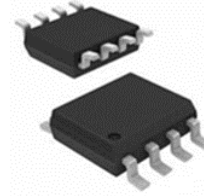


WNM6007

Single N-Channel, 60V, 12.0A, Power MOSFET

<http://www.omnivision-group.com/>

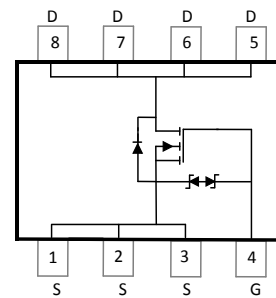
V _{DS} (V)	Max. R _{DS(on)} (mΩ)
60	11.8 @ V _{GS} = 10V
	17.5 @ V _{GS} = 4.5V
ESD Rating: 2KV HBM	



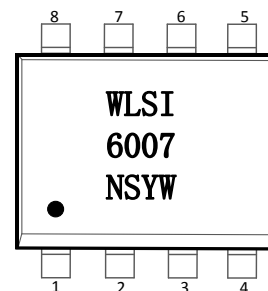
SOP-8L

Descriptions

The WNM6007 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 WNM6007 is Pb-free.



Pin configuration (Top view)



WLSI = Company Code
 6007 = Device Code
 NS = Special Code
 Y = Year
 W = Week(A~z)

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Low Threshold Voltage
- Small package SOP-8L

Applications

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

Marking

Order information

Device	Package	Shipping
WNM6007-8/TR	SOP-8L	4000/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	Maximum	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	12.0	A
		$T_A=70^\circ\text{C}$	9.6	
Pulsed Drain Current ^c	I_{DM}	48		
Avalanche Energy $L=0.3\text{mH}$	E_{AS}	63	mJ	
Maximum Power Dissipation ^b	P_D	$T_A=25^\circ\text{C}$	3.1	W
		$T_A=70^\circ\text{C}$	2.0	
Operating Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$	
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$	

Thermal resistance ratings

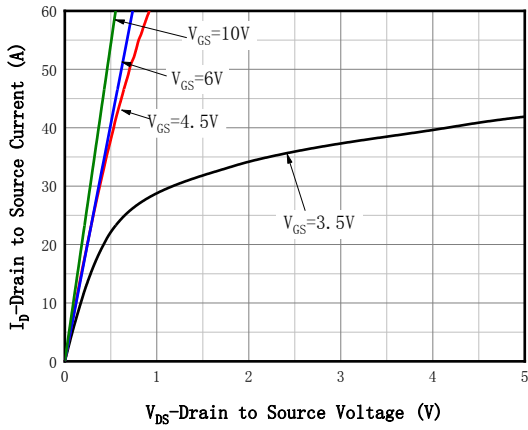
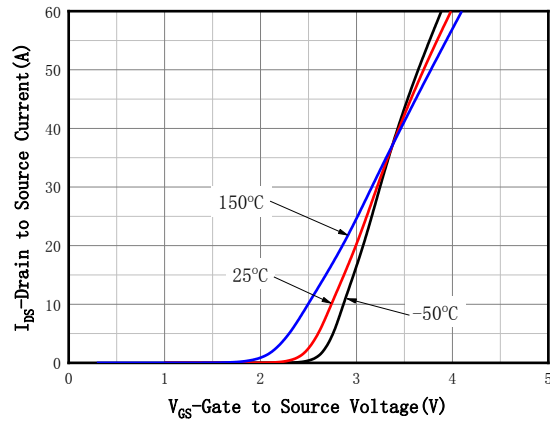
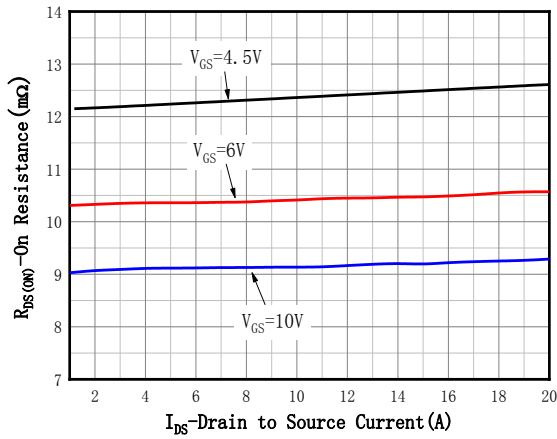
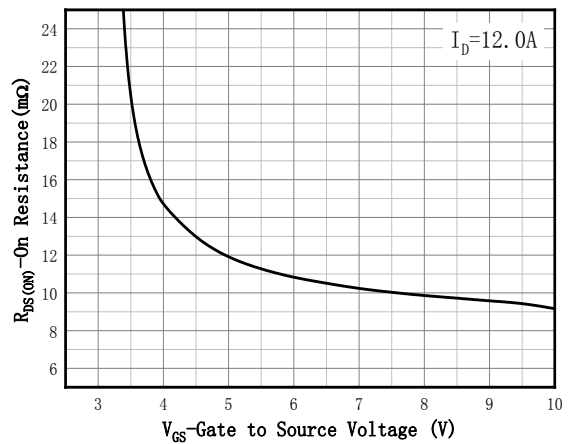
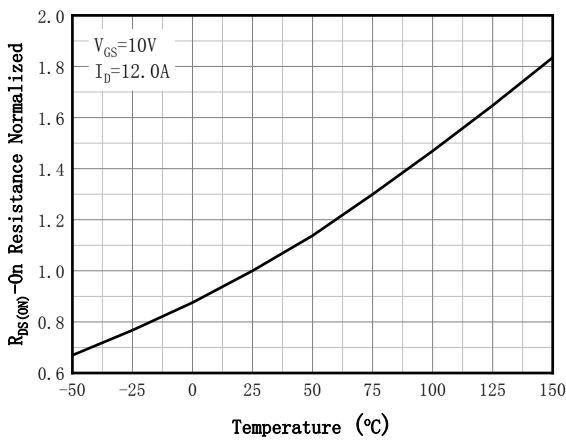
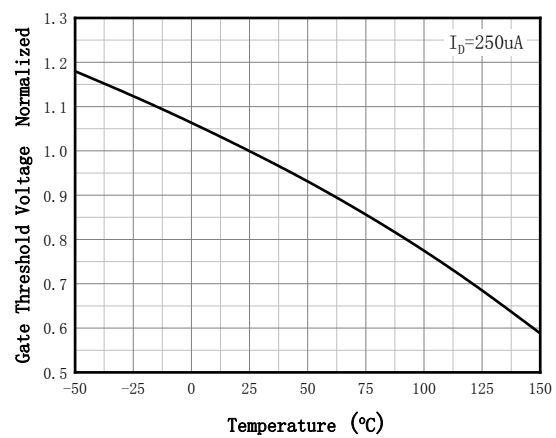
Single Operation					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	31	40	$t \leq 10\text{ s}$	$^\circ\text{C/W}$
				Steady State	
Junction-to-Lead Thermal Resistance	$R_{\theta JL}$	14	20	Steady State	

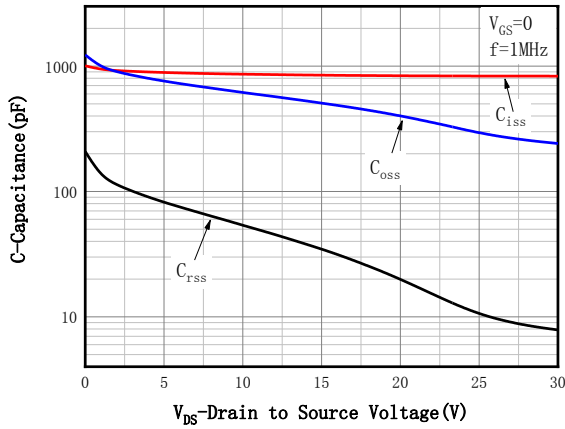
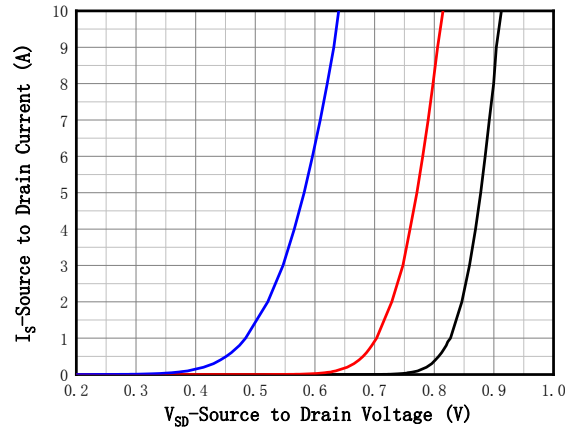
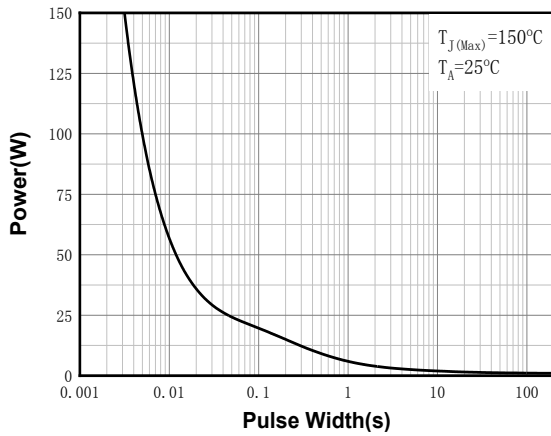
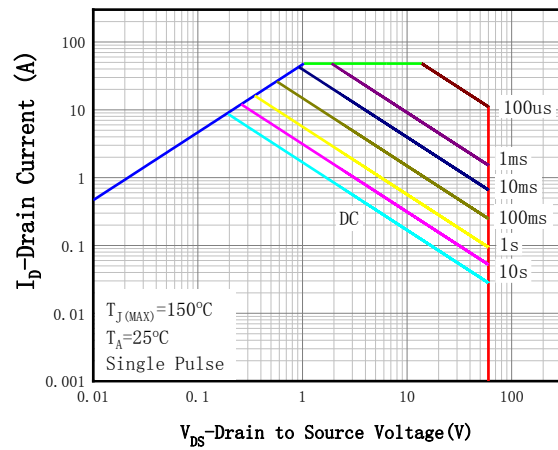
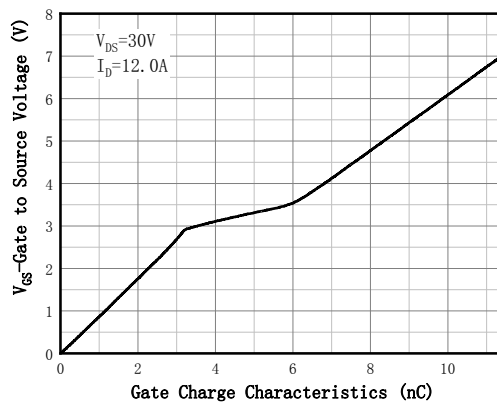
Note:

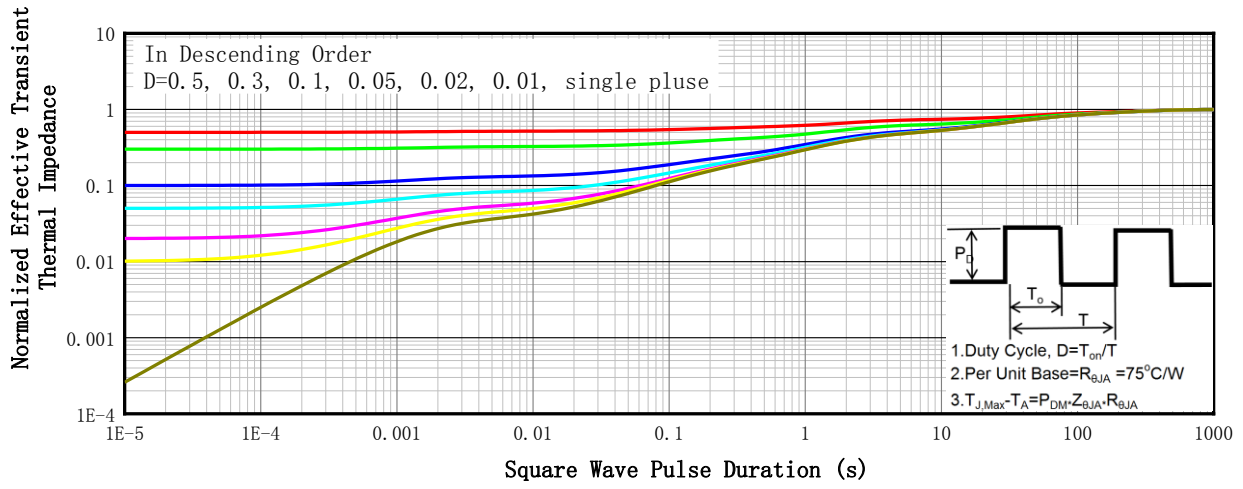
- FR-4 board (38mm X 38mm X t1.6mm, 70um Copper) partially covered with copper (645mm² area)
- The power dissipation P_D is based on Junction-to-Ambient thermal resistance $R_{\theta JA}$ $t \leq 10\text{s}$ value and the $T_{J(\text{MAX})}=150^\circ\text{C}$.
- Repetitive rating, ~10us pulse width, duty cycle ~1%, keep initial $T_J = 25^\circ\text{C}$, the maximum allowed junction temperature of 150°C .
- The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

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

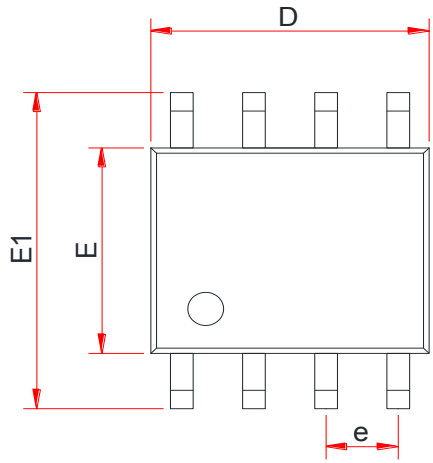
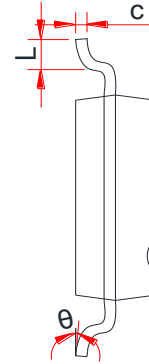
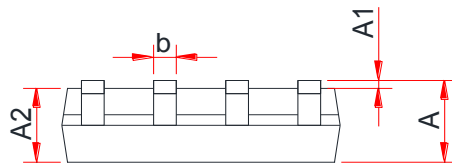
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 10	
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	1.4	1.8	2.4	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 12.0\text{ A}$		9.2	11.8	$\text{m}\Omega$
		$V_{GS} = 4.5\text{ V}, I_D = 11.5\text{ A}$		12.3	17.5	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}, V_{DS} = 30\text{ V}$		833		pF
Output Capacitance	C_{OSS}			241		
Reverse Transfer Capacitance	C_{RSS}			8.3		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V}, V_{DS} = 30\text{ V}, I_D = 12.0\text{ A}$		16.0		nC
Threshold Gate Charge	$Q_{G(TH)}$			2.1		
Gate-to-Source Charge	Q_{GS}			3.6		
Gate-to-Drain Charge	Q_{GD}			2.0		
Gate Resistance	R_g	$F = 1\text{ MHz}$		3.0		Ω
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 10\text{ V}, V_{DS} = 30\text{ V}, R_L = 2.2\ \Omega, R_G = 3\ \Omega$		5.4		ns
Rise Time	t_r			26		
Turn-Off Delay Time	$t_d(OFF)$			16		
Fall Time	t_f			8		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 1.0\text{ A}$		0.7	1.2	V

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

Output Characteristics ^d

Transfer Characteristics ^d

On-Resistance vs. Drain Current ^d

On-Resistance vs. Gate-to-Source Voltage ^d

On-Resistance vs. Junction Temperature ^d

Threshold Voltage vs. Temperature

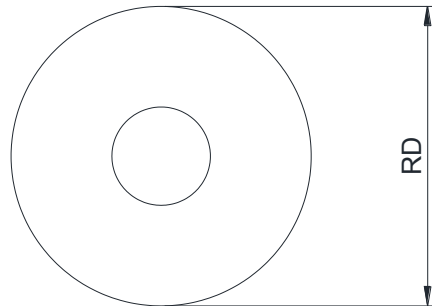
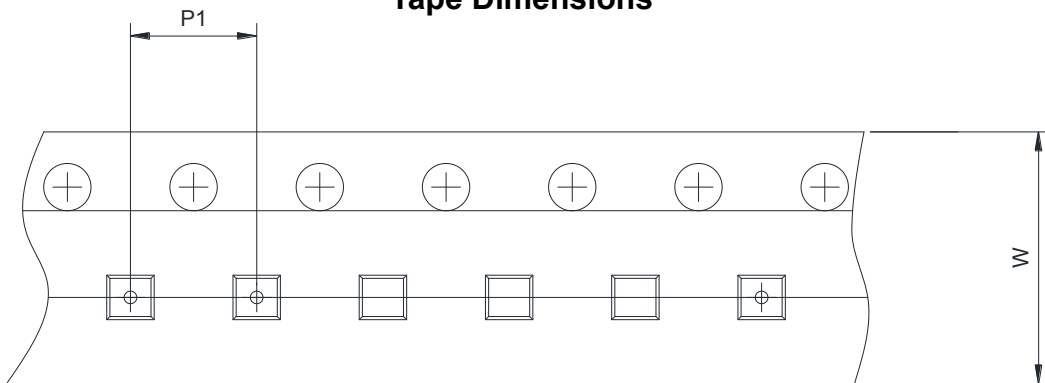
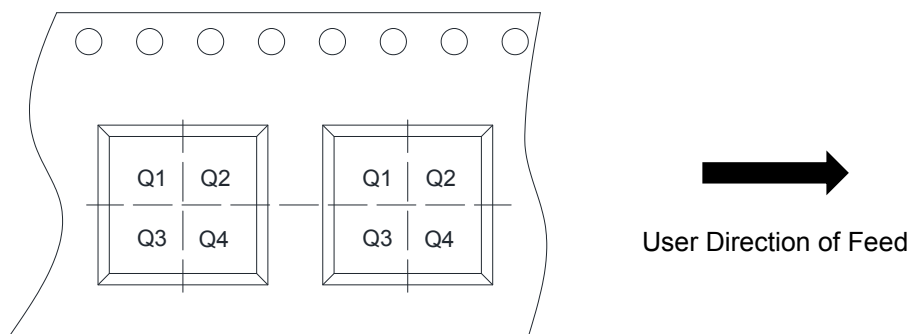

Capacitance

Body Diode Forward Voltage^d

Single Pulse power

Safe Operating Power

Gate Charge Characteristics



Transient thermal response (Junction-to-Ambient)

PACKAGE OUTLINE DIMENSIONS
SOP-8L

TOP VIEW

SIDE VIEW

SIDE VIEW

Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	1.35	1.55	1.75
A1	0.05	0.15	0.25
A2	1.25	1.40	1.65
b	0.33	-	0.51
c	0.17	-	0.26
D	4.70	4.90	5.10
E	3.70	3.90	4.10
E1	5.80	6.00	6.20
e	1.27 BSC		
L	0.40	-	1.27
θ	0°	-	8°

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	<input type="checkbox"/> 7inch	<input checked="" type="checkbox"/> 13inch		
W	Overall width of the carrier tape	<input type="checkbox"/> 8mm	<input checked="" type="checkbox"/> 12mm		
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input type="checkbox"/> 4mm	<input checked="" type="checkbox"/> 8mm	
Pin1	Pin1 Quadrant	<input checked="" type="checkbox"/> Q1	<input type="checkbox"/> Q2	<input type="checkbox"/> Q3	<input type="checkbox"/> Q4