KSL260N15S

150V N-Channel MOSFET

GeneralDescription

The KSL260N15S use advanced MOSFET technology to provide low RDS(ON), low gate charge, fast switching and excellent avalanche characteristics. This device is specially designed to get better ruggedness and suitable to use in Synchronous-rectification applications

Product Summary

V_{DS} (V)	$R_{DS(on)}$ (mΩ)	I_D (A)
150	3.6 at V_{GS} = 10 V	260

Features

- High density cell design for low $R_{DS(ON)}$
- Excellent package for heat dissipation
- Split Gate Trench MOSFET technology

TOLL Pin Configuration



Applications

- DC-DC Converters
- Motor control
- Power managemen t functions

100% UIS TESTED!
100% ΔVds TESTED!

Absolute Maximum Ratings T_C=25℃ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_C=25℃)	260	A
	Drain Current – Continuous (T_C=100℃)	150	A
I_{DM}	Drain Current – Pulsed[1]	750	A
P_D	Power Dissipation (T_C=25℃)	450	W
	Power Dissipation – Derate above 25℃	2.8	W/℃
T_{STG}	Storage Temperature Range	-50 to 150	℃
T_J	Operating Junction Temperature Range	-50 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	58	℃/W
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	0.55	℃/W

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

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	150	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	0.01	---	V/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=120V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=100V , V_{GS}=0V , T_J=125℃	---	---	10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA

On Characteristics

$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=30A	---	3.6	4.3	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2.0	3.0	4.0	V
gfs	Forward Transconductance	V_{DS}=10V , I_S=40A	---	53	---	S

Dynamic and switching Characteristics

Q_g	Total Gate Charge[2,3]	V_{DS}=75V , V_{GS}=10V , I_D=30A	---	127	---	nC
Q_{gs}	Gate-Source Charge[2,3]		---	15	---	
Q_{gd}	Gate-Drain Charge[2,3]		---	21	---	
$T_{d(on)}$	Turn-On Delay Time[2,3]	V_{DS}=75V , V_{GS}=10V , R_G=3.9 Ω I_D=30A	---	57	---	ns
T_r	Rise Time[2,3]		---	28	---	
$T_{d(off)}$	Turn-Off Delay Time[2,3]		---	47	---	
T_f	Fall Time[2,3]		---	39	---	
C_{iss}	Input Capacitance	V_{DS}=75V , V_{GS}=0V , F=1MHz	---	11570	---	pF
C_{oss}	Output Capacitance		---	853	---	
C_{rss}	Reverse Transfer Capacitance		---	96	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	220	A
I_{SM}	Pulsed Source Current		---	---	650	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.20	V

Note :
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

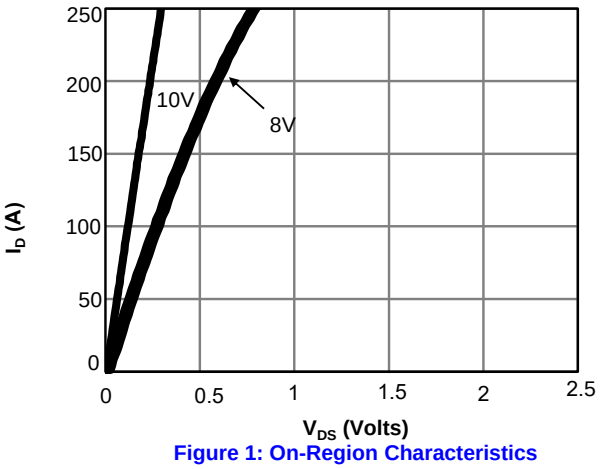


Figure 1: On-Region Characteristics

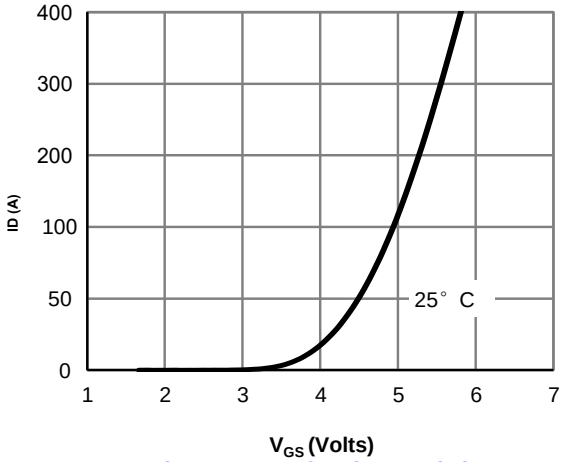


Figure 2: Transfer Characteristics

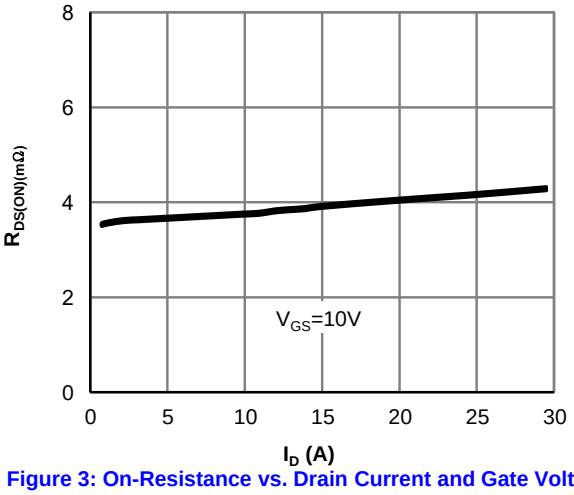


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

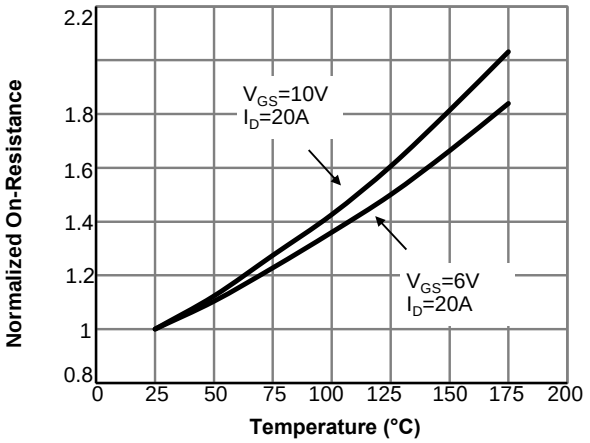


Figure 4: On-Resistance vs. Junction Temperature

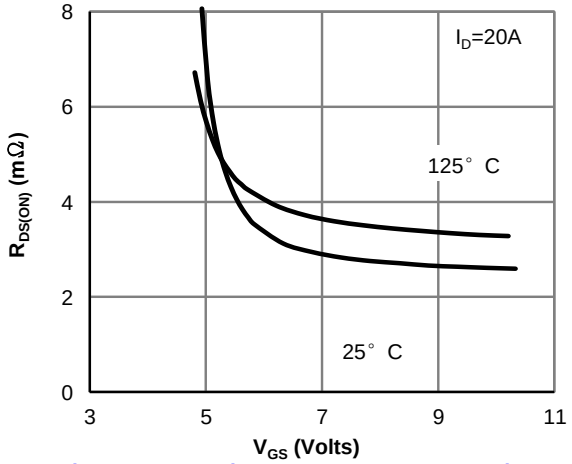


Figure 5: On-Resistance vs. Gate-Source Voltage

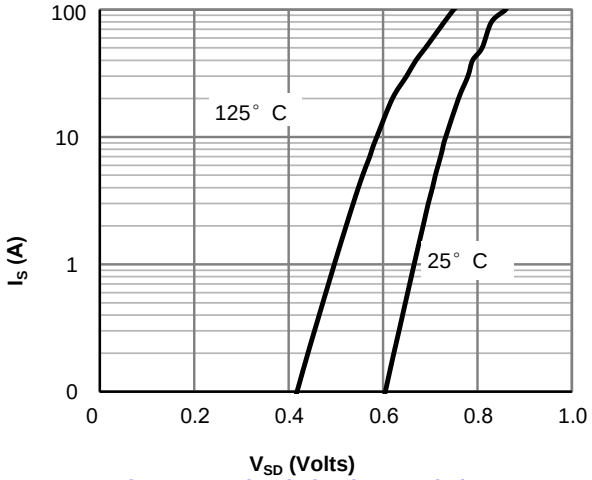


Figure 6: Body-Diode Characteristics

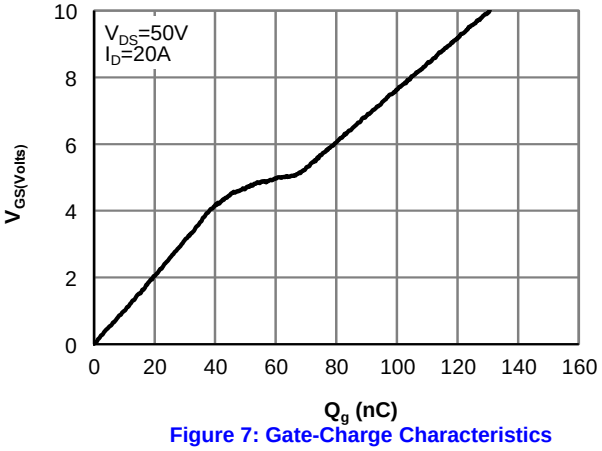


Figure 7: Gate-Charge Characteristics

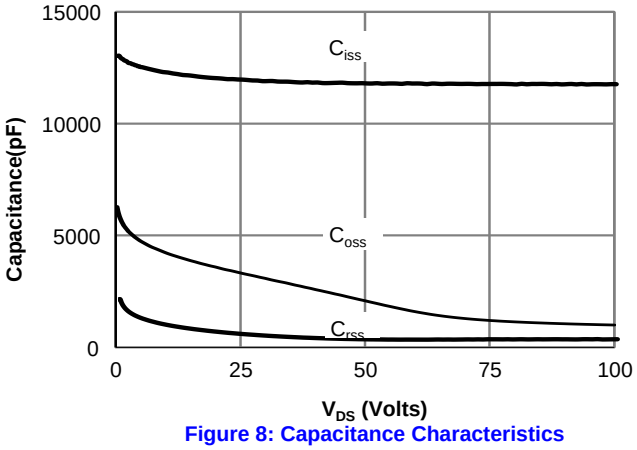


Figure 8: Capacitance Characteristics

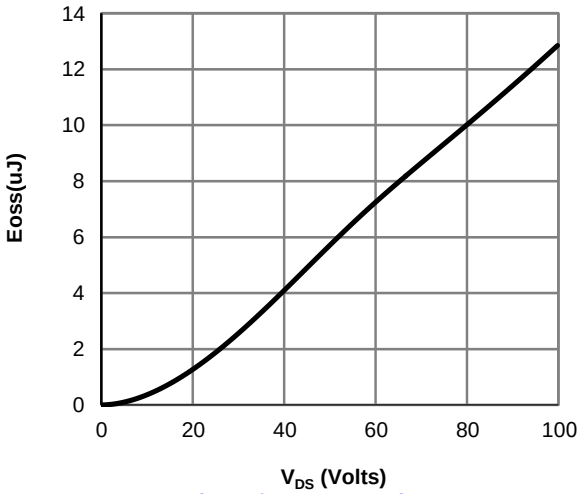


Figure 9: Coss stored Energy

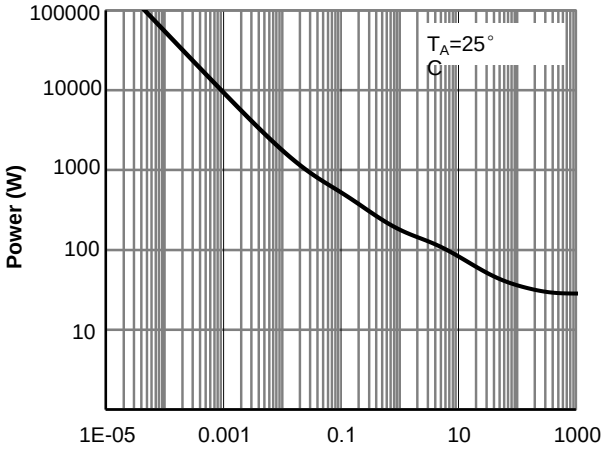


Figure 10: Single Pulse Power Rating Junction-to-Ambient

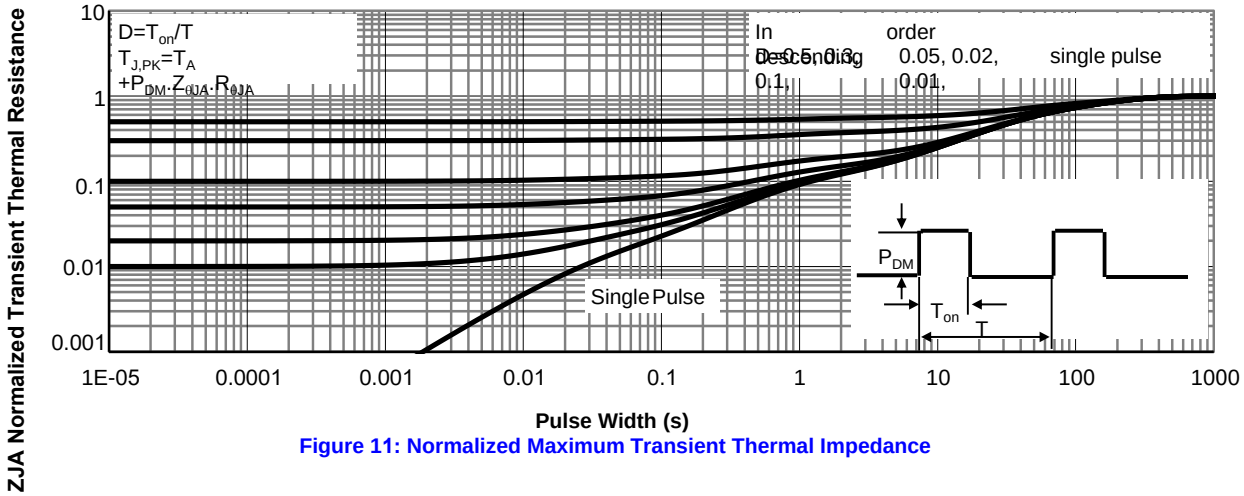


Figure 11: Normalized Maximum Transient Thermal Impedance

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