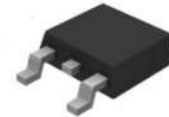


WNM6011

Single N-Channel, 80V, 65A, Power MOSFET

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

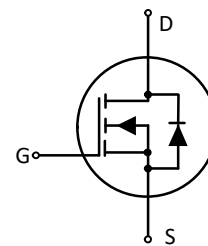
V_{DS} (V)	Max. $R_{DS(on)}$ (m Ω)
80	6.2 @ $V_{GS}=10V$
	9.5 @ $V_{GS}=6V$



TO-252E-2L

Description

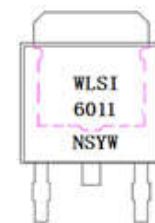
The WNM6011 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNM6011 is in compliance with RoHS.



Pin configuration (Top view)

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Package TO-252E-2L



WLSI = Company Code
 6011 = Device Code
 NS = Special Code
 Y = Year
 W = Week(A~z)

Marking

Applications

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

Order information

Device	Package	Shipping
WNM6011-8/TR	TO-252E-2L	2500/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	Maximum	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ^d	I_D	$T_C=25^{\circ}\text{C}$ 65	A
		$T_C=100^{\circ}\text{C}$ 41	A
Pulsed Drain Current ^c	I_{DM}	300	A
Continuous Drain Current	I_{DSM}	$T_A=25^{\circ}\text{C}$ 30	A
		$T_A=70^{\circ}\text{C}$ 24	
Avalanche Energy $L=0.3\text{mH}$	E_{AS}	200	mJ
Power Dissipation ^b	P_D	$T_C=25^{\circ}\text{C}$ 46	W
		$T_C=100^{\circ}\text{C}$ 19	
Power Dissipation ^a	P_{DSM}	$T_A=25^{\circ}\text{C}$ 9.6	W
		$T_A=70^{\circ}\text{C}$ 6.2	
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

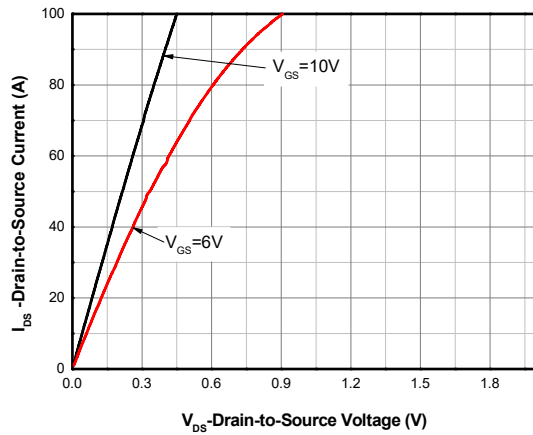
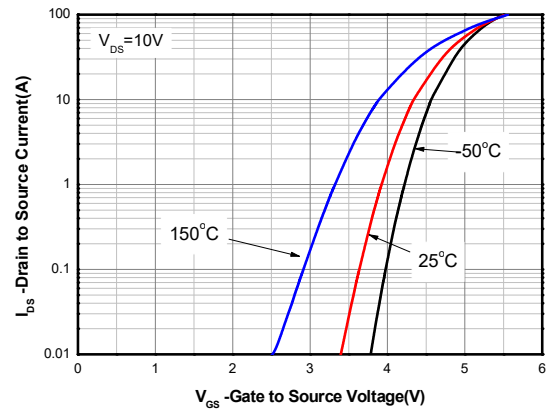
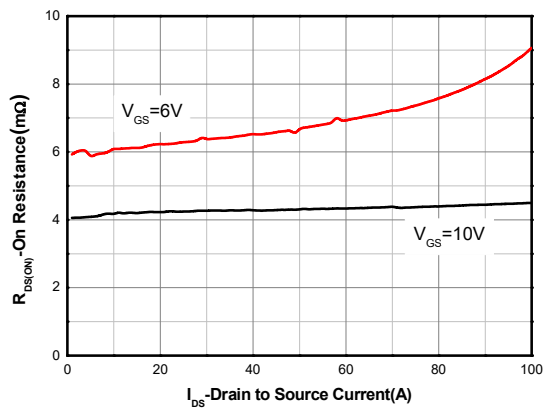
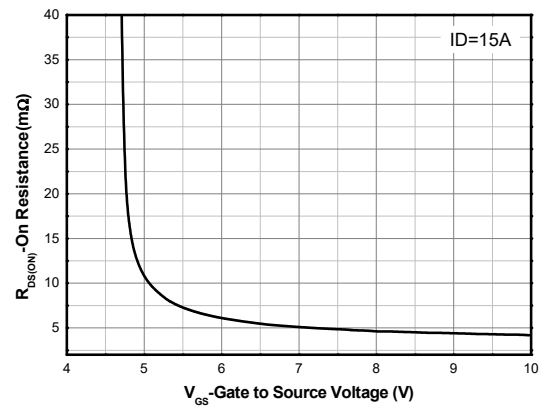
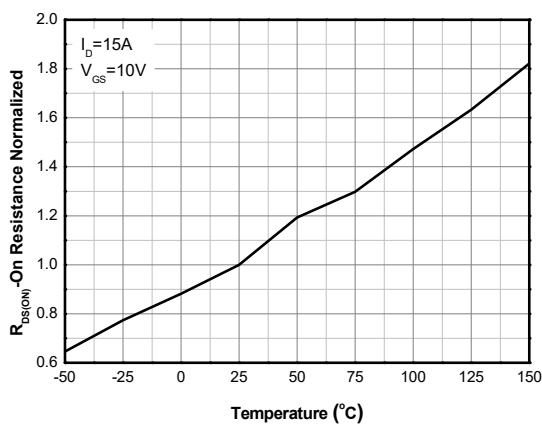
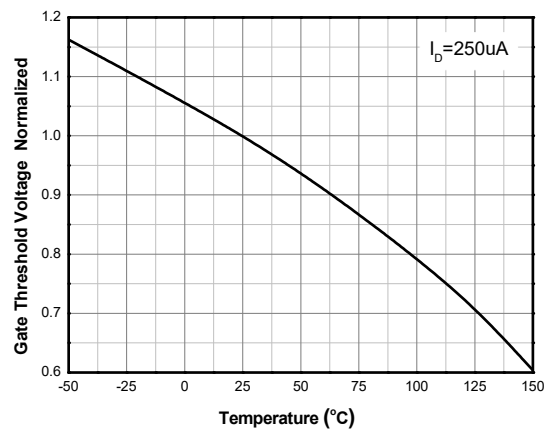
Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	t ≤ 10 s	R _{θJA}	11	13	°C/W
	Steady State		35	42	
Junction-to-Case Thermal Resistance	Steady State	R _{θJC}	2.3	2.7	

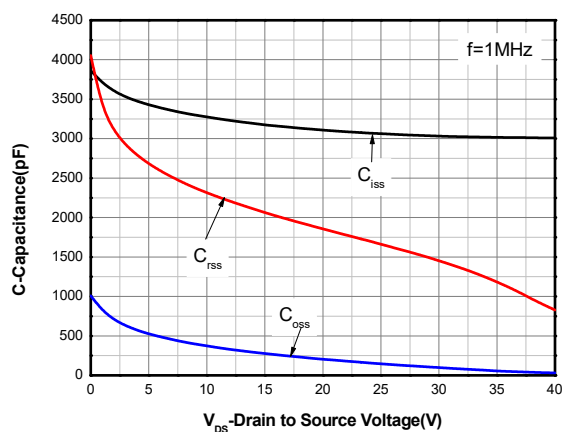
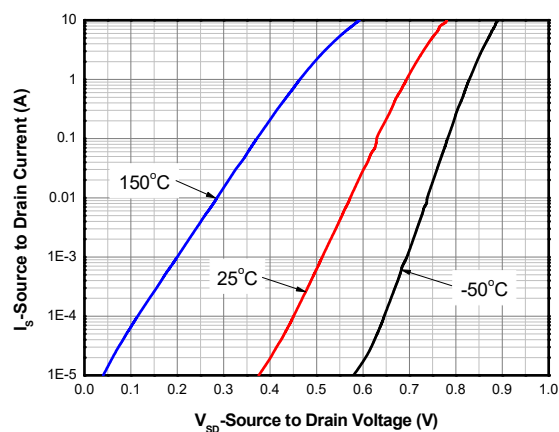
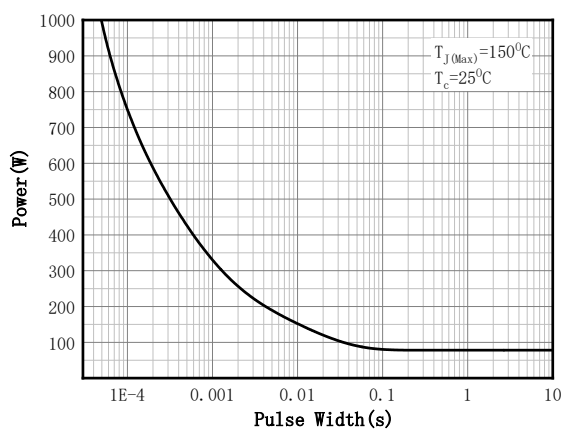
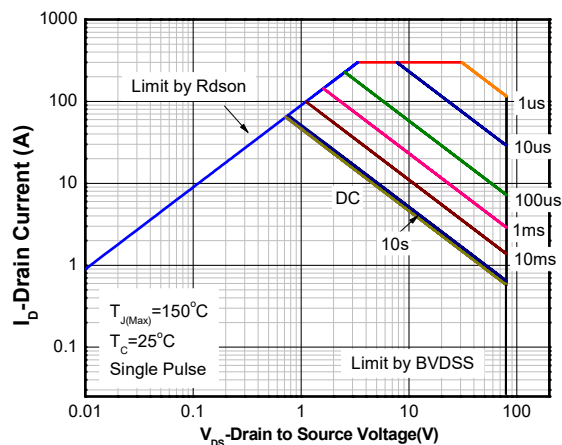
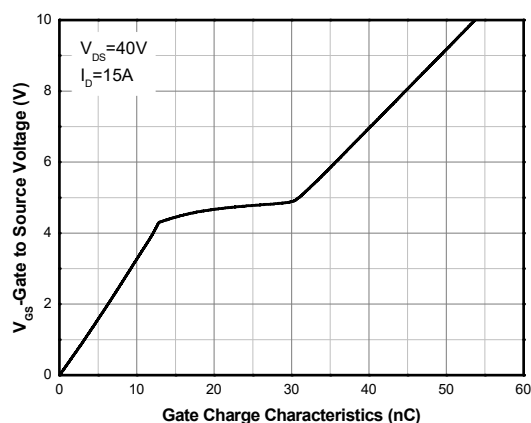
Note:

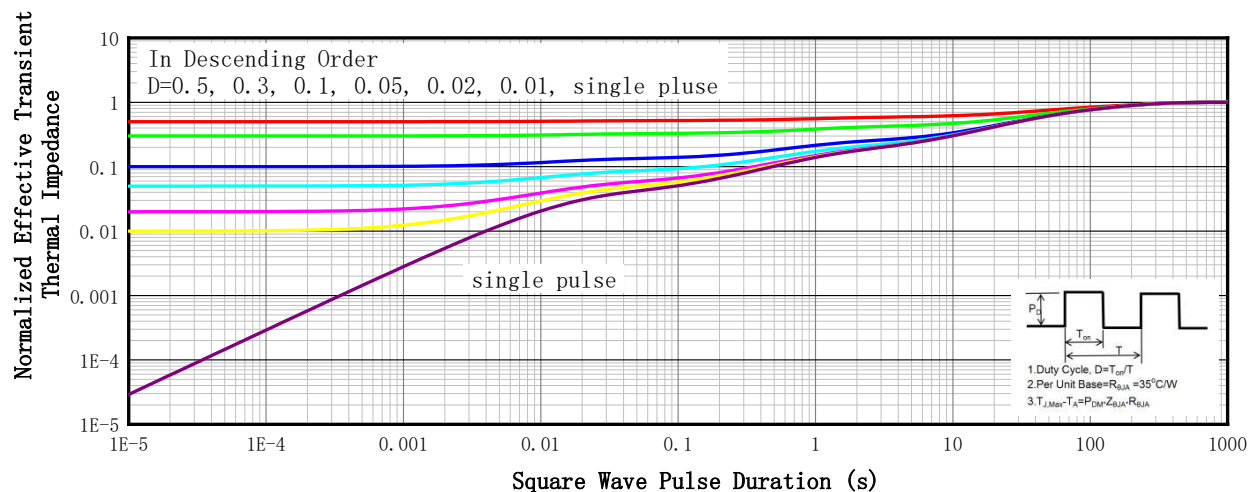
- a FR-4 board (38mm X 38mm X t1.6mm, 70um Copper) partially covered with copper (645mm² area).
- b The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- 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 .
- d The power dissipation P_{DSM} is based on Junction-to-Ambient thermal resistance $R_{\theta JA}$ $t \leq 10\text{s}$ value and the $T_{J(MAX)}=150^{\circ}\text{C}$.
- e The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

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

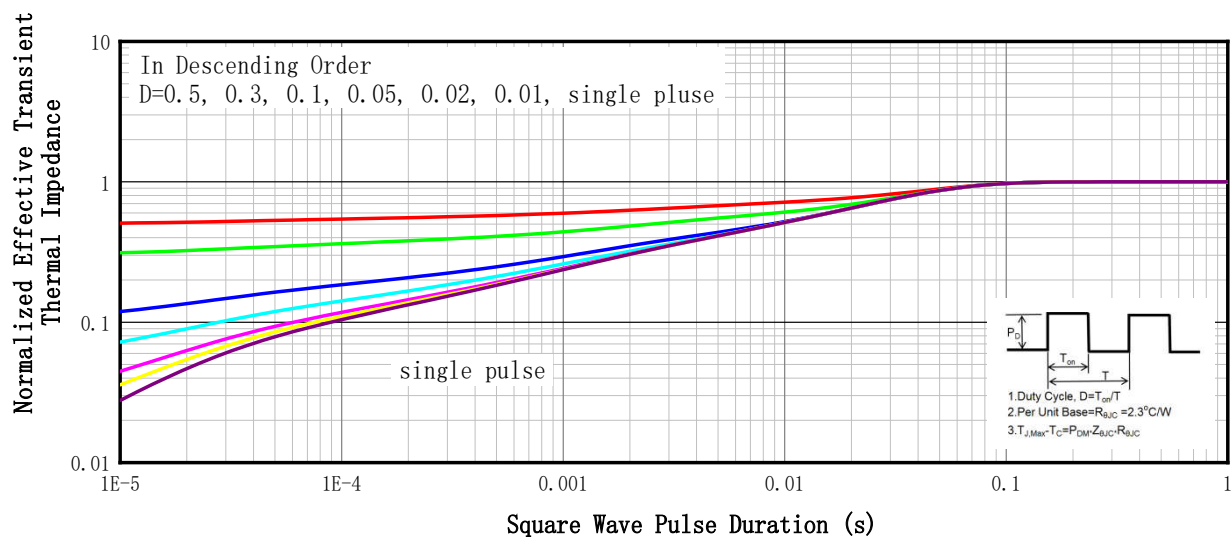
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	80			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =64V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	2.0	3.0	4.0	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =10V, I _D =15A		4.7	6.2	mΩ
		V _{GS} = 6V, I _D = 10A		6.8	9.5	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0MHz, V _{DS} = 30V		3022		pF
Output Capacitance	C _{OSS}			738		
Reverse Transfer Capacitance	C _{RSS}			27.6		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 40 V, I _D =15 A		50.2		nC
Threshold Gate Charge	Q _{G(TH)}			9.8		
Gate-to-Source Charge	Q _{GS}			15.5		
Gate-to-Drain Charge	Q _{GD}			12.0		
Gate Resistance	R _g	f=1MHz		1.0		Ω
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V _{GS} = 10 V, V _{DS} = 40 V, ID=15A, R _G =25Ω		41		ns
Rise Time	tr			43		
Turn-Off Delay Time	td(OFF)			110		
Fall Time	tf			93		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 15A		0.8	1.2	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

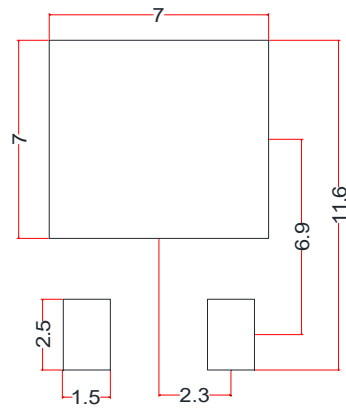
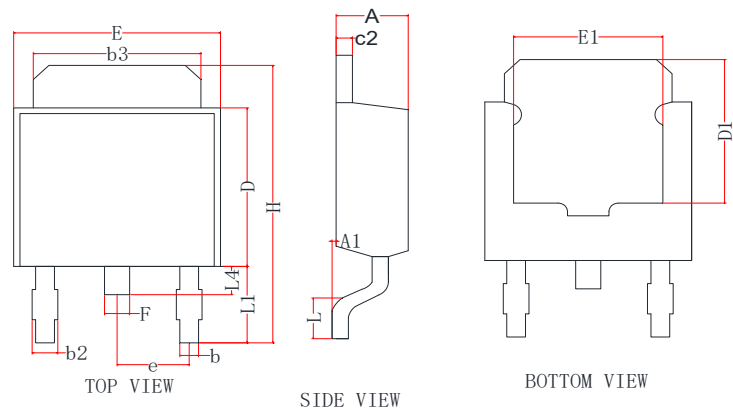

Capacitance

Body Diode Forward Voltage^e

Single Pulse power

Safe Operating Power

Gate Charge Characteristics



Transient Thermal Response (Junction-to-Case)

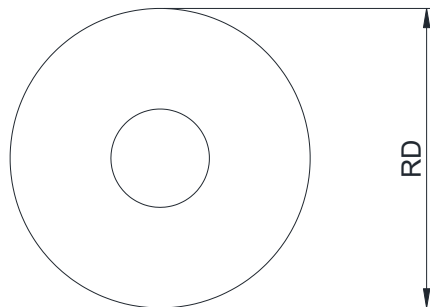
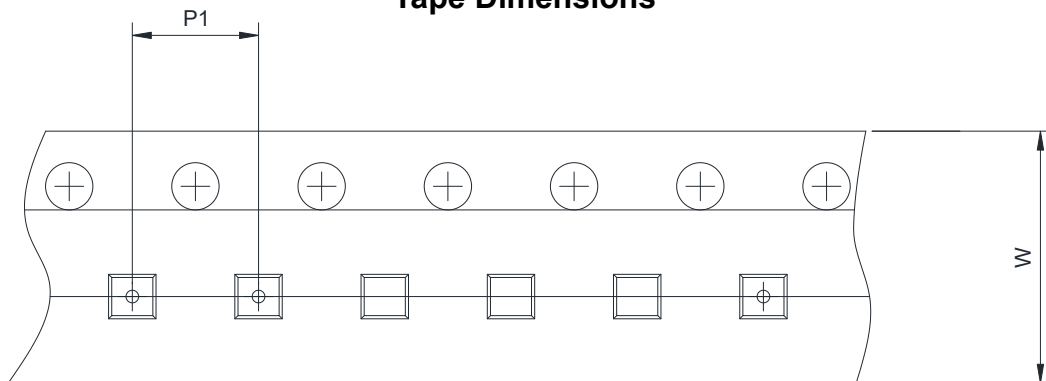
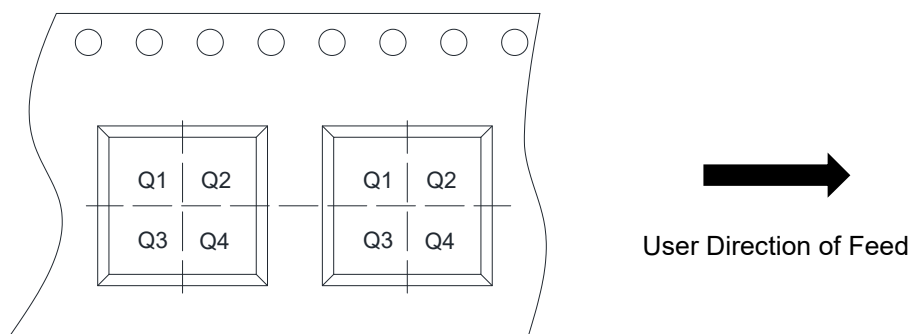


Transient Thermal Response (Junction-to-Ambient)

TAPE AND REEL INFORMATION
TO-252E-2L


RECOMMENDED LAND PATTERN (Unit:mm)

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	2.20	2.30	2.40
A1	0	0.08	0.15
b	0.50	0.60	0.70
b 2	0.60	0.75	0.90
b 3	5.20	5.35	5.50
c 2	0.45	0.50	0.55
D	5.40	5.60	5.80
D1	4.57	--	--
E	6.40	6.60	6.80
E1	3.81	--	--
e	2.30 Ref.		
F	0.70	0.80	0.90
H	9.40	9.80	10.20
L	1.40	1.59	1.77
L1	2.40	2.70	3.00
L4	0.80	1.00	1.20

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	☐ 7inch	☒ 13inch
W	Overall width of the carrier tape	☐ 8mm	☐ 12mm ☒ 16mm
P1	Pitch between successive cavity centers	☐ 2mm	☐ 4mm ☒ 8mm
Pin1	Pin1 Quadrant	☐ Q1	☒ Q2 ☐ Q3 ☐ Q4