

General Description

The WSD2073DN is the highest performance trench Dual P-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 WSD2073DN 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

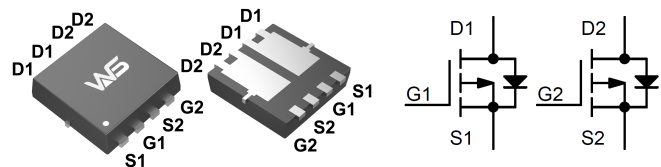
Product Summary

BVDSS	R _{DS(on)}	I _D
-20V	13mΩ	-25A

Applications

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

DFN3x3A-8_EP Pin Configuration



Absolute Maximum Ratings @T_A=25°C unless otherwise noted

Symbol	Parameter	Ratings	Unit	
V _{bss}	Drain-Source Voltage	-20	V	
V _{GSS}	Gate-Source Voltage	±12	V	
I _D	Drain Current (Continuous) *AC	T _C =25°C	-25	A
		T _C =100°C	-16	A
I _{DM}	Drain Current (Pulse) *B	-90	A	
P _D	Power Dissipation	T _C =25°C	31.25	W
T _J /T _{STG}	Operating Temperature/ Storage Temperature	-55~150	°C	
R _{thJC}	Maximum Junction-to-Ambient	4.0	°C/W	

Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	-20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -20V, V_{GS} = 0V$	---	---	-1	μA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{GS} = V_{DS}, I_{DS} = 250\mu A$	-0.4	-0.8	-1.2	V
I_{GSS}	Gate Leakage Current	$V_{GS} = \pm 12V, V_{DS} = 0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS} = -4.5V, I_D = -11A$	---	13	17	m Ω
		$V_{GS} = -2.5V, I_D = -6A$	---	18	25	m Ω
V_{SD}	Diode Forward Voltage	$I_{SD} = -1A, V_{GS} = 0V$	---	-0.73	-1.2	V
I_S	Diode Forward Current *AC	$T_C = 25^\circ\text{C}$	---	---	-10	A
Switching						
Q_g	Total Gate Charge	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -11A$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	1.5	---	nC
Q_{gd}	Gate-Drain Charge		---	10	---	nC
$t_d(on)$	Turn-on Delay Time	$V_{DD} = -10V, R_L = 1.3\Omega, I_D = -1A, V_{GEN} = -4.5V, R_g = 6\Omega$	---	9	---	ns
t_r	Turn-on Rise Time		---	13	---	ns
$t_d(off)$	Turn-off Delay Time		---	26	---	ns
t_f	Turn-Off Fall Time		---	160	---	ns
Dynamic						
C_{iss}	Input Capacitance	$V_{DS} = -10V, V_{GS} = 0V, f = 1\text{ MHz}$	---	2000	---	pF
C_{oss}	Output Capacitance		---	310	---	pF
C_{rss}	Reverse Transfer Capacitance		---	280	---	pF

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.

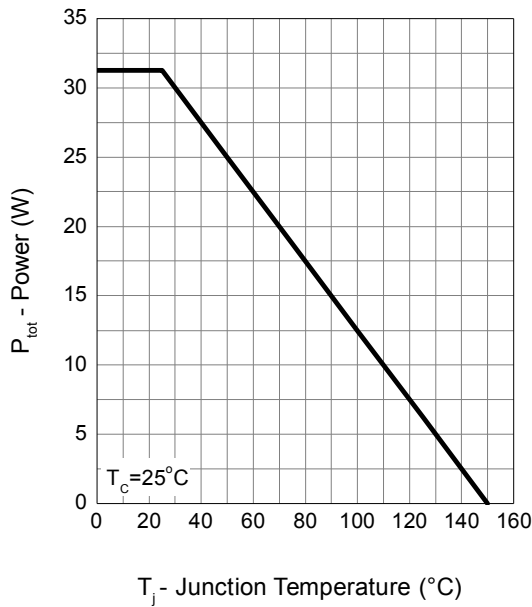
The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

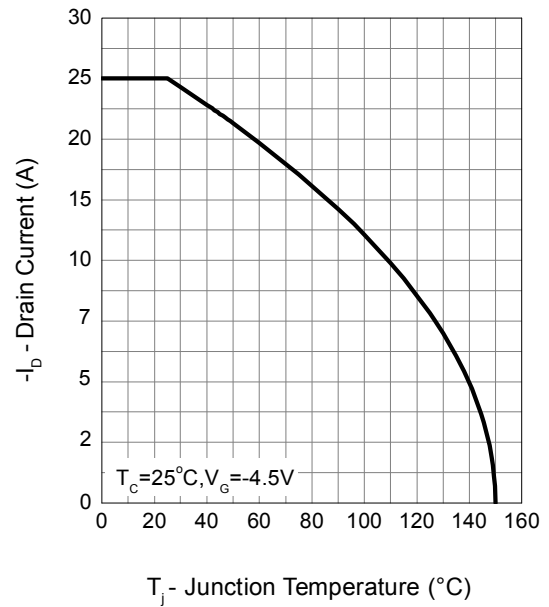
C: The current rating is based on the $t \leq 10s$ junction to ambient thermal resistance rating, Wire Bond Limited 25A.

Typical Operating Characteristics

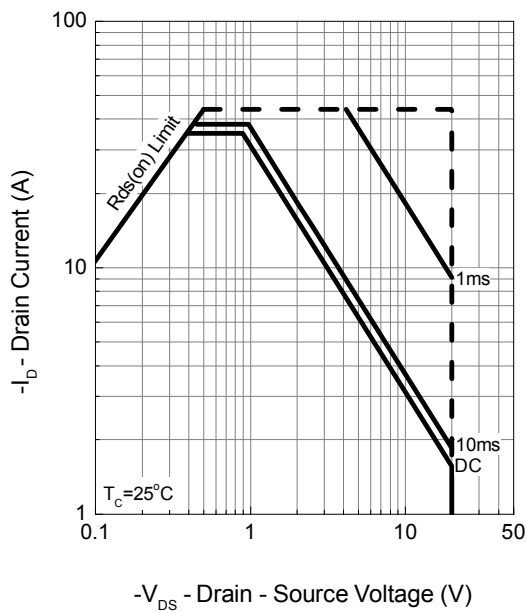
Power Dissipation



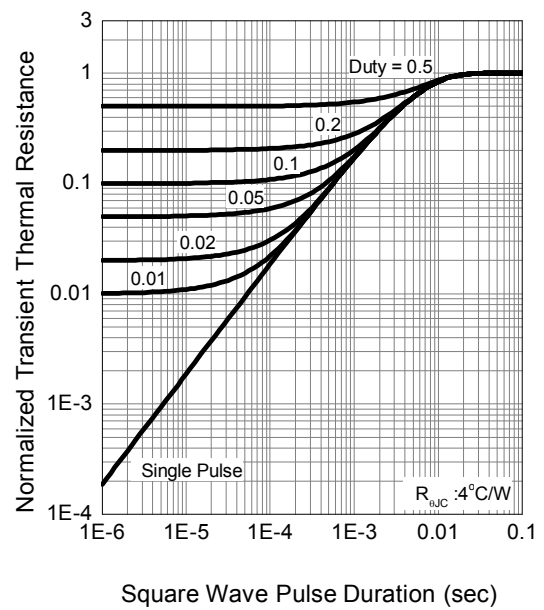
Drain Current



Safe Operation Area

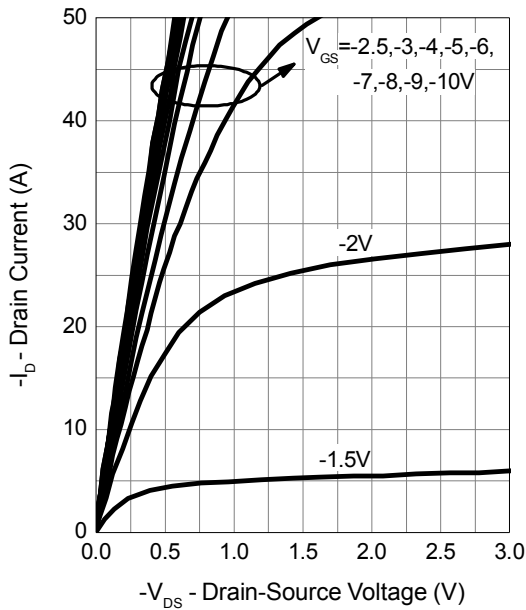


Thermal Transient Impedance

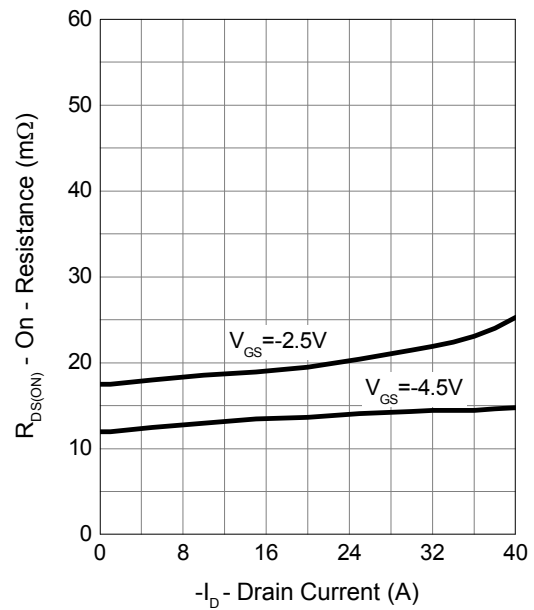


Typical Operating Characteristics

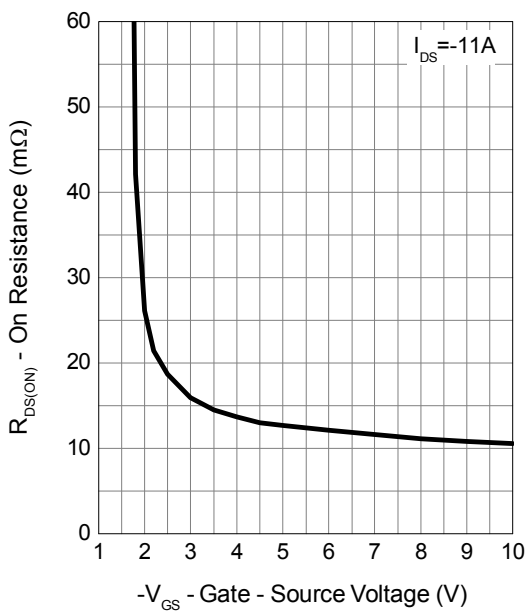
Output Characteristics



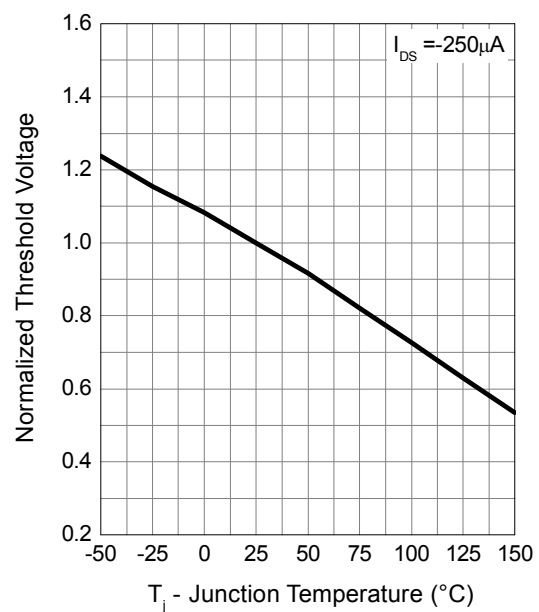
Drain-Source On Resistance



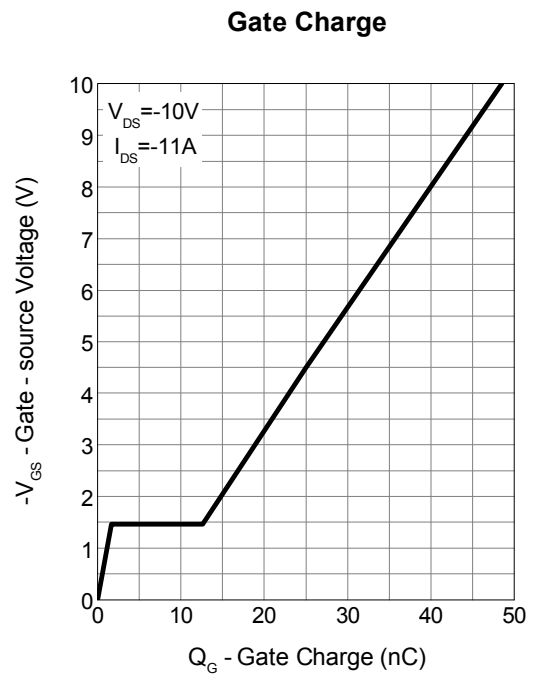
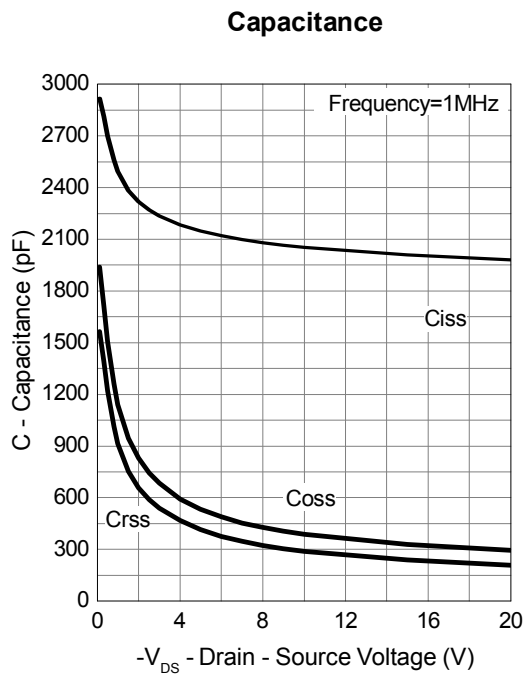
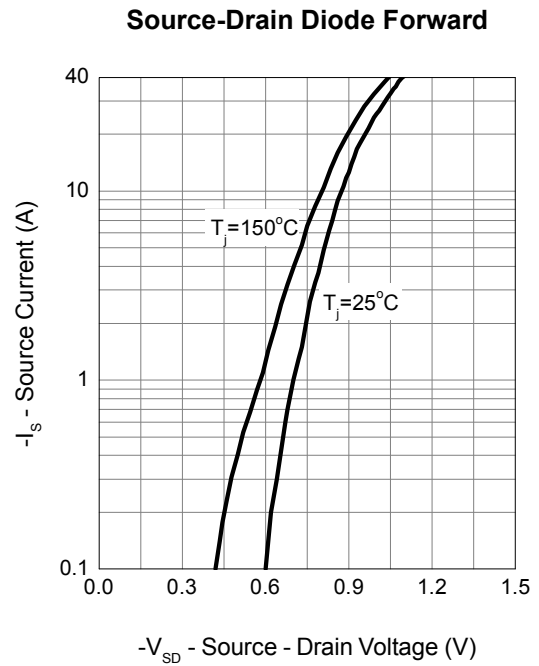
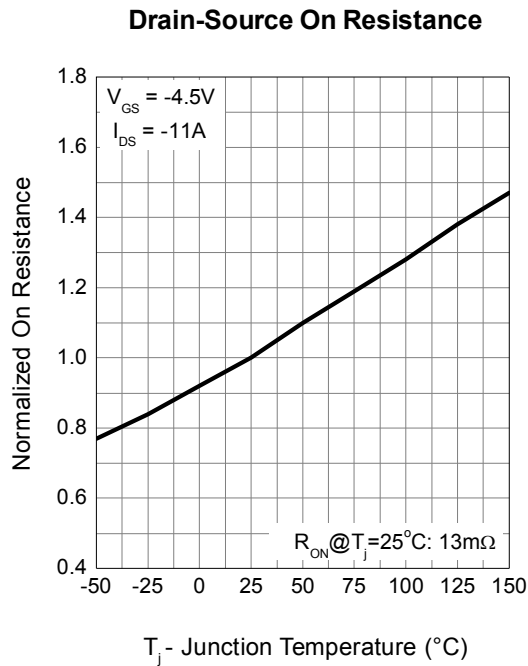
Gate-Source On Resistance



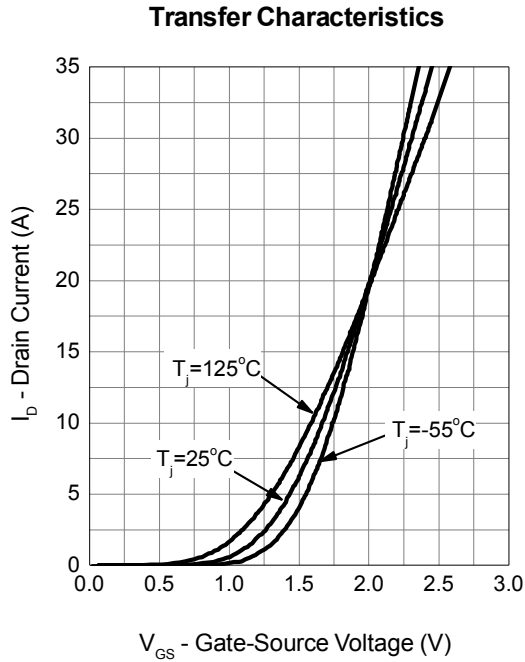
Gate Threshold Voltage



Typical Operating Characteristics



Typical Operating Characteristics





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