

General Description

The WSK200N08 is the highest performance trench N-ch MOSFET with extreme high cell density, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The WSK200N08 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

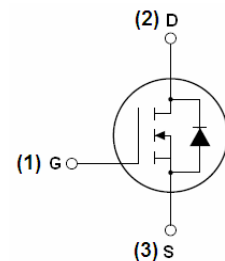
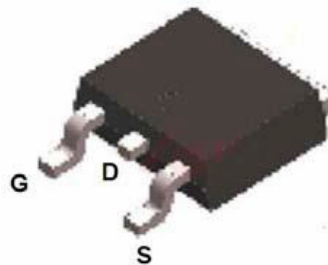
Applications

- High Frequency Point-of-Load Synchronous Buck Converter
- Networking DC-DC Power System

Product Summary

BVDSS	RDSON	ID
80V	2.9mΩ	200A

TO-263-2L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit	
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage	80	V	
V _{GSS}	Gate-Source Voltage	±25		
T _J	Maximum Junction Temperature	175	°C	
T _{STG}	Storage Temperature Range	-55 to 175	°C	
I _S	Diode Continuous Forward Current	T _C =25°C	200	A
Mounted on Large Heat Sink				
I _{DM}	Pulsed Drain Current *	T _C =25°C	790**	A
I _D	Continuous Drain Current	T _C =25°C	200	A
		T _C =100°C	144	
P _D	Maximum Power Dissipation	T _C =25°C	345	W
		T _C =100°C	173	
R _{θJC}	Thermal Resistance-Junction to Case	0.43	°C/W	
R _{θJA}	Thermal Resistance-Junction to Ambient	62.5		
Avalanche Ratings				
E _{AS}	Avalanche Energy, Single Pulsed	L=0.5mH	1496***	mJ

Note : * Repetitive rating ; pulse width limited by junction temperature

** Drain current is limited by junction temperature

*** VD=64V

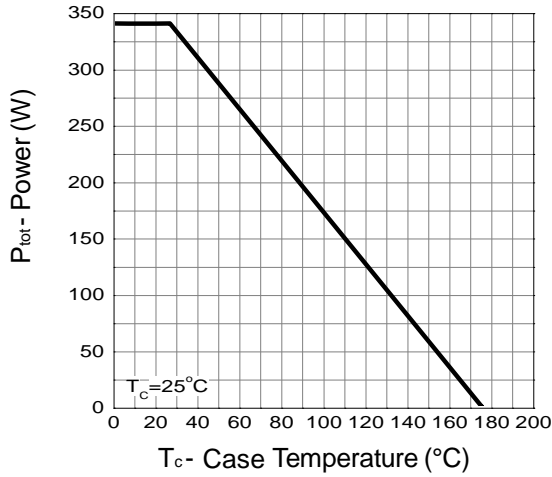
Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	80	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0V T _J =85°C	-	-	1	μA
			-	-	10	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2.0	3.0	4.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} *	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =100A	-	2.9	3.5	mΩ
Diode Characteristics						
V _{SD} *	Diode Forward Voltage	I _{SD} =100A, V _{GS} =0V	-	0.8	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =100A, dI _{SD} /dt=100A/μs	-	30	-	ns
Q _{rr}	Reverse Recovery Charge		-	52	-	nC
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	3.2	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, Frequency=1.0MHz	-	8154	-	pF
C _{oss}	Output Capacitance		-	1029	-	
C _{rss}	Reverse Transfer Capacitance		-	650	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =40V, R _G =6 Ω, I _{DS} =100A, V _{GS} =10V,	-	28	-	ns
T _r	Turn-on Rise Time		-	18	-	
t _{d(OFF)}	Turn-off Delay Time		-	42	-	
T _f	Turn-off Fall Time		-	54	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =64V, V _{GS} =10V, I _{DS} =100A	-	197	-	nC
Q _{gs}	Gate-Source Charge		-	31	-	
Q _{gd}	Gate-Drain Charge		-	75	-	

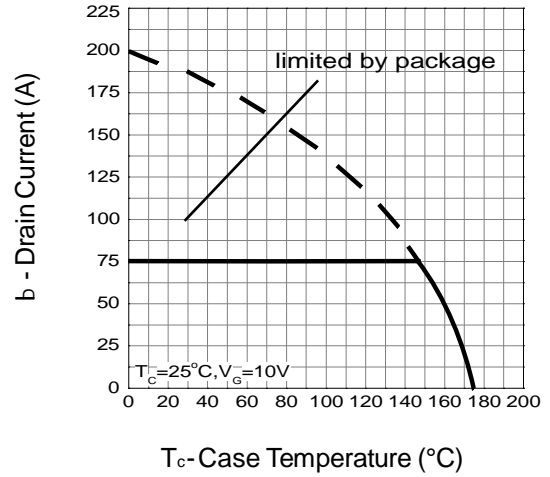
Note * : Pulse test ; pulse width ≤300μs, duty cycle ≤2%.

Typical Operating Characteristics

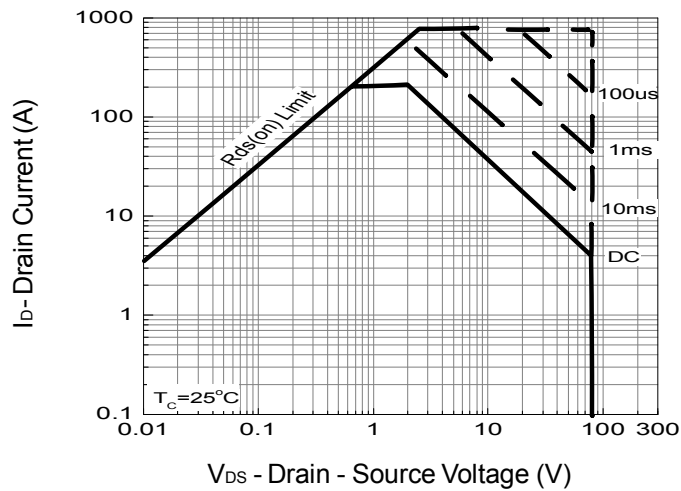
Power Dissipation



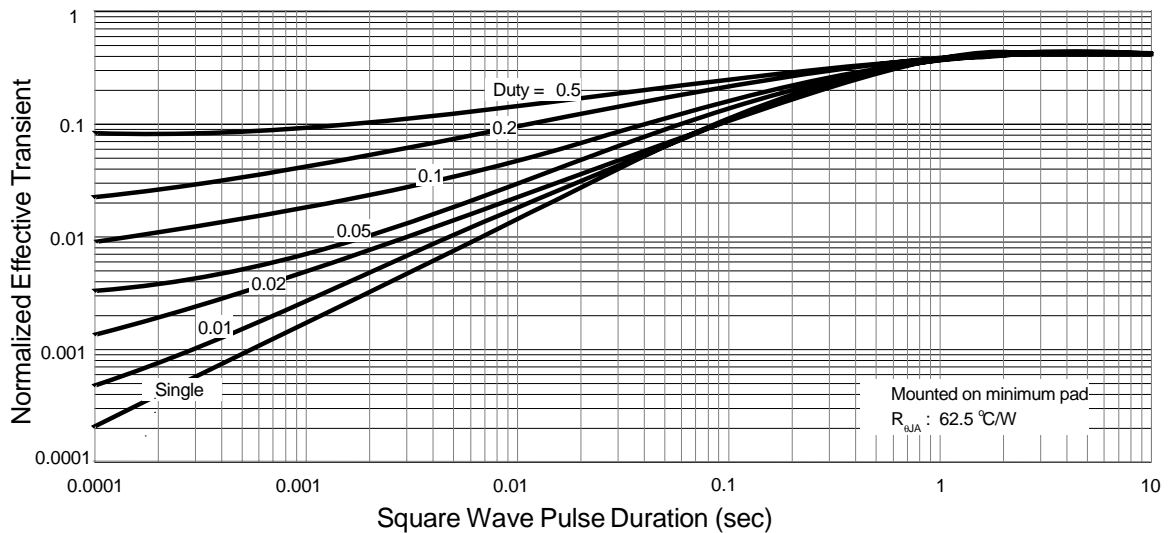
Drain Current



Safe Operation Area

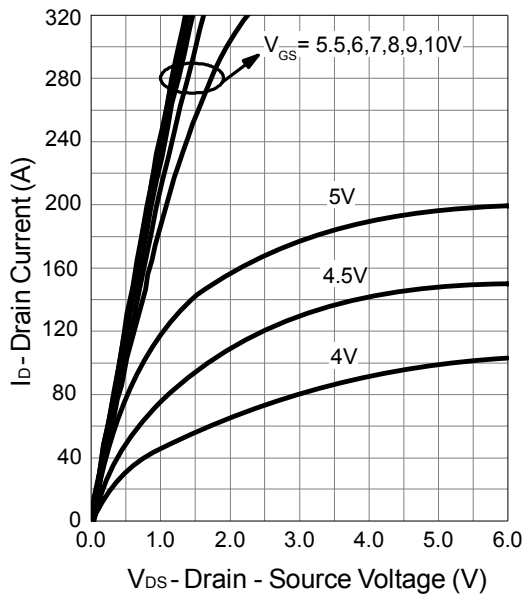


Thermal Transient Impedance

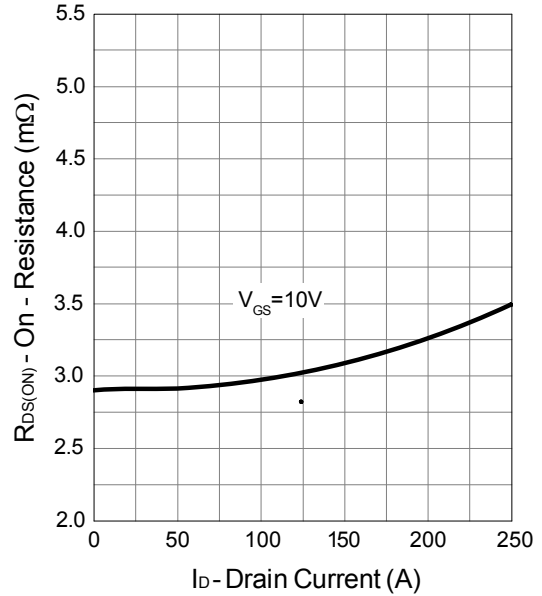


Typical Operating Characteristics (Cont.)

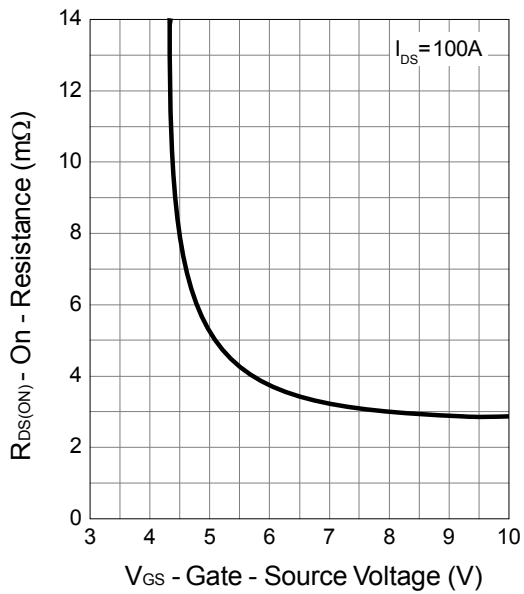
Output Characteristics



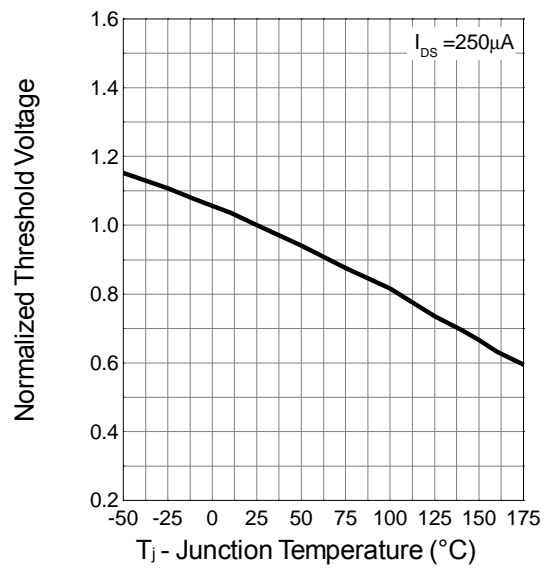
Drain-Source On Resistance



Gate-Source On Resistance

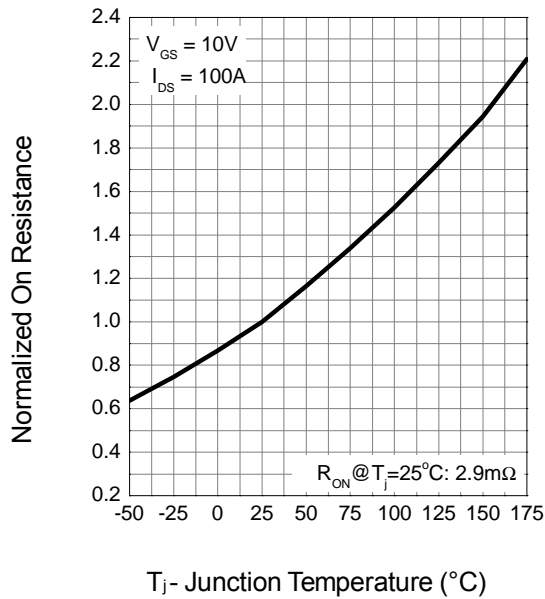


Gate Threshold Voltage

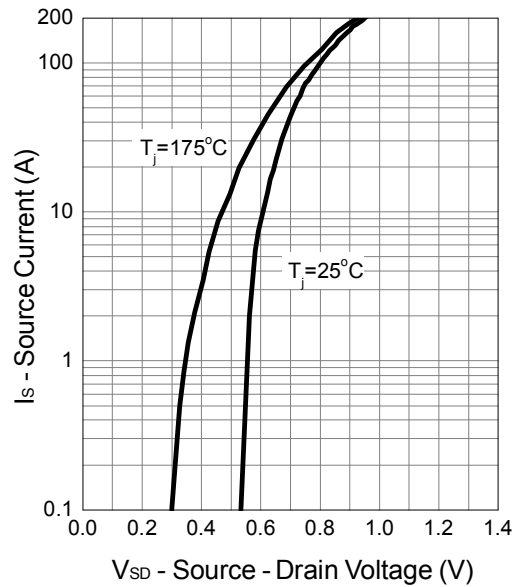


Typical Operating Characteristics (Cont.)

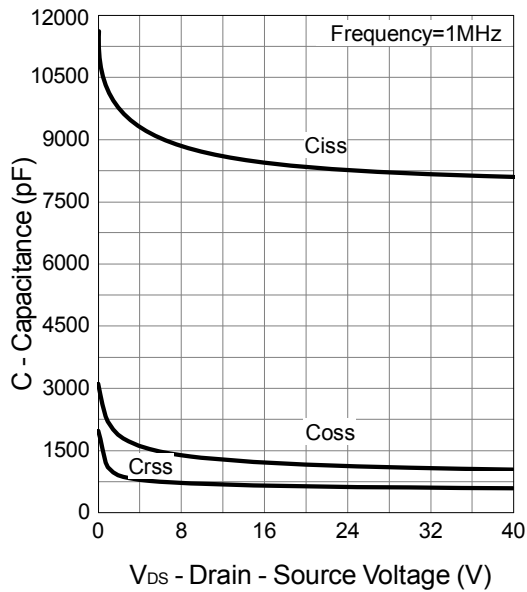
Drain-Source On Resistance



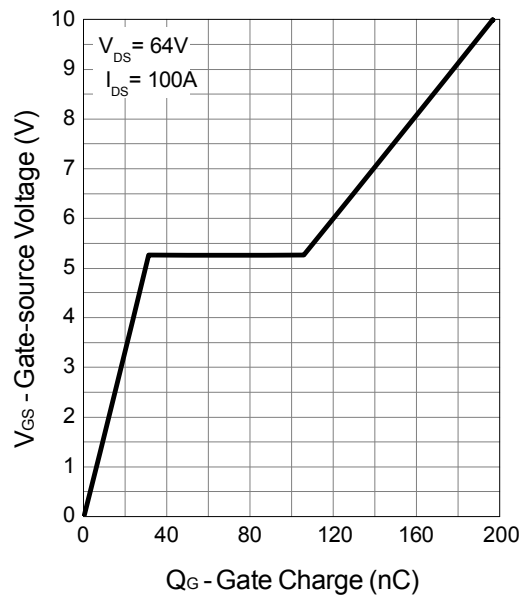
Source-Drain Diode Forward



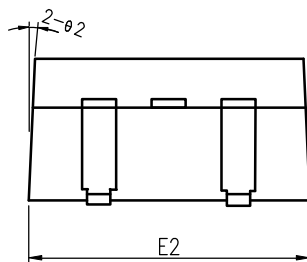
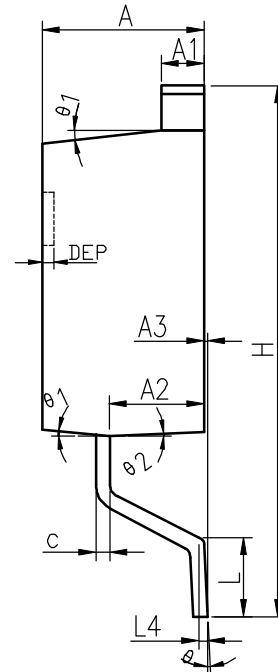
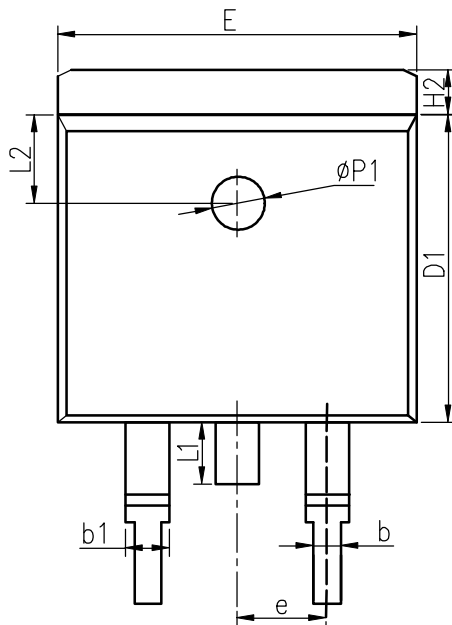
Capacitance



Gate Charge



TO-263-2L



COMMON DIMENSIONS

SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185
A1	1.22	1.27	1.32	0.048	0.050	0.052
A2	2.59	2.69	2.79	0.102	0.106	0.110
A3	0.00	0.10	0.20	0.000	0.004	0.008
b	0.77	0.813	0.90	0.030	0.032	0.035
b1	1.20	1.270	1.36	0.047	0.050	0.054
c	0.34	0.381	0.47	0.013	0.015	0.019
D1	8.60	8.70	8.80	0.339	0.343	0.346
E	10.00	10.16	10.26	0.394	0.400	0.404
E2	10.00	10.10	10.20	0.394	0.398	0.402
e	2.54 BSC			0.100 BSC		
H	14.70	15.10	15.50	0.579	0.594	0.610
H2	1.17	1.27	1.40	0.046	0.050	0.055
L	2.00	2.30	2.60	0.079	0.091	0.102
L1	1.45	1.55	1.70	0.057	0.061	0.067
L2	2.50 REF			0.098 REF		
L4	0.25 BSC			0.010 BSC		
	0°	5°	8°	0°	5°	8°
1	5°	7°	9°	5°	7°	9°
2	1°	3°	5°	1°	3°	5°
$\phi P1$	1.40	1.50	1.60	0.055	0.059	0.063
DEP	0.05	0.10	0.20	0.002	0.004	0.008



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