Elektronische Bauelemente

SSD04N65L

4A , 650V , $R_{DS(ON)}$ 1Ω

N-Ch Enhancement Mode Power MOSFET

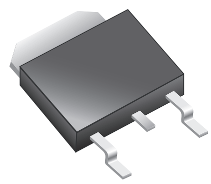
RoHS Compliant Product
A suffix of "-C" specifies halogen free

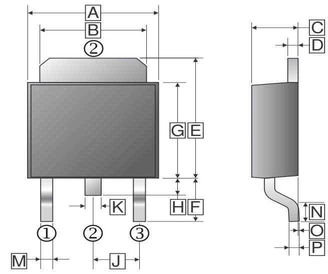
DESCRIPTION

The SSD04N65L is the highest performance trench N-ch MOSFETs with extreme high cell density , which provide excellent $R_{DS(on)}$ and gate charge for most of the synchronous buck converter applications.

The SSD04N65L meet the RoHS and Green Product requirement with full function reliability approved.

TO-252(D-Pack)



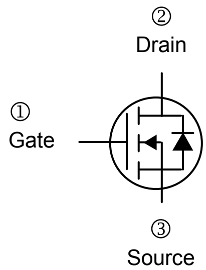


FEATURES

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Green Device Available

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	4K	13 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.9	J	2.3 REF.	
B	4.95	5.53	K	0.89 REF.	
C	2.1	2.5	M	0.45	1.14
D	0.41	0.9	N	1.55 Typ.	
E	6	7.5	O	0	0.2
F	2.90 REF		P	0.58 REF.	
G	5.4	6.4			
H	0.6	1.3			

ABSOLUTE MAXIMUM RATINGS (T_C=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current @V_{GS}=10V [1]	T_C=25°C	I_D	4	A
	T_C=100°C		2.5	A
Pulsed Drain Current [4]		I_{DM}	12	A
Total Power Dissipation [3]	T_C=25°C	P_D	28	W
Peak Diode Recovery[2]		dv/dt	5	V/ns
Maximum Lead Temperature for Soldering Purposes		T_L	300	°C
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{θJA}$	62	°C / W
Maximum Thermal Resistance Junction-Case [1]		$R_{θJC}$	4.4	°C / W

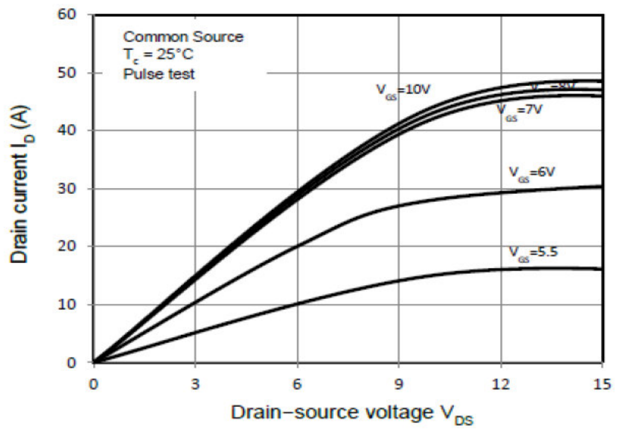
ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	650	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2.5	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±30V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	1	μA	V_{DS}=520V, V_{GS}=0
	T_J=55°C		-	-	100		V_{DS}=520V, V_{GS}=0
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	0.88	1	Ω	V_{GS}=10V, I_D=1A
Total Gate Charge		Q_g	-	13	-	nC	I_D=4A V_{DS}=520V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	3	-		
Gate-Drain Change		Q_{gd}	-	6	-		
Turn-on Delay Time [2]		$T_{d(on)}$	-	36	-	nS	V_{DD}=400V I_D=4A V_{GS}=10V R_G=25Ω
Rise Time		T_r	-	27	-		
Turn-off Delay Time		$T_{d(off)}$	-	79	-		
Fall Time		T_f	-	29	-		
Input Capacitance		C_{iss}	-	350	-	pF	V_{GS} =0 V_{DS}=25V f =1.0MHz
Output Capacitance		C_{oss}	-	20	-		
Reverse Transfer Capacitance		C_{rss}	-	2.6	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	4	A	V_D=V_G=0, Force Current
Pulsed Source Current [4]		I_{SM}	-	-	12	A	
Diode Forward Voltage [4]		V_{SD}	-	-	1.2	V	I_S=4A, V_{GS}=0, T_J=25°C
Reverse Recovery Time		T_{rr}	-	220	-	nS	I_F=4A, dI/dt=100A/μs , T_J=25°C
Reverse Recovery Charge		Q_{rr}	-	0.9	-	nC	

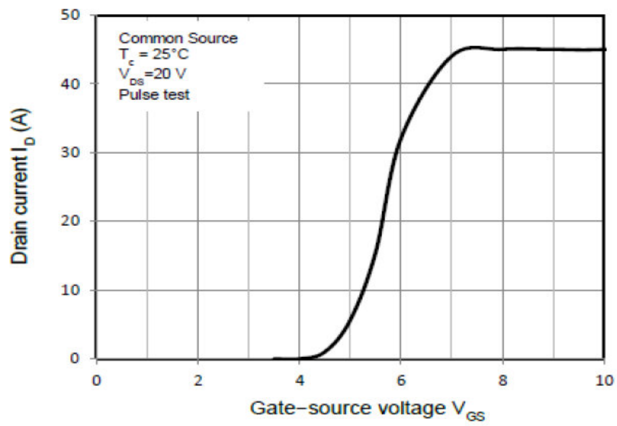
Notes:
1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. I_{SD}≤4A,di/dt ≤200A/μs, V_{DD}≤BV_{DSS}, Starting T_J=25℃
3. The power dissipation is limited by 150℃ junction temperature
4. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

CHARACTERISTIC CURVES

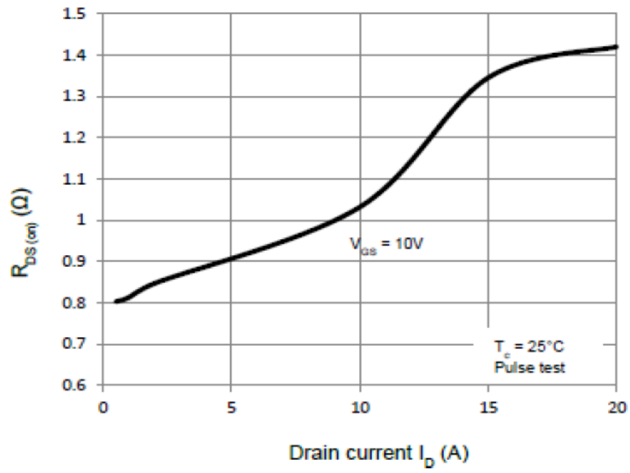
On-Region Characteristics



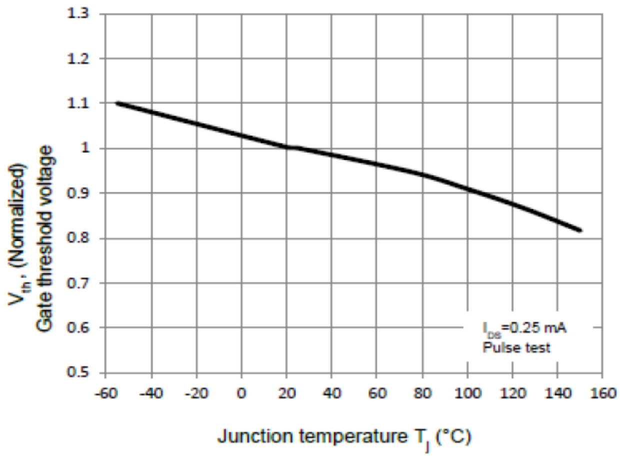
Transfer Characteristics



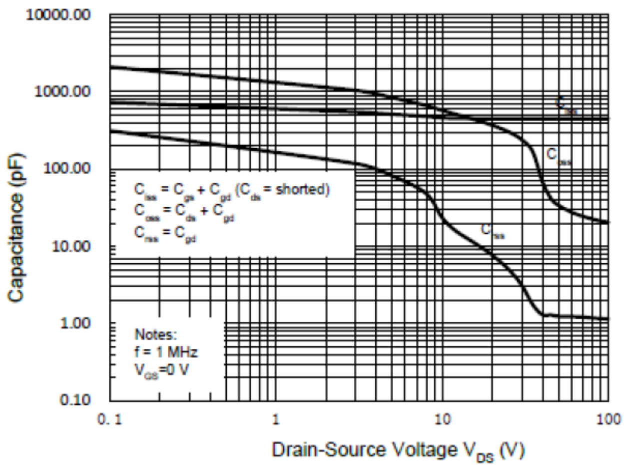
On-Resistance Variation vs Drain Current



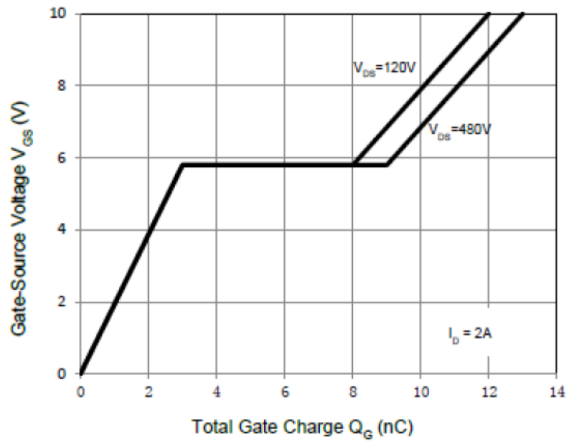
Threshold Voltage vs. Temperature



Capacitance Characteristics

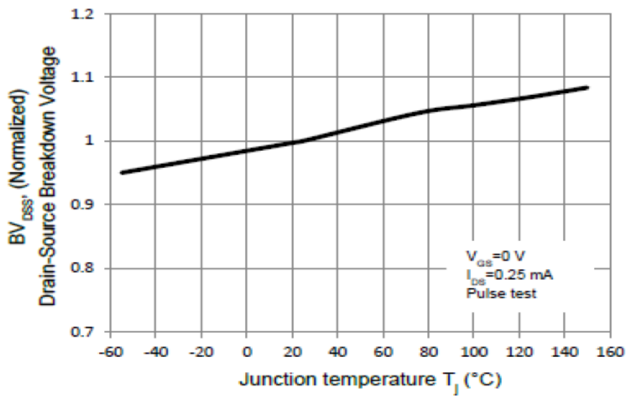


Gate Charge Characteristics

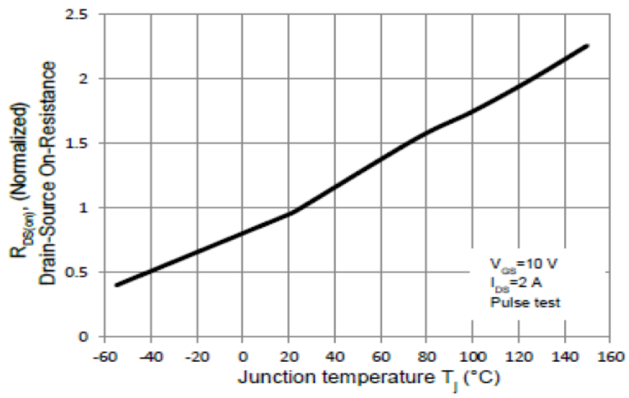


CHARACTERISTIC CURVES

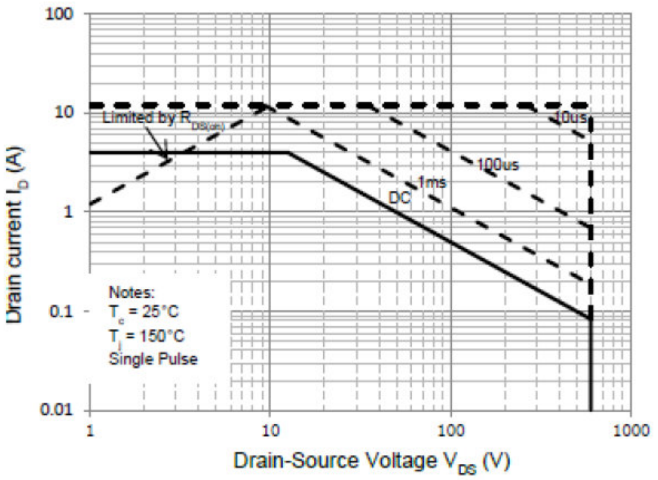
Breakdown Voltage Variation vs. Temperature



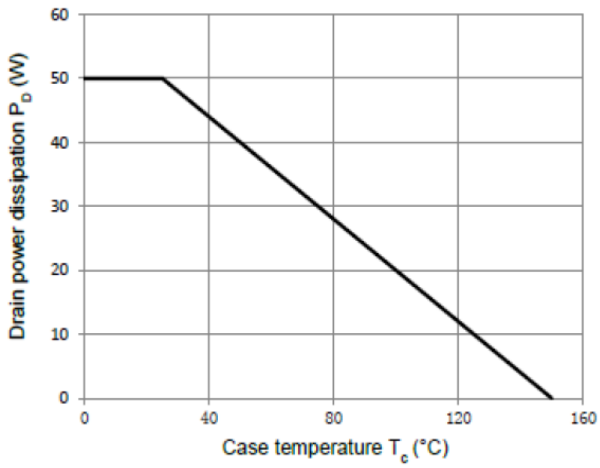
On-Resistance Variation vs. Temperature



Maximum Safe Operating Area



Power Dissipation vs. Temperature



Transient Thermal Response Curve