



鑫沃科技
XIN WO TECHNOLOGY



产品规格手册

PRODUCT SPECIFICATION MANUAL

XWN1030K

N-Ch Fast Switching MOSFETs
TO-252/100V/30A/30mΩ

深圳东为电子科技有限公司
DONGWEI ELECTRONIC TECHNOLOGY CO., LTD

- ★ Super Low Gate Charge
- ★ Green Device Available
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology

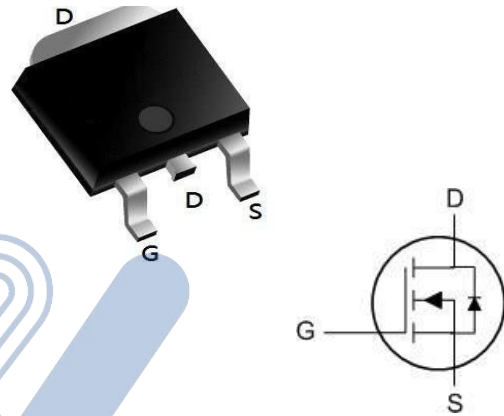
Product Summary

BVDSS	RDSON	ID
100V	30mΩ	30A

Description

The XWN1030K is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications .

The XWN1030K meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

TO252 Pin Configuration**Order Information**

Product	Package	Marking	Packing	Min Unit Quantity
XWN1030K	TO-252	N1030K	2500PCS/Reel	5000PCS

Absolute Maximum Ratings ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter		Max.	Units
V _{DSS}	Drain-Source Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current	T _C = 25°C	30	A
		T _C = 100°C	13	A
I _{DM}	Pulsed Drain Current ^{note1}		80	A
EAS	Single Pulsed Avalanche Energy ^{note2}		30	mJ
P _D	Power Dissipation	T _C = 25°C	42	W
R _{θJC}	Thermal Resistance, Junction to Case		3.6	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +175	°C

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.2	V
R _{DS(on)}	Static Drain-Source on-Resistance note3	V _{GS} =10V, I _D =10A	-	30	41	mΩ
		V _{GS} =4.5V, I _D =6A	-	39	55	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	1964	-	pF
C _{oss}	Output Capacitance		-	90	-	pF
C _{rss}	Reverse Transfer Capacitance		-	74	-	pF
Q _g	Total Gate Charge	V _{DS} =80V, I _D =20A, V _{GS} =4.5V	-	20	-	nC
Q _{gs}	Gate-Source Charge		-	3.1	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	14	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =80V, I _D =20A, R _G =3.1Ω, V _{GS} =4.5V	-	11	-	ns
t _r	Turn-on Rise Time		-	91	-	ns
t _{d(off)}	Turn-off Delay Time		-	40	-	ns
t _f	Turn-off Fall Time		-	71	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	27	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	80	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =20A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =20A, dI/dt=100A/μs	-	64	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	152	-	nC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

 2. EAS condition : $T_J=25^{\circ}\text{C}, V_{DD}=50V, V_G=10V, L=0.5mH, R_G=25\Omega, I_{AS}=11A$

 3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Performance Characteristics

Figure 1: Output Characteristics

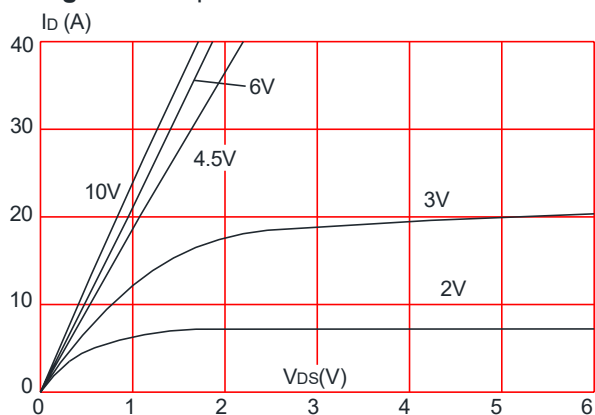


Figure 2: Typical Transfer Characteristics

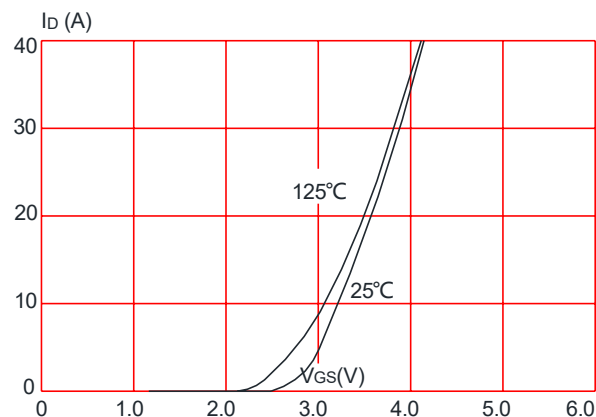


Figure 3: On-resistance vs. Drain Current

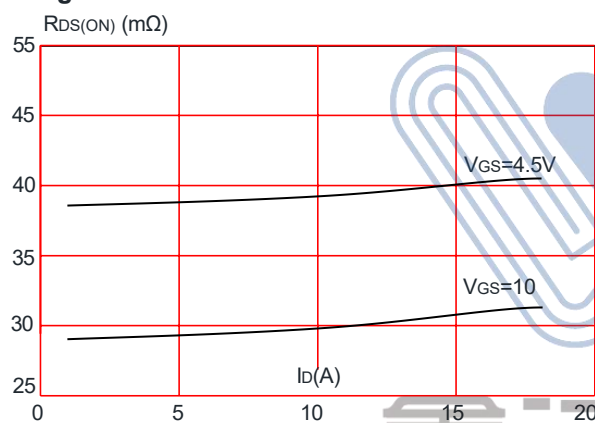


Figure 4: Body Diode Characteristics

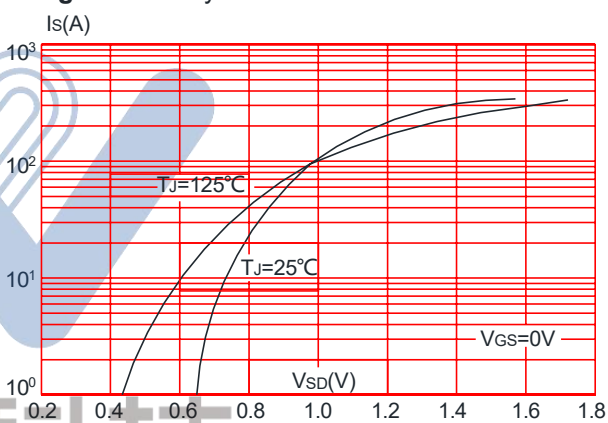


Figure 5: Gate Charge Characteristics

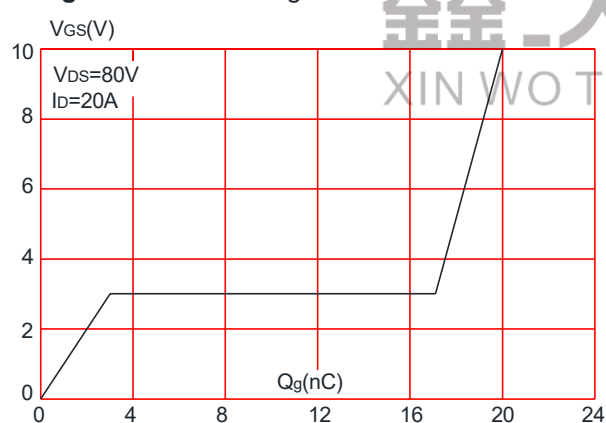


Figure 6: Capacitance Characteristics

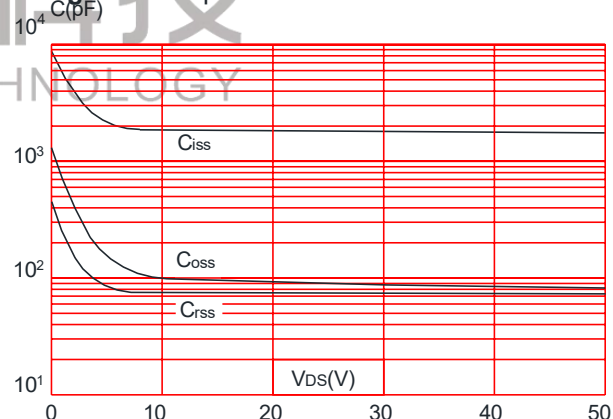


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

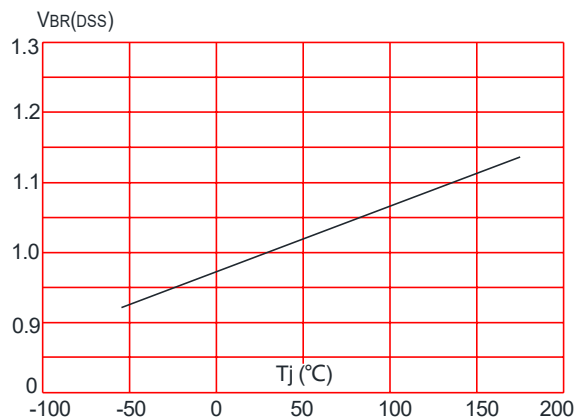


Figure 8: Normalized on Resistance vs. Junction Temperature

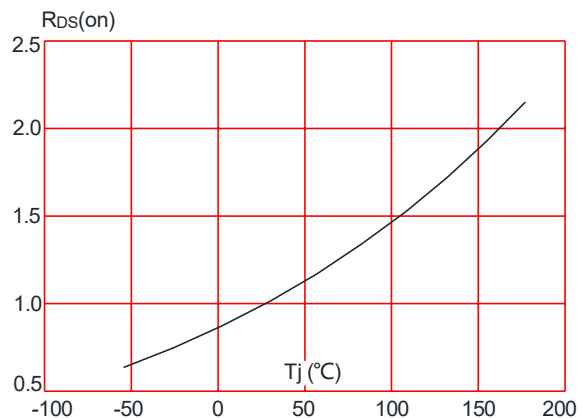


Figure 9: Maximum Safe Operating Area

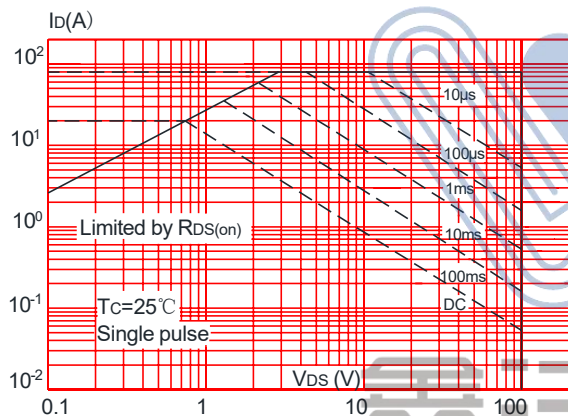


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

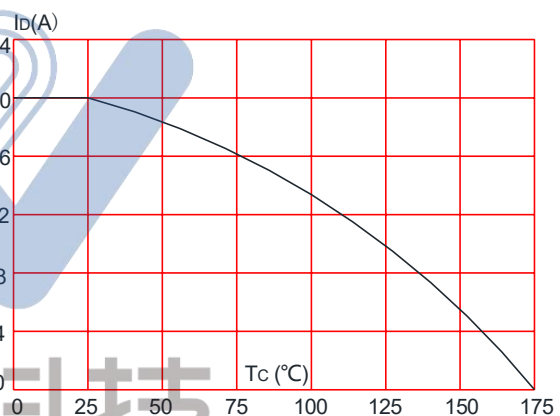
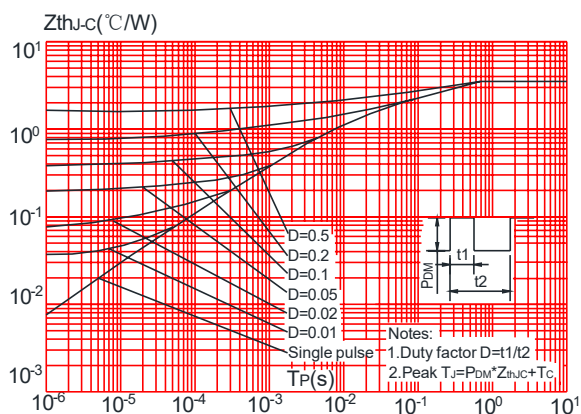
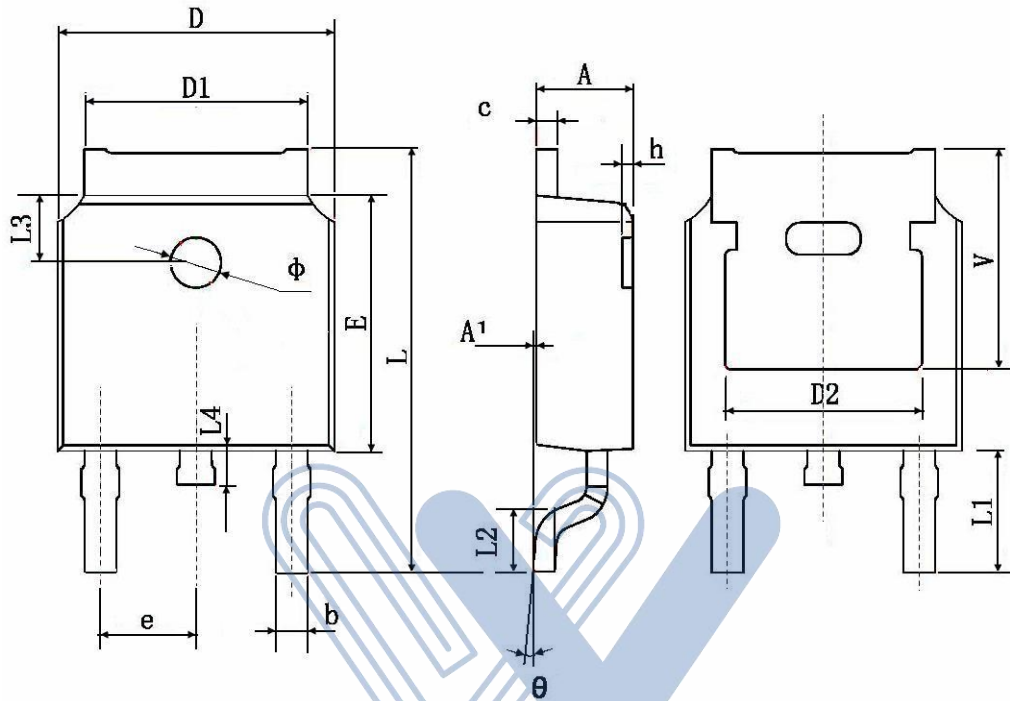


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



TO252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	0.483 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
ϕ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	