

General Description

The WSP4982 is the highest performance trench N-ch MOSFET with extreme high cell density, which provide excellent RDSON and gate chargens for most of the synchronous buck converter applications .

The WSP4982 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

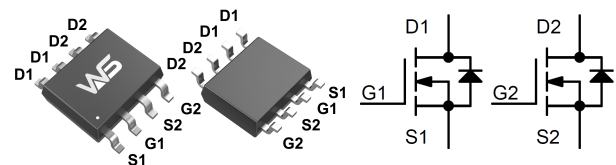
Product Summary

| BVDSS | RDSON | ID |
|-------|-------|------|
| 40V | 24mΩ | 7.0A |

Applicatio

- Power Management in Note book.
- Battery Powered System.
- Industrial DC/DC Conversion Circuits

SOP-8 Pin Configuration



Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|----------------------|--|------------|------------|
| V_{DS} | Drain-Source Voltage | 40 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| $I_D@T_C=25^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V$ | 7.0 | A |
| $I_D@T_C=70^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V$ | 5.8 | A |
| I_{DM} | Pulsed Drain Current ^a | 28 | A |
| $P_D@T_A=25^\circ C$ | Total Power Dissipation $T_A=25^\circ C$ | 1.5 | A |
| $P_D@T_A=70^\circ C$ | Total Power Dissipation $T_A=70^\circ C$ | 1.28 | W |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |

Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|-----------------|--|------|------|--------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient ^b | --- | 110 | $^\circ C/W$ |
| $R_{\theta JC}$ | Thermal Resistance Junction-Case | --- | 62.5 | $^\circ C/W$ |

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 $^\circ C$ (initial temperature $T_J=25^\circ C$).

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

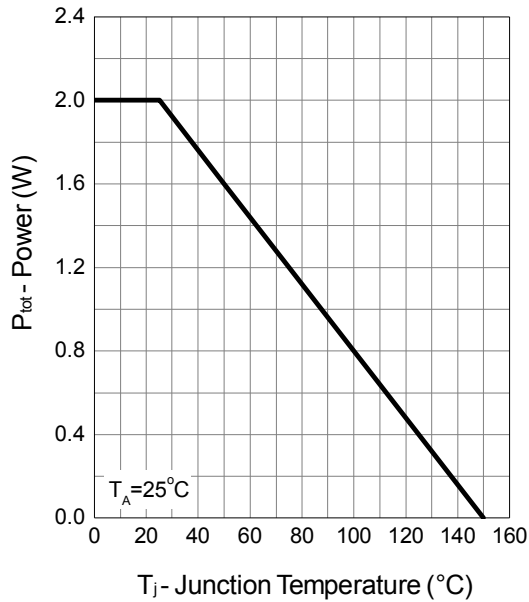
| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|----------------------------------|--|---|------|------|------|------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250μA | 40 | --- | --- | V |
| R _{DS(ON)} ^c | Static Drain-Source On-Resistance ² | V _{GS} =10V, I _D =6.0A | --- | 24 | 28 | mΩ |
| | | V _{GS} =4.5V, I _D =5.0A | --- | 28 | 33 | |
| V _{GS(th)} | Gate Threshold Voltage | V _{GS} =V _{DS} , I _D =250μA | 1.0 | 1.6 | 2.5 | V |
| I _{DSS} | Drain-Source Leakage Current | V _{DS} =24V, V _{GS} =0V, T _J =25°C | --- | --- | 1 | μA |
| | | V _{DS} =24V, V _{GS} =0V, T _J =55°C | --- | --- | 30 | |
| I _{GSS} | Gate-Source Leakage Current | V _{GS} =±20V, V _{DS} =0V | --- | --- | ±100 | nA |
| Q _g ^d | Total Gate Charge (4.5V) | V _{DS} =20V, V _{GS} =4.5V, I _D =6A | --- | 7.5 | --- | nC |
| Q _{gs} | Gate-Source Charge | | --- | 3.24 | --- | |
| Q _{gd} | Gate-Drain Charge | | --- | 2.75 | --- | |
| T _{d(on)} | Turn-On Delay Time | V _{DD} =20V, V _{GEN} =10V, R _G =6Ω , I _D =1A, R _L =20Ω. | --- | 7.8 | --- | ns |
| T _r | Rise Time | | --- | 6.9 | --- | |
| T _{d(off)} | Turn-Off Delay Time | | --- | 22.4 | --- | |
| T _f | Fall Time | | --- | 4.8 | --- | |
| C _{iss} | Input Capacitance | V _{DS} =20V, V _{GS} =0V, f=1MHz | --- | 815 | --- | pF |
| C _{oss} | Output Capacitance | | --- | 95 | --- | |
| C _{rss} | Reverse Transfer Capacitance | | --- | 60 | --- | |

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

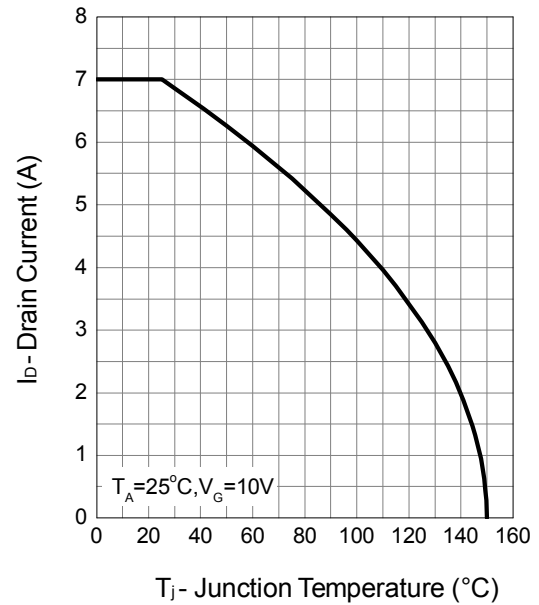
Note d : Guaranteed by design, not subject to production testing.

Typical Characteristics

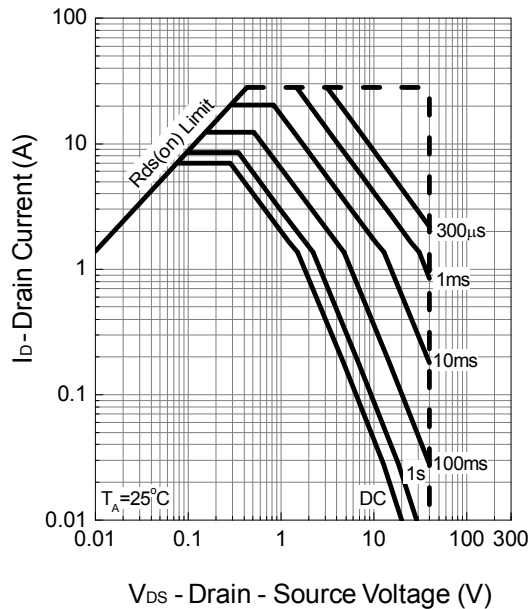
Power Dissipation



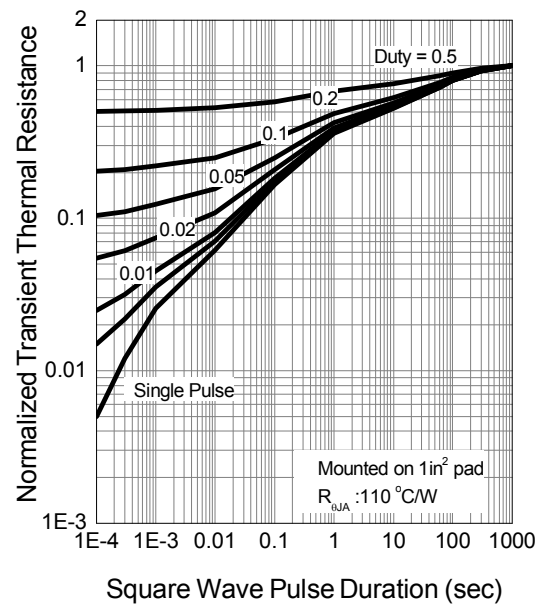
Drain Current



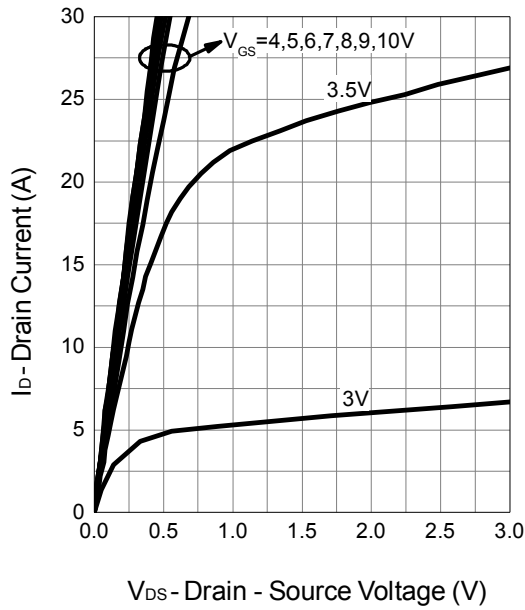
Safe Operation Area



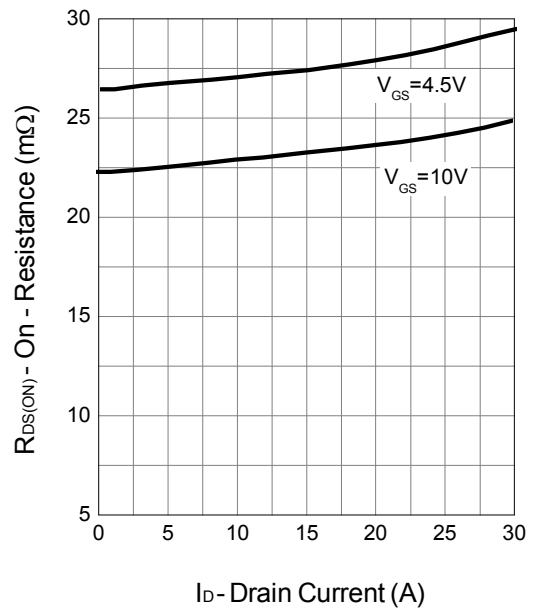
Thermal Transient Impedance



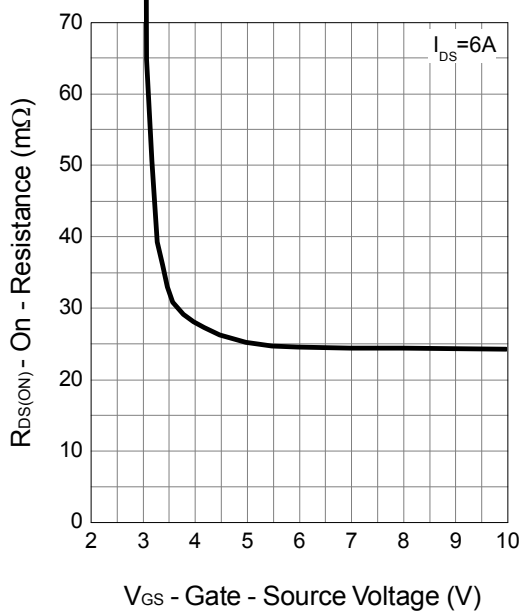
Output Characteristics



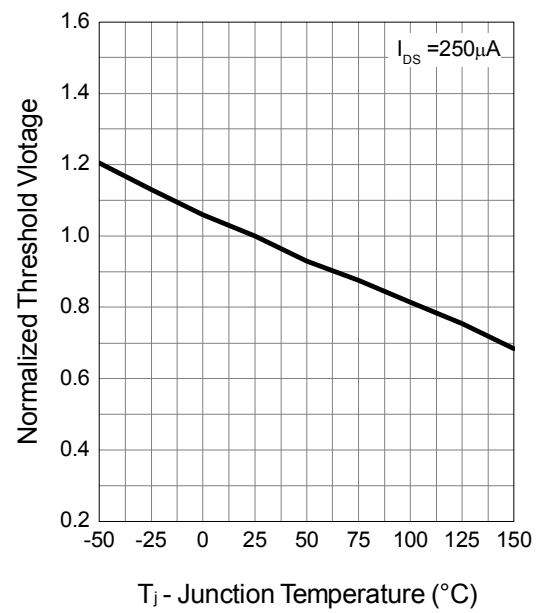
Drain-Source On Resistance



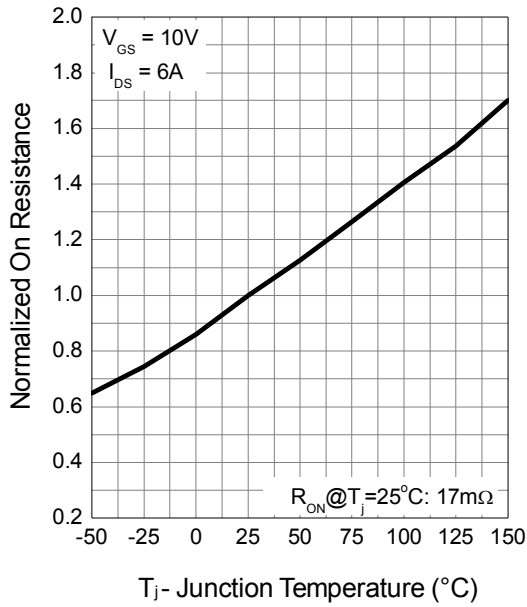
Gate-Source On Resistance



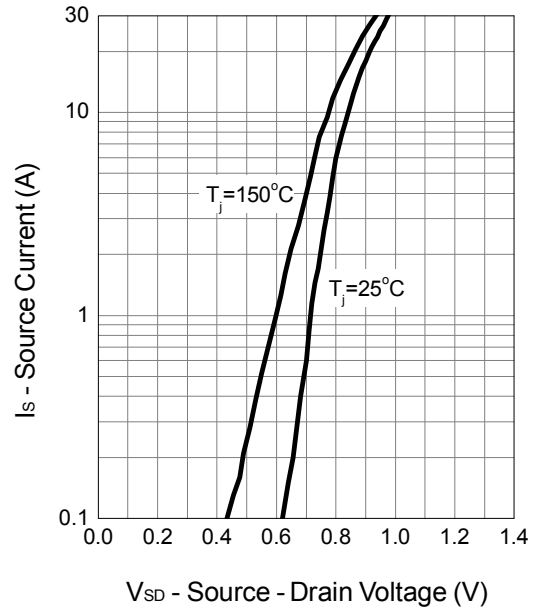
Gate Threshold Voltage



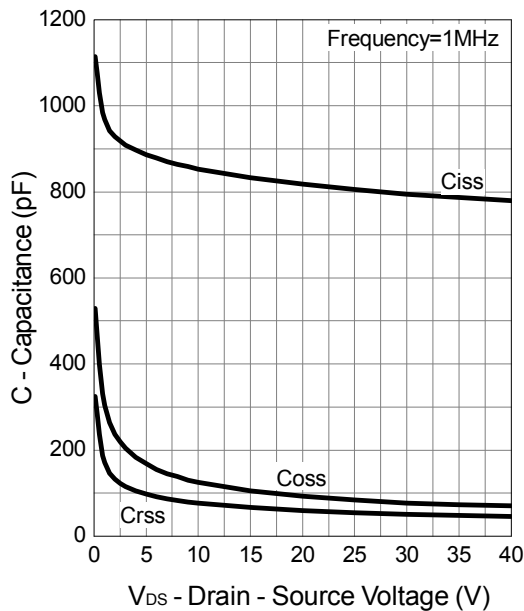
Drain-Source On Resistance



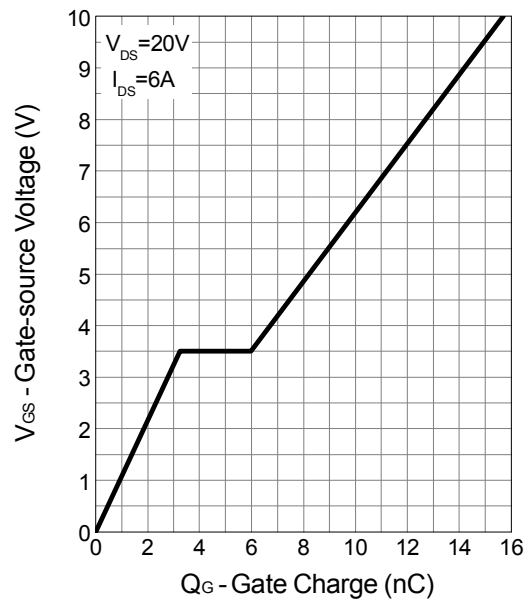
Source-Drain Diode Forward



Capacitance



Gate Charge





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