Elektronische Bauelemente

SSD10N10J-C

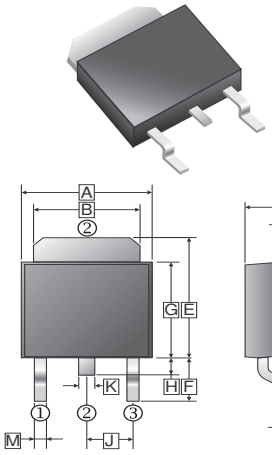
10A , 100V , $R_{DS(ON)}$ 152mΩ
N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

The SSD10N10J-C 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 .

TO-252(D-Pack)

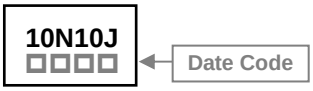


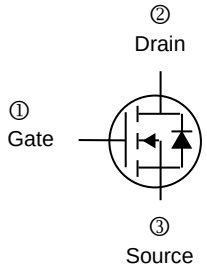
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.80	J	2.30 REF.	
B	5.20	5.50	K	0.64	0.90
C	2.15	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.65
E	6.8	7.5	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.25			
H	0.64	1.20			

FEATURES

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

MARKING





PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSD10N10J-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V [1]	T_C=25℃	I_D	10	A
	T_C=100℃		6.3	A
Pulsed Drain Current [2]		I_{DM}	20	A
Total Power Dissipation [3]	T_C=25℃	P_D	31	W
	T_A=25℃		2	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	4	℃ / W
Maximum Thermal Resistance Junction-ambient [1]		$R_{\theta JA}$	62	℃ / W

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	100	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Forward Transconductance		g_{fs}	-	19	-	S	V_{DS}=5V, I_D=8A
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0
	T_J=55℃		-	-	30		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	152	mΩ	V_{GS}=10V, I_D=8A
			-	-	158		V_{GS}=4.5V, I_D=6A
Total Gate Charge [2]		Q_g	-	25.5	-	nC	I_D=8A V_{DS}=60V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	4.2	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	4.3	-		
Turn-on Delay Time [2]		$T_{d(on)}$	-	17.3	-	nS	V_{DD}=50V I_D=1A V_{GS}=10V R_D=3.3Ω
Rise Time		T_r	-	2.8	-		
Turn-off Delay Time		$T_{d(off)}$	-	50	-		
Fall Time		T_f	-	2.8	-		
Input Capacitance		C_{iss}	-	1077	-	pF	V_{GS} =0 V_{DS}=15V f =1MHz
Output Capacitance		C_{oss}	-	46	-		
Reverse Transfer Capacitance		C_{rss}	-	32	-		
Gate Resistance		R_g	-	2	3	Ω	f =1MHz
Source-Drain Diode							
Continuous Source Current [1,4]		I_S	-	-	10	A	V_G=V_D=0, Force Current
Pulsed Source Current [2,4]		I_{SM}	-	-	20	A	
Diode Forward Voltage [2]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0

Notes:

1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width ≦ 300us, duty cycle ≦ 2%.
3. The power dissipation is limited by 150℃ juncti on temperature.
4. The data is theoretically the same as ID and IDM, in real applications, should be limited by total power dissipation

CHARACTERISTIC CURVES

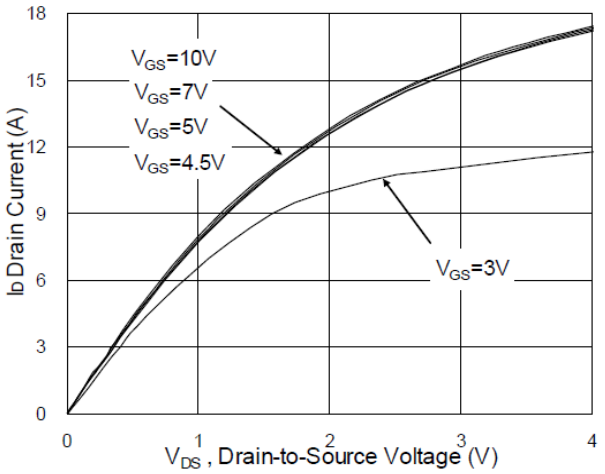


Fig.1 Typical Output Characteristics

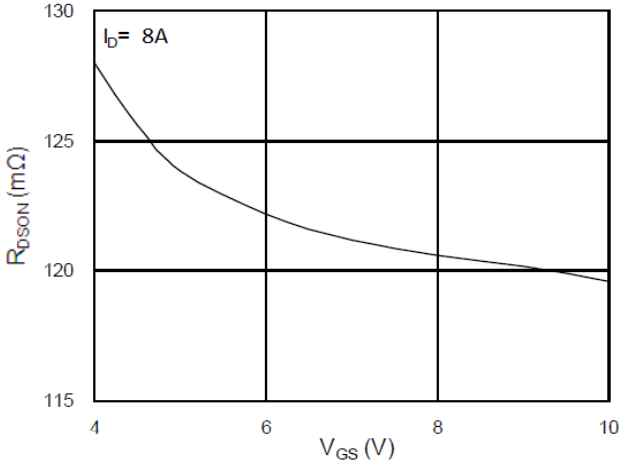


Fig.2 On-Resistance vs. Gate-Source

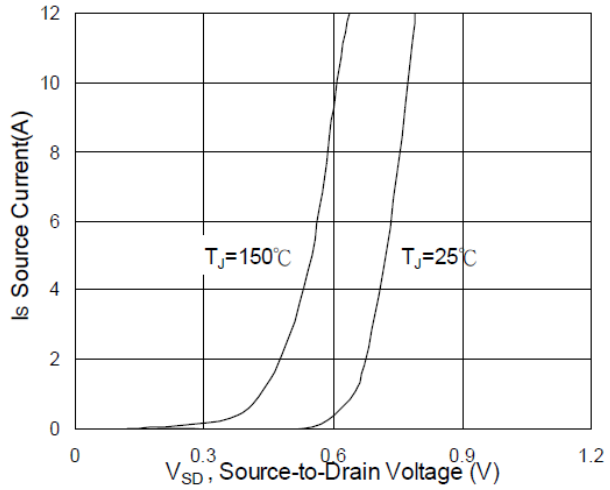


Fig.3 Forward Characteristics Of Reverse

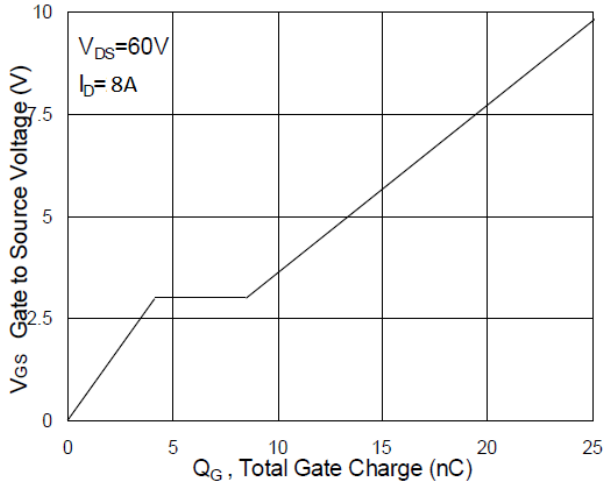


Fig.4 Gate-Charge Characteristics

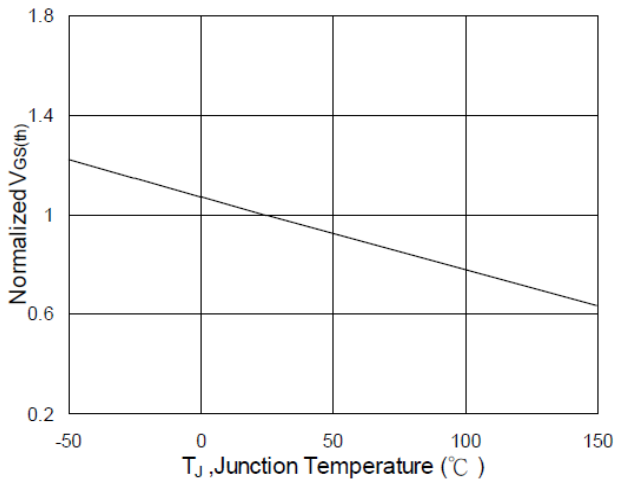


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

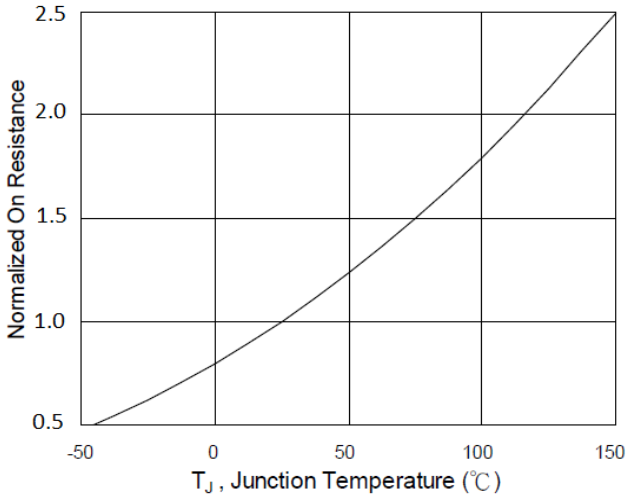


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

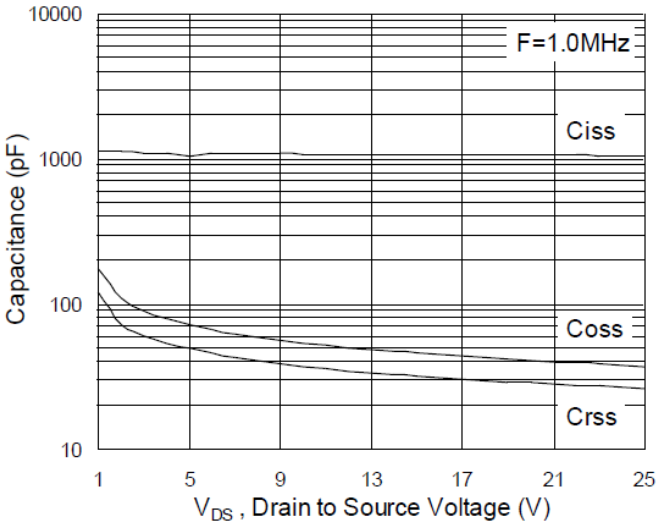


Fig.7 Capacitance

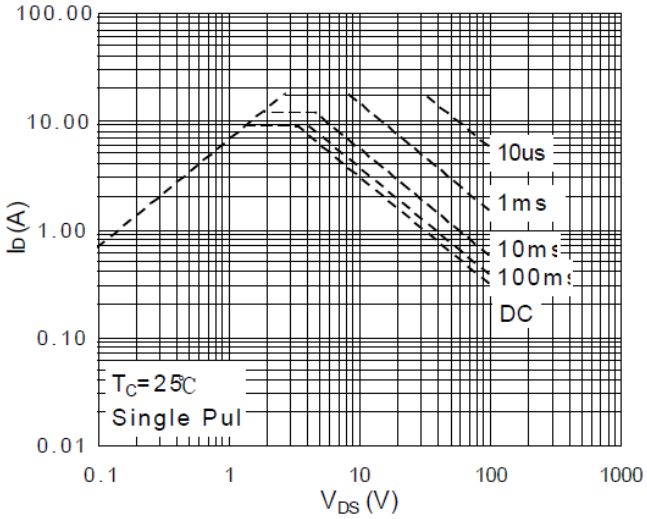


Fig.8 Safe Operating Area

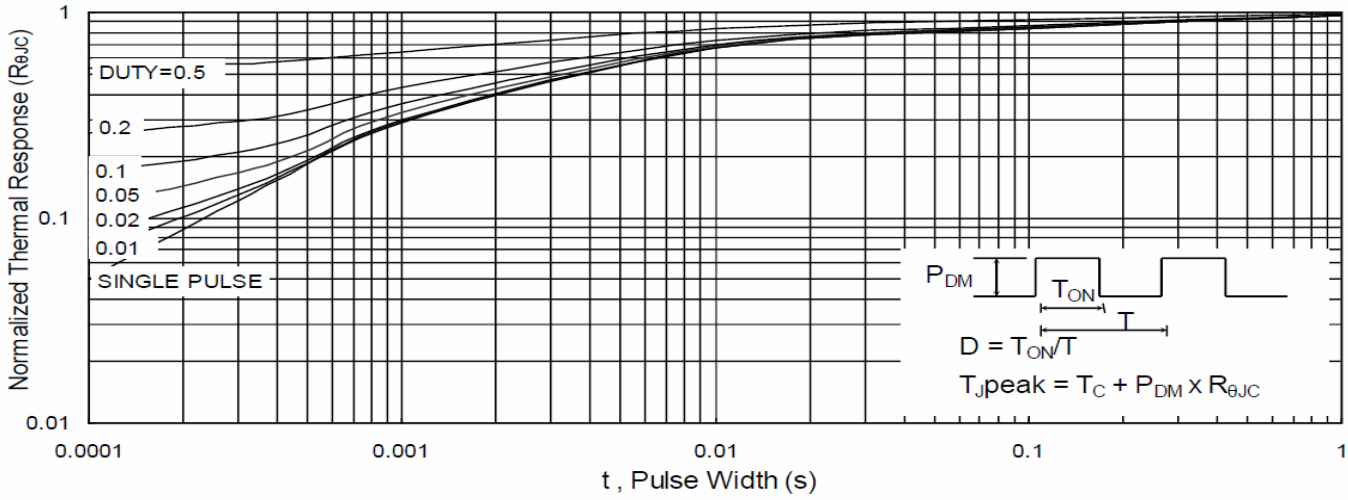


Fig.9 Normalized Maximum Transient Thermal Impedance

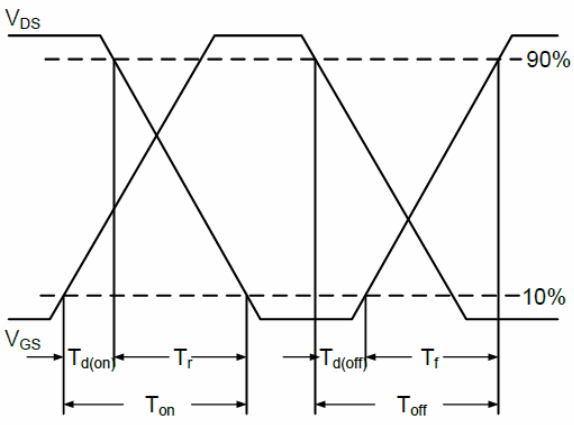


Fig.10 Switching Time Waveform

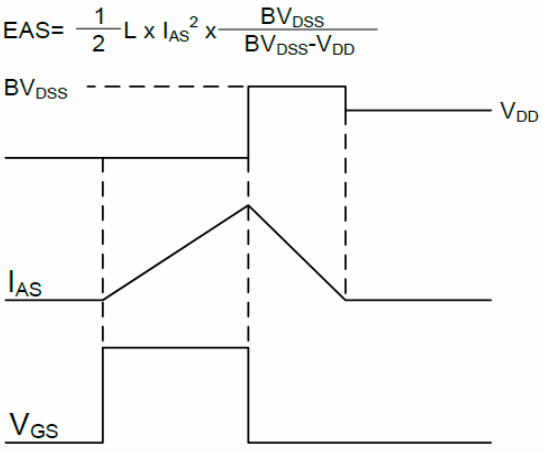


Fig.11 Unclamped Inductive Switching Waveform