General Description

The WSD3056DN is the highest performance trench Dual N-Ch MOSFET with extreme high cell density,which provide excellent R_{DSON} and gate charge for most of the synchronous buck converter applications .

The WSD3056DN meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.
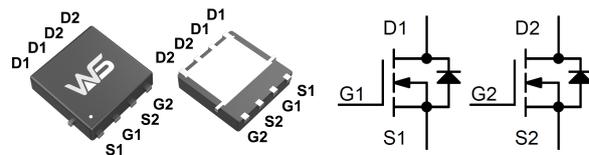
Features

Advanced high cell density Trench technology

Super Low Gate Charge

Excellent CdV/dt effect decline

100% EAS Guaranteed

Green Device Available

Product Summery

B_{VDSS}	R_{DSON}	I_D
30V	13mΩ	35A

Applications

POL Applications

MB / VGA / Vcore

Load Switch

SMPS 2nd SR

DFN3X3 Dual Pin Configuration

Absolute Maximum Ratings @TA=25℃ unless otherwise noted

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Drain Current (Continuous) *AC	T_C=25°C	35	A
		T_C=100°C	22	
I_{DM}	Drain Current (Pulse) *B		140	A
P_D	Power Dissipation	T_C=25°C	27	W
EAS	Single Pulse Avalanche Energy		13	mJ
$R\theta JA$	Thermal Resistance Junction to ambient		62	℃/W
$R\theta JC$	Thermal Resistance Junction to Case		4.6	℃/W
T_J//T_{STG}	Operating Temperature/ Storage Temperature		-55~150	℃

Electrical Characteristics @T_A=25℃ unless otherwise noted

| Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250µA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 30 V, V_{GS} = 0V			1	µA
I_{GSS}	Gate Leakage Current	V_{GS} = ±20V, V_{DS} = 0V			100	nA
On Characteristics						
$V_{GS(TH)}$	Gate Threshold Voltage	V_{GS} = V_{DS}, I_{DS} = 250µA	1.2	1.8	2.5	V
$R_{DS(on)}$	Drain-Source On-state Resistance	V_{GS} = 10V, I_D = 10A		10	13	mΩ
		V_{GS} = 4.5V, I_D = 8A		14	18	mΩ
gFS	Forward Transconductance	V_{DS} = 5V, I_D= 5A		6		S
Switching						
Qg	Total Gate Charge			7.2		nC
Qgs	Gate-Source Charge	V_{GS}=10V, V_{DS}=15V, I_D=5A		2.3		nC
Qgd	Gate-Drain Charge			3		nC
td (on)	Turn-on Delay Time			3.8		ns
tr	Turn-on Rise Time	V_{GS}=10V, V_{DD}=15V, I_D=1A, R_G=6Ω		10		ns
td(off)	Turn-off Delay Time			22		ns
tf	Turn-off Fall Time			6.6		ns
Rg	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz		2.8		Ω
Dynamic						
Ciss	Input Capacitance			620		pF
Coss	Output Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		85		pF
Crss	Reverse Transfer Capacitance			30		pF
Drain-Source Diode Characteristics and Maximum Ratings						
Is	Continuous Source Current				35	A
I_{SM}	Pulsed Source Current3	V_G=V_D=0V , Force Current			70	A
V_{SD}	Diode Forward Voltage	I_{SD} = 1A , V_{GS}=0V			1.2	V

Note：

1，Repetitive Rating : Pulsed width limited by maximum junction temperature.

2，VDD=25V,VGS=10V,L=0.1mH,IAS=16A.,RG=25   ,Starting TJ=25℃.

3，The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
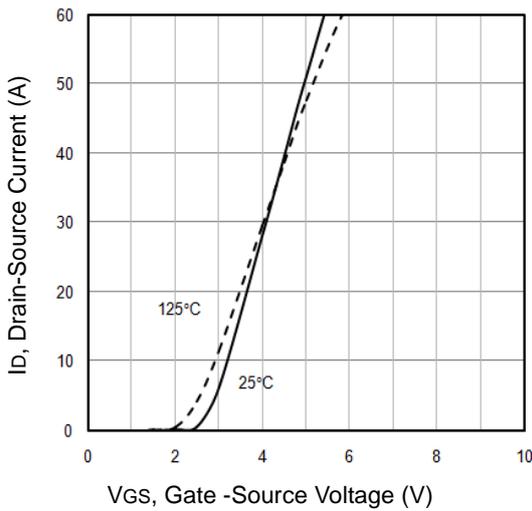
4，Essentially independent of operating temperature.
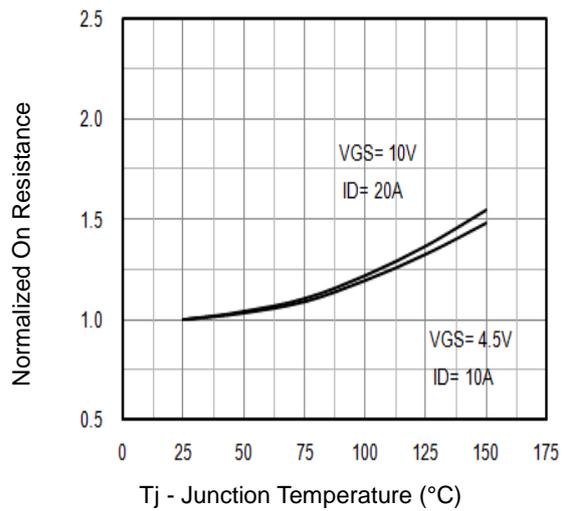
Typical Characteristics
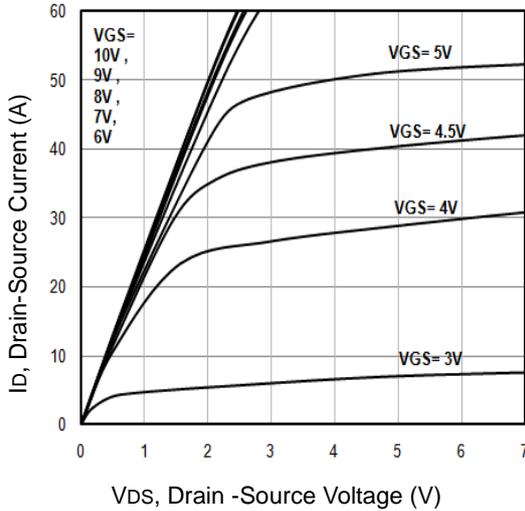
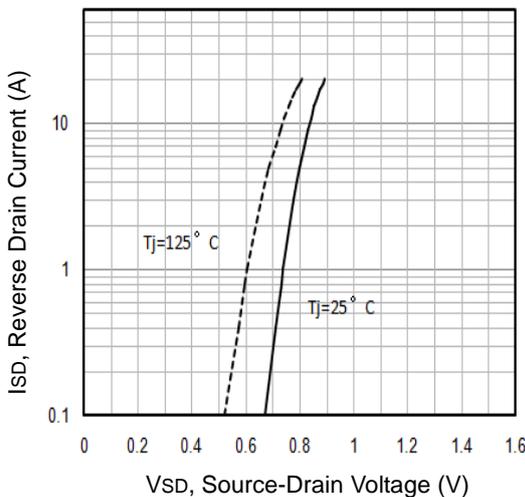**Fig1.** Typical Output Characteristics
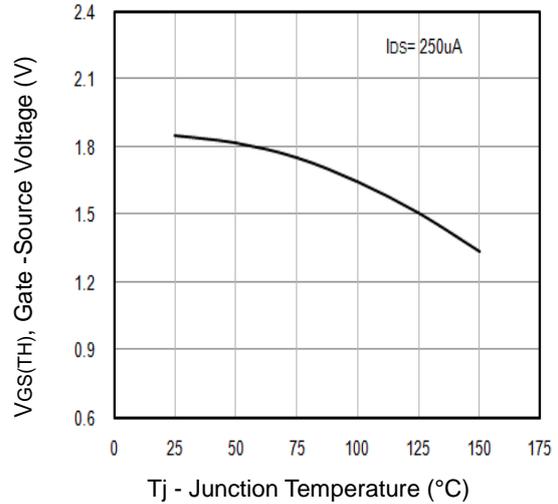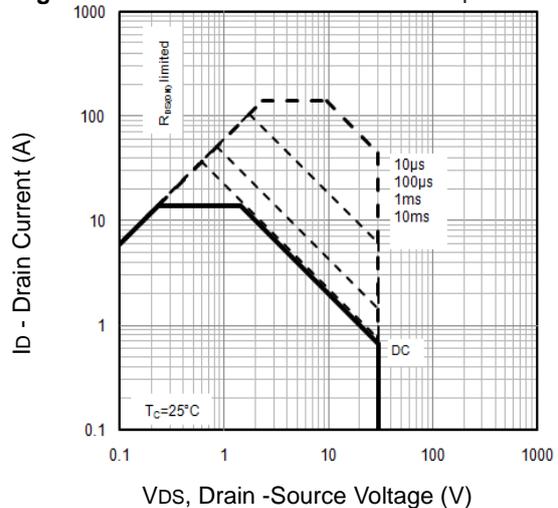

Fig2. Threshold Voltage Vs. Temperature

Fig3. Typical Transfer Characteristics

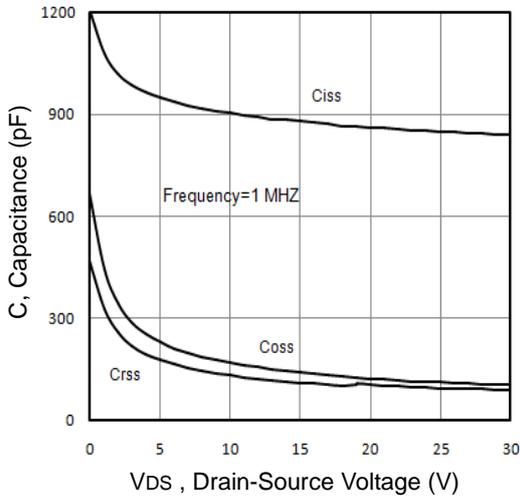**Fig4.** Normalized On-Resistance Vs. Temperature
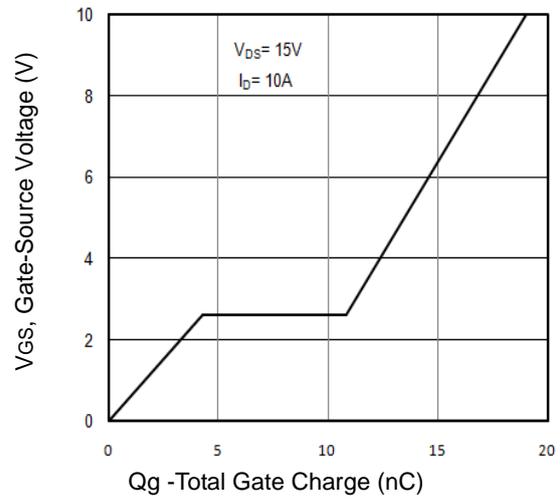

Fig5. Typical Source-Drain Diode Forward Voltage

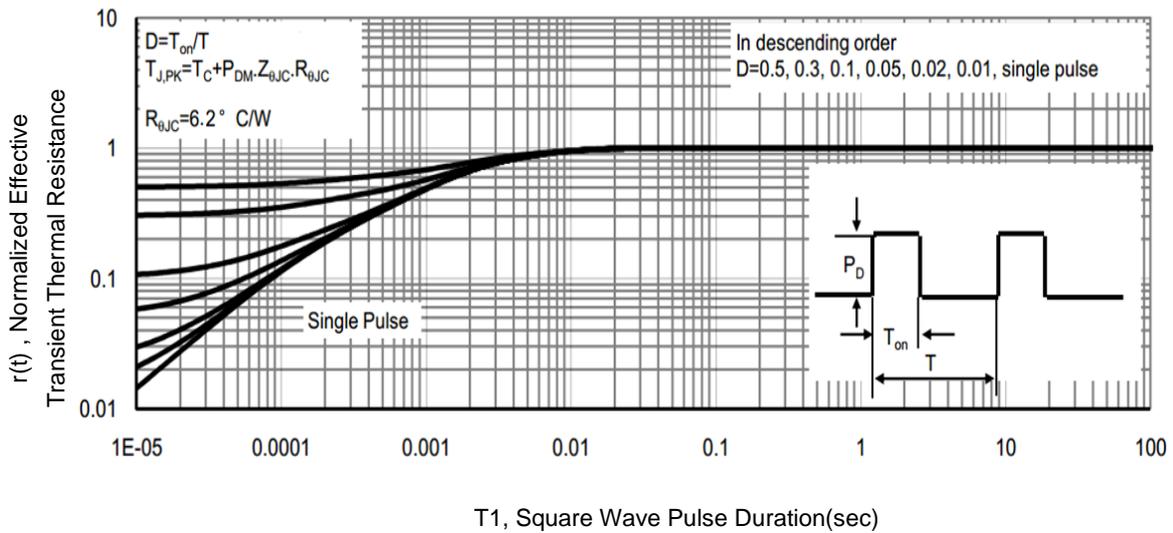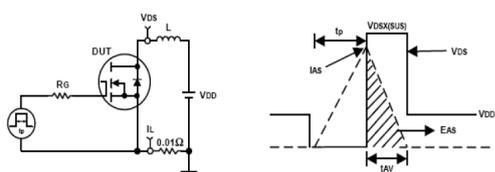**Fig6.** Maximum Safe Operating Area

Typical Characteristics

Fig7. Typical Capacitance Vs.Drain-Source Voltage

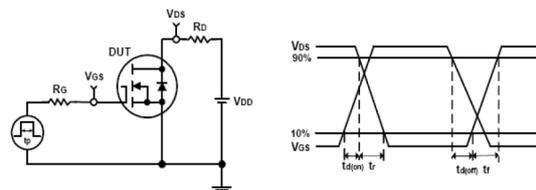**Fig8.** Typical Gate Charge Vs.Gate-Source Voltage

T1, Square Wave Pulse Duration(sec)

Fig9. T1 ,Transient Thermal Response Curve

Fig10. Unclamped Inductive Test Circuit and waveforms

Fig11. Switching Time Test Circuit and waveforms

Attention

1, Any and all Winsok power products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your Winsok power representative nearest you before using any Winsok power products described or contained herein in such applications.

2,Winsok power assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all Winsok power products described or contained herein.

3, Specifications of any and all Winsok power products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

4, Winsok power Semiconductor CO., LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

5,In the event that any or all Winsok power products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

6, No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of Winsok power Semiconductor CO., LTD.

7, Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. Winsok power believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

8, Any and all information described or contained herein are subject to change without notice due to product/technology improvement,etc. When designing equipment, refer to the "Delivery Specification" for the Winsok power product that you Intend to use.

9, this catalog provides information as of Sep.2014. Specifications and information herein are subject to change without notice.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by Winsok *manufacturer:*

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ NTNS3A92PZT5G IRFD120 IRFF430 JANTX2N5237 2N7000 AOD464 2SK2267(Q) 2SK2545(Q,T) 405094E 423220D MIC4420CM-TR VN1206L 614234A 715780A 751625C IPS70R2K0CEAKMA1 BSF024N03LT3 G PSMN4R2-30MLD TK31J60W5,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG FCAB21350L1 P85W28HP2F-7071 DMN1053UCP4-7 NTE2384 NTE2969 NTE6400A DMC2700UDMQ-7 DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 SSM6P54TU,LF DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 IRF40H233XTMA1 IPSA70R950CEAKMA1 IPSA70R2K0CEAKMA1 STU5N65M6 C3M0021120D DMN6022SSD-13