

General Description

The WSD4066DN is the highest performance trench Dual N-Ch MOSFET with extreme high cell density, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The WSD4066DN 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

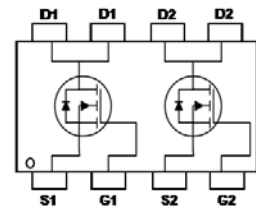
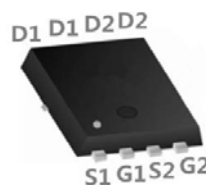
Product Summary

BVDSS	RDSON	ID
40V	17mΩ	14A

Applications

- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch

DFN3.3x3.3-8-EP Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings			
V_{DSS}	Drain-Source Voltage	40	V
V_{GSS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_A=25^{\circ}C$	2 A
I_D	Continuous Drain Current	$T_A=25^{\circ}C$	14
		$T_A=70^{\circ}C$	9.8
I_{DM}^a	Pulse Drain Current Tested	$T_A=25^{\circ}C$	28 A
P_D	Maximum Power Dissipation	$T_A=25^{\circ}C$	2.5
		$T_A=70^{\circ}C$	1.68
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	Steady State	10 °C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	$t \leq 10s$	42.5
		Steady State ^b	75
I_{AS}^c	Avalanche Current, Single pulse	L=0.5mH	10 A
F_{AS}^c	Avalanche Energy, Single pulse	L=0.5mH	25 mJ

Note a : Pulse width limited by max. junction temperature.

Note b : Surface Mounted on 1in² pad area, t =999sec.

Note c : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature $T_j=25^{\circ}C$).

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

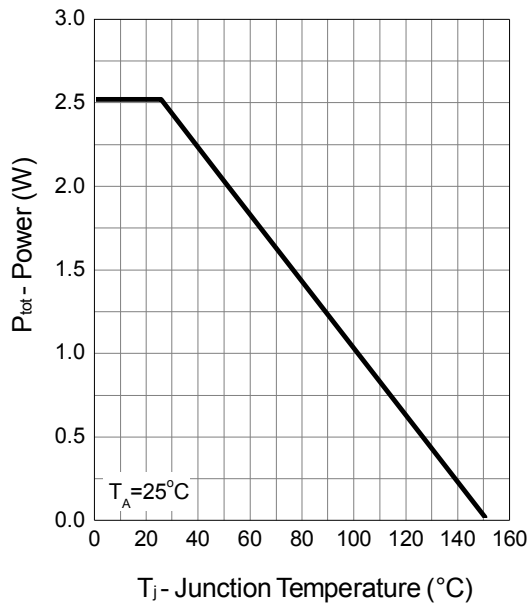
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	40	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =32V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.0	1.5	2.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^c	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =14A	-	14	17	mΩ
		V _{GS} =4.5V, I _{DS} =12A	-	17	20	
Diode Characteristics						
V _{SD} ^c	Diode Forward Voltage	I _{SD} =1A, V _{GS} =0V	-	0.75	1.1	V
t _{rr}	Reverse Recovery Time	I _{DS} =6A, dI _{SD} /dt=100A/μs	-	13	-	ns
Q _{rr}	Reverse Recovery Charge		-	8.7	-	nC
Dynamic Characteristics^d						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	2.5	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =20V, Frequency=1.0MHz	-	815	-	pF
C _{oss}	Output Capacitance		-	95	-	
C _{rss}	Reverse Transfer Capacitance		-	60	-	
t _{d(ON)}	Turn-on Delay Time		-	7.8	-	
t _r	Turn-on Rise Time	V _{DD} =20V, R _L =20Ω, I _{DS} =1A,	-	6.9	-	
t _{d(OFF)}	Turn-off Delay Time	V _{GEN} =10V, R _G =6Ω	-	22.4	-	
t _f	Turn-off Fall Time		-	4.8	-	
Gate Charge Characteristics^d						
Q _g	Total Gate Charge	V _{DS} =20V, V _{GS} =10V, I _{DS} =6A	-	15.7	22	nC
Q _g	Total Gate Charge		-	7.5	10.5	
Q _{gth}	Threshold Gate Charge	V _{DS} =20V, V _{GS} =4.5V, I _{DS} =6A	-	1.85	-	
Q _{gs}	Gate-Source Charge		-	3.24	-	
Q _{gd}	Gate-Drain Charge		-	2.75	-	

Note c : Pulse test ; pulse width≤300μs, duty cycle≤2%.

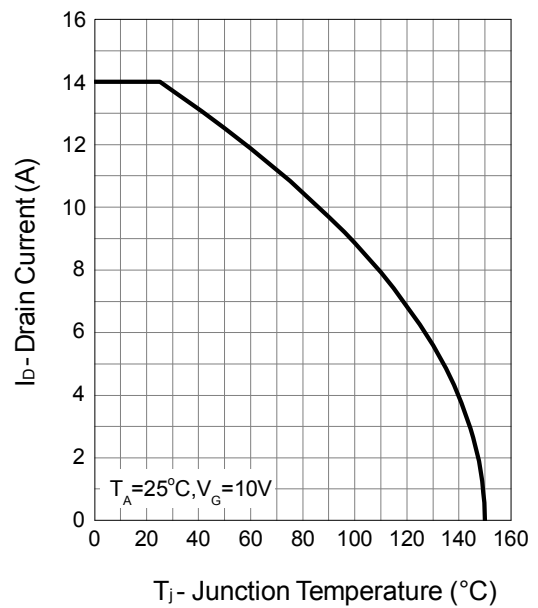
Note d : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

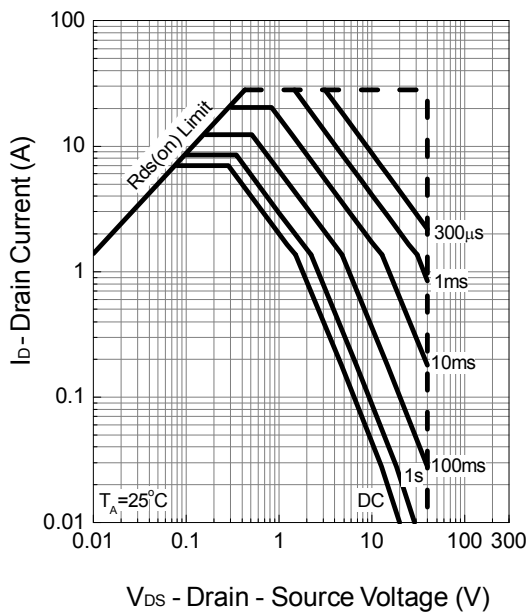
Power Dissipation



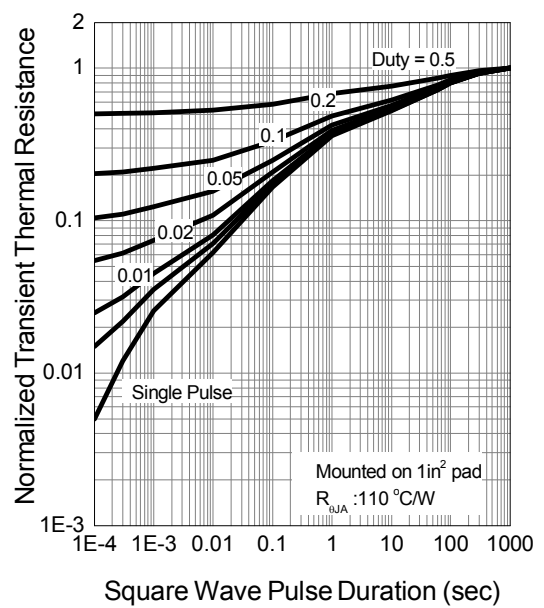
Drain Current



Safe Operation Area

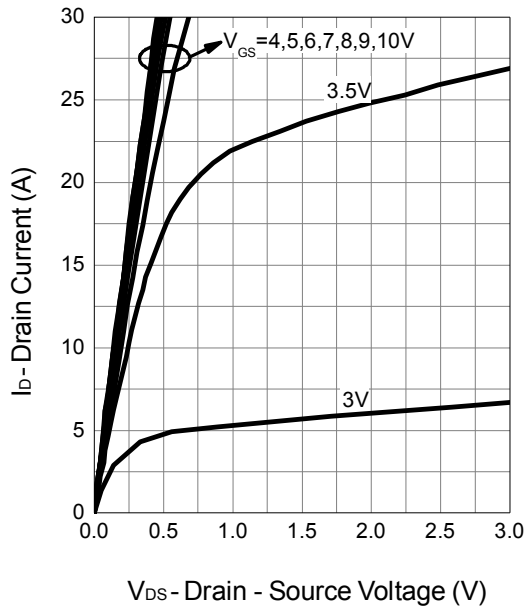


Thermal Transient Impedance

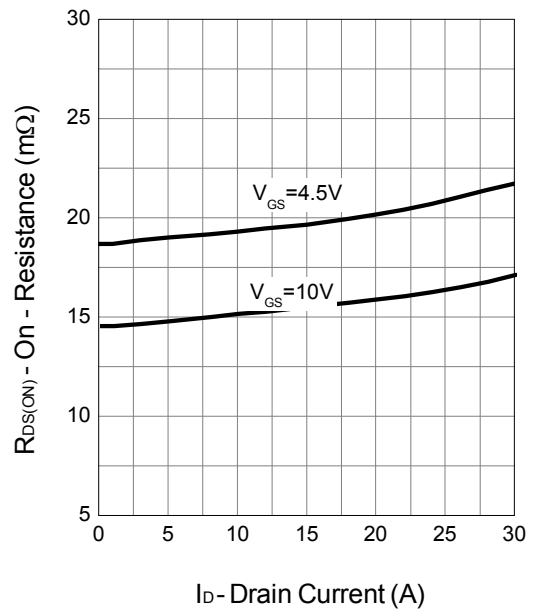


Typical Operating Characteristics (Cont.)

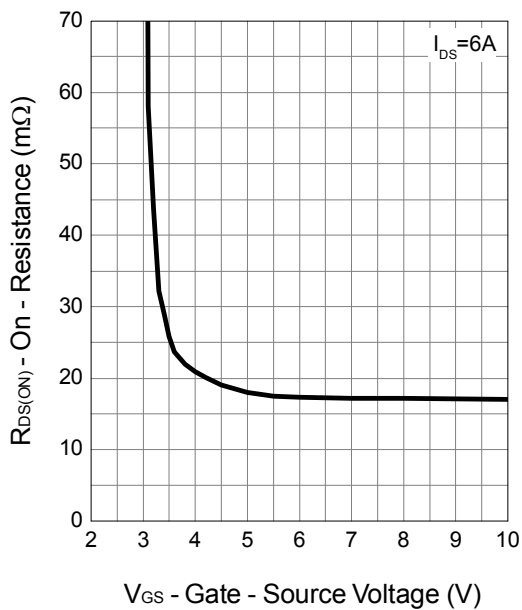
Output Characteristics



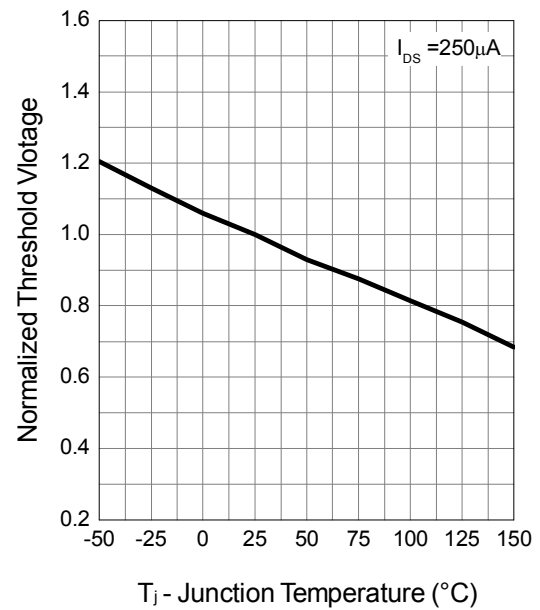
Drain-Source On Resistance



Gate-Source On Resistance

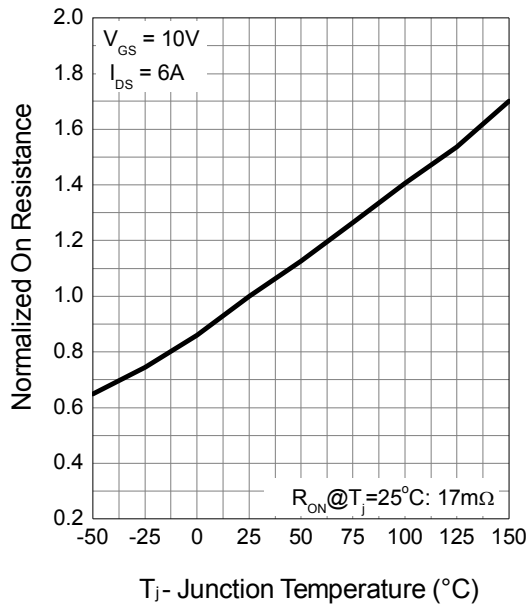


Gate Threshold Voltage

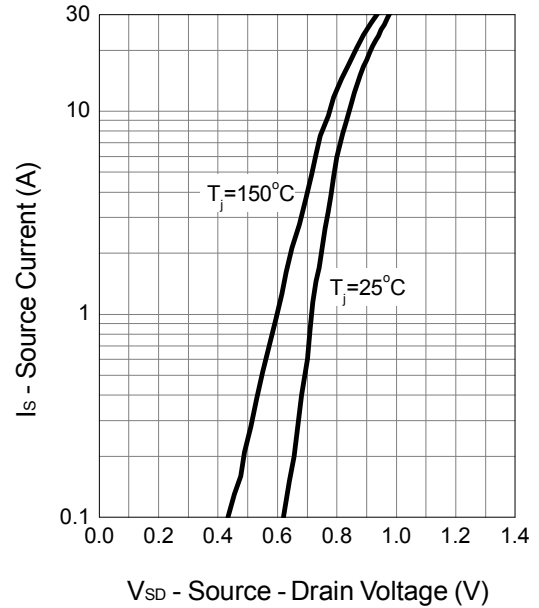


Typical Operating Characteristics (Cont.)

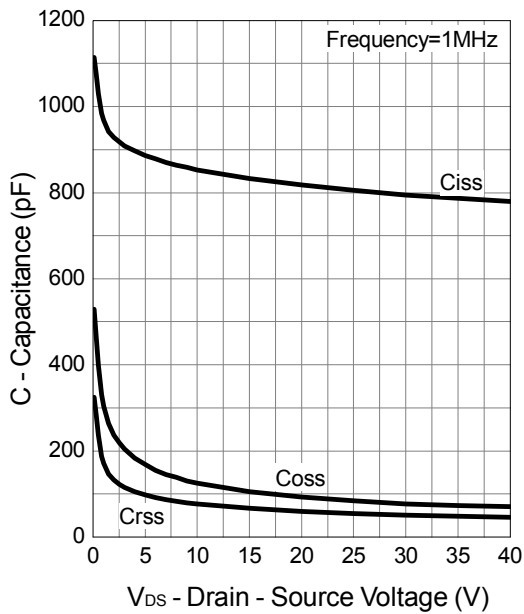
Drain-Source On Resistance



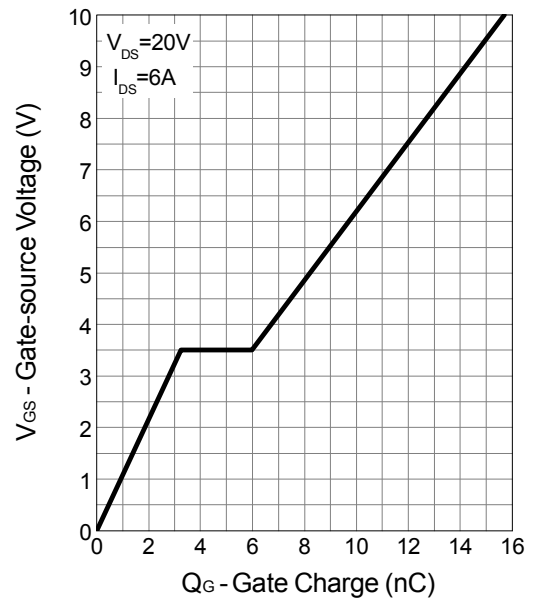
Source-Drain Diode Forward

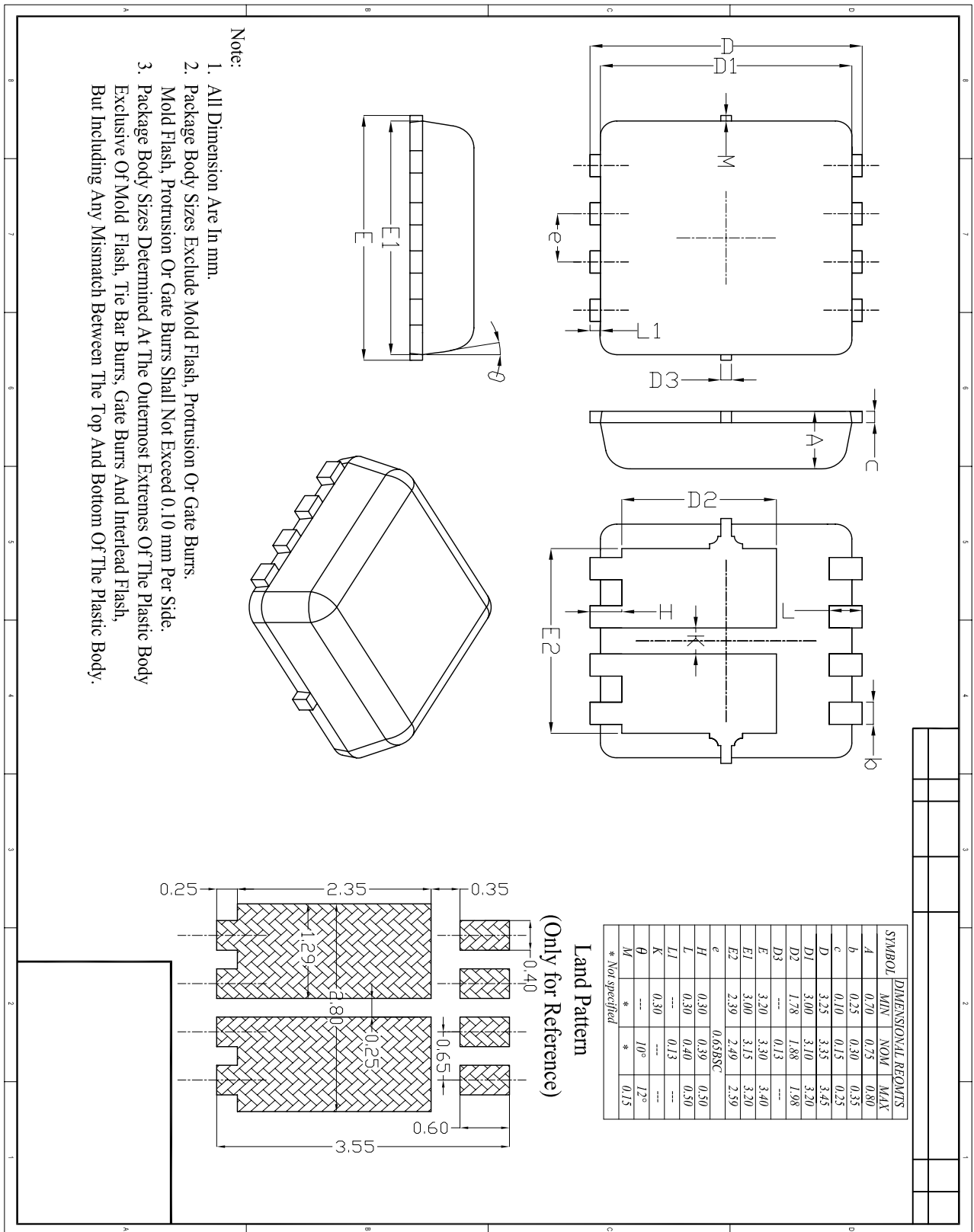


Capacitance



Gate Charge







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](#) [FW216A-TL-2W](#) [FW231A-TL-E](#) [APT5010JVR](#) [NTNS3A92PZT5G](#)
[IRF100S201](#) [JANTX2N5237](#) [2SK2464-TL-E](#) [2SK3818-DL-E](#) [FCA20N60_F109](#) [FDZ595PZ](#) [STD6600NT4G](#) [FSS804-TL-E](#) [2SJ277-DL-E](#)
[2SK1691-DL-E](#) [2SK2545\(Q,T\)](#) [D2294UK](#) [405094E](#) [423220D](#) [MCH6646-TL-E](#) [TPCC8103,L1Q\(CM](#) [367-8430-0972-503](#) [VN1206L](#)
[424134F](#) [026935X](#) [051075F](#) [SBVS138LT1G](#) [614234A](#) [715780A](#) [NTNS3166NZT5G](#) [751625C](#) [873612G](#) [IRF7380TRHR](#)
[IPS70R2K0CEAKMA1](#) [RJK60S3DPP-E0#T2](#) [RJK60S5DPK-M0#T0](#) [APT5010JVFR](#) [APT12031JFLL](#) [APT12040JVR](#) [DMN3404LQ-7](#)
[NTE6400](#) [JANTX2N6796U](#) [JANTX2N6784U](#) [JANTXV2N5416U4](#) [SQM110N05-06L-GE3](#) [SIHF35N60E-GE3](#)