

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

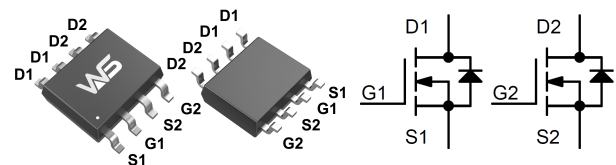
Product Summary

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)

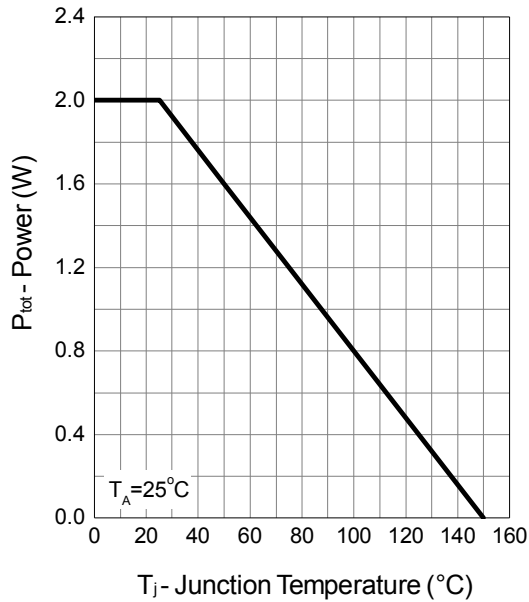
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	40	---	---	V
R _{DS(ON)} ^c	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =6.0A	---	24	28	mΩ
		V _{GS} =4.5V, I _D =5.0A	---	28	33	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{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%.

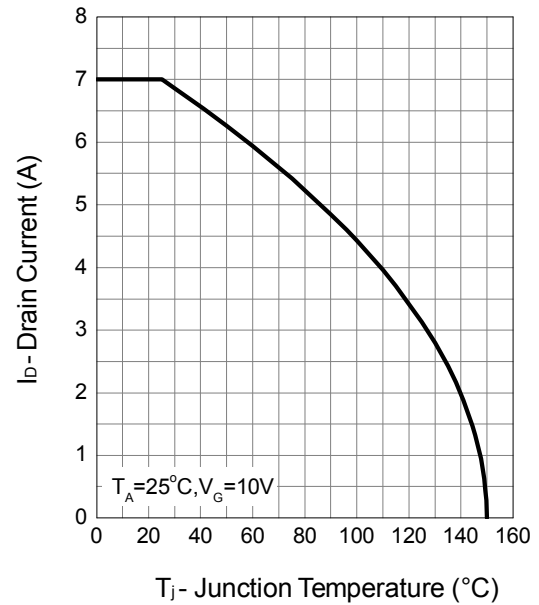
Note d : Guaranteed by design, not subject to production testing.

Typical Characteristics

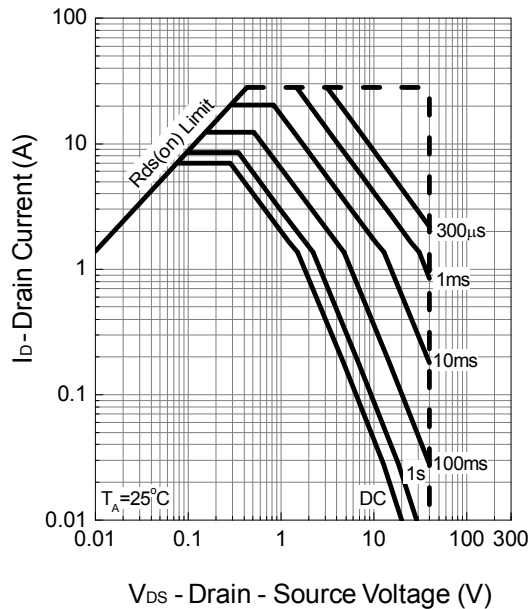
Power Dissipation



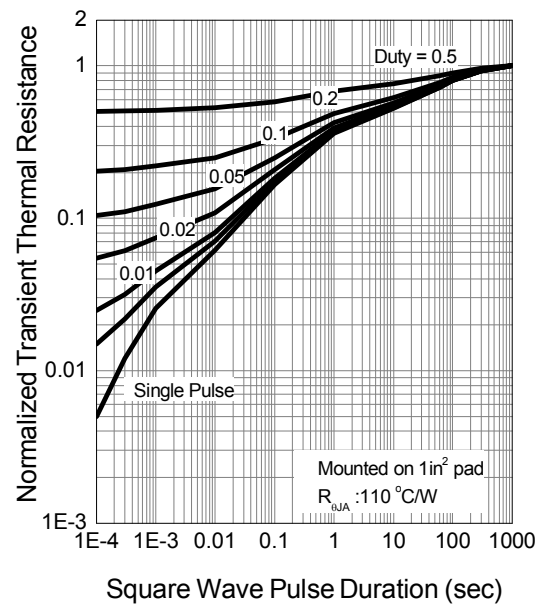
Drain Current



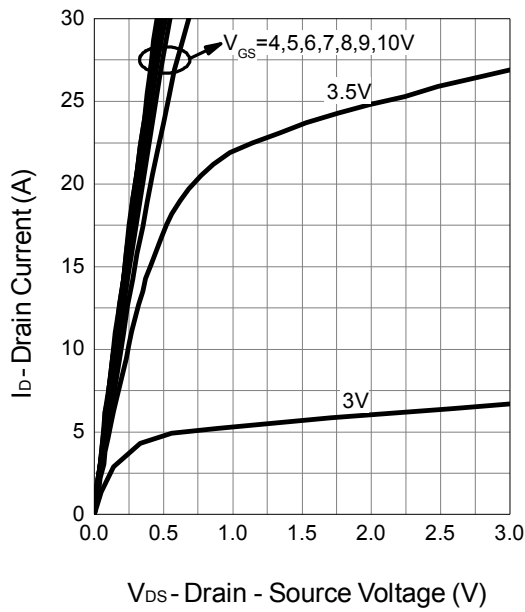
Safe Operation Area



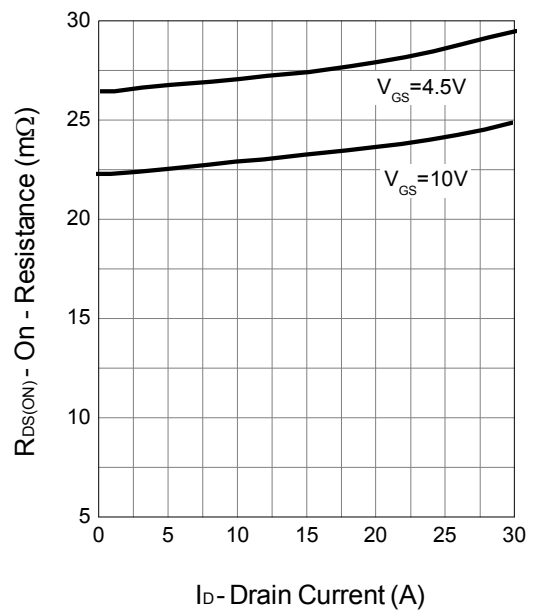
Thermal Transient Impedance



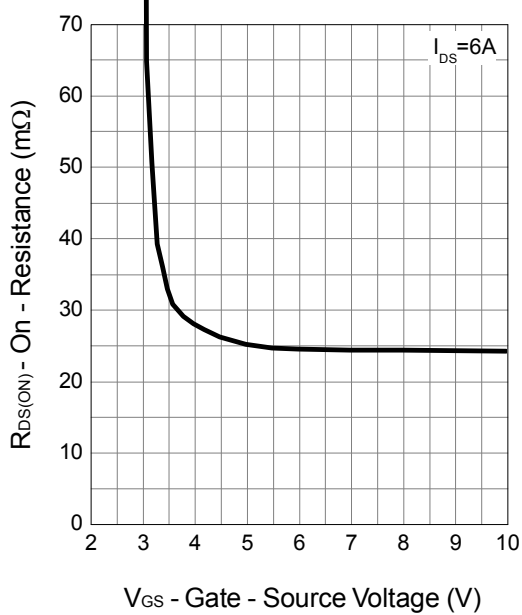
Output Characteristics



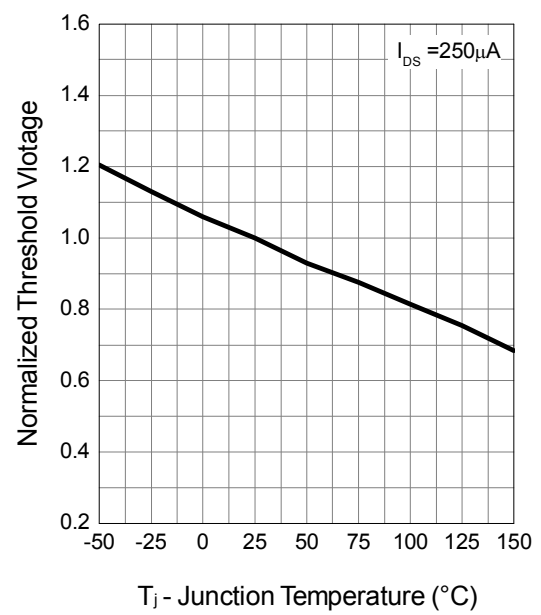
Drain-Source On Resistance



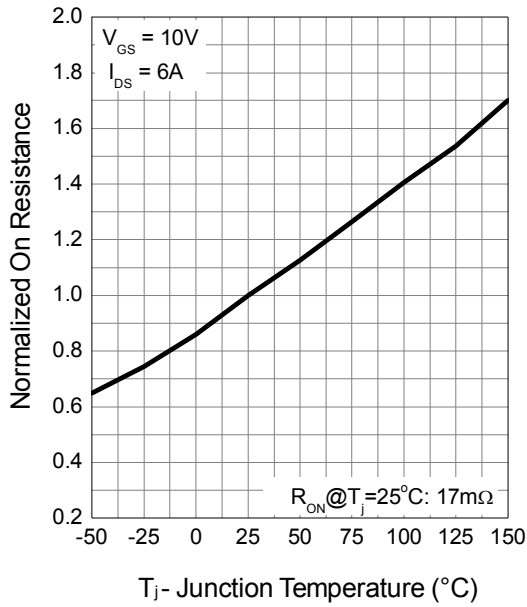
Gate-Source On Resistance



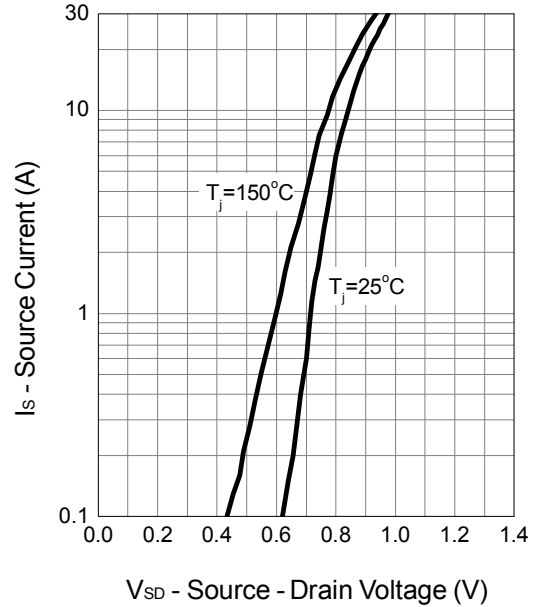
Gate Threshold Voltage



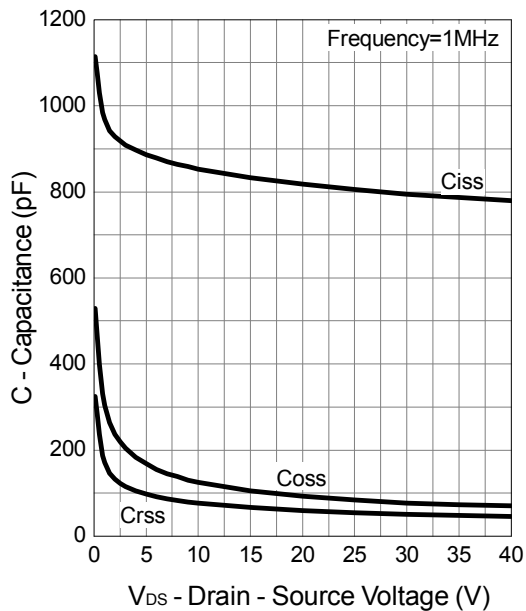
Drain-Source On Resistance



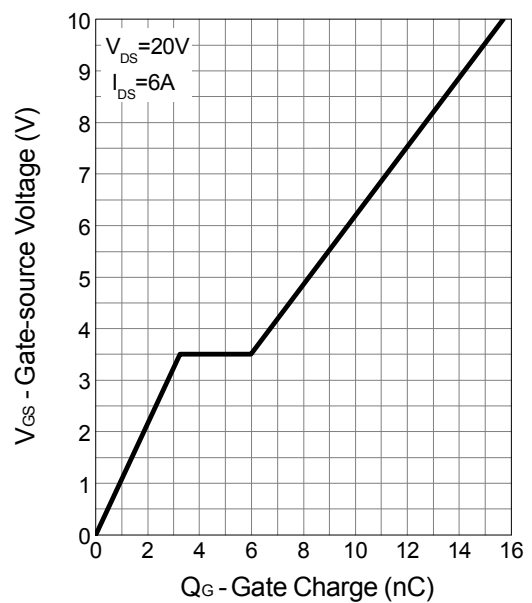
Source-Drain Diode Forward



Capacitance



Gate Charge



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