

General Description

The WSD2073DN is the highest performance trench Dual P-ch MOSFETs with extreme high cell density , which provide excellent RDSON 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

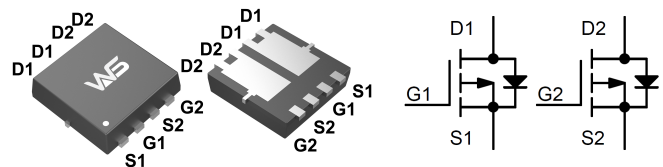
Product Summery

| BVDSS | RDSON | ID |
|-------|-------|------|
| -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 @TA=25°C unless otherwise noted

| Symbol | Parameter | | Ratings | Unit |
|----------------------------------|--|-----------------------|---------|------|
| V _{DSS} | 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°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 = -250μA | -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} = 250μA | -0.4 | -0.8 | -1.2 | V |
| I _{GSS} | Gate Leakage Current | V _{GS} = ±12V, V _{DS} =0V | --- | --- | ±100 | nA |
| R _{DS(on)} | Drain-Source On-state Resistance | V _{GS} = -4.5V, I _D = -11A | --- | 13 | 17 | mΩ |
| | | V _{GS} = -2.5V, I _D = -6A | --- | 18 | 25 | mΩ |
| 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°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 = 1.3Ω I _D =-1A, V _{GEN} = -4.5V, R _g = 6Ω | --- | 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} = 0 V, f = 1 MHz | --- | 2000 | --- | pF |
| C _{oss} | Output Capacitance | | --- | 310 | --- | pF |
| C _{rss} | Reverse Transfer Capacitance | | --- | 280 | --- | pF |

A: The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C.

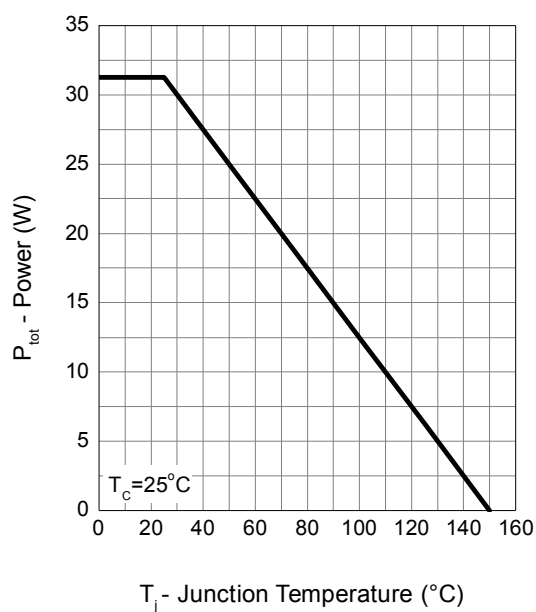
The value in any given application depends on the user's specific board design.

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

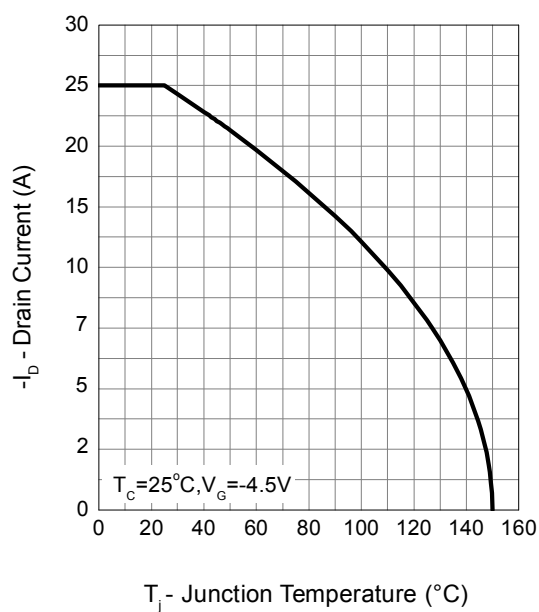
C: The current rating is based on the t_s ≤ 10s junction to ambient thermal resistance rating, Wire Bond Limited 25A.

Typical Operating Characteristics

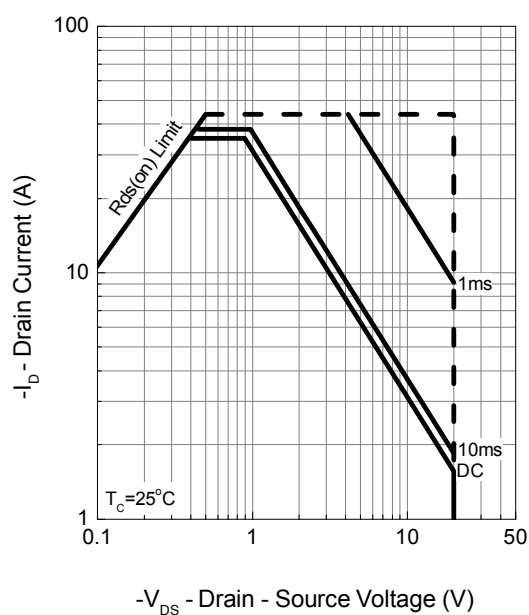
Power Dissipation



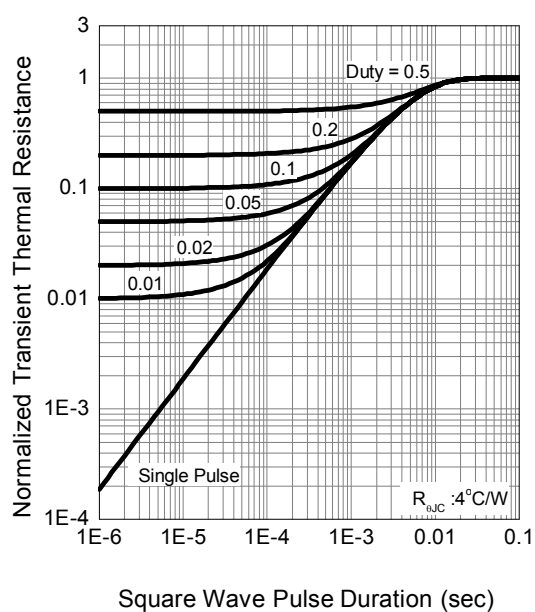
Drain Current



Safe Operation Area

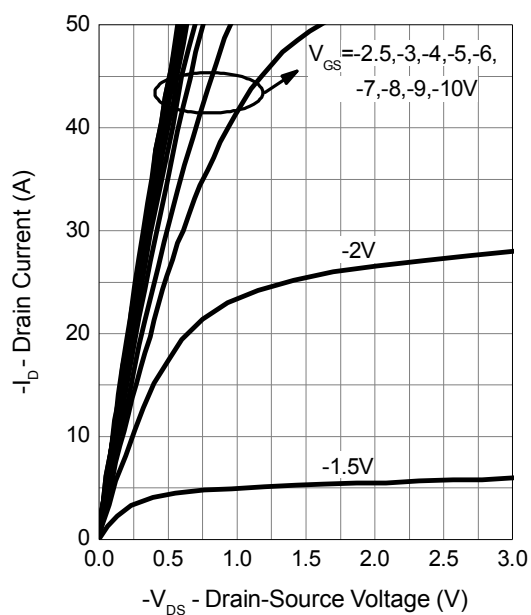


Thermal Transient Impedance

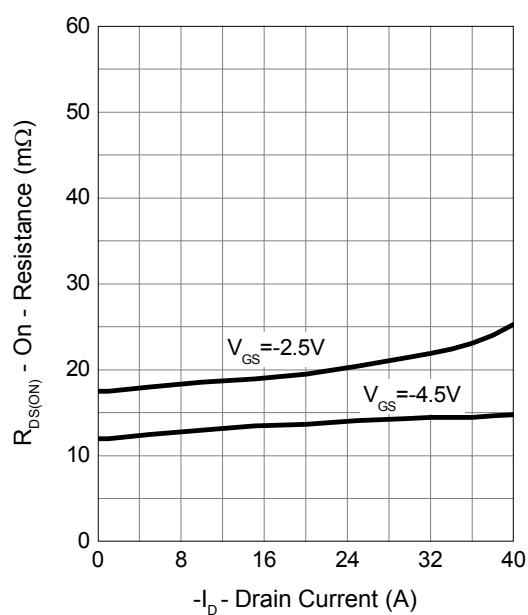


Typical Operating Characteristics

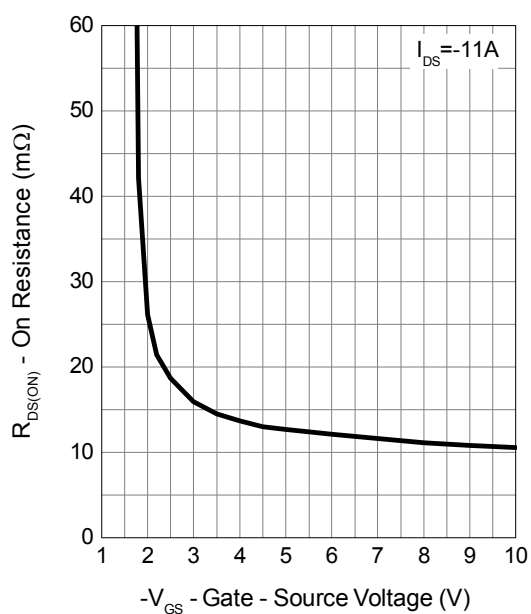
Output Characteristics



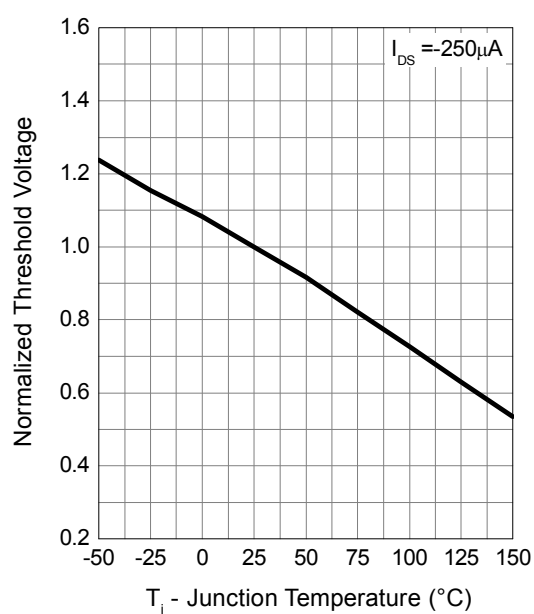
Drain-Source On Resistance



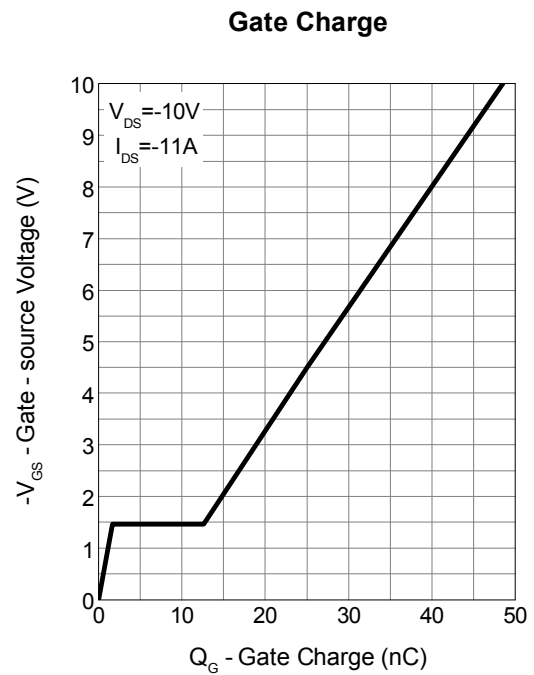
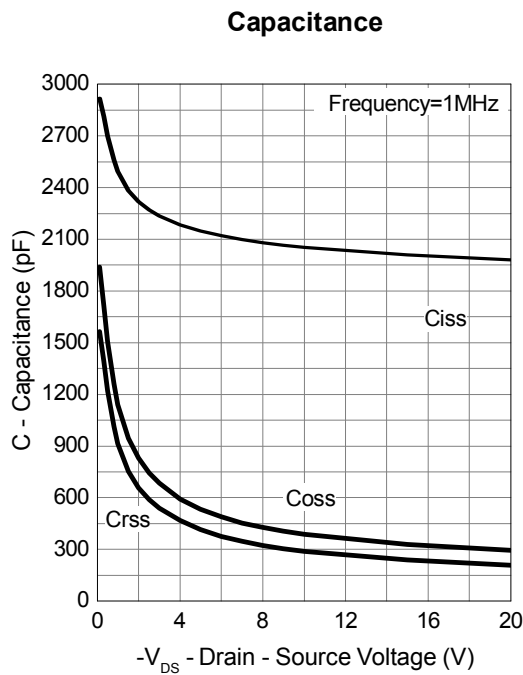
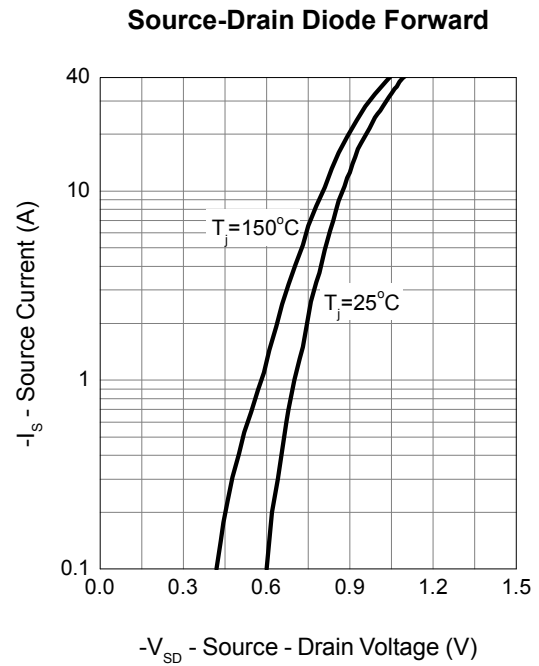
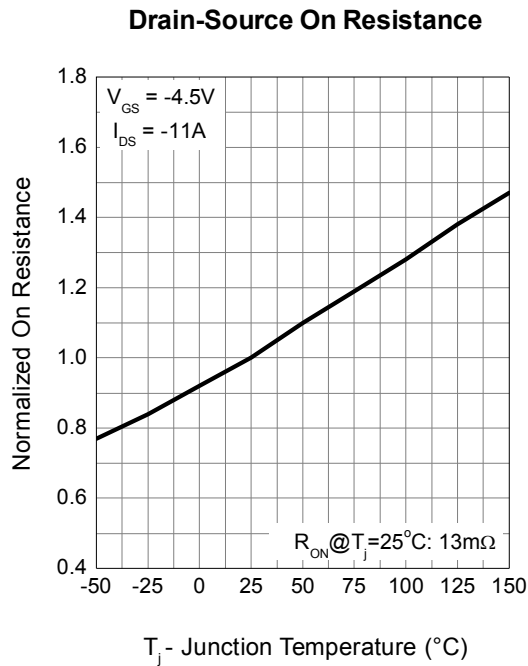
Gate-Source On Resistance



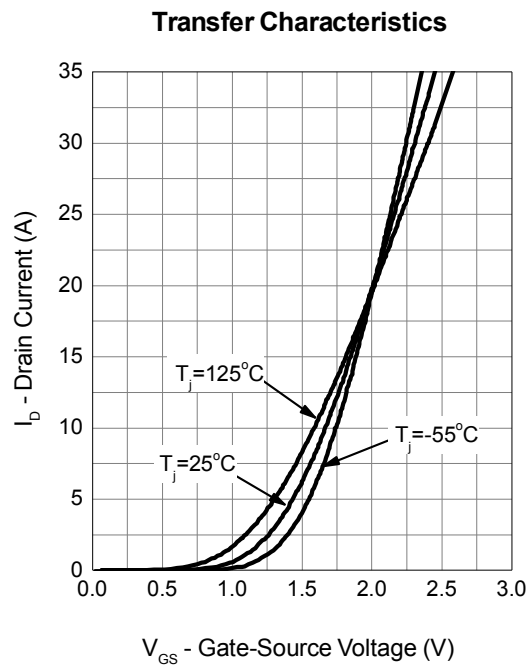
Gate Threshold Voltage



Typical Operating Characteristics



Typical Operating Characteristics



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