WNM3032

Single N-Channel, 30V, 9.6A , Power MOSFET

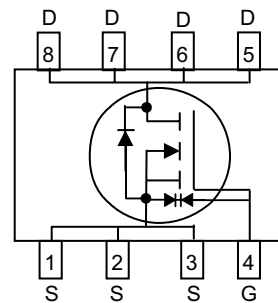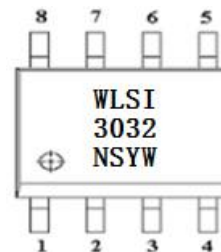| V_{DS} (V)	Rds(on) (mΩ)
30	8.5@ V_{GS}= 10V
	12@ V_{GS}= 4.5V
ESD Protected	

Descriptions

The WNM3032 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 WNM3032 is Pb-free.

SOP-8L

Pin configuration (Top view)

WLSI	= Company
3032	= Device Code
NS	= Special Code
YW	= Date Code

Marking

Features

- Trench Technology

- Supper high density cell design

- Excellent ON resistance for higher DC current

- Extremely Low Threshold Voltage

- Small package SOP-8L

Applications

- Driver for Relay, Solenoid, Motor, LED etc.

- DC-DC converter circuit

- Power Switch

- Load Switch

- Charging

Order information

Device	Package	Shipping
WNM3032-8/TR	SOP-8L	4000/Reel&Tape

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	12.9	9.6	A
	$T_A=70°C$		10.3	7.7	
Maximum Power Dissipation [a][d]	$T_A=25°C$	P_D	3.0	1.7	W
	$T_A=70°C$		1.9	1.1	
Continuous Drain Current [b][d]	$T_A=25°C$	I_D	9.3	7.5	A
	$T_A=70°C$		7.4	6.0	
Maximum Power Dissipation [b][d]	$T_A=25°C$	P_D	1.5	1.0	W
	$T_A=70°C$		1.0	0.6	
Pulsed Drain Current [c]		I_{DM}	50		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

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance [a]	t ≤ 10 s	$R_{\theta JA}$	32	42	°C/W
	Steady State		59	75	
Junction-to-Ambient Thermal Resistance [b]	t ≤ 10 s	$R_{\theta JA}$	59	81	
	Steady State		95	125	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	35	45	

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=10μs, Duty Cycle=1%

d   Repetitive rating, pulse width limited by junction temperature T_J=150°C.

Electronics Characteristics (Ta=25ºC, 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} = 24 V, 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	1.0	1.4	2.0	V
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A		8.5	12	mΩ
		V_{GS} = 4.5V, I_D = 8A		12	16	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS} = 0 V, F = 1.0 MHz, V_{DS} = 15 V		1375		pF
Output Capacitance	C_{OSS}			271		
Reverse Transfer Capacitance	C_{RSS}			233		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = 10 V, V_{DS} = 15 V, I_D = 10A		28.9		nC
Threshold Gate Charge	$Q_{G(TH)}$			1.3		
Gate-to-Source Charge	Q_{GS}			4.3		
Gate-to-Drain Charge	Q_{GD}			5.48		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{GS} = 10 V, V_{DS} = 15 V, R_G= 3 Ω, R_L= 0.75Ω		13.8		ns
Rise Time	tr			10.2		
Turn-Off Delay Time	td(OFF)			63.2		
Fall Time	tf			12.4		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 1A	0.5	0.7	1.2	V

Typical Characteristics (Ta=25ºC, unless otherwise noted)
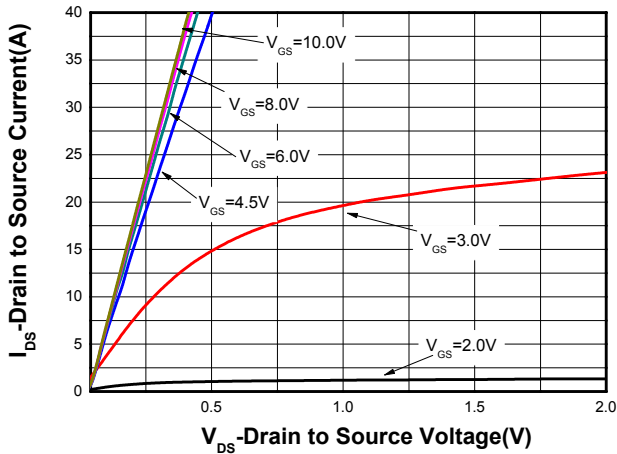
Output characteristics
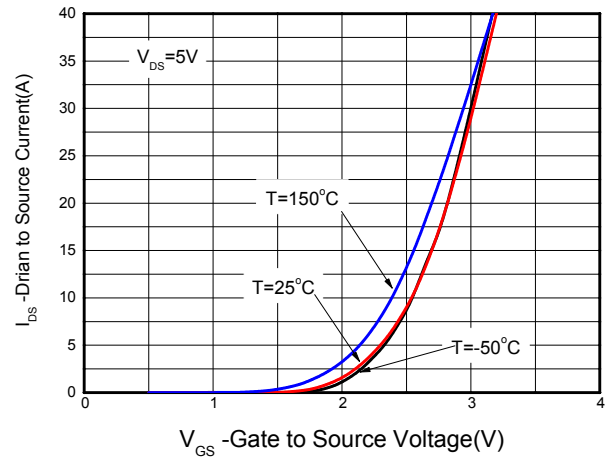
Transfer characteristics
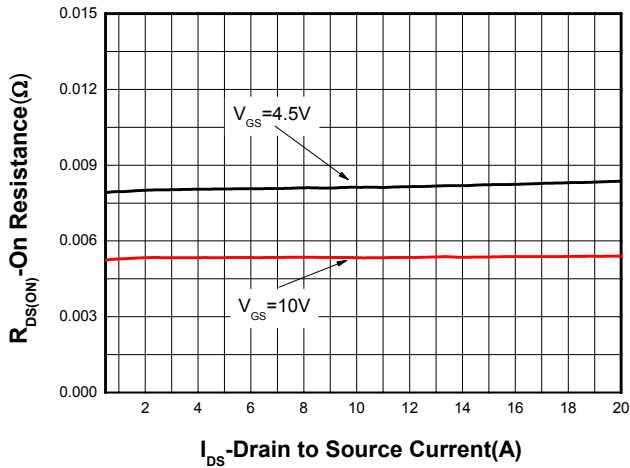
On-Resistance vs. Drain current
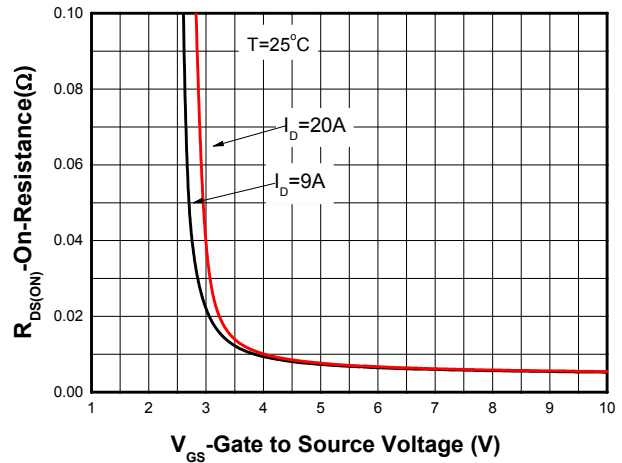
On-Resistance vs. Gate-to-source voltage
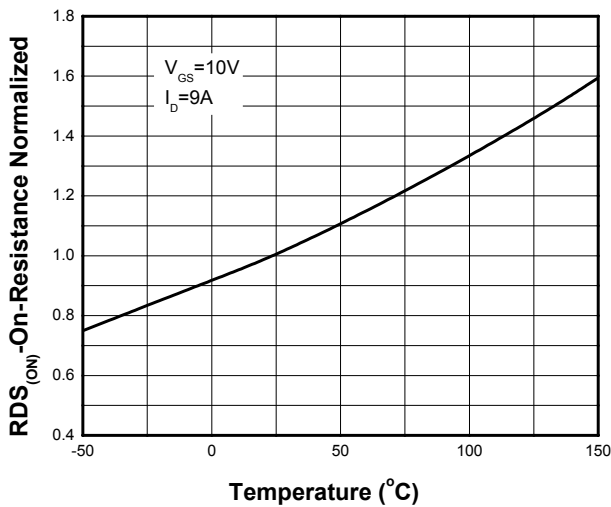
On-Resistance vs. Junction temperature
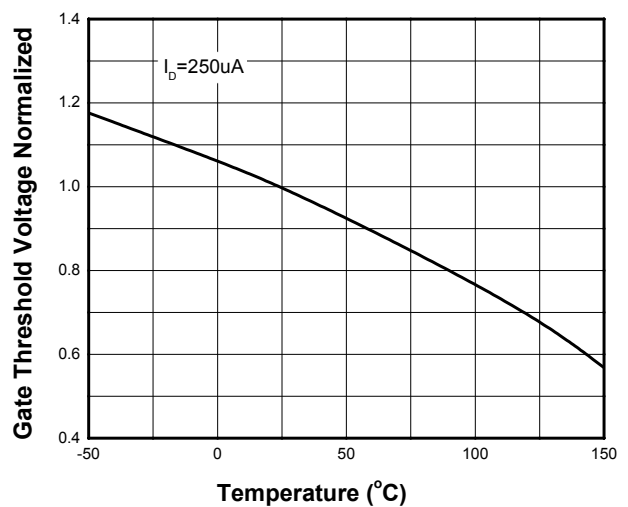
Threshold voltage vs. Temperature
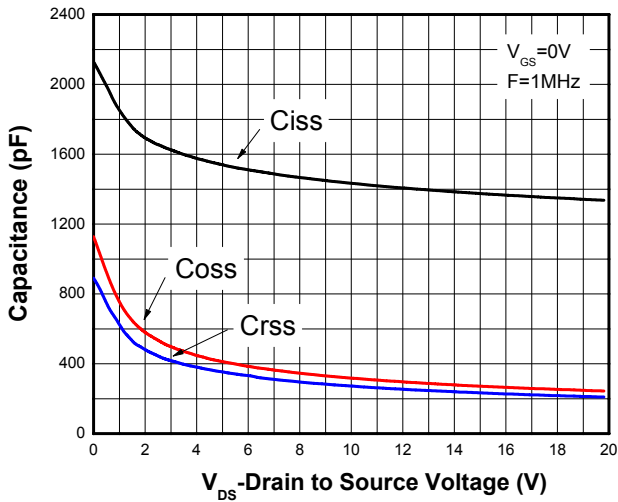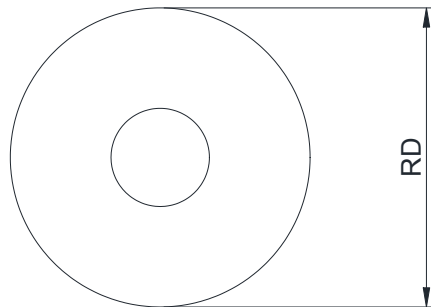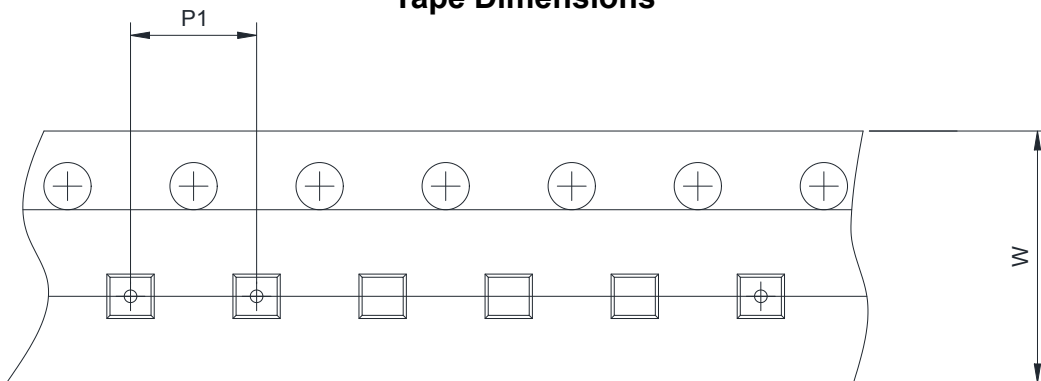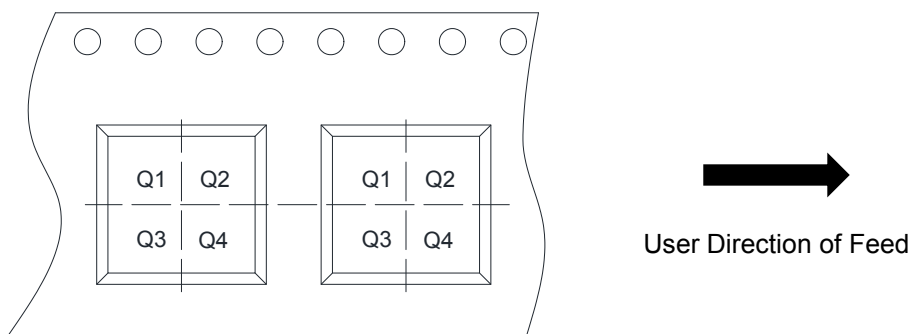
Capacitance
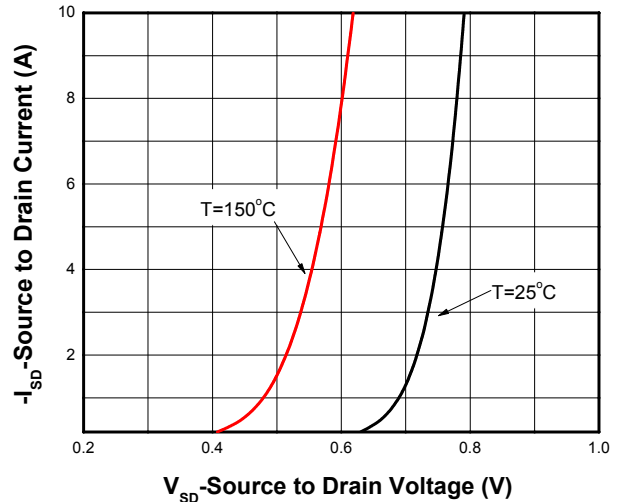
Body diode forward voltage
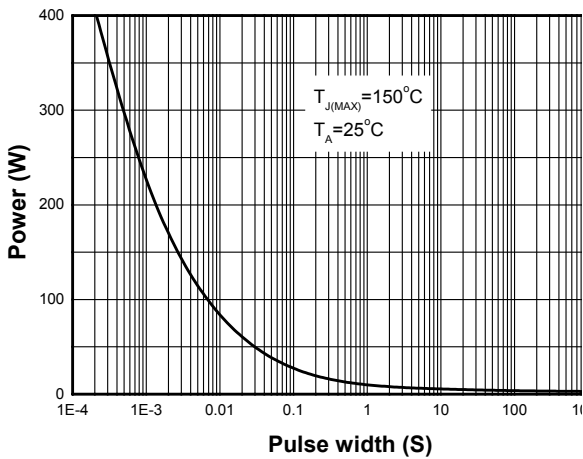
Single pulse power
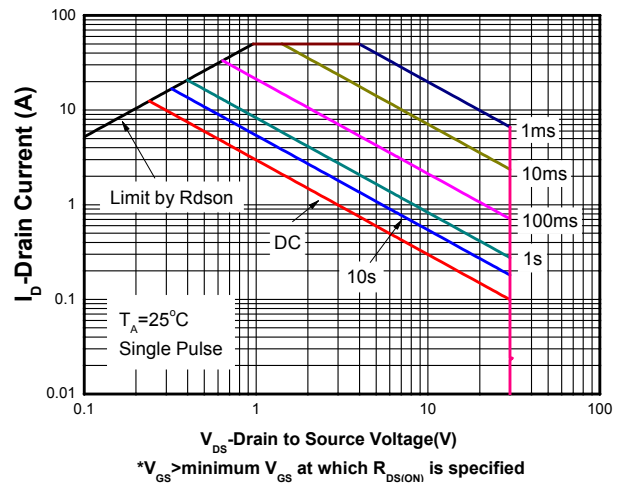
Safe operating power
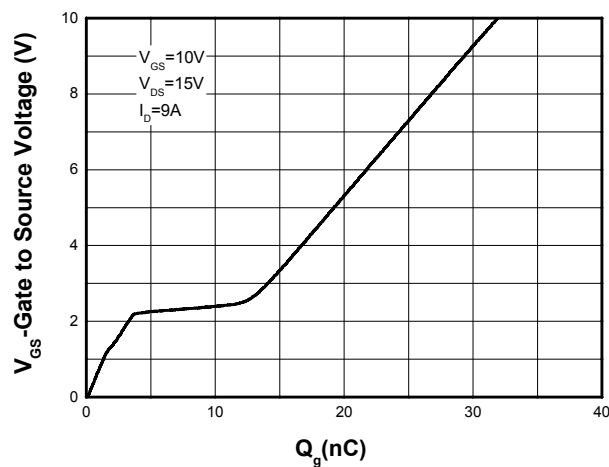
Gate Charge Characteristics
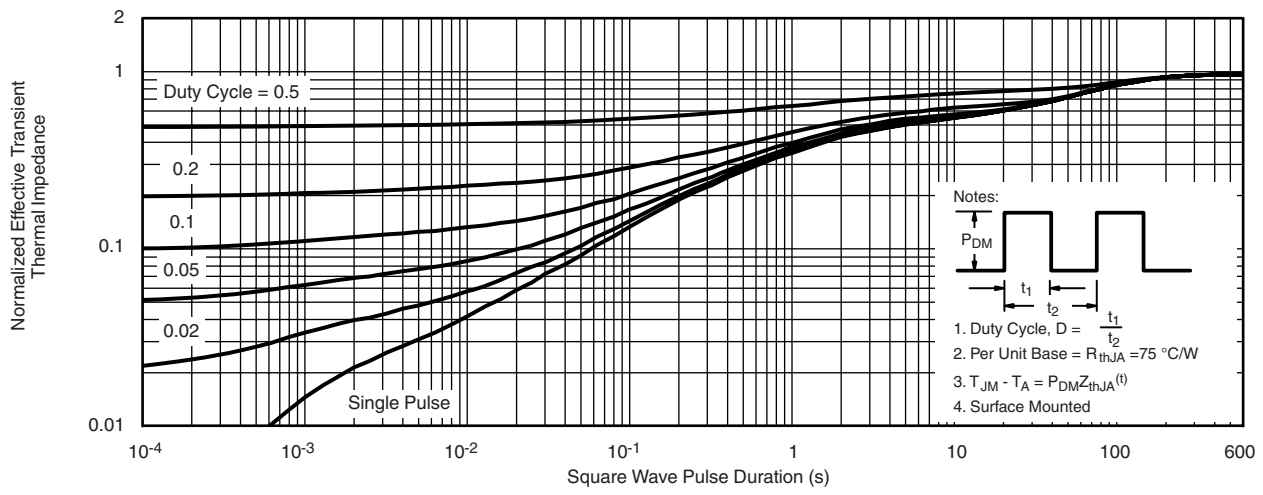
Normalized Thermal Transient Impedance, Junction-to-Ambient

Package outline dimensions

SOP-8L
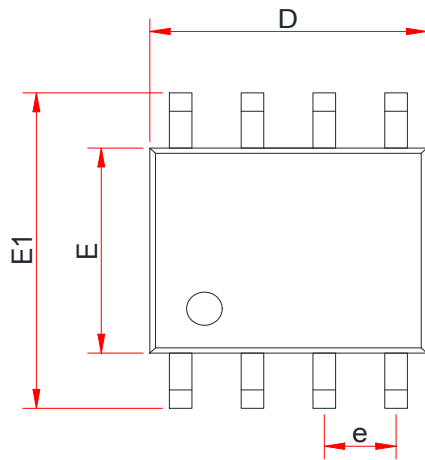
TOP VIEW
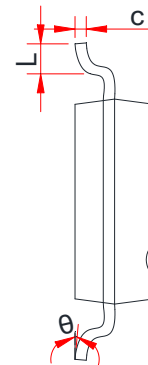
SIDE VIEW
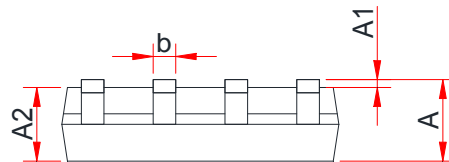
SIDE VIEW

Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	1.35	1.55	1.75
A1	0.05	0.15	0.25
A2	1.25	1.40	1.65
b	0.33	-	0.51
c	0.15	-	0.26
D	4.70	4.90	5.10
E	3.70	3.90	4.10
E1	5.80	6.00	6.20
e	1.27BSC		
L	0.40	-	1.27
θ	0°	-	8°

TAPE 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	
P1	Pitch between successive cavity centers	☐ 2mm	☐ 4mm	☑ 8mm
Pin1	Pin1 Quadrant	☑ Q1 ☐ Q2	☐ Q3	☐ Q4

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