General Description

The WSM340N10G 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 WSM340N10G 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

BV_{DSS}	R_{DSON}	I_D
100V	1.6mΩ	300A

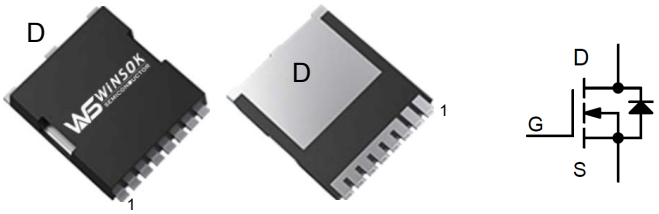
Applications

synchronous rectification

DC/DC Converter

Load switch.

TOLL Pin Configuration



1:G 2,3,4,5,6,7,8:S

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	300	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	230	A
I_{DM}	Pulsed Drain Current¨T_C=25°C	1150	A
EAS	Avalanche Energy, Single pulse,L=0.5mH	1800	mJ
I_{AS}	Avalanche Current, Single pulse,L=0.5mH	120	A
P_D@T_C=25℃	Total Power Dissipation	375	W
P_D@T_C=100℃	Total Power Dissipation	187	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	0.4	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	100	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	0.096	---	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V,I_D=50A	---	1.6	2.3	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2.0	3.0	4.0	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	-5.5	---	mV/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=85V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=85V , V_{GS}=0V , T_J=55℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±25V , V_{DS}=0V	---	---	±100	nA
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.0	---	Ω
Q_g	Total Gate Charge (10V)	V_{DS}=50V , V_{GS}=10V , I_D=50A	---	260	---	nC
Q_{gs}	Gate-Source Charge		---	80	---	
Q_{gd}	Gate-Drain Charge		---	60	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=50V , V_{GS}=10V , R_G=1Ω,R_L=1Ω,I_{DS}=1A.	---	88	---	ns
T_r	Rise Time		---	50	---	
$T_{d(off)}$	Turn-Off Delay Time		---	228	---	
T_f	Fall Time		---	322	---	
C_{iss}	Input Capacitance	V_{DS}=40V , V_{GS}=0V , f=1MHz	---	13900	---	pF
C_{oss}	Output Capacitance		---	6160	---	
C_{rss}	Reverse Transfer Capacitance		---	220	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	160	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=50A , T_J=25℃	---	---	1.2	V

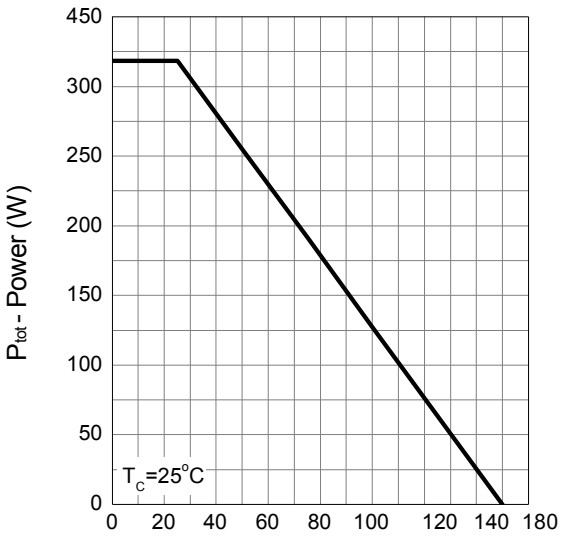
A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25℃. The value in any given application depends on the user's specific board design.

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

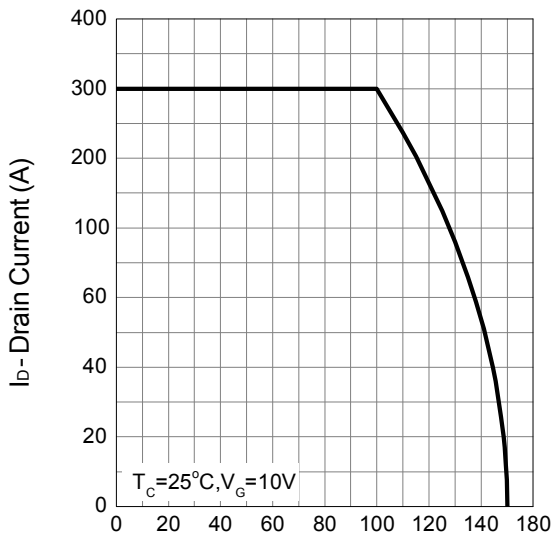
C: The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

Typical Operating Characteristics

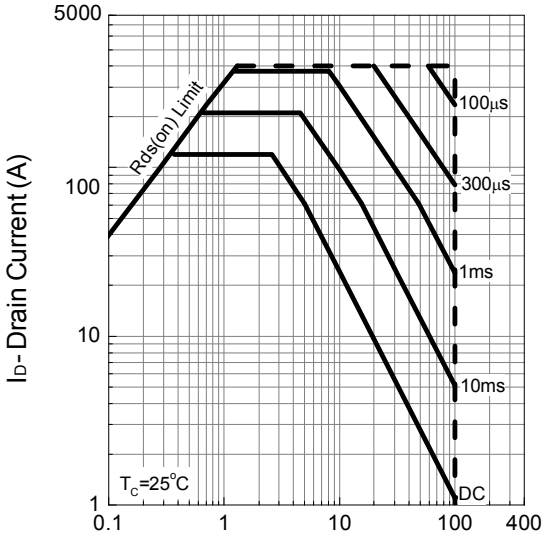
Power Dissipation



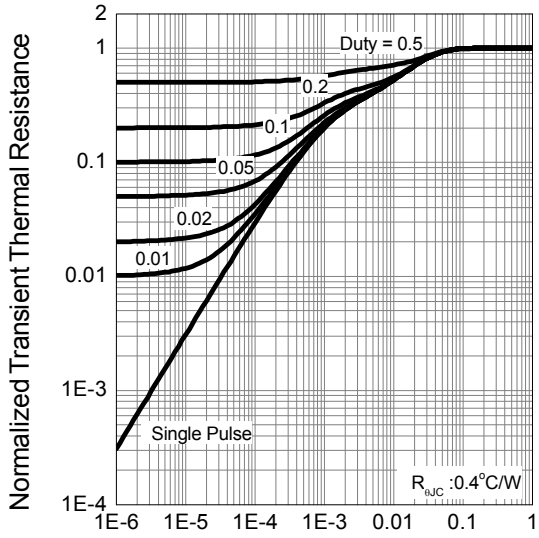
Drain Current



Safe Operation Area

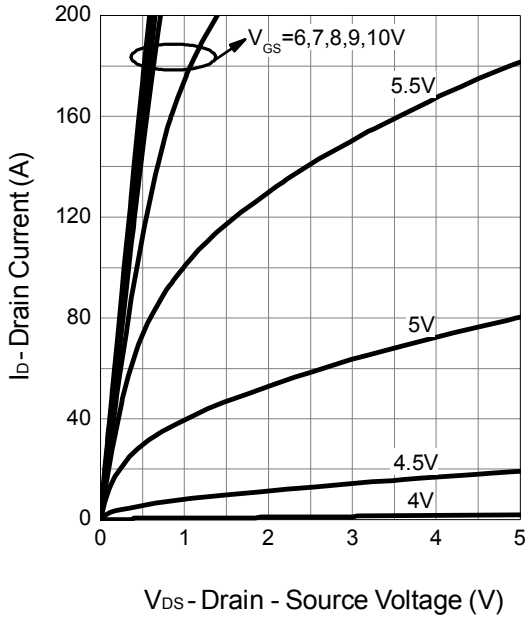


Thermal Transient Impedance

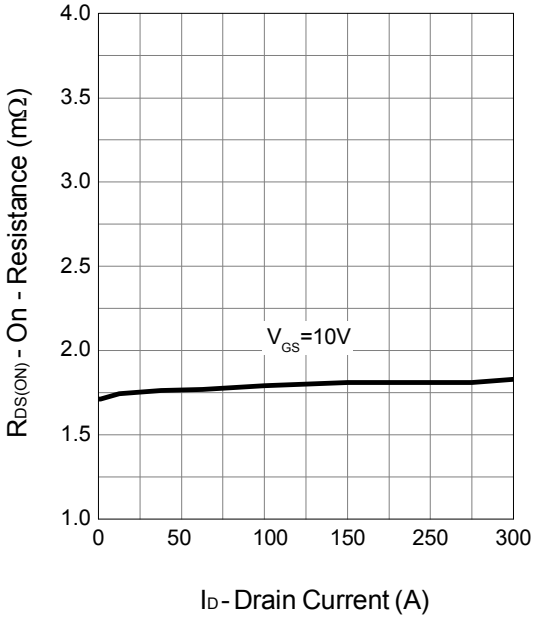


Typical Operating Characteristics

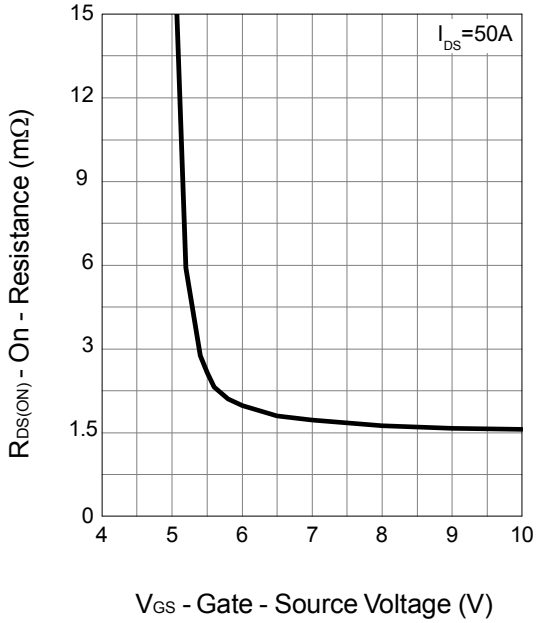
Output Characteristics



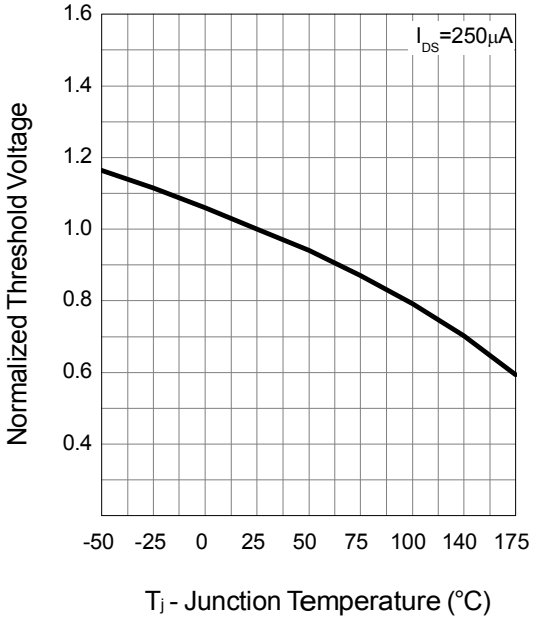
Drain-Source On Resistance



Gate-Source On Resistance

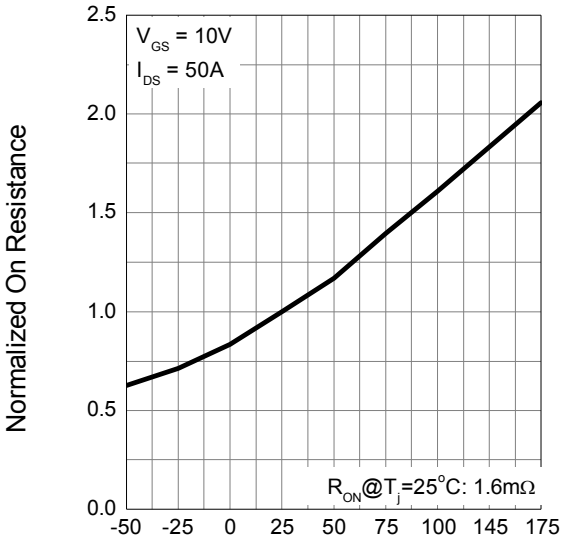


Gate Threshold Voltage

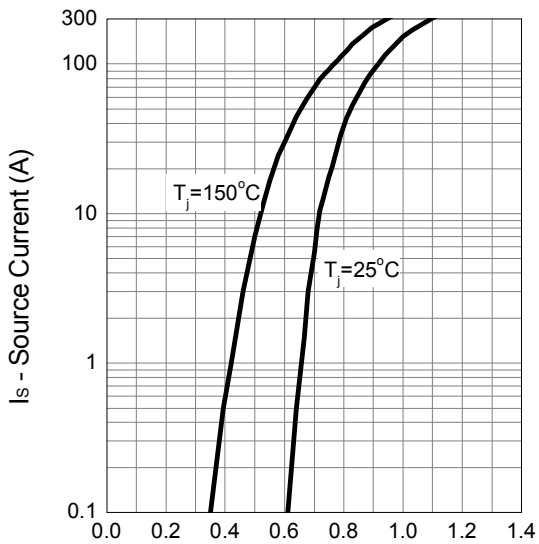


Typical Operating Characteristics

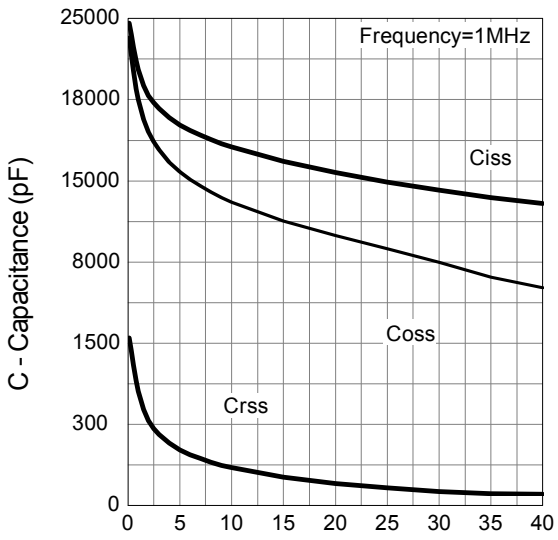
Drain-Source On Resistance



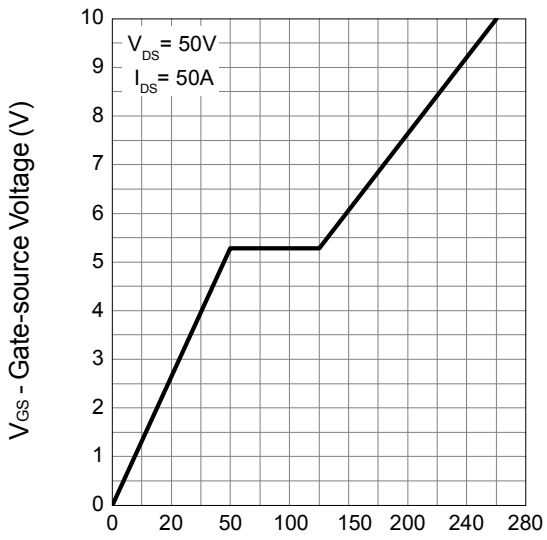
Source-Drain Diode Forward



Capacitance



Gate Charge



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