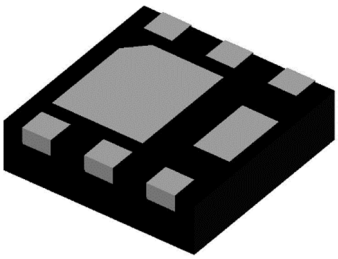
WNM3062A

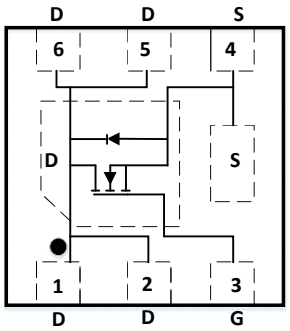
Single N-Channel, 30V, 18.5A, Power MOSFET

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

V_{DS} (V)	Max. $R_{DS(on)}$ (mΩ)
30	6.0 @ V_{GS}=10V
	9.0 @ V_{GS}=4.5V



DFN2X2-6L



Pin configuration (Top view)

Description

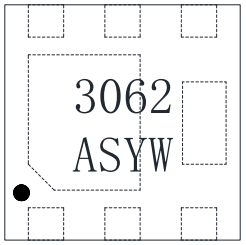
The WNM3062A is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNM3062A is in compliance with RoHS.

Features

- Trench Technology
- Supper high density cell design
- Low ON resistance
- Package DFN2X2-6L

Applications

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



3062 = Device Code
AS = Special Code
Y = Year
W = Week(A~z)

Marking

Order information

Device	Package	Shipping
WNM3062A-6/TR	DFN2x2-6L	3000/Tape&Reel

Absolute Maximum ratings

Parameter		Symbol	Maximum	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current [d]	T_A=25°C	I_D	18.5	A
	T_A=70°C		15	
Pulsed Drain Current [c]		I_{DM}	95	A
Avalanche Energy L=0.3mH		E_{AS}	31	mJ
Power Dissipation [a]	T_A=25°C	P_D	3.8	W
	T_A=70°C		2.4	
Operating Junction Temperature		T_J	-55 to 150	°C
Storage Temperature Range		T_{STG}	-55 to 150	°C

Thermal resistance ratings

Single Operation				
Parameter		Symbol	Maximum	Unit
Junction-to-Ambient Thermal Resistance [a]	t ≤ 10 s	$R_{\theta JA}$	33	°C/W
	Steady State		63	
Junction-to-Ambient Thermal Resistance [b]	t ≤ 10 s	$R_{\theta JA}$	127	
	Steady State		205	

Note:

a FR-4 board (38mm X 38mm X t1.6mm, 70um Copper) partially covered with copper (645mm2 area)

b FR-4 board (38mm X 38mm X t1.6mm, 70um Copper) minimum pad covered with copper.

c Repetitive rating, ~10us pulse width, duty cycle ~1%, keep initial T_J =25°C, the maximum allowed junction temperature of 150°C.

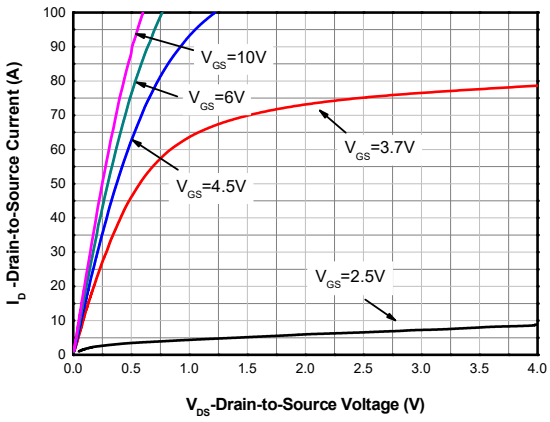
d The power dissipation P_D is based on Junction-to-Ambient thermal resistance $R_{\theta JA}$ t≤10s value and the $T_{J(MAX)}$=150°C.

e The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

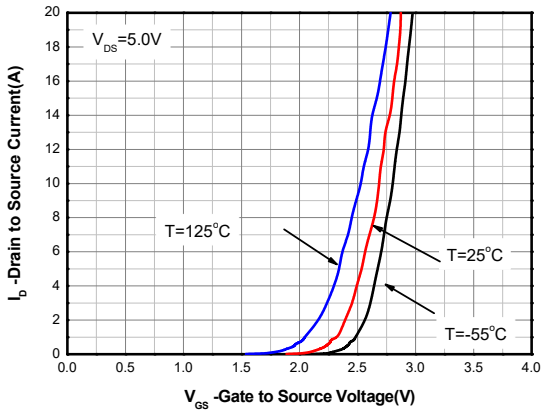
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250uA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =24V, 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	1.2	1.6	2.2	V
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D = 10A		4.7	6.0	mΩ
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D = 10A		6.6	9.0	mΩ
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS} = 0V, f = 1.0MHz, V_{DS} = 15V		1190		pF
Output Capacitance	C_{OSS}			173		
Reverse Transfer Capacitance	C_{RSS}			133		
Total Gate Charge（V_{GS}=10V）	$Q_{G(TOT)}$	V_{DS} = 15V, I_D = 10 A		25.5		nC
Total Gate Charge（V_{GS}=4.5V）	$Q_{G(TOT)}$			12.4		
Gate-to-Source Charge	Q_{GS}			4.1		
Gate-to-Drain Charge	Q_{GD}			4.5		
Gate Resistance	R_g	f=1MHz		2.4		Ω
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{GS} = 10 V, V_{DS} = 15 V, R_G=6 Ω,I_D=10 A		7		ns
Rise Time	tr			48		
Turn-Off Delay Time	td(OFF)			34		
Fall Time	tf			27		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 1A		0.7	1.2	V
Reverse Recovery Time	T_{rr}	I_F=1.5A,di/dt=100A/us		13.5		ns
Reverse Recovery Charge	Q_{rr}			4.0		nC

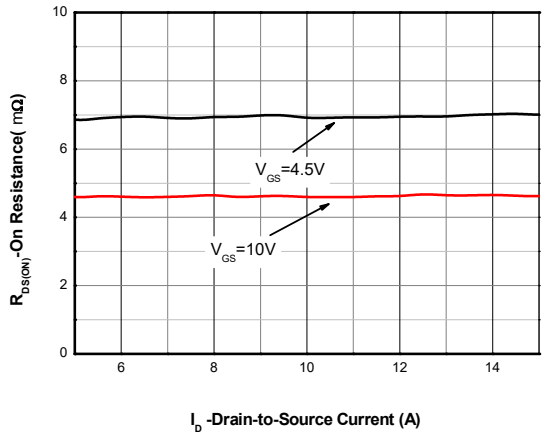
Typical Characteristics (Ta=25°C, unless otherwise noted)



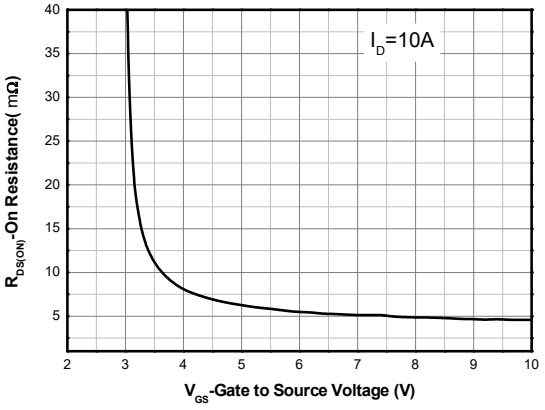
Output Characteristics



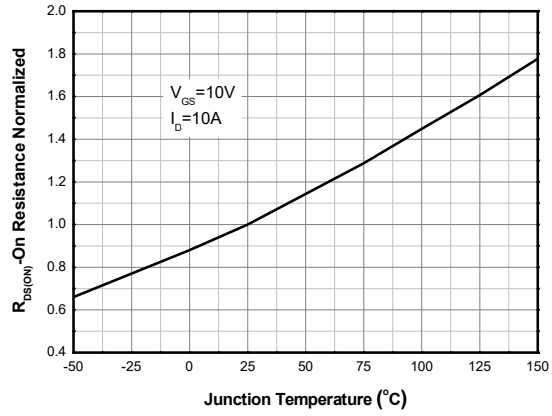
Transfer Characteristics



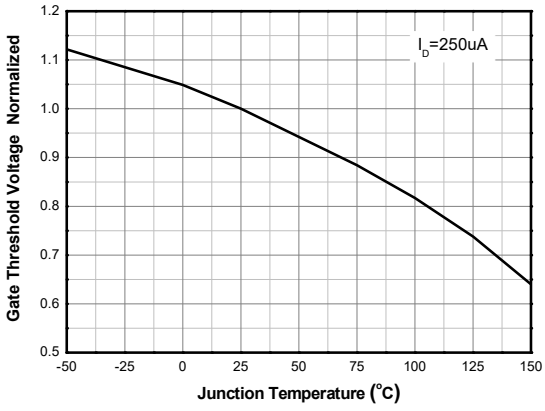
On-Resistance vs. Drain Current



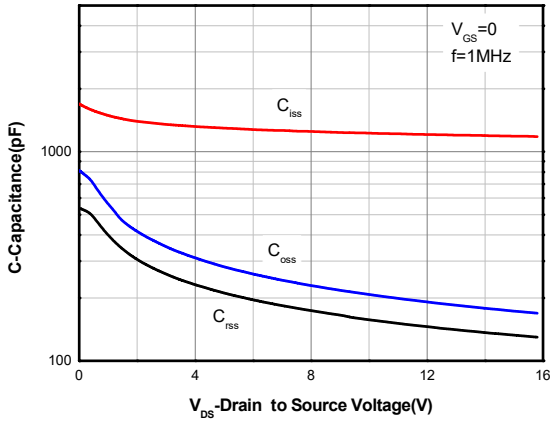
On-Resistance vs. Gate-to-Source Voltage



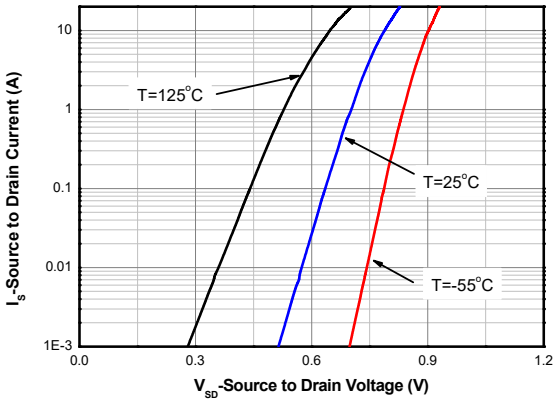
On-Resistance vs. Junction Temperature [e]



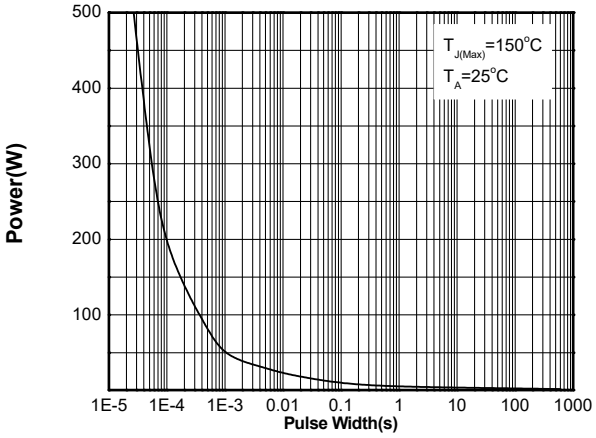
Threshold Voltage vs. Temperature



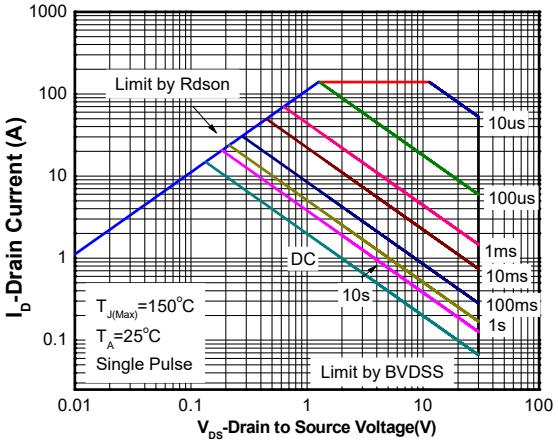
Capacitance



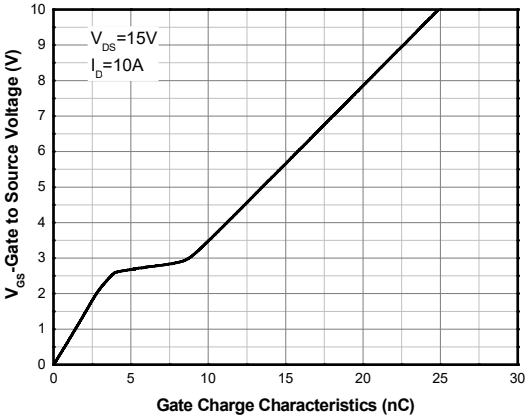
Body Diode Forward Voltage [e]



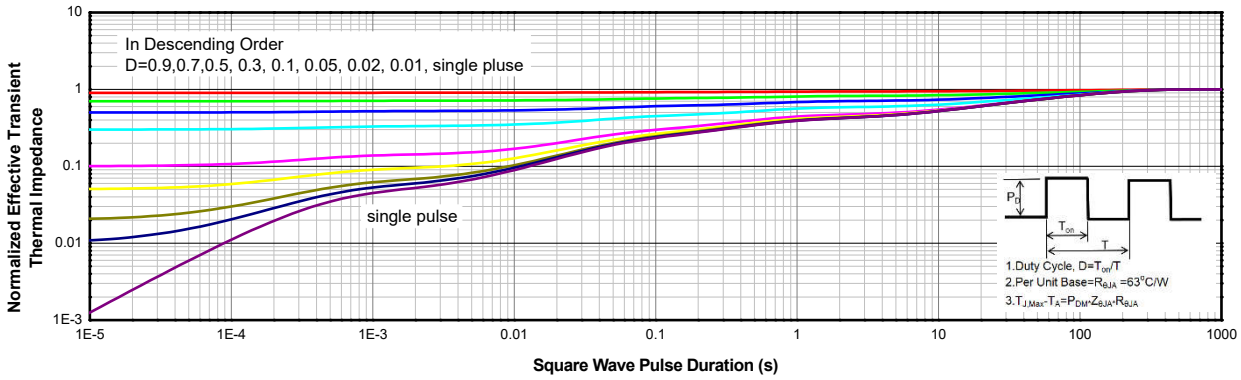
Single Pulse power



Safe Operating Power



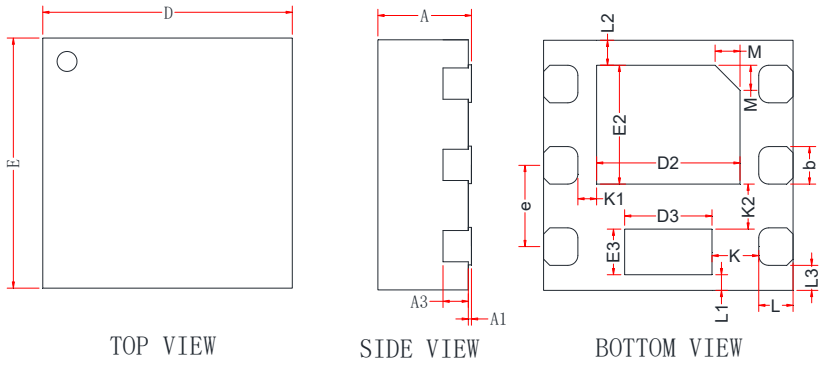
Gate Charge Characteristics



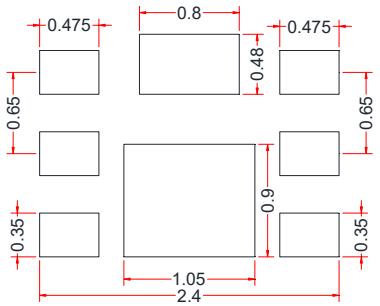
Transient Thermal Response (Junction-to- Ambient)

PACKAGE OUTLINE DIMENSIONS

DFN2x2-6L



TOP VIEW SIDE VIEW BOTTOM VIEW

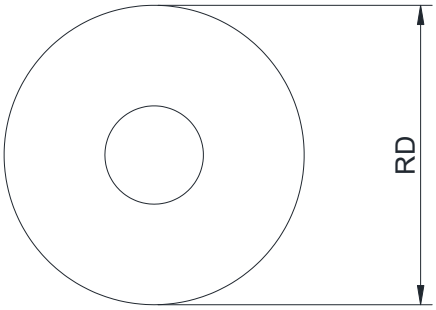


RECOMMENDED LAND PATTERN(Unit:mm)

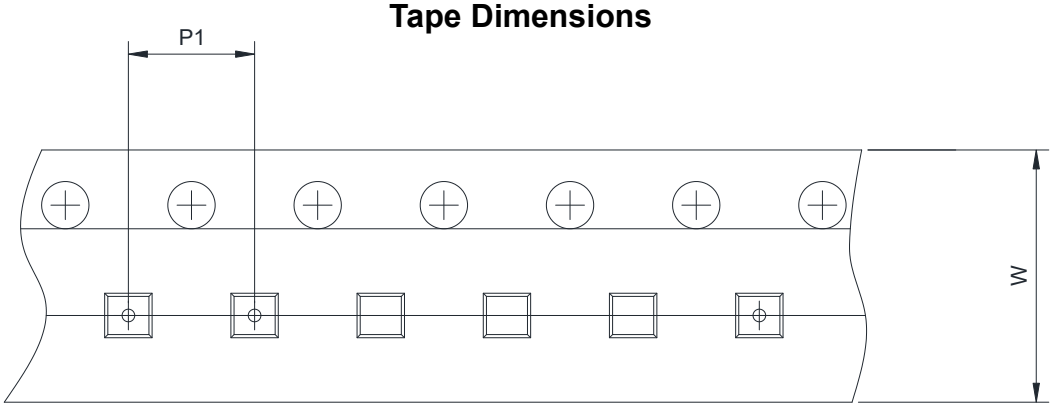
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3		0.203 Ref.	
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D2	1.05	1.15	1.25
E2	0.85	0.95	1.05
D3	0.60	0.70	0.80
E3	0.265	0.365	0.465
e	0.55	0.65	0.75
K		0.37 REF	
K1		0.15 REF	
K2		0.36 REF	
L	0.225	0.275	0.325
L1		0.125 REF	
L2		0.20 REF	
L3		0.20 REF	
M		0.20 REF	

TAPE AND REEL INFORMATION

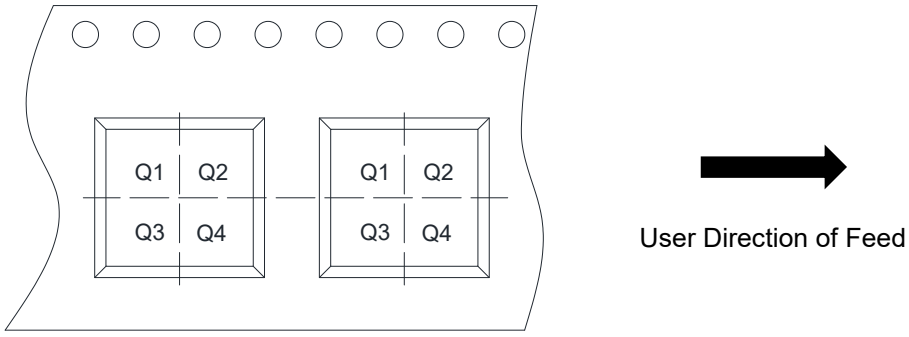
Reel Dimensions



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