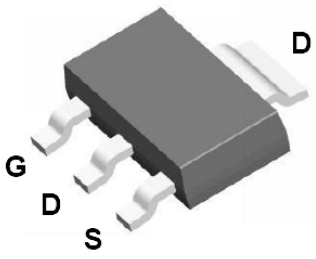
WMT07N03T1

30V N-Channel Enhancement Mode Power MOSFET

Description

WMT07N03T1 uses advanced power trench technology that has been especially tailored to minimize the on-state resistance and yet maintain superior switching performance.

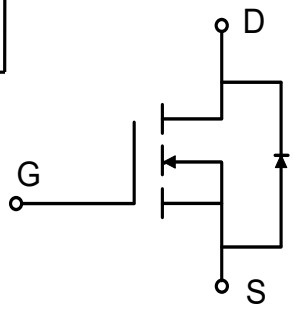


SOT-223-3L

Features

- V_{DS}= 30V, I_D = 7A
  $R_{DS(on)}$ < 36mΩ @ V_{GS} = 10V
  $R_{DS(on)}$ < 45mΩ @ V_{GS} = 4.5V
- Green Device Available
- Low Gate Charge
- 100% EAS Guaranteed

RoHS compliant



Applications

- Power Management Switches
- DC/DC Converters

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C=25℃	I_D	7	A
Pulsed Drain Current[2]		I_{DM}	28	A
Total Power Dissipation[3]	T_C=25℃	P_D	2.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to+150	℃

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient[1]	$R_{\theta JA}$	50	°C/W

Electrical Characteristics T_c = 25°C, unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30	-	-	V
Gate-body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V	-	-	1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	2.5	V
Drain-Source on-Resistance[2]	$R_{DS(on)}$	V_{GS} = 10V, I_D = 6A	-	20	36	mΩ
		V_{GS} = 4.5V, I_D = 5A	-	29	45	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} =0V, f =1MHz	-	500	-	pF
Output Capacitance	C_{oss}		-	72	-	
Reverse Transfer Capacitance	C_{rss}		-	58	-	
Switching Characteristics						
Total Gate Charge	Q_g	V_{GS} = 10,V_{DS} = 15V, I_D=6A	-	9	-	nC
Gate-Source Charge	Q_{gs}		-	1.6	-	
Gate-Drain Charge	Q_{gd}		-	1.9	-	
Turn-on Delay Time	$t_{d(on)}$	V_{GS} =10V, V_{DS} =15V, R_G = 3Ω, I_D= 6A	-	6.4	-	nS
Rise Time	t_r		-	3.1	-	
Turn-off Delay Time	$t_{d(off)}$		-	15	-	
Fall Time	t_f		-	2.6	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	I_S = 1A, V_{GS} = 0V	-	-	1	V
Continuous Source Current[1,4]	I_S	V_G=V_D=0V,Force Current	-	-	7	A

Notes:

1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%

3.The power dissipation is limited by 150℃ junction temperature

4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

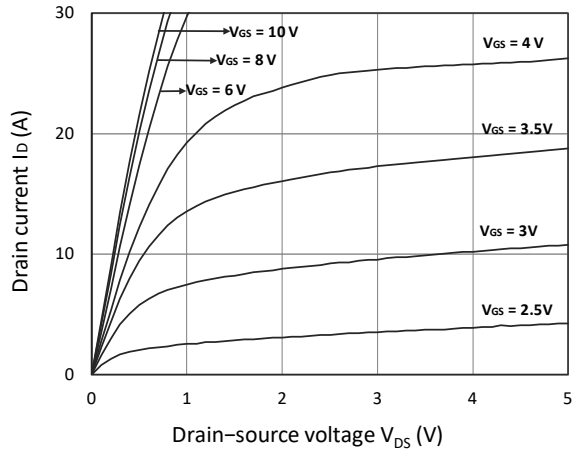


Figure 1. Output Characteristics

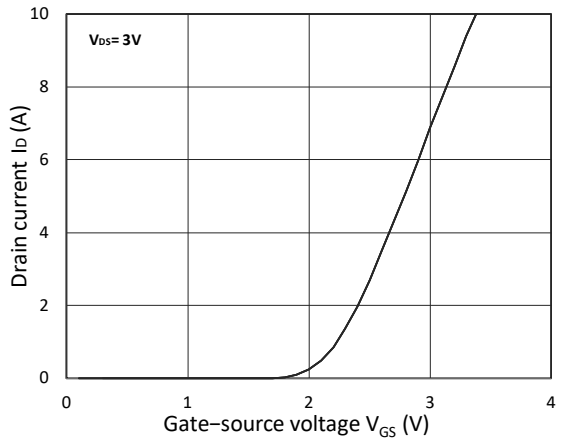


Figure 2. Transfer Characteristics

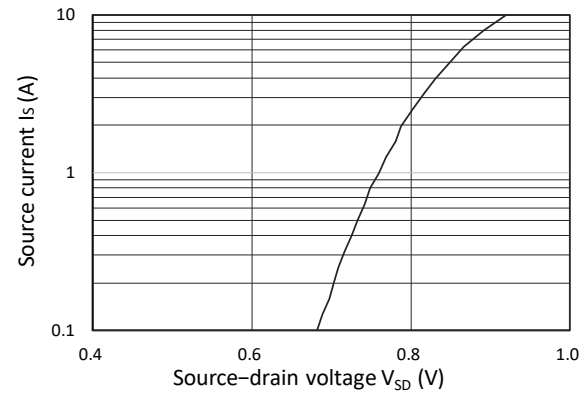


Figure 3. Forward Characteristics of Reverse

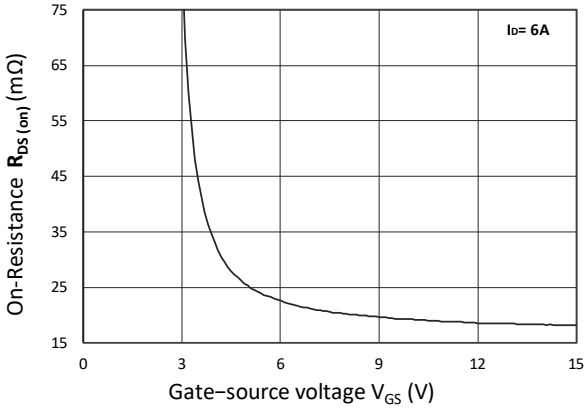


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

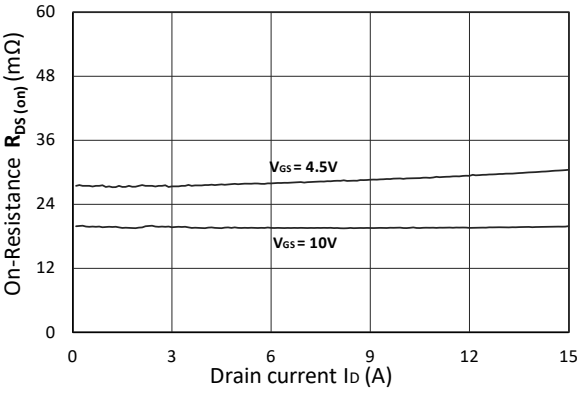


Figure 5. $R_{DS(ON)}$ vs. I_D

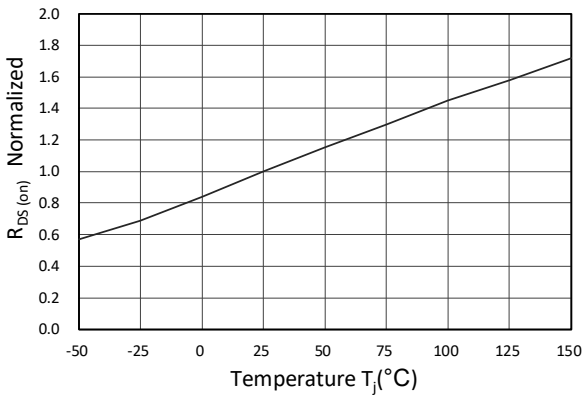


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

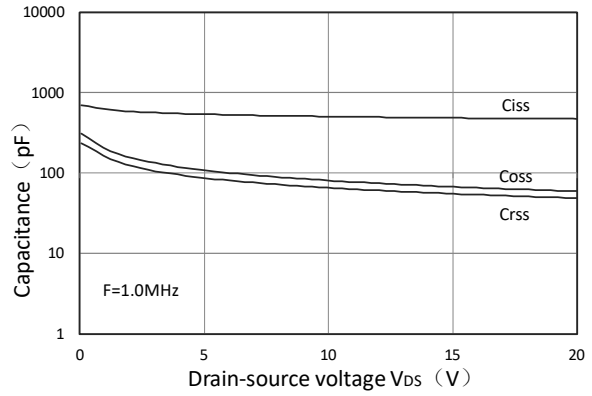


Figure 7. Capacitance Characteristics

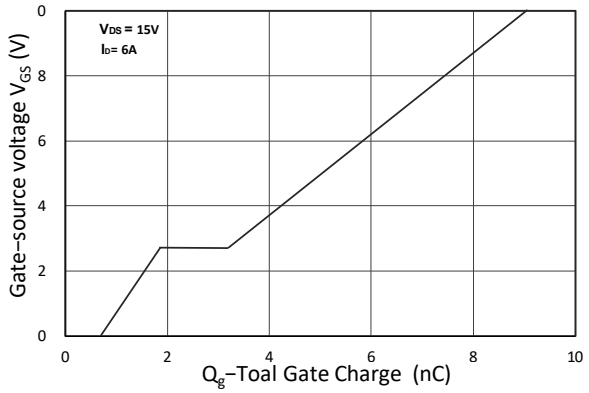


Figure 8. Gate Charge Characteristics

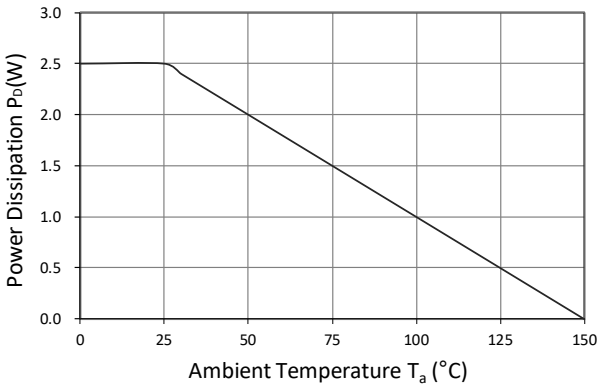


Figure 9. Power Dissipation

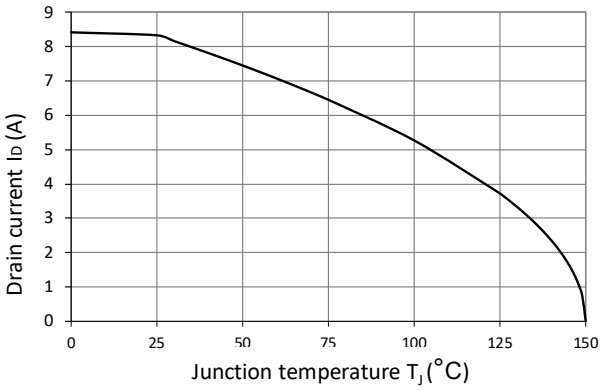


Figure10. Current De-rating

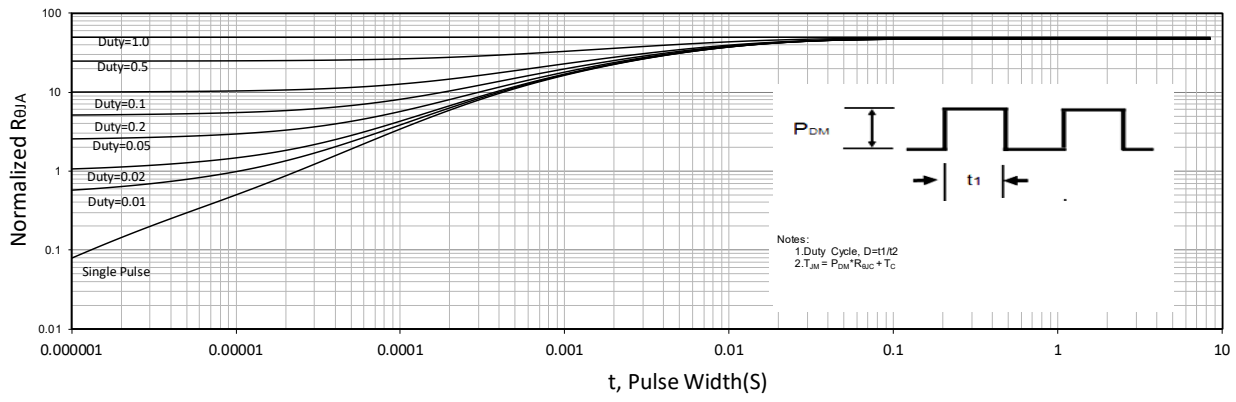
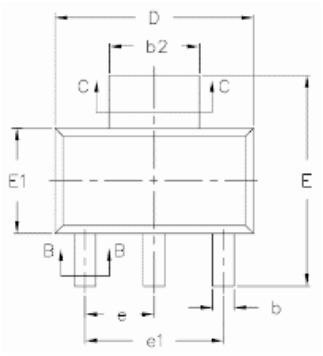
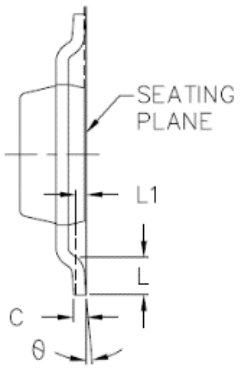
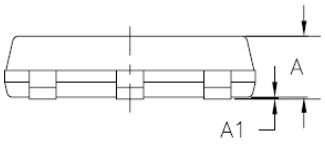


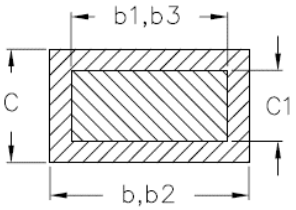
Figure 11. Normalized Maximum Transient Thermal Impedance

Mechanical Dimensions for SOT-223-3L









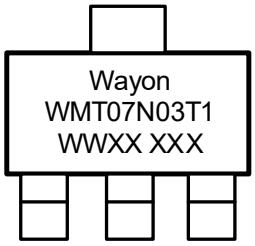
COMMON DIMENSIONS

SYMBOL	MM	
	MIN	MAX
A	-	1.80
A1	0.02	0.10
b	0.66	0.84
b1	0.60	0.79
b2	2.90	3.10
b3	2.84	3.05
c	0.23	0.35
c1	0.23	0.33
D	6.20	6.70
E	6.70	7.30
E1	3.30	3.70
e	2.30BSC	
e1	4.60BSC	
L	0.80	-
L1	0.25BSC	
θ	0°	10°

Ordering Information

Part	Package	Marking	Packing method
WMT07N03T1	SOT-223-3L	WMT07N03T1	Tape and Reel

Marking Information



WMT07N03T1 = Device code

WWXX XXX= Date code

Contact Information

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