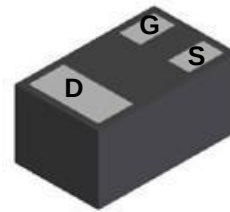
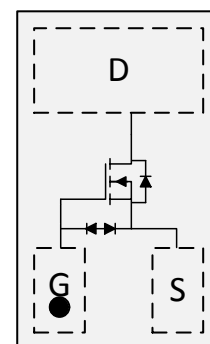


WNM3025
Single N-Channel, 50V, 0.3A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

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}	T _A =25°C	I _D	0.23	0.21	A
	T _A =70°C		0.18	0.17	
Maximum Power Dissipation ^{a d}	T _A =25°C	P _D	0.32	0.27	W
	T _A =70°C		0.20	0.18	
Continuous Drain Current ^{b d}	T _A =25°C	I _D	0.22	0.20	A
	T _A =70°C		0.17	0.16	
Maximum Power Dissipation ^{b d}	T _A =25°C	P _D	0.28	0.25	W
	T _A =70°C		0.18	0.16	
Pulsed Drain Current ^c		I _{DM}	0.9		A
Operating Junction Temperature		T _J	-55 to 150		°C
Lead Temperature		T _L	260		°C
Storage Temperature Range		T _{stg}	-55 to 150		°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		$R_{\theta JC}$	240	285	

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

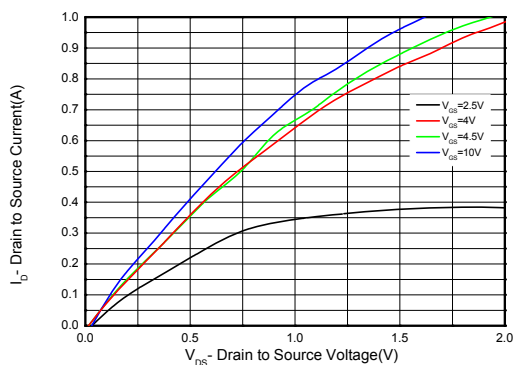
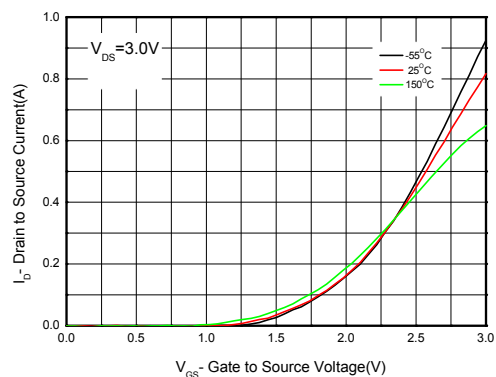
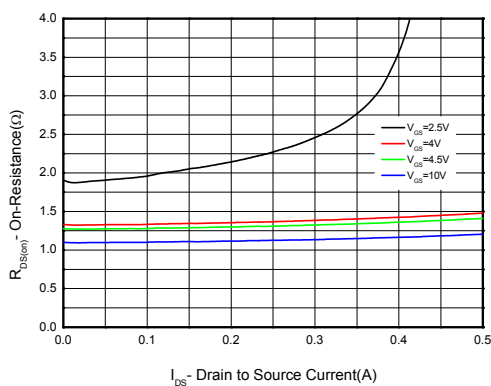
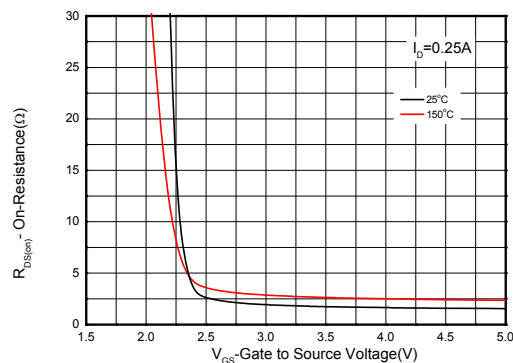
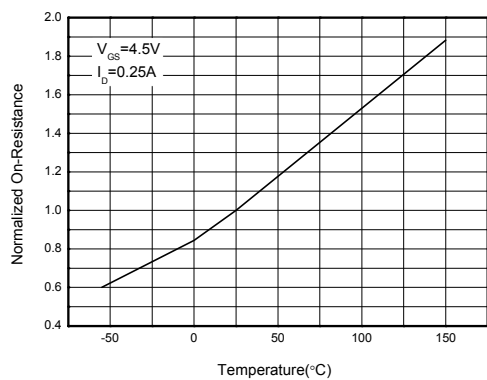
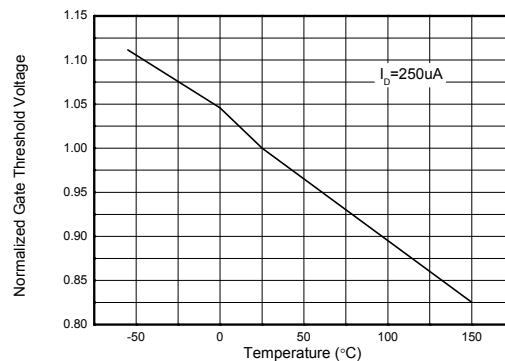
b Surface mounted on FR4 board using minimum pad size, 1oz copper

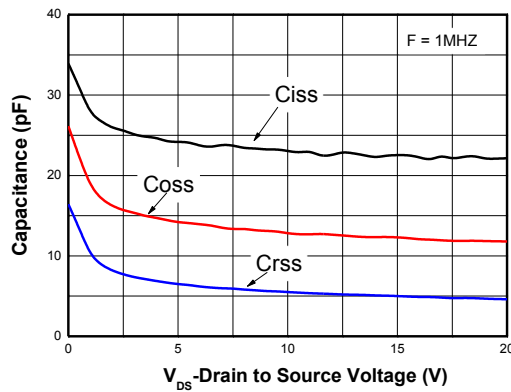
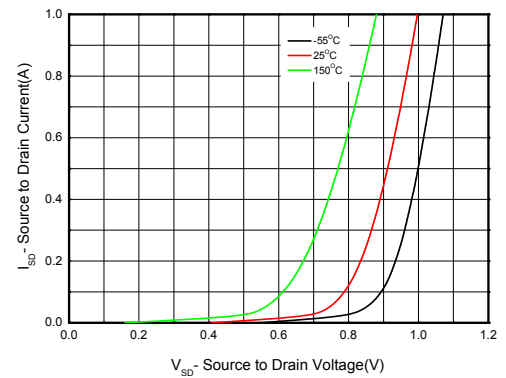
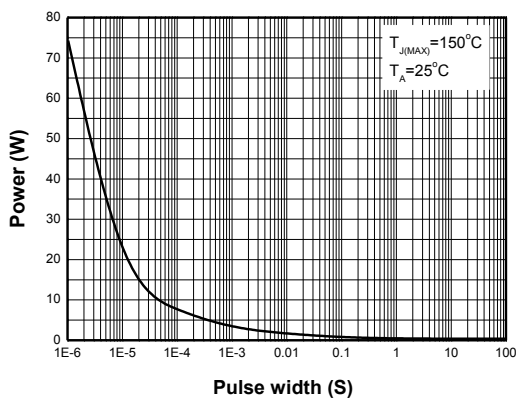
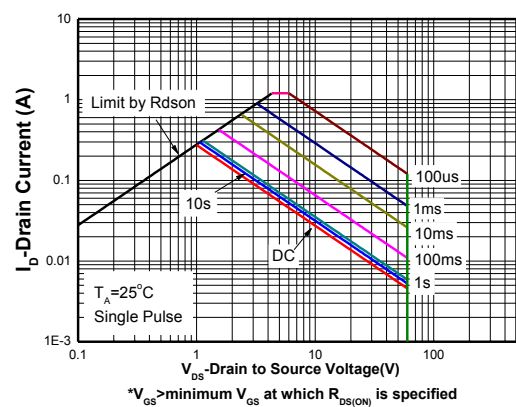
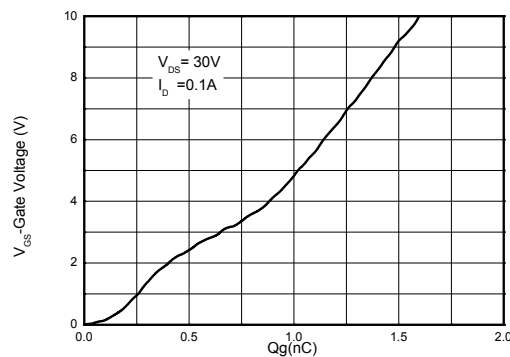
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

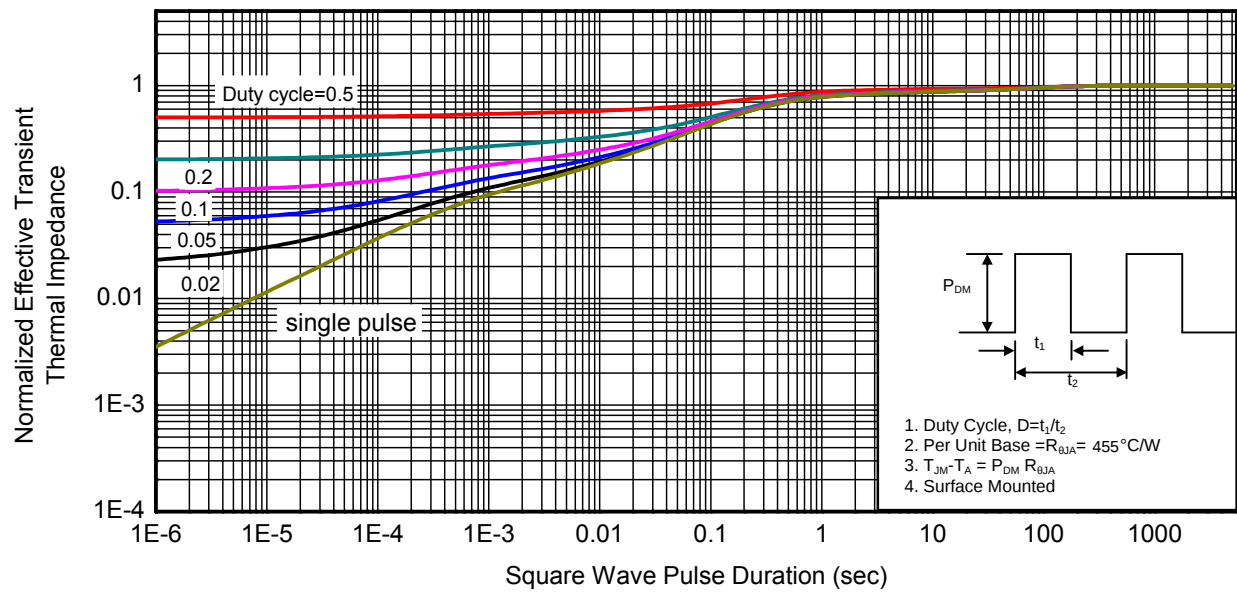
d Repetitive rating, pulse width limited by junction temperature $T_J=150^{\circ}\text{C}$.

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

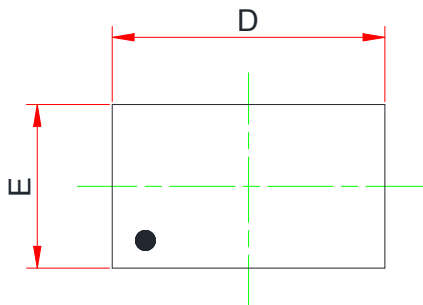
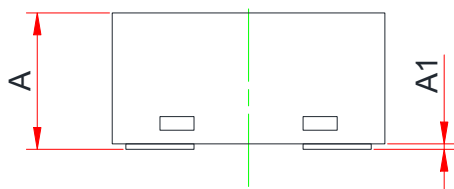
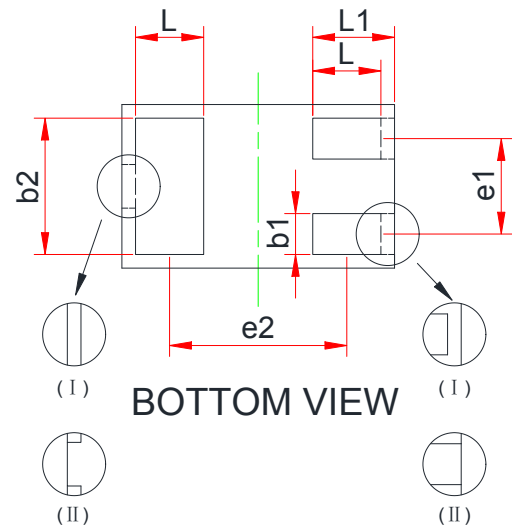
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	50			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20V			±5	uA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	0.8	1.0	1.5	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 0.45A		1.2	1.8	Ω
		V _{GS} = 4.5V, I _D = 0.25A		1.4	2	
		V _{GS} = 2.5V, I _D = 0.01A		2	6	
		V _{GS} = 1.8V, I _D = 0.01A		4	15	
Forward Transconductance	g _{FS}	V _{DS} = 15V, I _D = 0.1A		0.5		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0MHz, V _{DS} = 15 V		23		pF
Output Capacitance	C _{OSS}			12		
Reverse Transfer Capacitance	C _{RSS}			5		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 30V, I _D =0.1A		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	td(ON)	V _{GS} = 5V, V _{DS} = 5V, R _L = 500Ω, R _G = 10Ω, ID = 10mA		8.6		ns
Rise Time	tr			4		
Turn-Off Delay Time	td(OFF)			23.8		
Fall Time	tf			14.2		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 0.25A		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



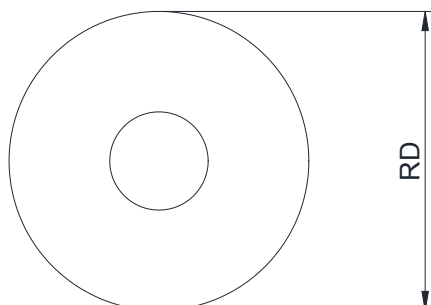
Transient thermal response (Junction-to-Ambient)

Package outline dimensions
DFN1006-3L

TOP VIEW

SIDE VIEW

BOTTOM VIEW

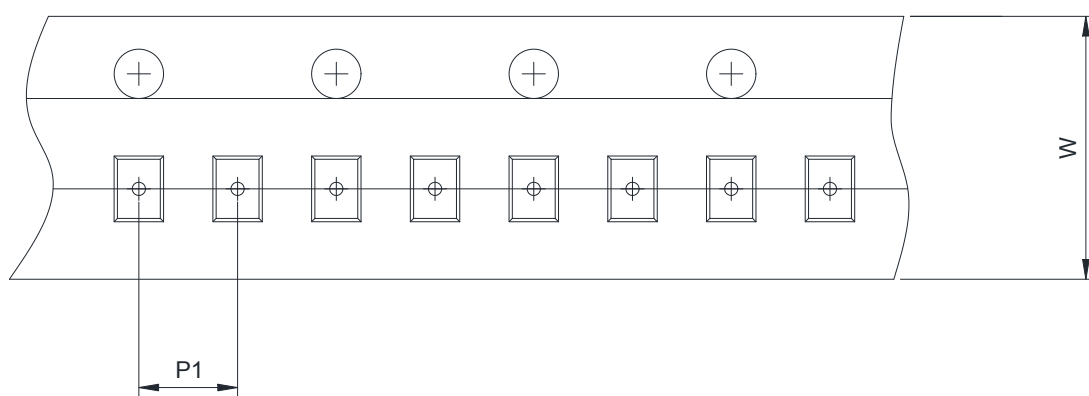
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.36	-	0.50
A1	0.00	-	0.05
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.10	0.15	0.20
b2	0.40	0.50	0.60
L	0.20	0.25	0.30
L1	0.20	0.30	0.40
e1	0.35Ref		
e2	0.65 Ref		

APE AND REEL INFORMATION

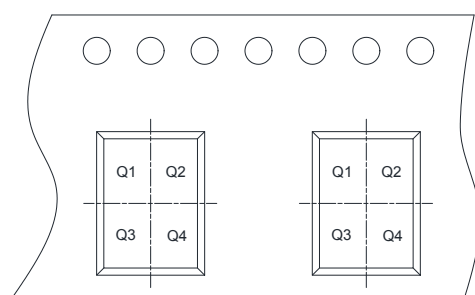
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape




User Direction of Feed

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