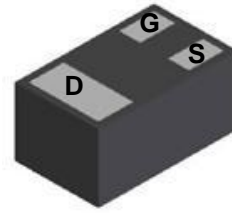
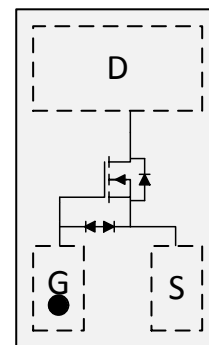


WNM3025
Single N-Channel, 50V, 0.3A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

V_{DS} (V)	Typical $R_{DS(on)}$ (Ω)
50	1.3 @ $V_{GS}=10V$
	1.4 @ $V_{GS}=4.5V$
	4.0 @ $V_{GS}=1.8V$
ESD Protected	


DFN1006-3L
Descriptions

The WNM3025 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 WNM3025 is Pb-free.


Features

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

Pin configuration (Top view)


J = 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
WNM3025-3/TR	DFN1006-3L	10K/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	10 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	50		V	
Gate-Source Voltage	V_{GS}	± 20			
Continuous Drain Current ^{a d}	I_D	$T_A=25^\circ\text{C}$	0.23	0.21	A
		$T_A=70^\circ\text{C}$	0.18	0.17	
Maximum Power Dissipation ^{a d}	P_D	$T_A=25^\circ\text{C}$	0.32	0.27	W
		$T_A=70^\circ\text{C}$	0.20	0.18	
Continuous Drain Current ^{b d}	I_D	$T_A=25^\circ\text{C}$	0.22	0.20	A
		$T_A=70^\circ\text{C}$	0.17	0.16	
Maximum Power Dissipation ^{b d}	P_D	$T_A=25^\circ\text{C}$	0.28	0.25	W
		$T_A=70^\circ\text{C}$	0.18	0.16	
Pulsed Drain Current ^c	I_{DM}	0.9		A	
Operating Junction Temperature	T_J	-55 to 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

Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	340	395	$^\circ\text{C/W}$
	Steady State		390	455	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	387	441	
	Steady State		445	505	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	240	285	

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

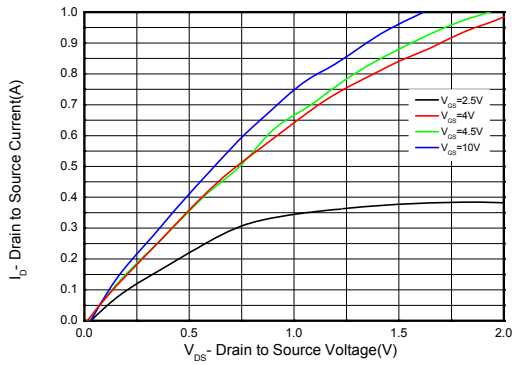
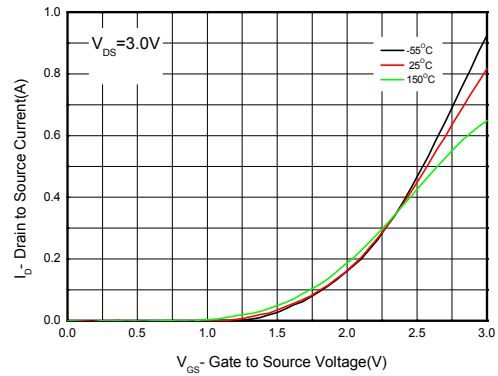
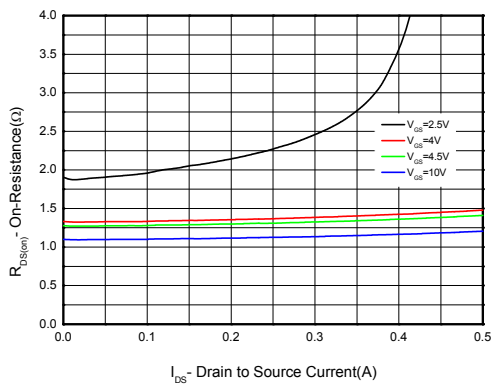
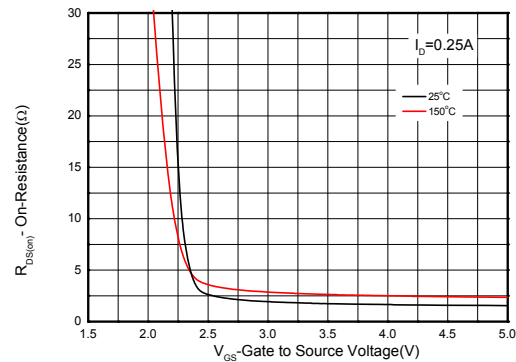
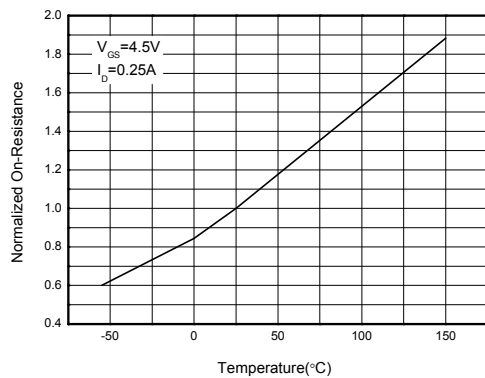
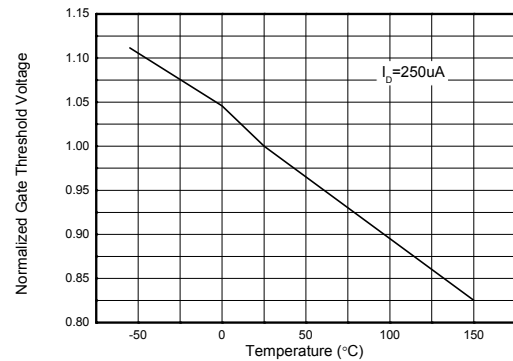
b Surface mounted on FR4 board using minimum pad size, 1oz copper

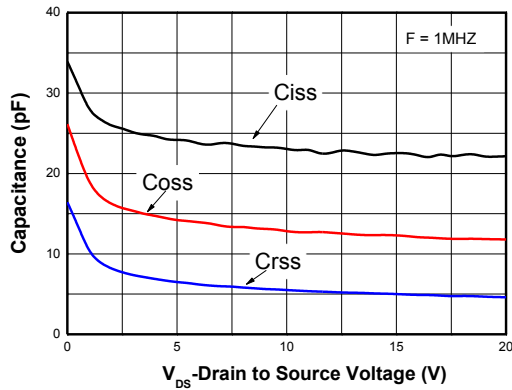
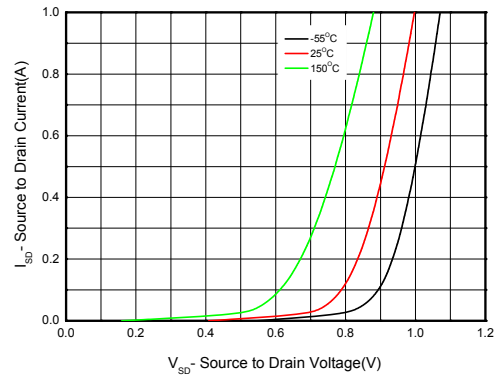
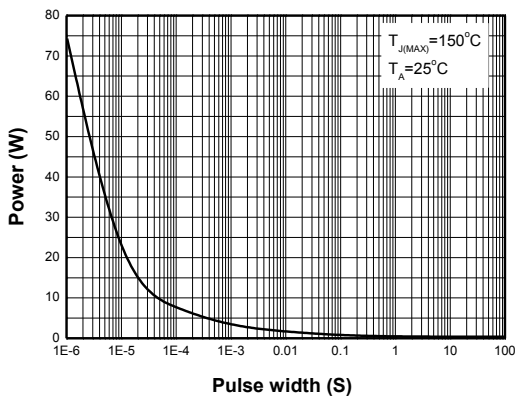
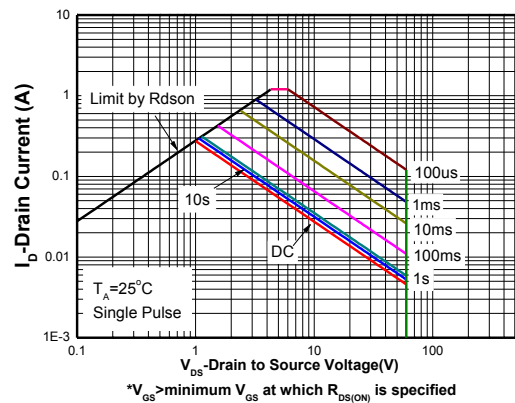
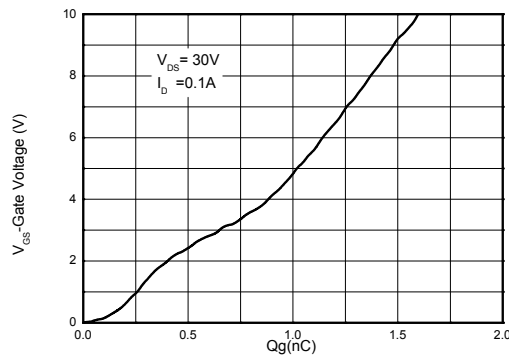
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

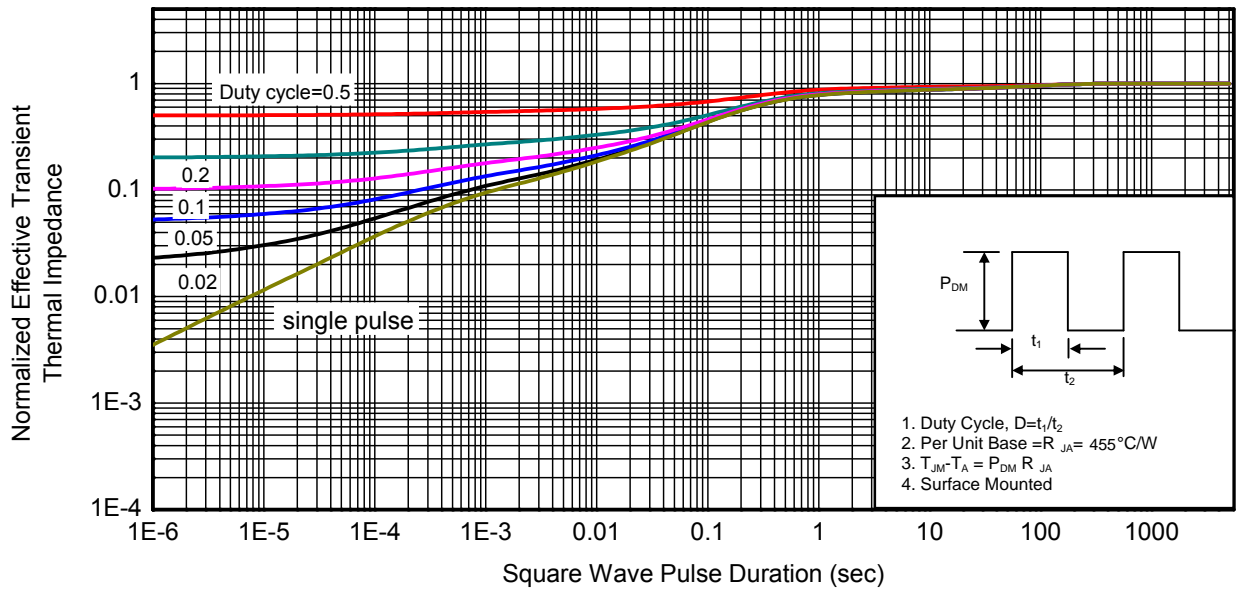
d Repetitive rating, pulse width limited by junction temperature $T_J=150^\circ\text{C}$.

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

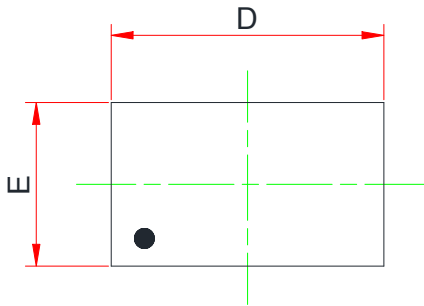
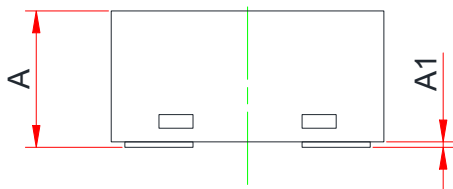
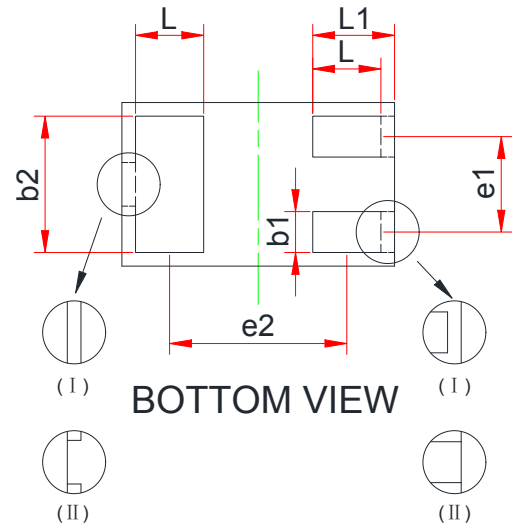
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$	50			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 5	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	0.8	1.0	1.5	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 0.45\text{ A}$		1.2	1.8	Ω
		$V_{GS} = 4.5\text{ V}, I_D = 0.25\text{ A}$		1.4	2	
		$V_{GS} = 2.5\text{ V}, I_D = 0.01\text{ A}$		2	6	
		$V_{GS} = 1.8\text{ V}, I_D = 0.01\text{ A}$		4	15	
Forward Transconductance	g_{FS}	$V_{DS} = 15\text{ V}, I_D = 0.1\text{ A}$		0.5		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}, V_{DS} = 15\text{ V}$		23		pF
Output Capacitance	C_{OSS}			12		
Reverse Transfer Capacitance	C_{RSS}			5		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V}, V_{DS} = 30\text{ V}, I_D = 0.1\text{ A}$		1.6		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.25		
Gate-to-Source Charge	Q_{GS}			0.4		
Gate-to-Drain Charge	Q_{GD}			0.45		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 5\text{ V}, V_{DS} = 5\text{ V}, R_L = 500\Omega, R_G = 10\Omega, I_D = 10\text{ mA}$		8.6		ns
Rise Time	t_r			4		
Turn-Off Delay Time	$t_d(OFF)$			23.8		
Fall Time	t_f			14.2		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 0.25\text{ A}$		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

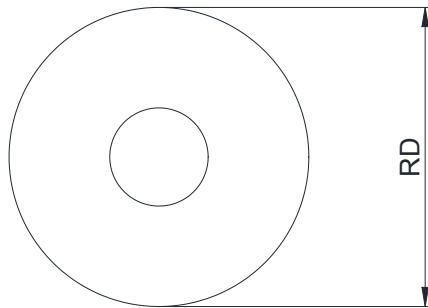
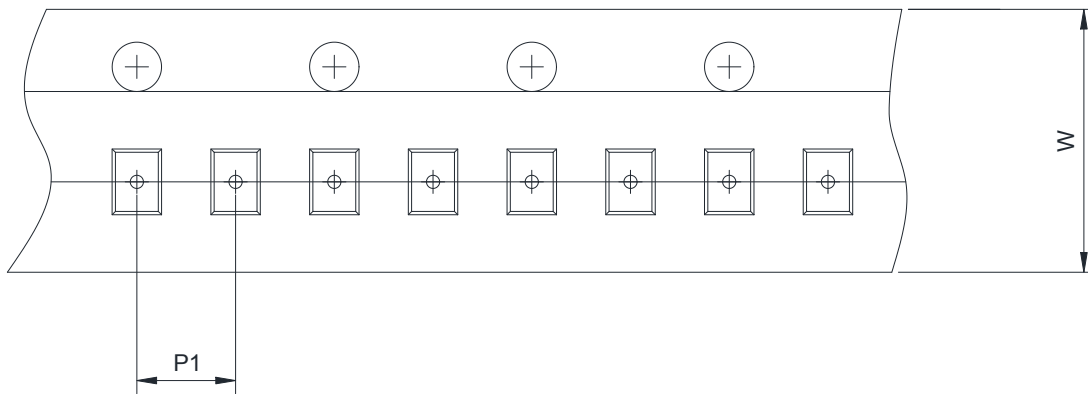
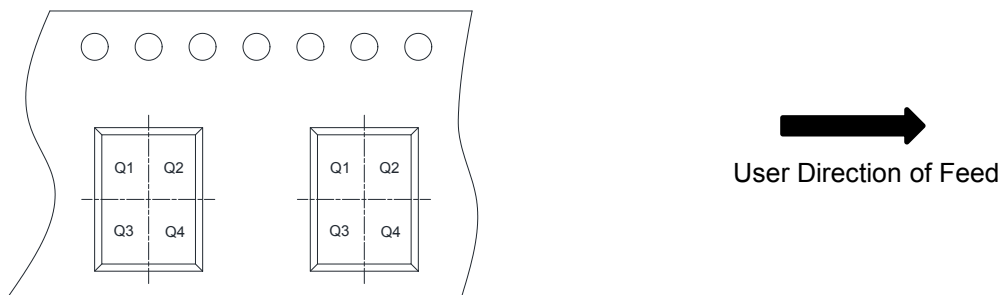

Capacitance

Body diode forward voltage

Single pulse power

Safe operating power

Gate charge Characteristics



Transient thermal response (Junction-to-Ambient)

Package outline dimensions
DFN1006-3L

TOP VIEW

SIDE VIEW

BOTTOM VIEW

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		

APE 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 type="checkbox"/> Q1	<input checked="" type="checkbox"/> Q2 <input type="checkbox"/> Q3 <input type="checkbox"/> Q4