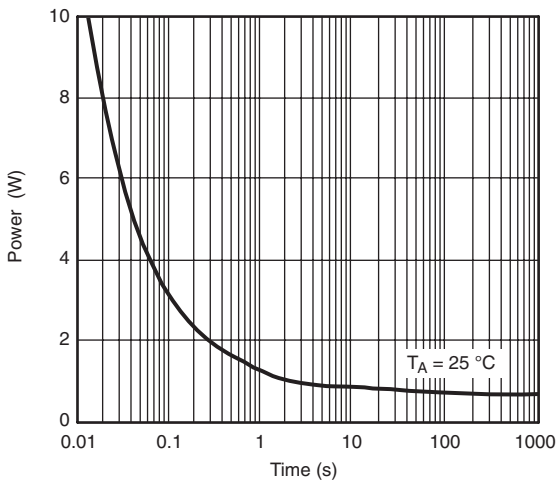
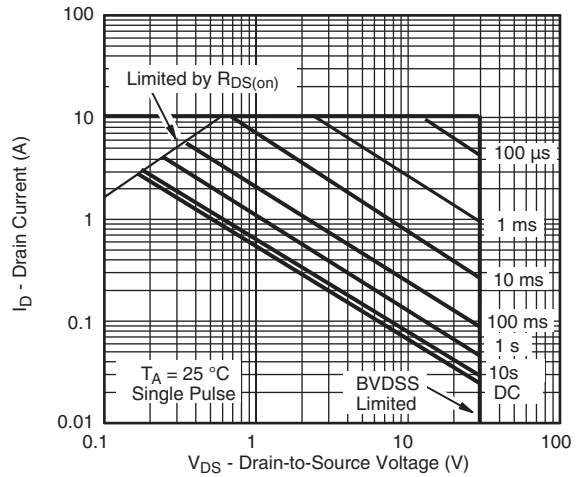
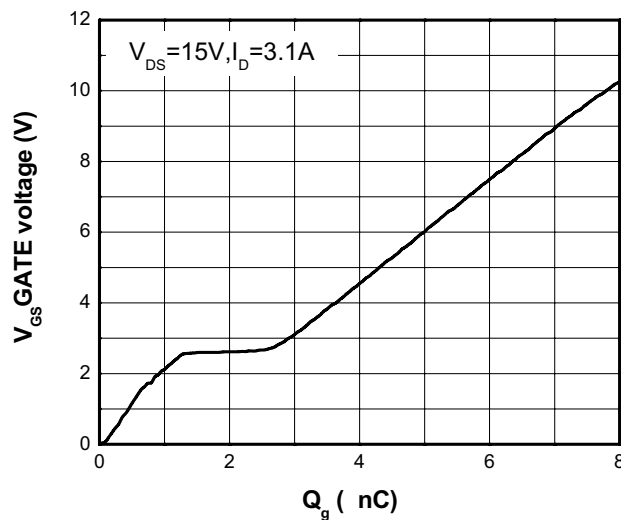
c Pulse width < 380 $\mu\text{s}$ , Duty Cycle < 2%

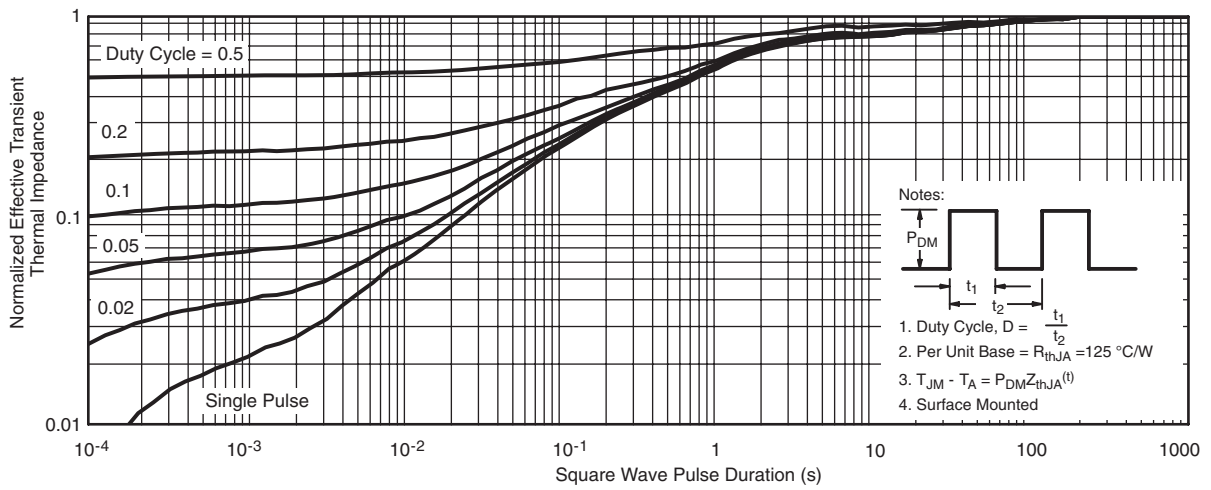
d Maximum junction temperature  $T_J=150^\circ\text{C}$ .

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

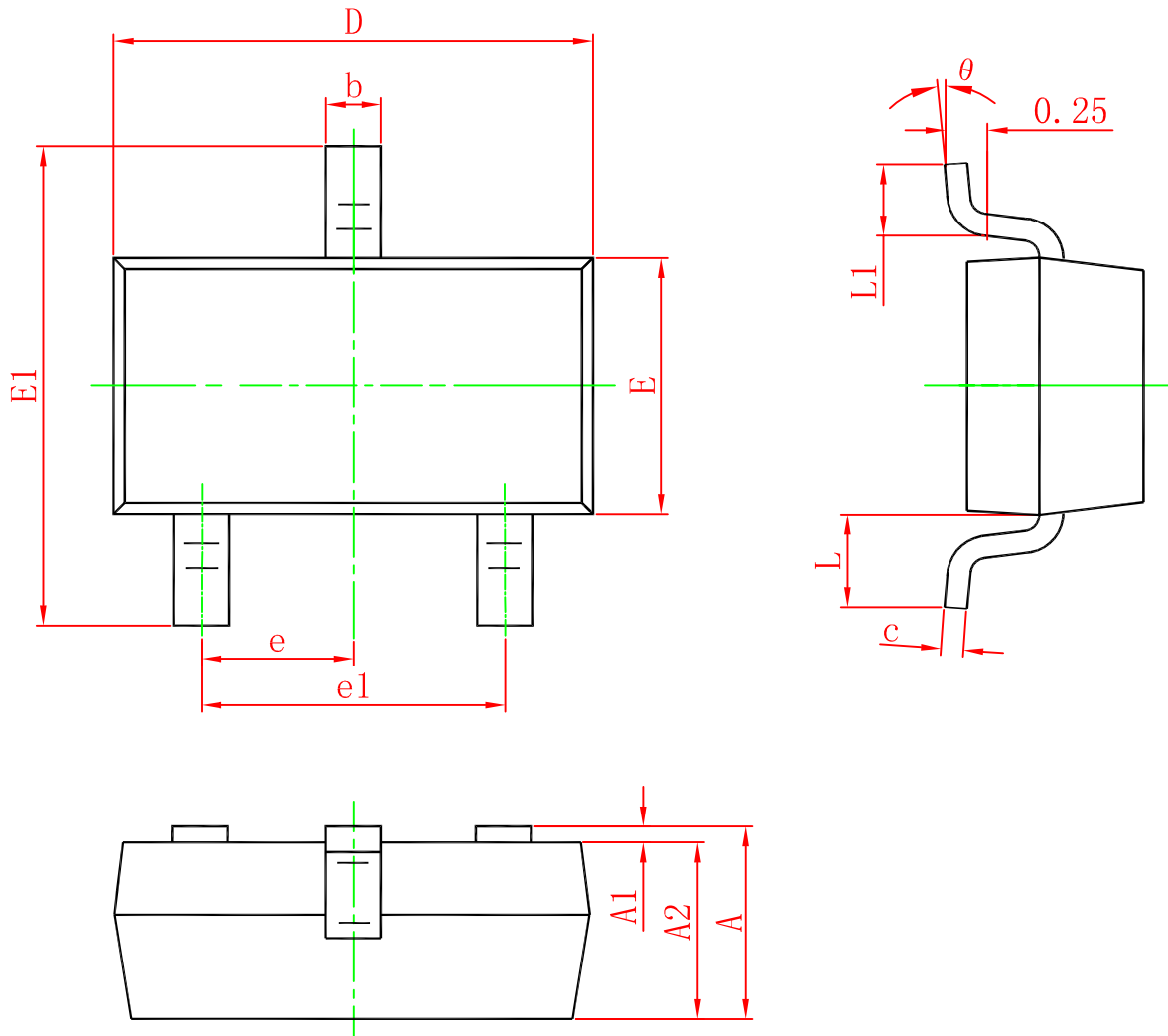
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-to-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$	30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$			1	$\mu\text{A}$
Gate-to-source Leakage Current	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	0.8	1.4	2.0	V
Drain-to-source On-resistance <sup>b, c</sup>	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 3.1\text{ A}$		44	62	m $\Omega$
		$V_{GS} = 4.5\text{ V}, I_D = 2.0\text{ A}$		57	77	
		$V_{GS} = 2.5\text{ V}, I_D = 1.0\text{ A}$		180	235	
Forward Transconductance	$g_{FS}$	$V_{DS} = 4.5\text{ V}, I_D = 2.8\text{ A}$		5.0		s
<b>CAPACITANCES, CHARGES</b>						
Input Capacitance	$C_{ISS}$	$V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz},$ $V_{DS} = 15\text{ V}$		265		pF
Output Capacitance	$C_{OSS}$			38		
Reverse Transfer Capacitance	$C_{RSS}$			33		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V},$ $V_{DS} = 15\text{ V},$ $I_D = 3.1\text{ A}$		7.75		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.60		
Gate-to-Source Charge	$Q_{GS}$			0.85		
Gate-to-Drain Charge	$Q_{GD}$			1.80		
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 10\text{ V},$ $V_{DS} = 15\text{ V},$ $R_L = 15\ \Omega,$ $R_G = 6\ \Omega$		5.1		ns
Rise Time	$t_r$			2.9		
Turn-Off Delay Time	$t_d(OFF)$			20.6		
Fall Time	$t_f$			2.7		
<b>BODY DIODE CHARACTERISTICS</b>						
Forward Voltage	$V_{SD}$	$V_{GS} = 0\text{ V}, I_S = 1.5\text{ A}$		0.8	1.5	V

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

**Output characteristics**

**Transfer characteristics**

**On-Resistance vs. Drain current**

**On-Resistance vs. Gate-to-Source voltage**

**On-Resistance vs. Junction temperature**

**Threshold voltage vs. Temperature**


**Capacitance**

**Body diode forward voltage**

**Single pulse power**

**Safe operating power**

**Gate Charge Characteristics**



**Transient thermal response (Junction-to-Ambient)**

**Package Outline Dimension**
**SOT-23**


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 (Typ.)	
e1	1.800	2.000
L	0.550 (Typ.)	
L1	0.300	0.500
$\theta$	0°	8°

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