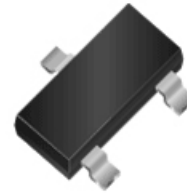


WNM3003

N-Channel, 30V, 4.0A, Power MOSFET

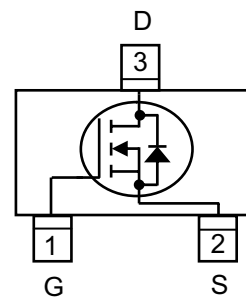
$V_{(BR)DSS}$	$R_{ds(on)}$ (Ω)
30V	0.033@ 10V
	0.033@ 10V
	0.043 @ 4.5V



SOT-23

Descriptions

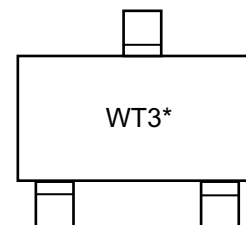
The WNM3003 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion and power switch applications. Standard Product WNM3003 is Pb-free.



Configuration (Top View)

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- Small package SOT-23



WT3 = Device Code
* = Month (A~Z)

Marking

Applications

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

Order Information

Device	Package	Shipping
WNM3003-3/TR	SOT-23	3000/Tape&Reel



WNM3003

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	$T_A=25^{\circ}C$	I_D	4.0	3.7	A
	$T_A=70^{\circ}C$		3.2	3.0	
Maximum Power Dissipation ^a	$T_A=25^{\circ}C$	P_D	0.8	0.7	W
	$T_A=70^{\circ}C$		0.5	0.4	
Continuous Drain Current ^b	$T_A=25^{\circ}C$	I_D	3.7	3.4	A
	$T_A=70^{\circ}C$		2.9	2.7	
Maximum Power Dissipation ^b	$T_A=25^{\circ}C$	P_D	0.7	0.6	W
	$T_A=70^{\circ}C$		0.4	0.3	
Pulsed Drain Current ^c		I_{DM}	10		A
Operating Junction Temperature		T_J	150		$^{\circ}C$
Lead Temperature		T_L	260		$^{\circ}C$
Storage Temperature Range		T_{stg}	-55 to 150		$^{\circ}C$

Thermal resistance ratings

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10$ s	$R_{\theta JA}$	120	145	$^{\circ}C/W$
	Steady State		132	168	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10$ s	$R_{\theta JA}$	145	174	
	Steady State		158	202	
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	60	75	

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, $t_p=10\mu s$, Duty Cycle=1%

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

WNM3003
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	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	1.0	1.6	3.0	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 3.1\text{ A}$		33	47	m Ω
		$V_{GS} = 10\text{ V}, I_D = 2.5\text{ A}$		33	47	
		$V_{GS} = 4.5\text{ V}, I_D = 2.0\text{ A}$		43	59	
Forward Transconductance	g_{FS}	$V_{DS} = 4.5\text{ V}, I_D = 2.8\text{ A}$		5.8		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}, V_{DS} = 15\text{ V}$		570		pF
Output Capacitance	C_{OSS}			72		
Reverse Transfer Capacitance	C_{RSS}			64		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, I_D = 3.1\text{ A}$		11.6		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.8		
Gate-to-Source Charge	Q_{GS}			1.25		
Gate-to-Drain Charge	Q_{GD}			3.0		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, I_D = 1\text{ A}, R_G = 6\ \Omega$		5		ns
Rise Time	t_r			3.3		
Turn-Off Delay Time	$t_d(OFF)$			39		
Fall Time	t_f			4.4		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 1.5\text{ A}$	0.50	0.84	1.50	V