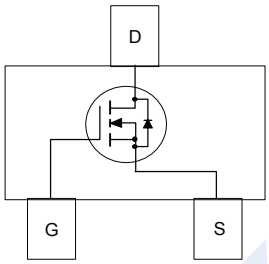
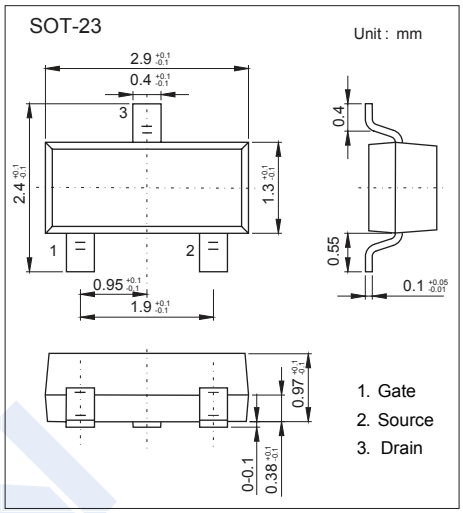
N-Channel MOSFET

WNM2016

■ Features

- $V_{DS\ (V)}$ =20 V
- I_D = 3.2 A
- $R_{DS(ON)}$ < 47m Ω @ V_{GS} = 4.5 V
- $R_{DS(ON)}$ < 55m Ω @ V_{GS} = 2.5 V
- $R_{DS(ON)}$ < 66m Ω @ V_{GS} = 1.8 V





■ Absolute Maximum Ratings T_A = 25℃ unless otherwise noted

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	20		V
Gate-Source Voltage		V_{GS}	±8		
Continuous Drain Current (T_J = 150 °C) [a]	T_A=25℃	I_D	3.2	2.9	A
	T_A=70℃		2.5	2.3	
Maximum Power Dissipation [a]	T_A=25℃	P_D	0.8	0.7	W
	T_A=70℃		0.5	0.4	
Continuous Drain Current (T_J = 150 °C) [b]	T_A=25℃	I_D	2.9	2.7	A
	T_A=70℃		2.3	2.1	
Maximum Power Dissipation [b]	T_A=25℃	P_D	0.6	0.5	W
	T_A=70℃		0.4	0.3	
Pulsed Drain Current [c]		I_{DM}	10		A
Thermal Resistance.Junction- to-Ambient [a]		R_{thJA}	150	175	℃/W
Thermal Resistance.Junction- to-Ambient [b]		R_{thJA}	180	210	
Junction-to-Case Thermal Resistance		R_{thJC}		76	
Junction Temperature		T_J	150		℃
Storage Temperature Range		T_{stg}	-55 to 150		

Notes:

a Surface mounted on FR4 Board using 1 in sq pad size, 1oz Cu.

b Surface mounted on FR4 board using the minimum recommended pad size, 1oz Cu.

c Repetitive rating, pulse width limited by junction temperature, tp=10μs, Duty Cycle=1%

d Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

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■ Electrical Characteristics T_A = 25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250 μA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V, V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250 μA	0.4		1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=3.6 A			47	mΩ
		V_{GS}=2.5V, I_D=3.1 A			55	
		V_{GS}=1.8V, I_D=1 A			66	
Forward Transconductance	g_{FS}	V_{DS}=5 V, I_D=3.1 A		8.5		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10 V, f=1MHz		500		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			58		
Total Gate Charge	$Q_{g(tot)}$	V_{GS}=4.5 V, V_{DS}=10 V, I_D=3.1 A		8.5		nC
Threshold Gate Charge	$Q_{g(th)}$			0.45		
Gate Source Charge	Q_{gs}			0.65		
Gate Drain Charge	Q_{gd}			3.1		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=4.5 V, V_{DS}=10 V, R_L=3.5Ω, ,R_G=6Ω		12		ns
Turn-On Rise Time	t_r			20.8		
Turn-Off DelayTime	$t_{d(off)}$			38.8		
Turn-Off Fall Time	t_f			10.8		
Diode Forward Voltage	V_{SD}	I_S=1 A,V_{GS}=0V			1.5	V

■ Marking

Marking	WT6*

WT6 = Device Code

* = Month (A~Z)

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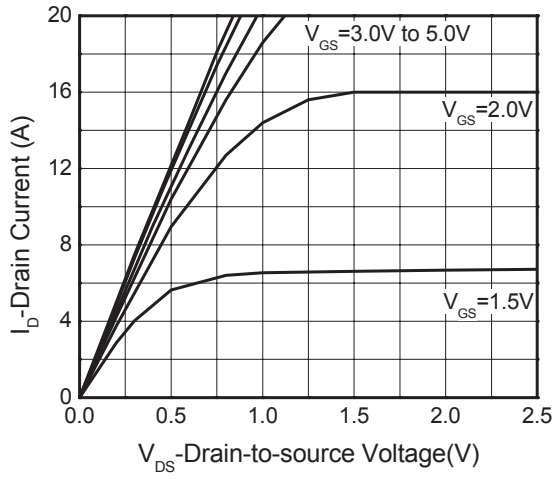
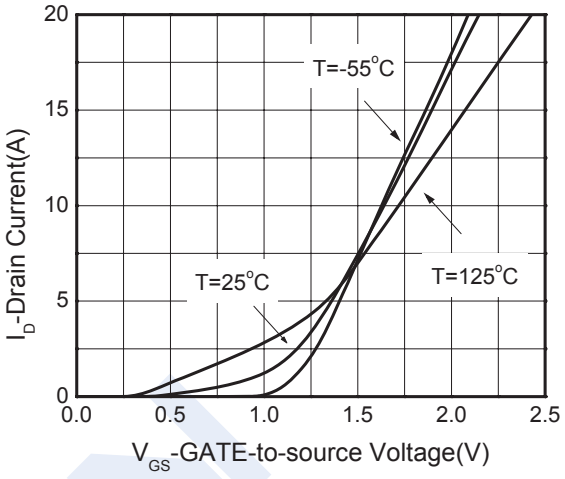
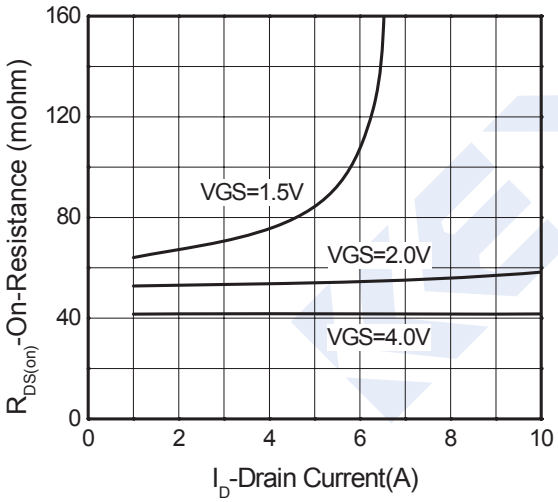
■ Typical Characterisitics



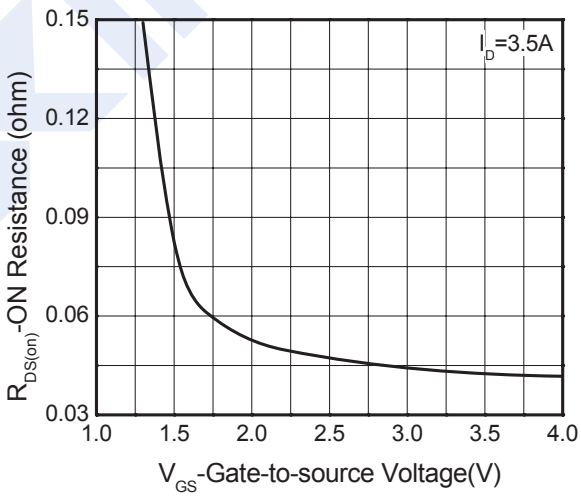
Output Characteristics



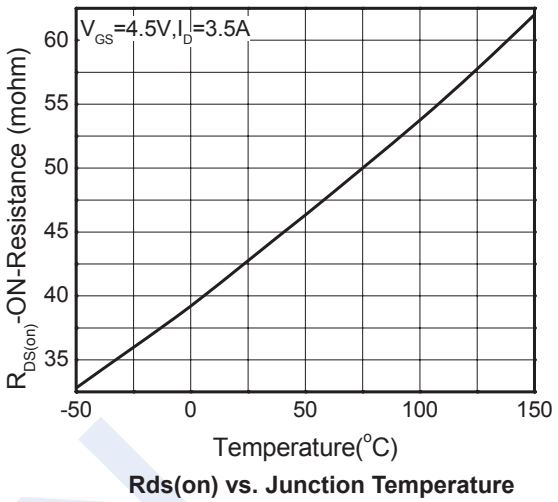
Transfer Characteristics



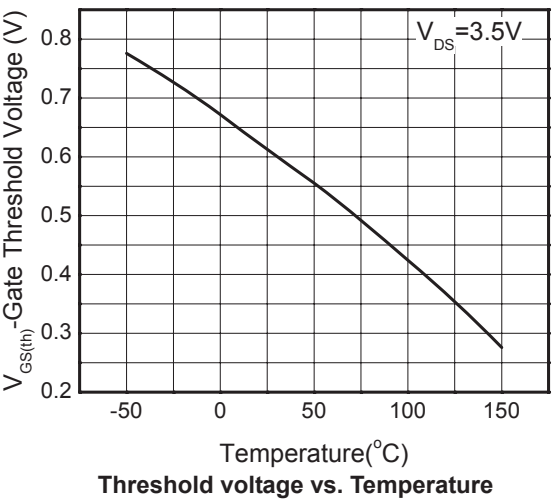
Rds(on) vs. Drain Current



Rds(on) vs. Gate to Source Voltage



Rds(on) vs. Junction Temperature



Threshold voltage vs. Temperature

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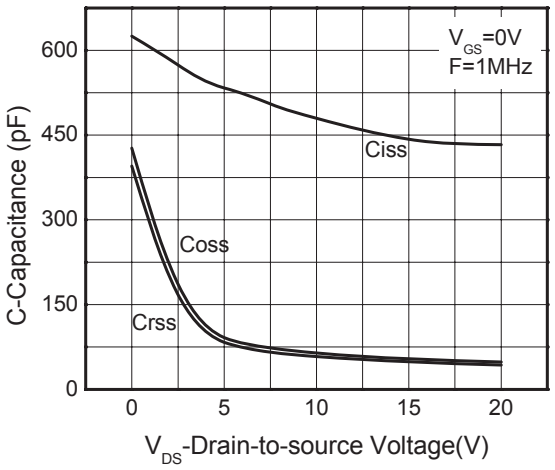
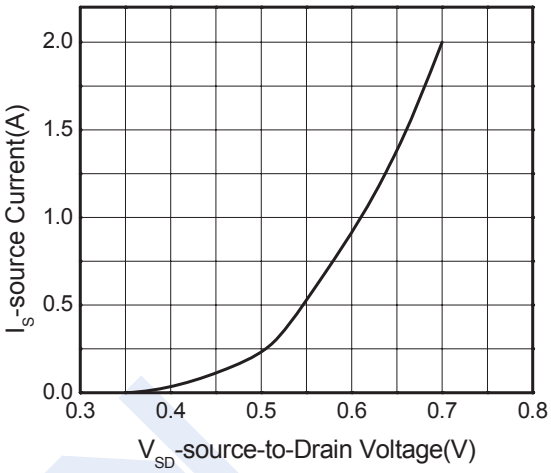
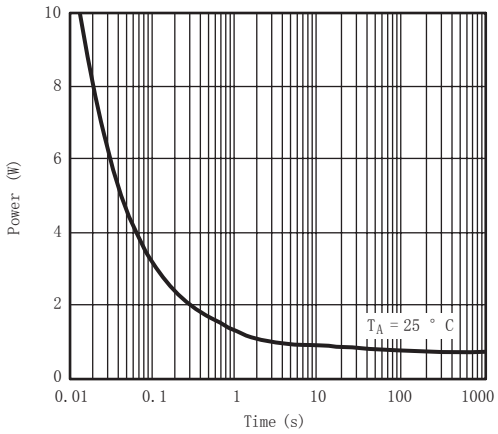


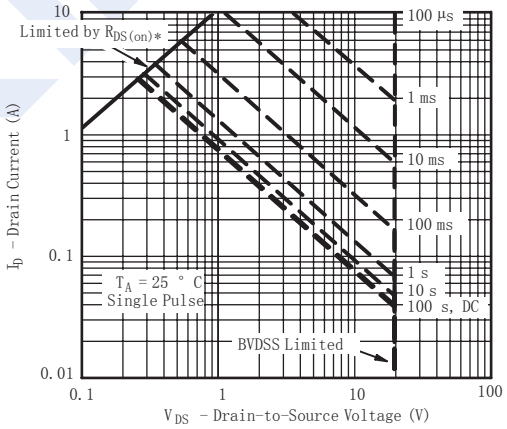
Capacitance



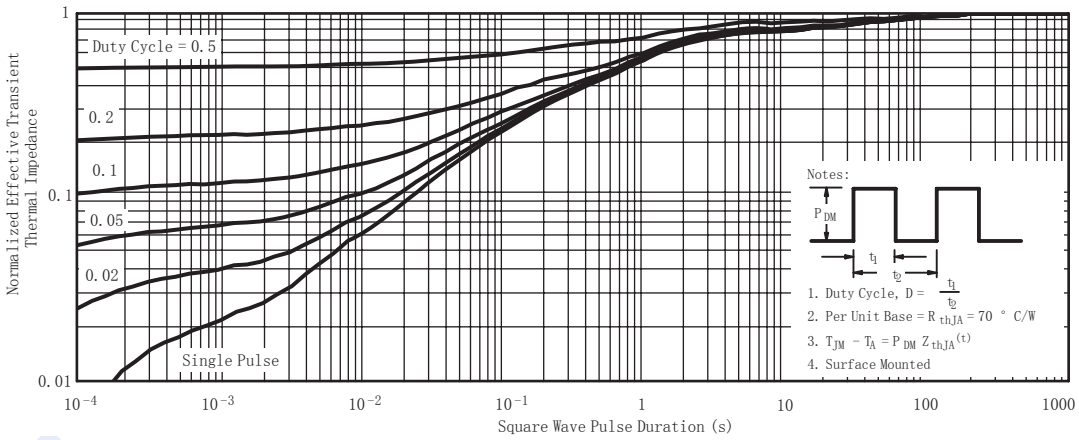
Source to Drain Diode Forward Voltage



Single Pulse Power



Safe Operating Area



Transient Thermal Response