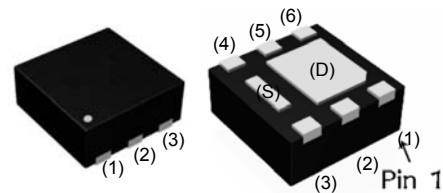
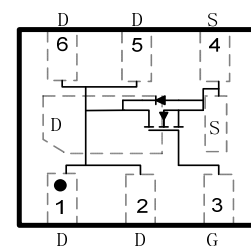


WNM3017
Single N-Channel, 30V, 6.2A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

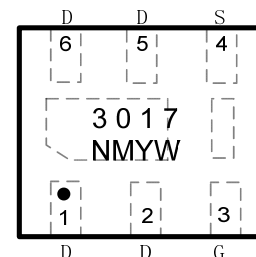
V_{DS} (V)	Typical $R_{DS(on)}$ (m Ω)
30	17 @ $V_{GS}=10V$


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}	T _A =25°C	I _D	6.9	6.2	A
	T _A =70°C		5.5	4.9	
Maximum Power Dissipation ^{a d}	T _A =25°C	P _D	1.7	1.4	W
	T _A =70°C		1.1	0.9	
Continuous Drain Current ^{b d}	T _A =25°C	I _D	5.5	4.4	A
	T _A =70°C		4.4	3.5	
Maximum Power Dissipation ^{b d}	T _A =25°C	P _D	1.1	0.7	W
	T _A =70°C		0.7	0.4	
Pulsed Drain Current ^c		I _{DM}	30		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	$t \leq 10 \text{ s}$	$R_{\theta JA}$	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		$R_{\theta JC}$	40	50	

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

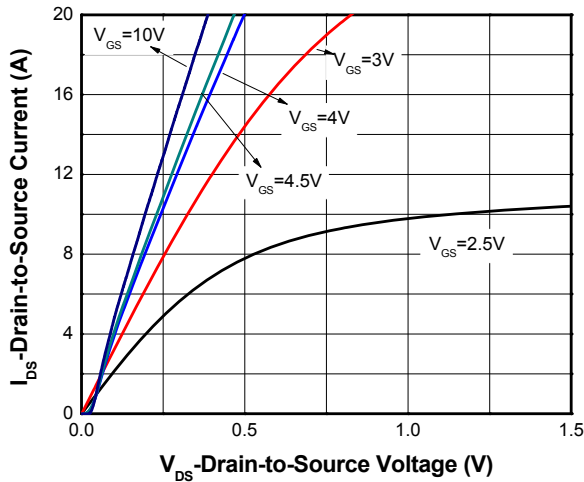
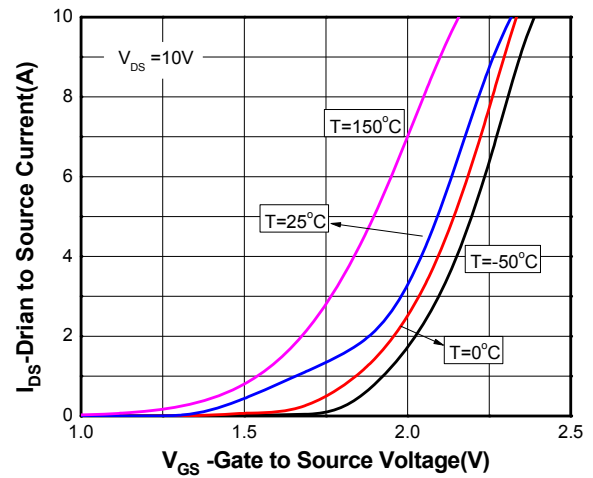
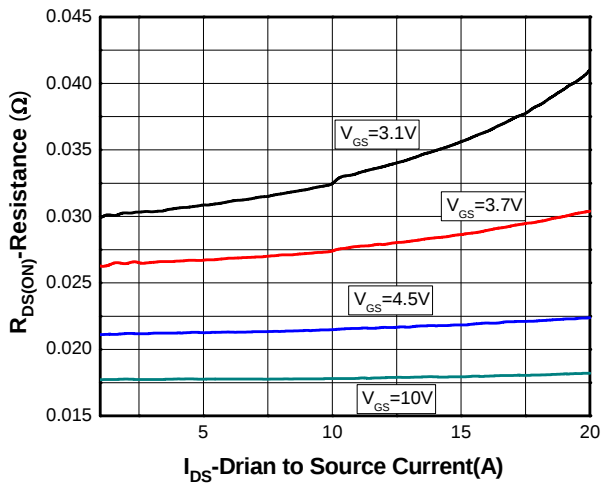
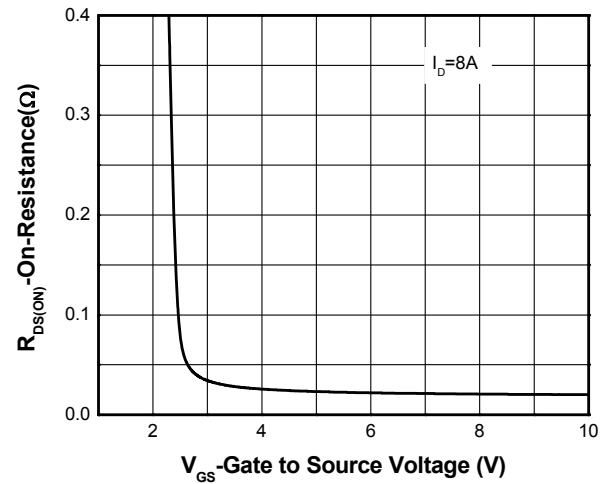
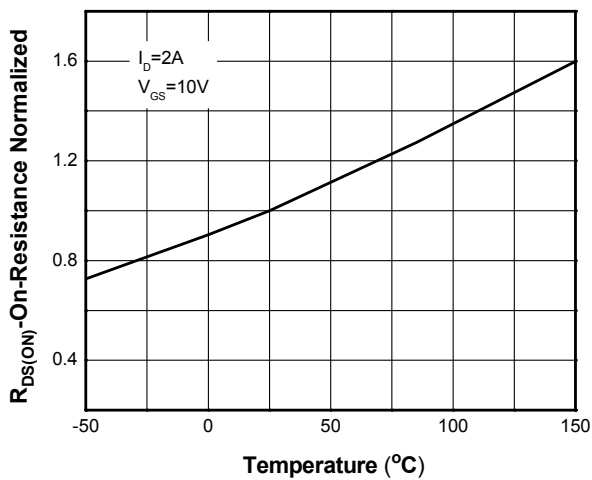
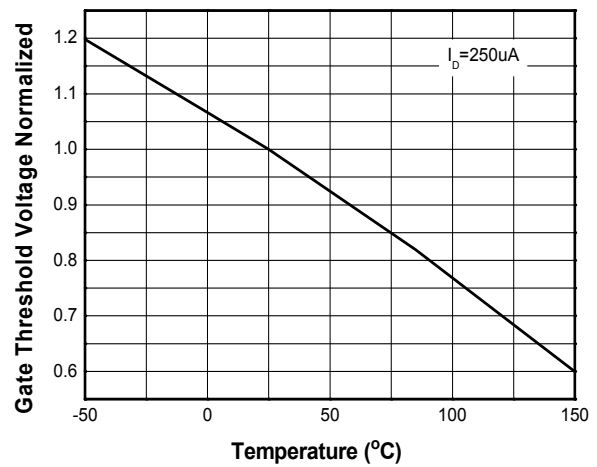
b Surface mounted on FR4 board using minimum pad size, 1oz copper

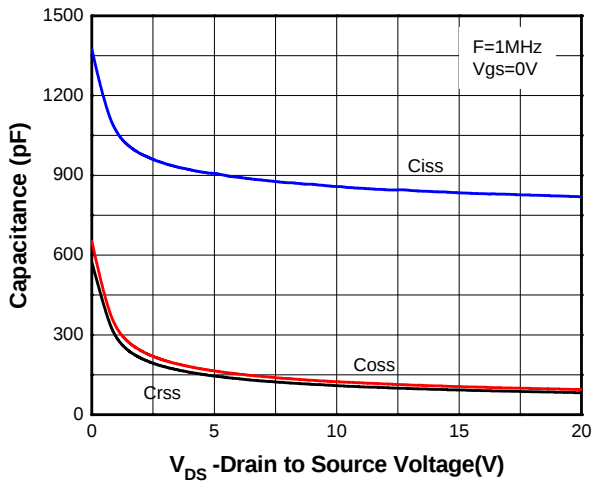
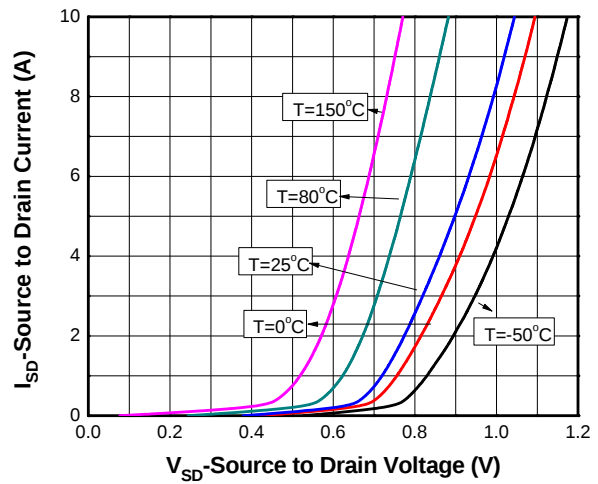
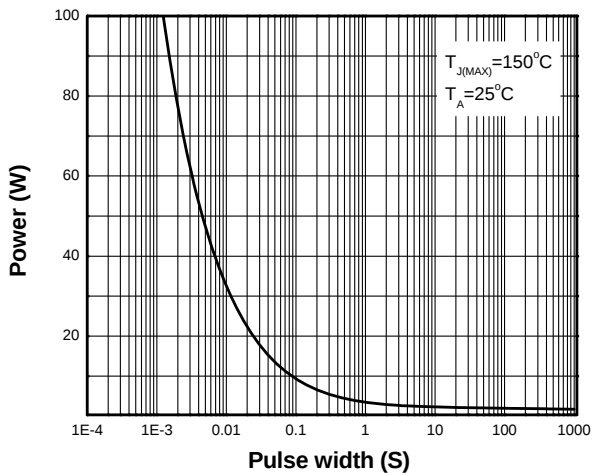
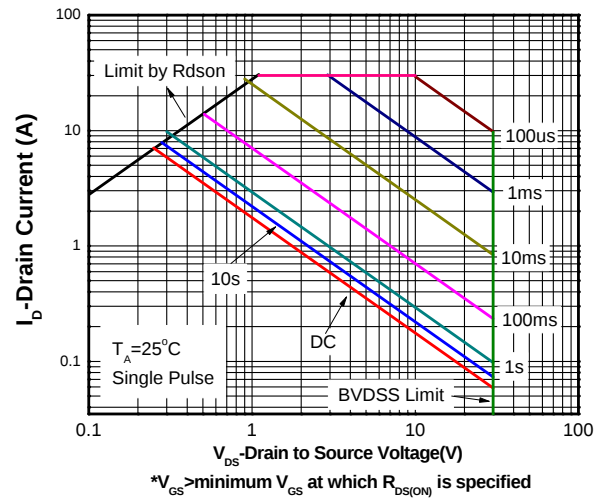
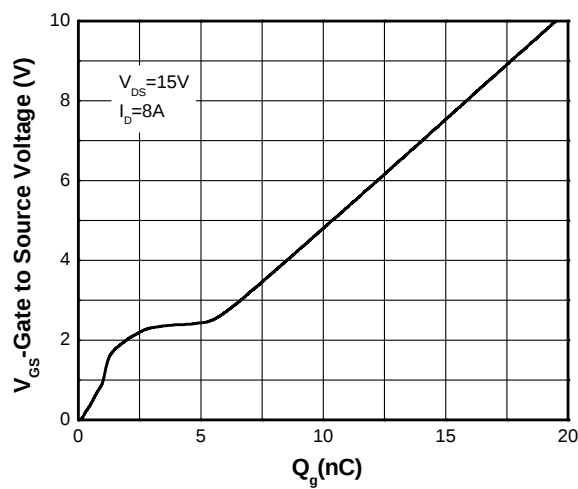
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

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

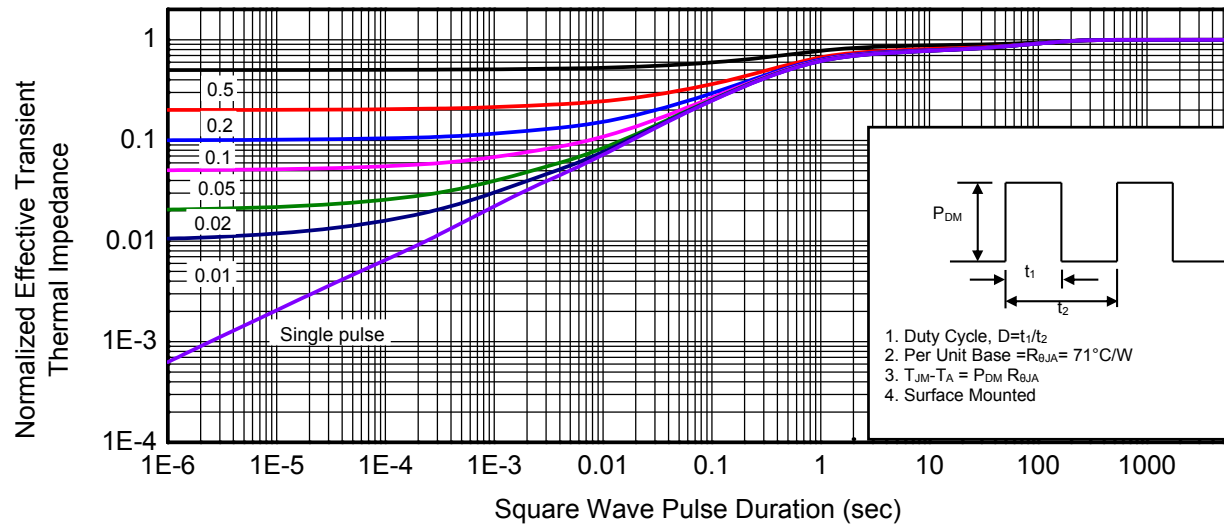
Electronics Characteristics (Ta=25°C, unless otherwise noted)

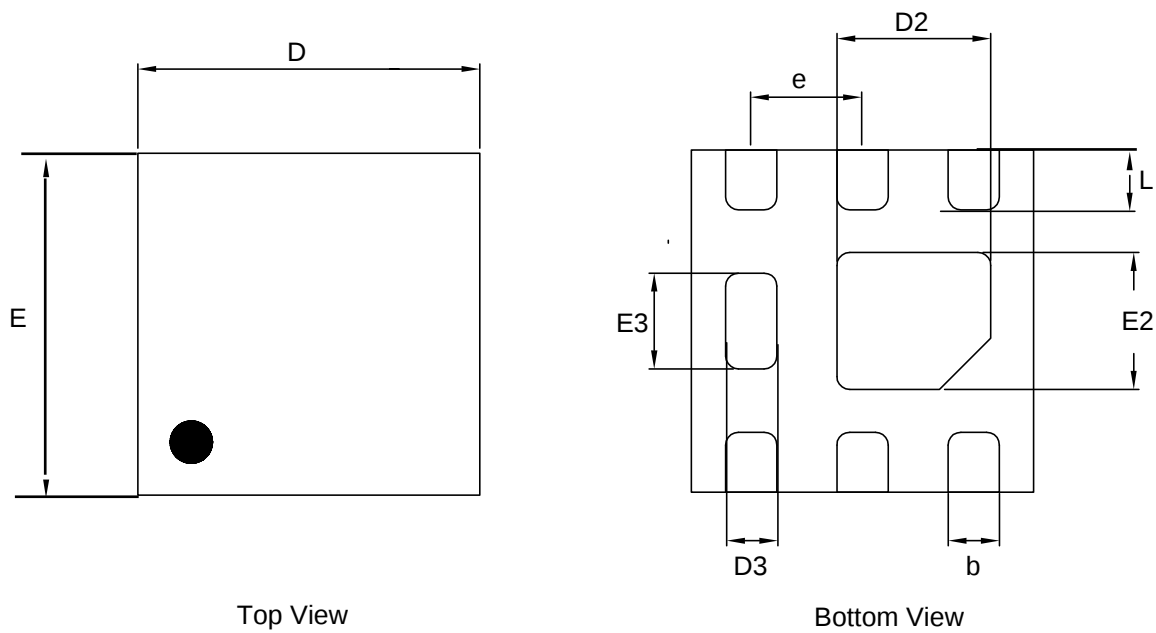
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	0.5	1.0	1.5	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =10V, I _D = 7A		17	27	mΩ
		V _{GS} = 4.5V, I _D = 7A		21	33	
		V _{GS} = 3.7V, I _D = 4A		23	42	
		V _{GS} = 3.1V, I _D = 4A		28	48	
Forward Transconductance	g _{FS}	V _{DS} = 10 V, I _D = 7.0A		6	16	S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1MHz, V _{DS} = 15 V		834		pF
Output Capacitance	C _{OSS}			105		
Reverse Transfer Capacitance	C _{RSS}			93		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 15 V, I _D =8 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	td(ON)	V _{GS} = 10 V, V _{DS} =15 V, R _L =3.75Ω, R _G =10 Ω		10.6		ns
Rise Time	tr			5.4		
Turn-Off Delay Time	td(OFF)			45.6		
Fall Time	tf			7.6		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 2.5A		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
