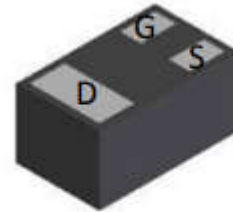


WNM2101

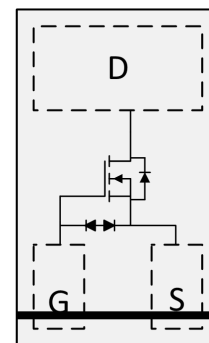
Single N-Channel, 20V, 0.8A, Power MOSFET

[Http://www.omnivision-group.com](http://www.omnivision-group.com)

V _{DS} (V)	Max. R _{DS(on)} (mΩ)
20	120 @ V _{GS} =4.5V
	130 @ V _{GS} =3.7V
	170 @ V _{GS} =2.5V
	450 @ V _{GS} =1.8V
ESD Rating: 2000V HBM	



DFN1006-3L



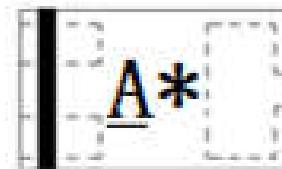
Pin configuration (Top view)

Description

The WNM2101 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 WNM2101 is Pb-free.

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package DFN1006-3L



A = Device Code
* = Month (A~Z)

Marking

Applications

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

Order information

Device	Package	Shipping
WNM2101-3/TR	DFN1006-3L	10K/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	Maximum	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ^d	I_D	$T_A=25^\circ\text{C}$	0.8
		$T_A=70^\circ\text{C}$	0.8
Pulsed Drain Current ^c	I_{DM}	3.2	A
Power Dissipation ^a	P_D	$T_A=25^\circ\text{C}$	0.68
		$T_A=70^\circ\text{C}$	0.44
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	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	130	$^\circ\text{C/W}$
	Steady State		183	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	364	
	Steady State		475	

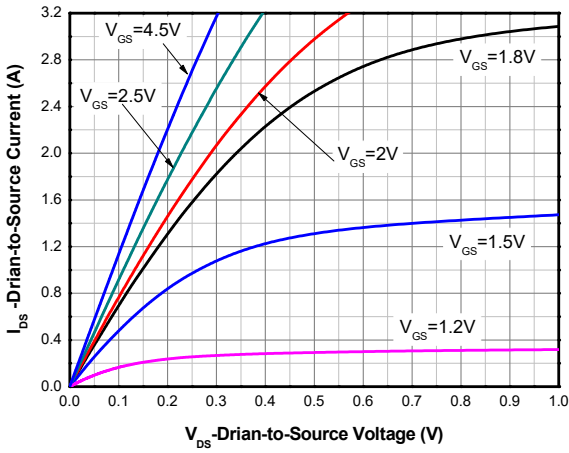
Note:

- 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 $T_J = 25^\circ\text{C}$, the maximum allowed junction temperature of 150°C .
- d The maximum current rating by source bonding technology
- e The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

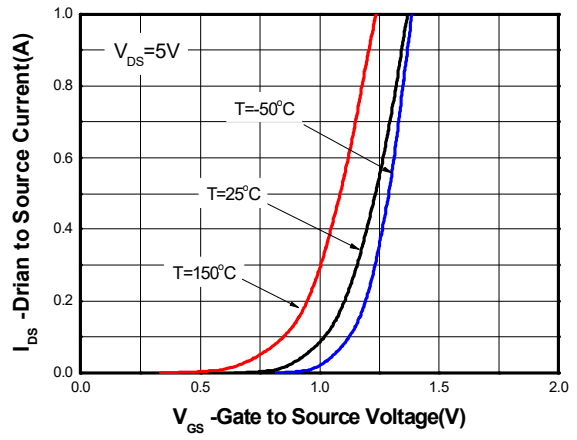
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8V			±10	uA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	0.45	0.7	1.0	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.6A		94	120	mΩ
		V _{GS} = 3.7V, I _D = 0.4A		99	130	
		V _{GS} = 2.5V, I _D = 0.3A		115	170	
		V _{GS} = 1.8V, I _D = 0.2A		156	450	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0MHz, V _{DS} = 10 V		86		pF
Output Capacitance	C _{OSS}			19		
Reverse Transfer Capacitance	C _{RSS}			12		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 4.5 V, V _{DD} = 10V, I _D = 0.6A		2.8		nC
Threshold Gate Charge	Q _{G(TH)}			0.3		
Gate-to-Source Charge	Q _{GS}			0.6		
Gate-to-Drain Charge	Q _{GD}			0.6		
Gate Resistance	R _g	f=1MHz		125		Ω
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{d(ON)}	V _{GS} = 4.5 V, V _{DD} = 10 V, I _D = 0.6A , R _G = 6Ω		4.5		ns
Rise Time	t _r			6.3		
Turn-Off Delay Time	t _{d(OFF)}			61		
Fall Time	t _f			38		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 0.6A		0.85	1.2	V
Maximum Continuous Current ^d	I _S			0.8		A

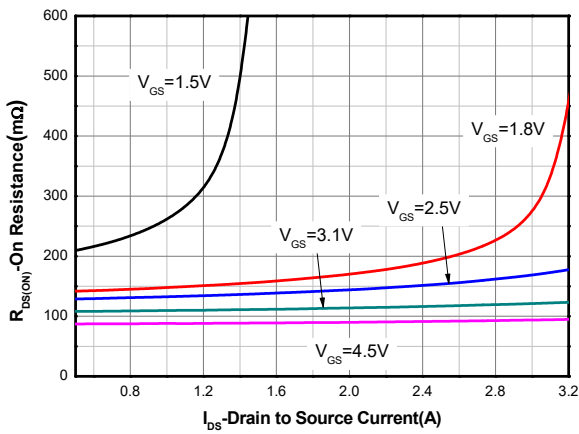
Typical Characteristics (Ta=25°C, unless otherwise noted)



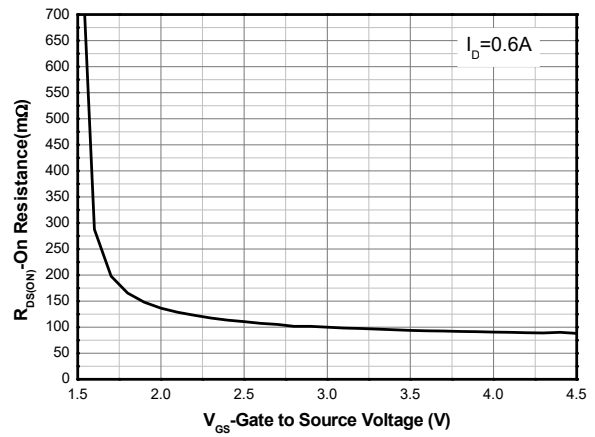
Output Characteristics °



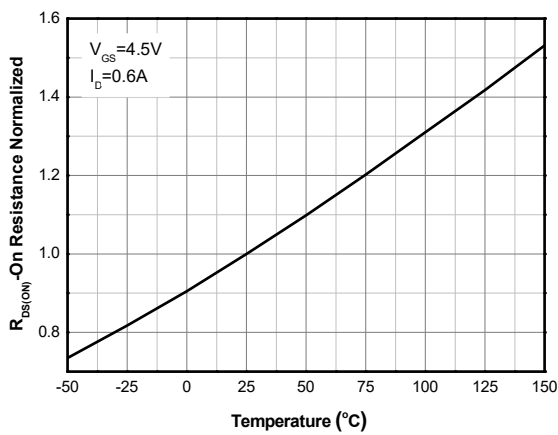
Transfer Characteristics °



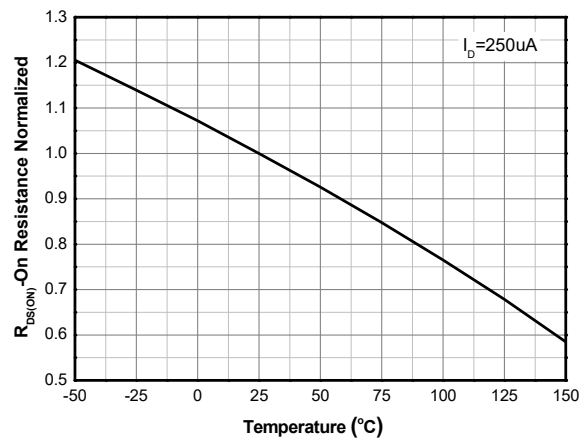
On-Resistance vs. Drain Current °



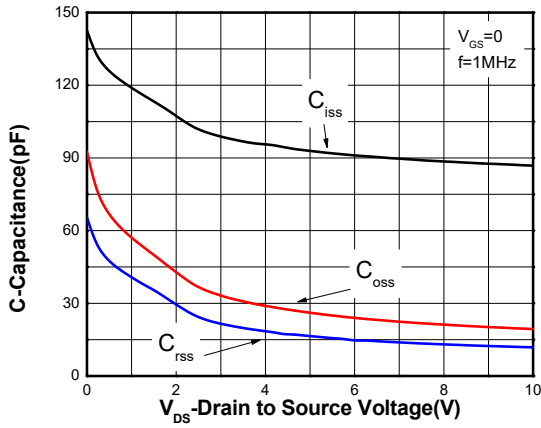
On-Resistance vs. Gate-to-Source Voltage °



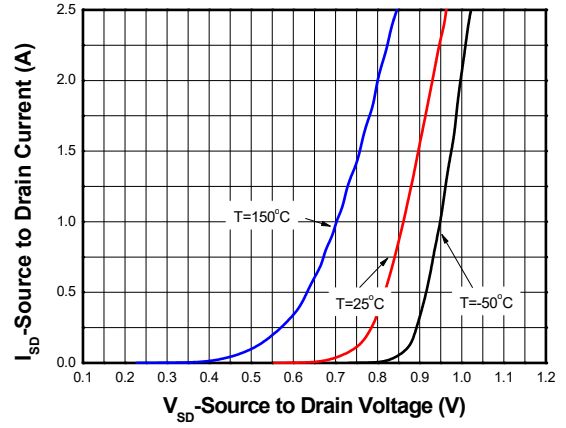
On-Resistance vs. Junction Temperature °



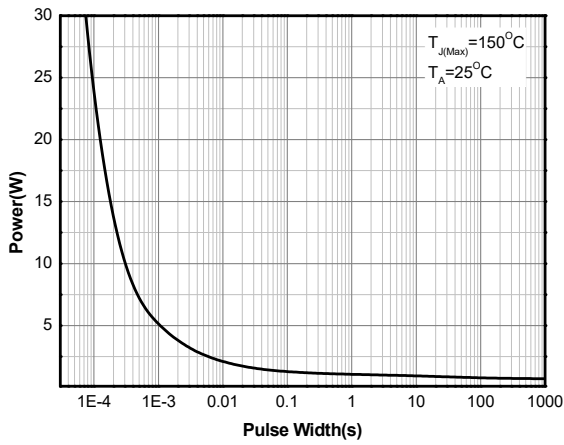
Threshold Voltage vs. Temperature



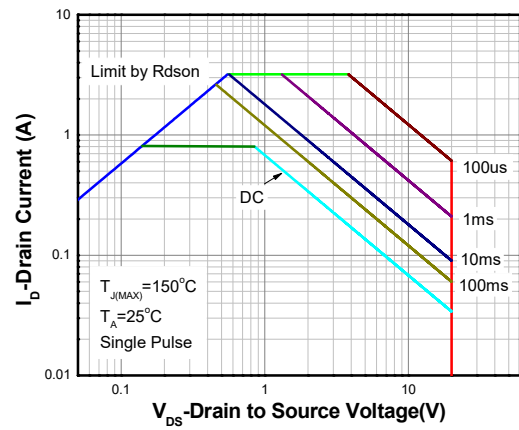
Capacitance



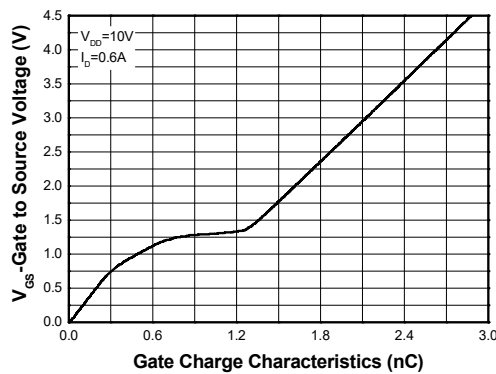
Body Diode Forward Voltage^e



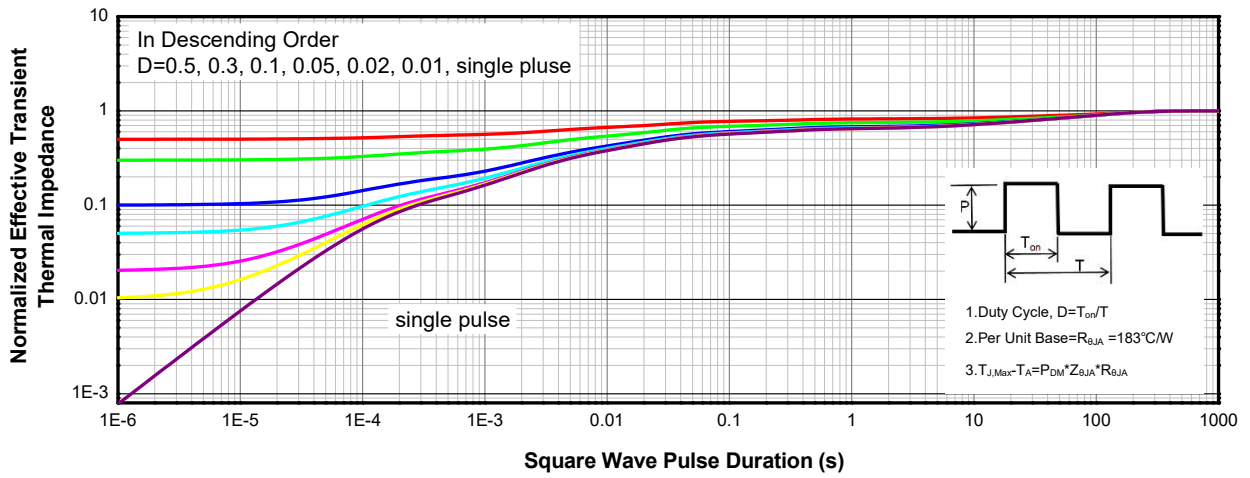
Single Pulse power



Safe Operating Area



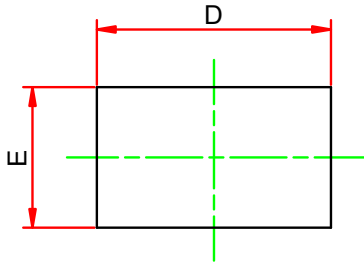
Gate Charge Characteristics



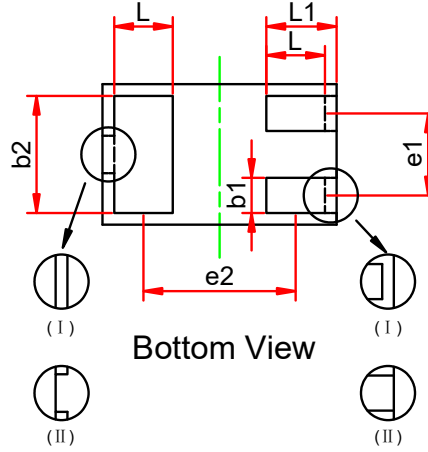
Transient Thermal Response (Junction-to-Ambient)

PACKAGE OUTLINE DIMENSIONS

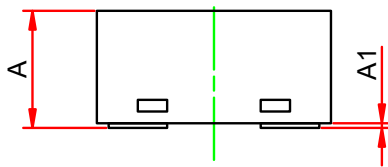
DFN1006-3L



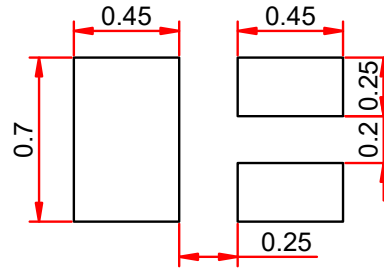
Top View



Bottom View



Side View

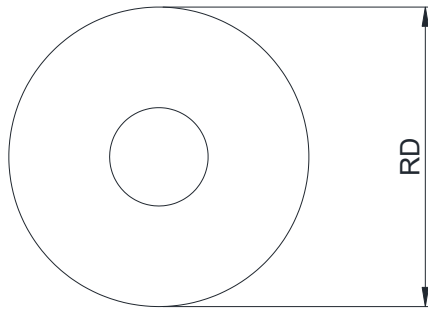


RECOMMENDED LAND PATTERN(Unit:mm)

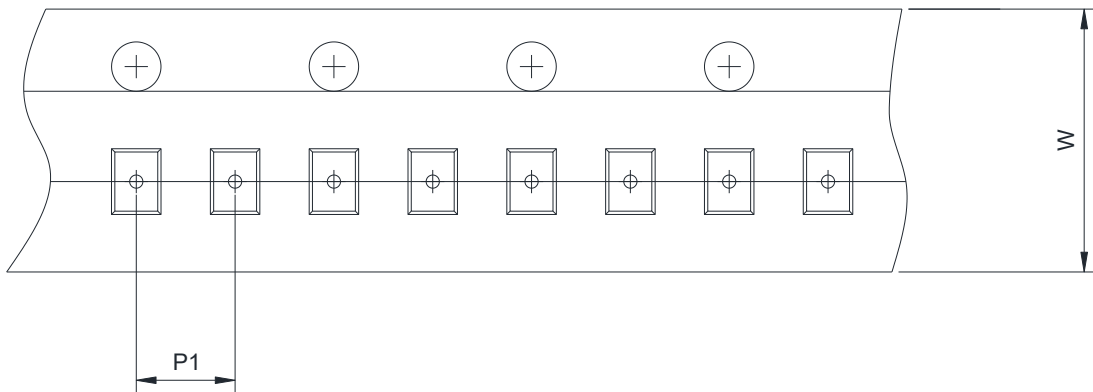
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.36	-	0.50
A1	0.00	-	0.05
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.10	0.15	0.20
b2	0.40	0.50	0.60
L	0.20	0.25	0.30
L1	0.20	0.30	0.40
e1	0.35Ref		
e2	0.65 Ref		

TAPE AND REEL INFORMATION

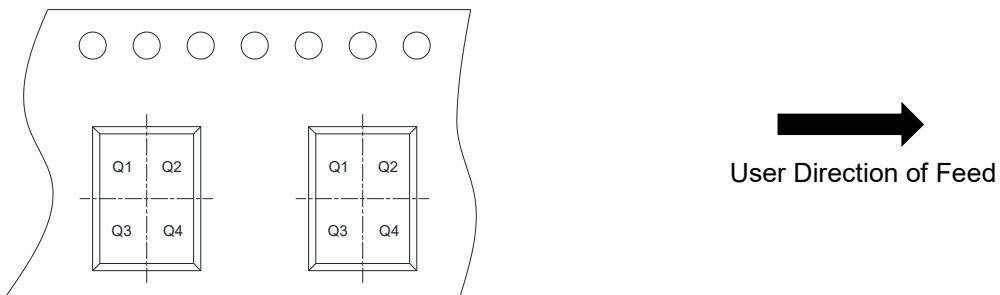
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimension	<input checked="" type="checkbox"/> 7inch	<input type="checkbox"/> 13inch
W	Overall width of the carrier tape	<input checked="" type="checkbox"/> 8mm	<input type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input checked="" type="checkbox"/> 2mm	<input type="checkbox"/> 4mm <input type="checkbox"/> 8mm
Pin1	Pin1 Quadrant	<input checked="" type="checkbox"/> Q1	<input checked="" type="checkbox"/> Q2 <input type="checkbox"/> Q3 <input type="checkbox"/> Q4