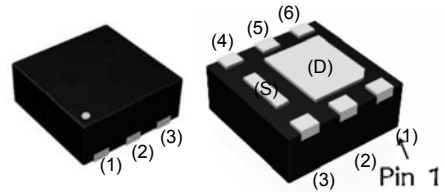
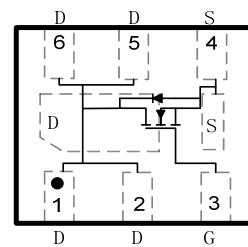


WNM3017
Single N-Channel, 30V, 6.2A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

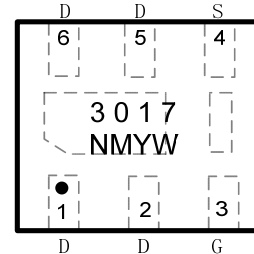
V_{DS} (V)	Typical $R_{DS(on)}$ (m Ω)
30	17 @ $V_{GS}=10V$


DFN2x2-6L
Descriptions

The WNM3017 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 WNM3017 is Pb-free.


Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package DFN2x2-6L

Pin configuration (Top view)

Applications

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

3017 = Device Code
 NM = Special Code
 Y = Year
 W = Week(A~z)

Marking
Order information

Device	Package	Shipping
WNM3017-6/TR	DFN2x2-6L	3000/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	10 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	30		V	
Gate-Source Voltage	V_{GS}	± 20			
Continuous Drain Current ^{a d}	I_D	$T_A=25^\circ\text{C}$	6.9	6.2	A
		$T_A=70^\circ\text{C}$	5.5	4.9	
Maximum Power Dissipation ^{a d}	P_D	$T_A=25^\circ\text{C}$	1.7	1.4	W
		$T_A=70^\circ\text{C}$	1.1	0.9	
Continuous Drain Current ^{b d}	I_D	$T_A=25^\circ\text{C}$	5.5	4.4	A
		$T_A=70^\circ\text{C}$	4.4	3.5	
Maximum Power Dissipation ^{b d}	P_D	$T_A=25^\circ\text{C}$	1.1	0.7	W
		$T_A=70^\circ\text{C}$	0.7	0.4	
Pulsed Drain Current ^c	I_{DM}	30		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	$t \leq 10 \text{ s}$	$R_{\theta JA}$	57	72	$^\circ\text{C/W}$
	Steady State		71	90	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	89	115	
	Steady State		126	181	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	40	50	

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

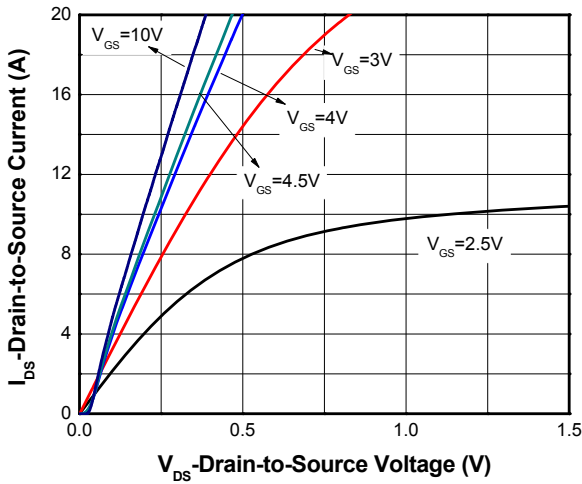
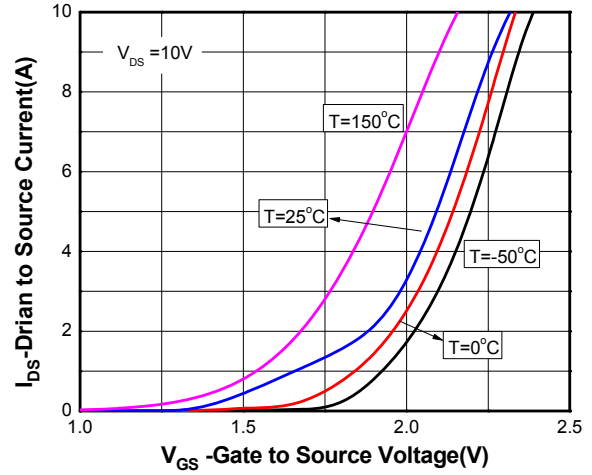
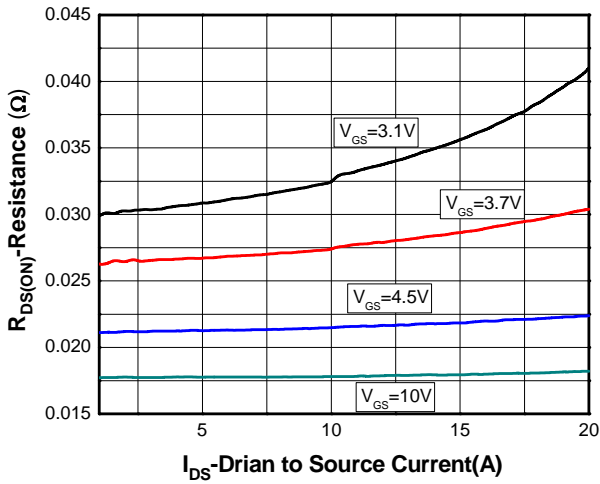
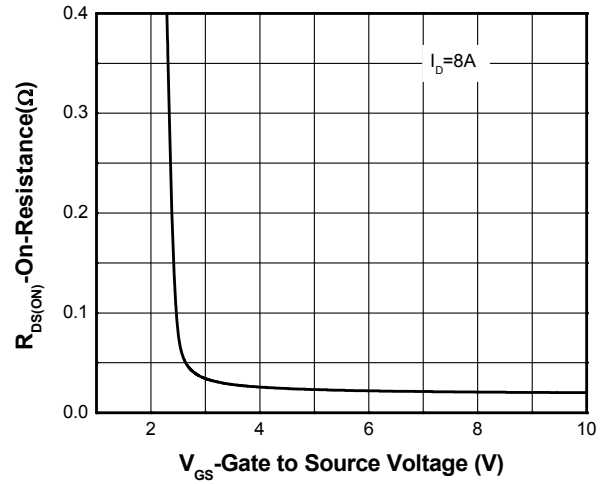
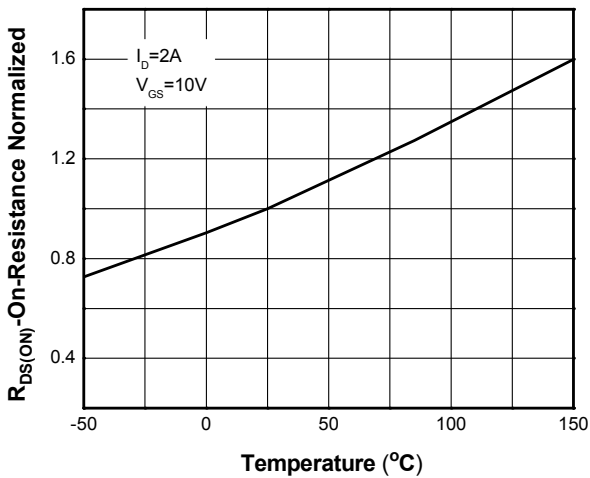
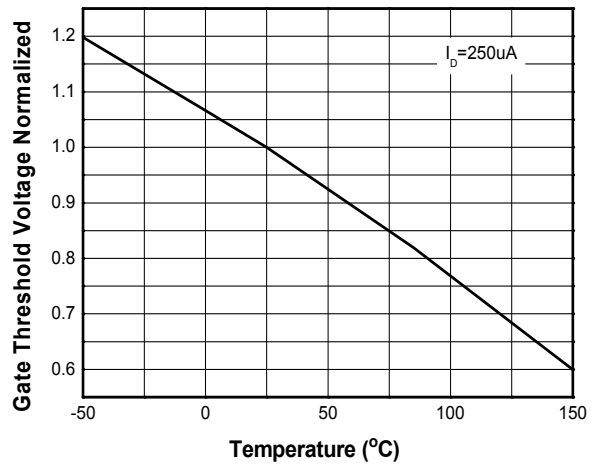
b Surface mounted on FR4 board using minimum pad size, 1oz copper

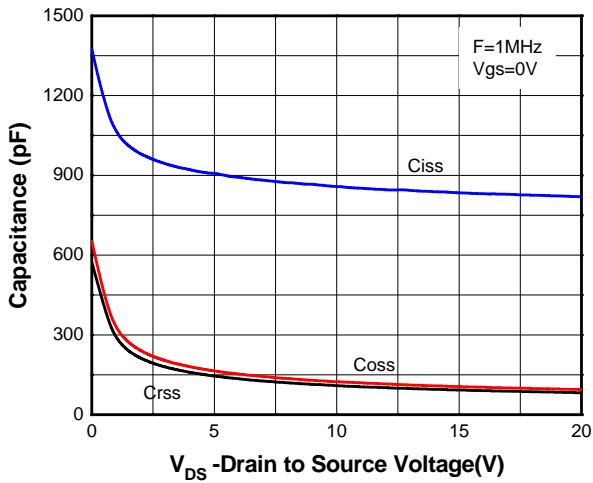
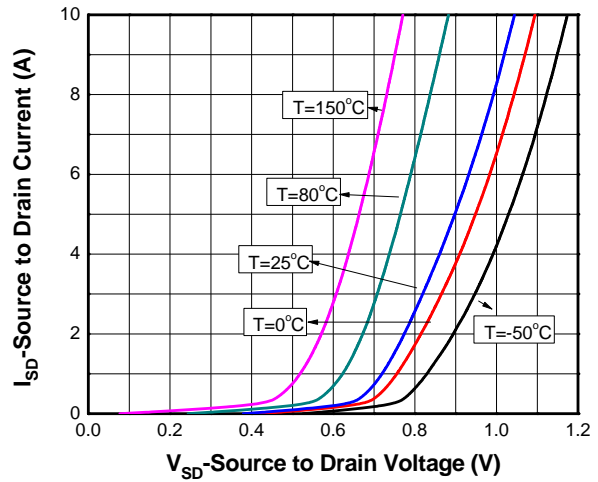
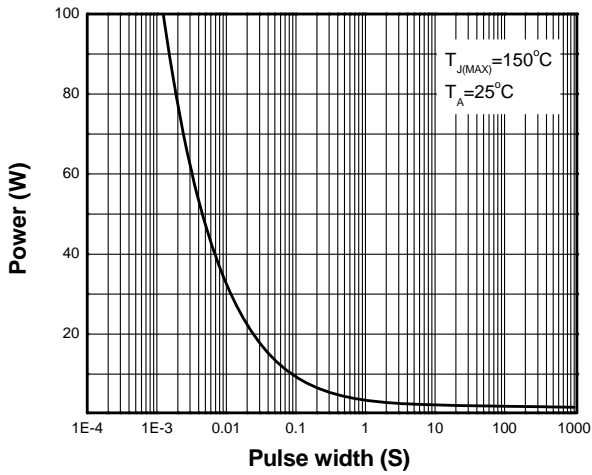
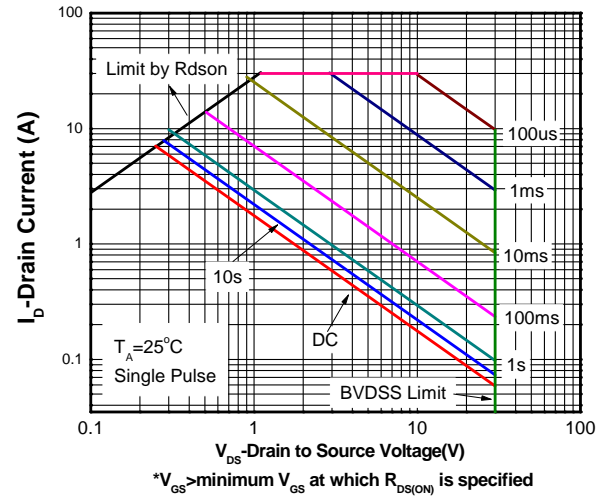
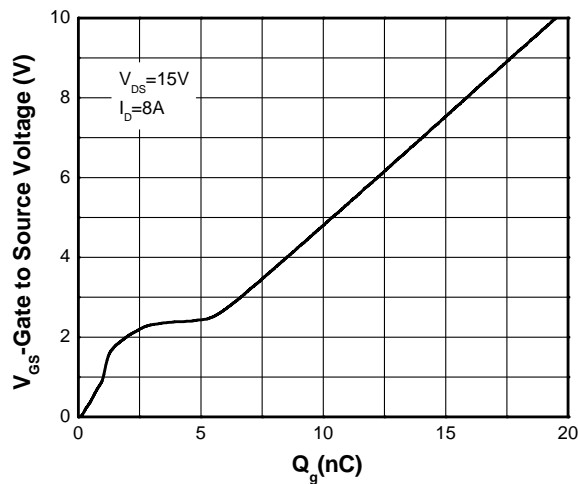
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

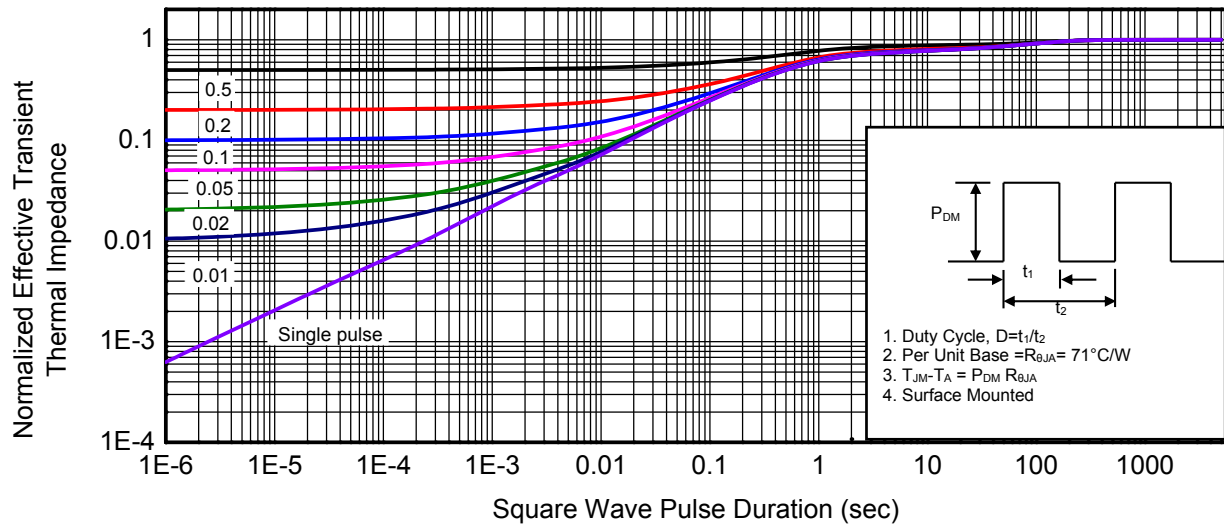
d Repetitive rating, pulse width limited by junction temperature $T_J=150^\circ\text{C}$.

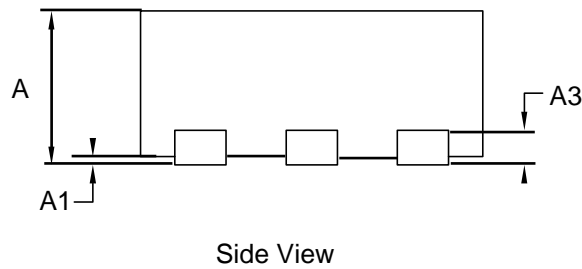
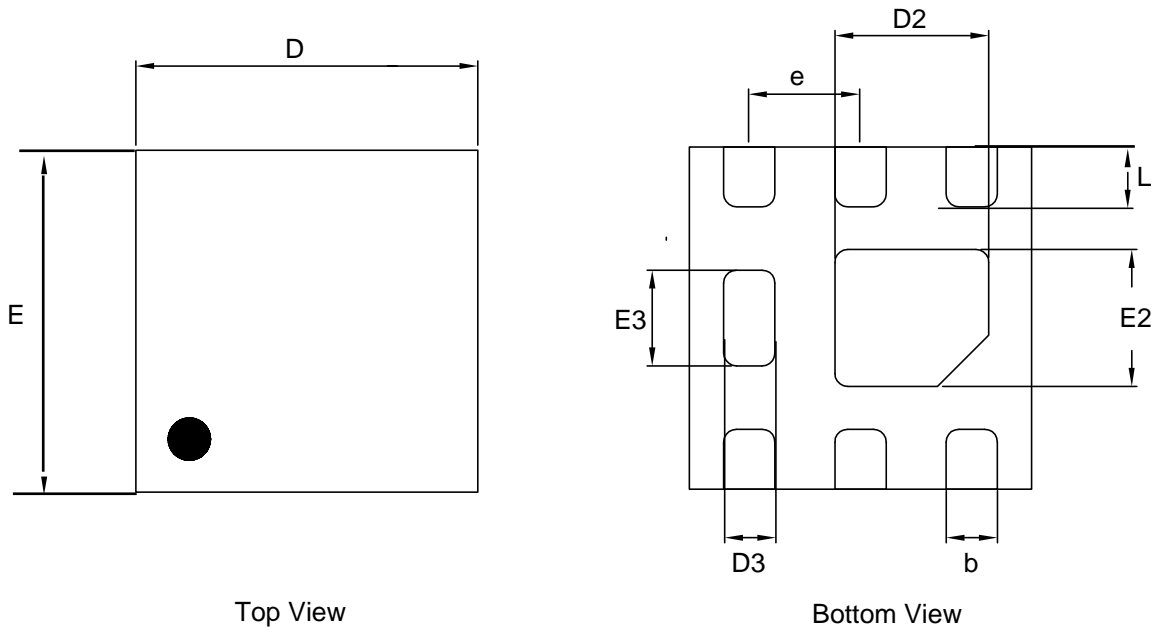
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\text{V}, V_{GS} = 0\text{V}$			1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	0.5	1.0	1.5	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 7\text{A}$		17	27	m Ω
		$V_{GS} = 4.5\text{V}, I_D = 7\text{A}$		21	33	
		$V_{GS} = 3.7\text{V}, I_D = 4\text{A}$		23	42	
		$V_{GS} = 3.1\text{V}, I_D = 4\text{A}$		28	48	
Forward Transconductance	g_{FS}	$V_{DS} = 10\text{ V}, I_D = 7.0\text{A}$		6	16	S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1\text{MHz}, V_{DS} = 15\text{ V}$		834		pF
Output Capacitance	C_{OSS}			105		
Reverse Transfer Capacitance	C_{RSS}			93		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, I_D = 8\text{ A}$		19.9		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.9		
Gate-to-Source Charge	Q_{GS}			2		
Gate-to-Drain Charge	Q_{GD}			3.9		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, R_L = 3.75\Omega, R_G = 10\Omega$		10.6		ns
Rise Time	t_r			5.4		
Turn-Off Delay Time	$t_d(OFF)$			45.6		
Fall Time	t_f			7.6		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 2.5\text{A}$		0.85	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
DFN2x2-6L


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.50	-	0.65
A1	0.00	-	0.05
A3	0.10 Ref.		
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	1.10	1.20	1.30
E2	1.00	1.10	1.20
D3	0.15	0.25	0.35
E3	0.65	0.75	0.85
b	0.25	0.30	0.35
L	0.20	0.25	0.30
e	0.65 BSC.		

Suggested Land Pattern
DFN2x2-6L
