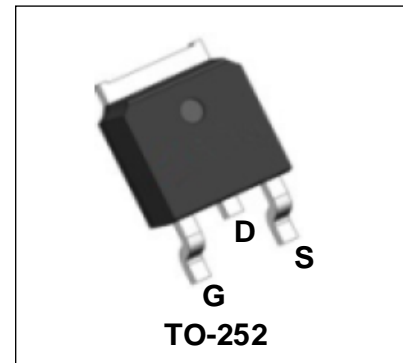


60V N-Channel Enhancement Mode Power MOSFET

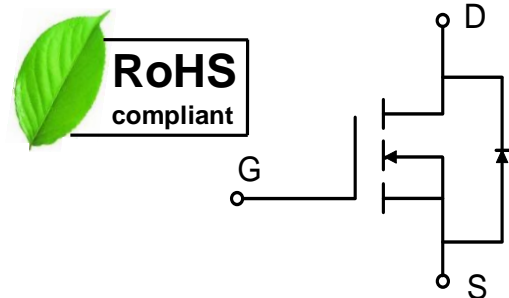
Description

WMO40N06T1 uses advanced power trench technology that has been especially tailored to minimize the on-state resistance and yet maintain superior switching performance.



Features

- $V_{DS} = 60V$, $I_D = 40A$
 $R_{DS(on)} < 21m\Omega$ @ $V_{GS} = 10V$
 $R_{DS(on)} < 24m\Omega$ @ $V_{GS} = 4.5V$
- Green Device Available
- Low Gate Charge
- Advanced High Cell Density Trench Technology
- 100% EAS Guaranteed



Applications

- Power Management Switches
- Synchronous Rectification for AC/DC Quick Charger

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ C$	I_D	40	A
	$T_C = 100^\circ C$		23	
Pulsed Drain Current ²		I_{DM}	82	A
Single Pulse Avalanche Energy ³		EAS	39.2	mJ
Avalanche Current		I_{AS}	28	A
Total Power Dissipation ⁴	$T_C = 25^\circ C$	P_D	43	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient ¹	$R_{\theta JA}$	63	$^\circ C/W$
Thermal Resistance from Junction-to-Case ¹	$R_{\theta JC}$	2.9	$^\circ C/W$

Electrical Characteristics $T_c = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	
Static Characteristics							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60	-	-	V	
Gate-body Leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$	$T_J = 25^\circ\text{C}$	-	-	1	μA
			$T_J = 55^\circ\text{C}$	-	-	5	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.7	2.5	V	
Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$	-	17	21	m Ω	
		$V_{GS} = 4.5V, I_D = 10A$	-	20	24		
Forward Transconductance ²	g_{fs}	$V_{DS} = 5V, I_D = 15A$	-	46	-	S	
Dynamic Characteristics							
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$	-	2050	-	pF	
Output Capacitance	C_{oss}		-	110	-		
Reverse Transfer Capacitance	C_{rss}		-	88	-		
Switching Characteristics							
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$	-	1.4	-	Ω	
Total Gate Charge(10V)	Q_g	$V_{GS} = 4.5V, V_{DS} = 48V, I_D = 15A$	-	19	-	nC	
Gate-Source Charge	Q_{gs}		-	7	-		
Gate-Drain Charge	Q_{gd}		-	7.5	-		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 30V, R_G = 3.3\Omega, I_D = 15A$	-	7	-	nS	
Rise Time	t_r		-	49.5	-		
Turn-Off Delay Time	$t_{d(off)}$		-	36.2	-		
Fall Time	t_f		-	7.5	-		
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ²	V_{SD}	$I_S = 1A, V_{GS} = 0V$	-	-	1	V	
Continuous Source Current ^{1,5}	I_S	$V_G = V_D = 0V, \text{Force Current}$	-	-	40	A	
Reverse Recovery Time	t_{rr}	$I_F = 15A, di_F/dt = 100A/\mu s$	-	16	-	nS	
Reverse Recovery Charge	Q_{rr}		-	10.8	-	nC	

Notes:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- The EAS data shows Max. rating . The test condition is $V_{DD} = 25V, V_{GS} = 10V, L = 0.1mH, I_{AS} = 28A$
- The power dissipation is limited by 150°C junction temperature
- The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

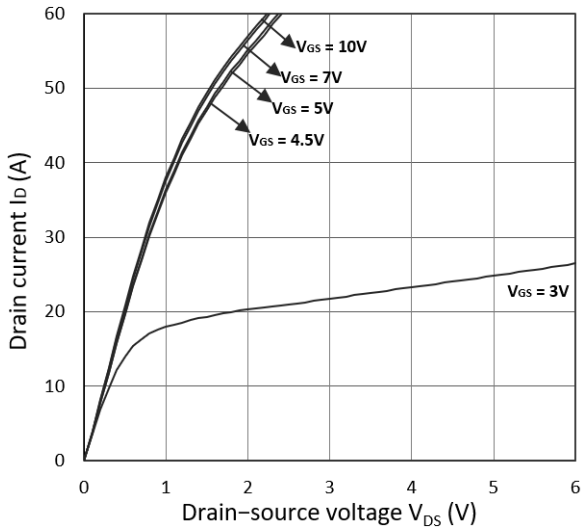


Figure 1. Output Characteristics

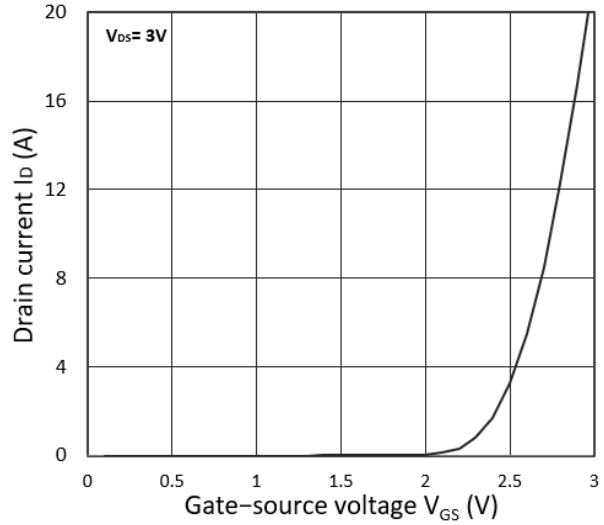


Figure 2. Transfer Characteristics

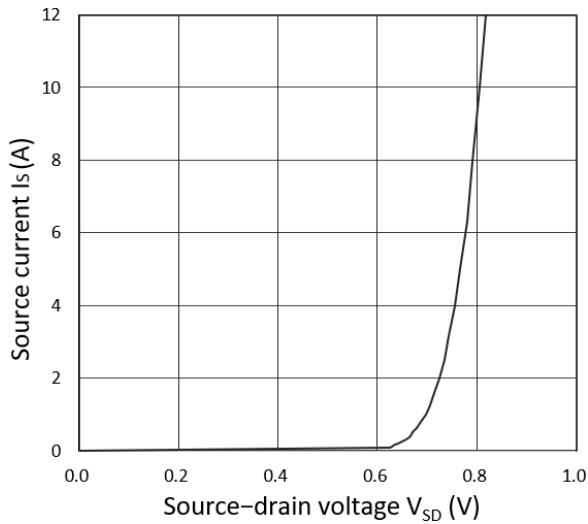


Figure 3. Forward Characteristics of Reverse

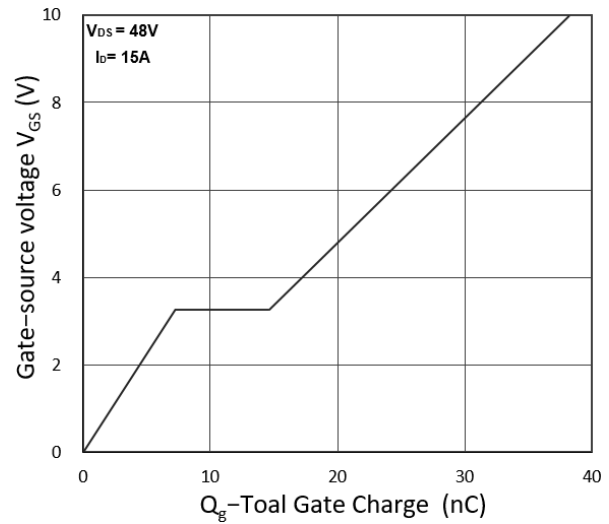


Figure 4. Gate Charge Characteristics

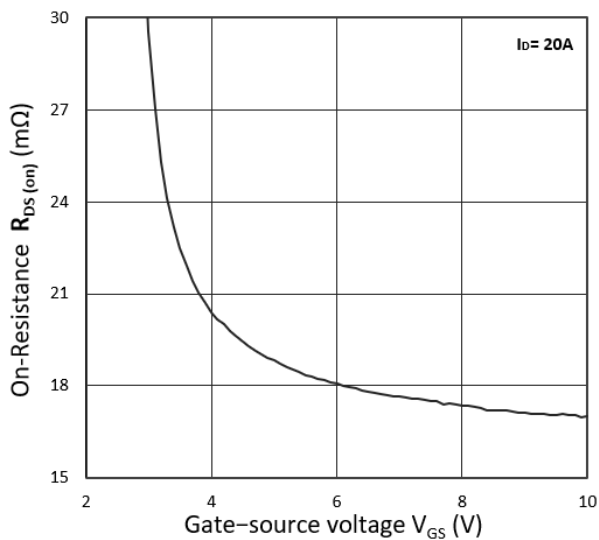


Figure 5. $R_{DS(on)}$ vs. V_{GS}

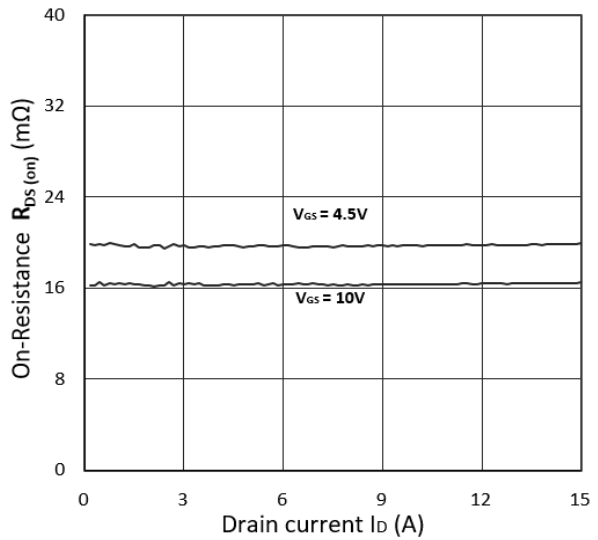


Figure 6. $R_{DS(on)}$ vs. I_D

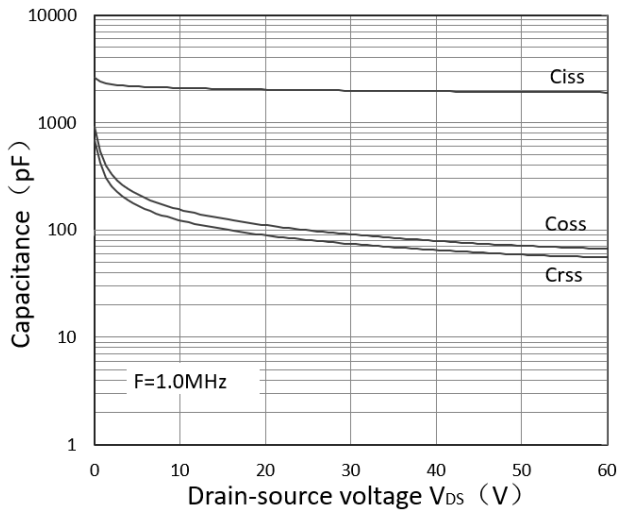


Figure 7. Capacitance Characteristics

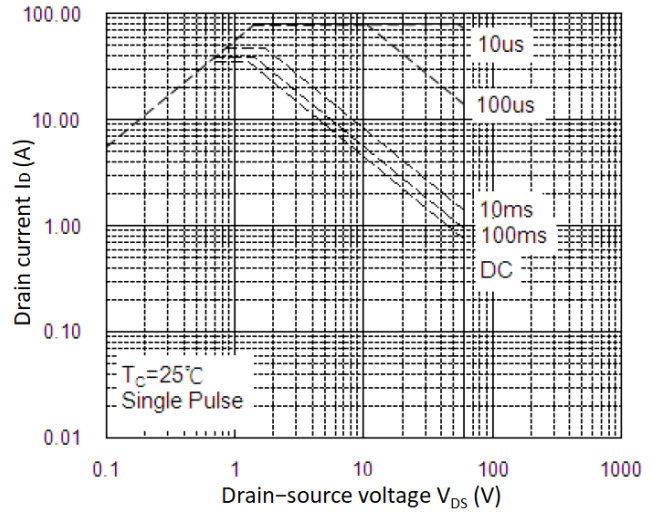


Figure 8. Safe Operating Area

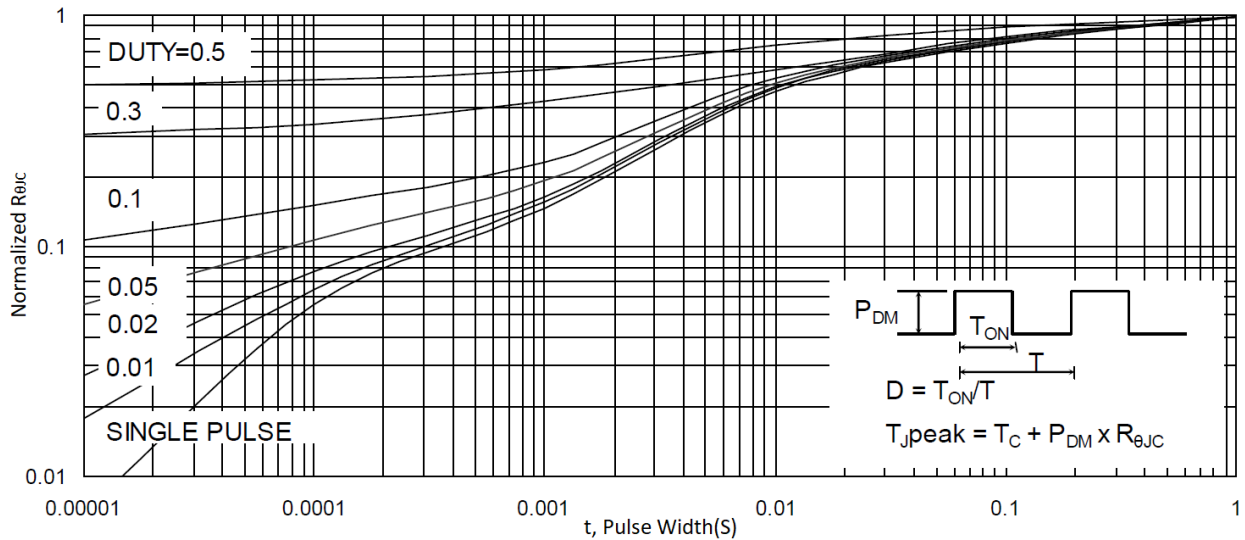


Figure 9. Normalized Maximum Transient Thermal Impedance

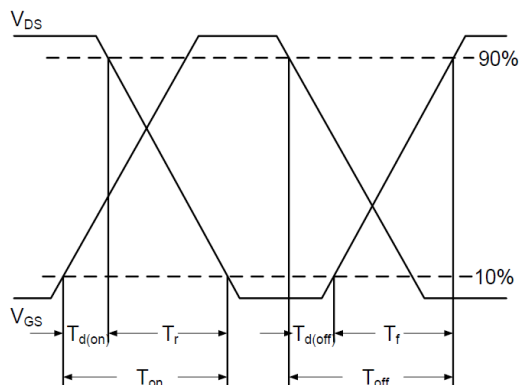


Figure 10. Switching Time Waveform

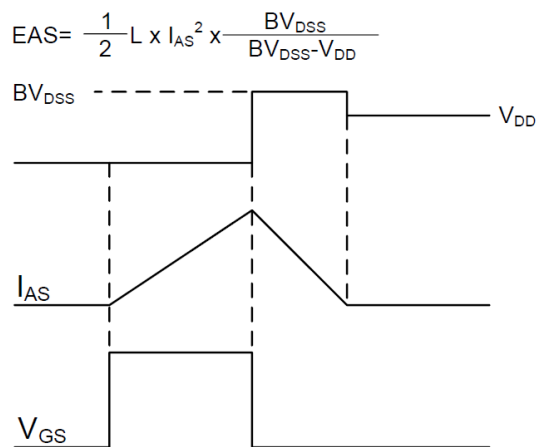
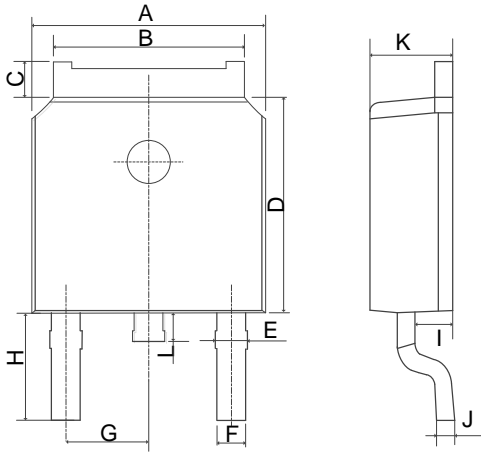


Figure 11. Unclamped Inductive Switching Waveform

Mechanical Dimensions for TO-252

COMMON DIMENSIONS

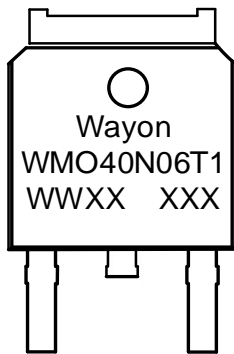


SYMBOL	MM	
	MIN	MAX
A	6.40	6.80
B	5.13	5.50
C	0.88	1.28
D	5.90	6.22
E	0.68	1.10
F	0.68	0.91
G	2.29REF	
H	2.90REF	
I	0.85	1.17
J	0.51REF	
K	2.10	2.50
L	0.40	1.00

Ordering Information

Part	Package	Marking	Packing method
WMO40N06T1	TO-252	WM040N06T1	Tape and Reel

Marking Information



WMO40N06T1 = Device code

WWXX XXX= Date code


Contact Information

No.1001, Shiwan(7) Road, Pudong District, Shanghai, P.R.China.201207

Tel: 86-21-50310888 Fax: 86-21-50757680 Email: market@way-on.com

WAYON website: <http://www.way-on.com>

For additional information, please contact your local Sales Representative.

® is registered trademarks of Wayon Corporation.

Disclaimer

WAYON reserves the right to make changes without further notice to any Products herein to improve reliability, function, or design. The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. WAYON does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Products or technical information described in this document.

深圳市泰德兰电子有限公司（简称：泰德兰），是一家专业代理国内外品牌电子元器件代理商。“泰德兰”的目标是为客户提供高性价比的产品和服务。我们一贯坚持：“品质第一、价格合理、交货快捷、服务至上、凝聚客户”的发展理念和宗旨以向采购商提供最满意的服务为己任，向采购商提供规范化、专业化、多元化、全方位的优质服务，真诚欢迎海内外直接用户前来洽谈合作，共谋发展！也希望能与电子界同行进行广泛的交流合作共同为行业的繁荣发展做出贡献！

目前，泰德兰电子主要代理：霍尼韦尔、理光、NJRC、英集芯、维安、贝岭、捷捷微、冠禹、松木、辉芒微、茂捷等。

主营产品线有 LDO、DC/DC、AC-DC、电压检测器、充电 IC、负载开关 IC、保险丝、多功能集成保护 IC、功率 TVS 管、二三极管、PMU、马达驱动、LED 驱动、功率器件、数字电源、Hall IC、磁组、传感器 IC、汽容胶传感器、压力传感器、位移传感器、惯导模块、锂电保护芯片、微动开关、IGBT、PTC、ESD、EEPROM, 8bit/32bit MCU, PMIC、中低压 MOS 管、高压 COOL MOS、高压平面 MOSFET 等。

“泰德兰”代理的产品被广泛应用于液晶电视、笔记本、联网、便携式设备、机顶盒、闭路电视/安全、桌面、LED 照明、玩具、网络电视机、无人机、扫地机、无线充、蓝牙设备、汽车应用、行车记录仪、无线路由等领域。

“泰德兰”所代理的产品均通过 ISO 9001:2000 品质管理系统检验；获得原厂颁发的代理授权证书。

深圳公司

深圳市泰德兰电子有限公司

地址：深圳市福田区彩田南路 2010 号中深花园 A 座六层

电话：0755-83322522 传真：0755-83648400

手机：131-89714166 Q Q：2853781768