Elektronische Bauelemente

SSE114N03-C

110A, 30V, $R_{DS(ON)}$ 5mΩ
N-Ch Enhancement Mode Power MOSFET

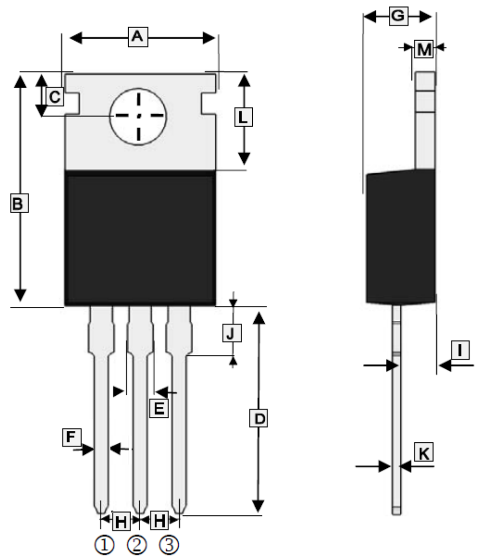
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSE114N03-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.

The SSE114N03-C meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

TO-220



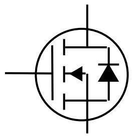
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	9.96	10.36	H	2.54 BSC.	
B	14.7	16	I	2.04	2.92
C	2.74 BSC.		J	3.745 REF.	
D	12.7	14.73	K	0.356	0.5
E	1.15	1.82	L	5.85	6.85
F	0.39	1.01	M	0.51	1.39
G	3.56	4.82			

FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available

MARKING

114N03
□□□□ ← Date Code



ORDER INFORMATION

Part Number	Type
SSE114N03-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1], @V_{GS}=10V	T_C=25℃	I_D	110	A
	T_C=100℃		72	
Pulsed Drain Current [2]	T_C=25℃	I_{DM}	220	A
Total Power Dissipation	T_C=25℃	P_D	86.8	W
Single Pulse Avalanche Energy [3]		E_{AS}	317	mJ
Single Pulse Avalanche Current		I_{AS}	25.2	A
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Data				
Maximum Thermal Resistance Junction-Case [1]		$R_{θJC}$	1.44	℃/W
Maximum Thermal Resistance Junction-Ambient [1]		$R_{θJA}$	62.5	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	26.5	-	S	V_{DS}=5V, I_D=30A
Gate Resistance		R_g	-	2.5	-	Ω	f=1MHz
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
	T_J=55℃				5		V_{DS}=24V, V_{GS}=0
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	-	5	mΩ	V_{GS}=10V, I_D=30A
			-	-	6		V_{GS}=4.5V, I_D=15A
Total Gate Charge		Q_g	-	31.6	-	nC	I_D=12A V_{DS}=20V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	6.1	-		
Gate-Drain Change		Q_{gd}	-	13.8	-		
Turn-on Delay Time		$T_{d(on)}$	-	11.2	-	nS	V_{DD}=15V I_D=20A V_{GS}=10V R_G=1.5Ω
Rise Time		T_r	-	49	-		
Turn-off Delay Time		$T_{d(off)}$	-	35	-		
Fall Time		T_f	-	7.8	-		
Input Capacitance		C_{iss}	-	3075	-	pF	V_{GS}=0 V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	400	-		
Reverse Transfer Capacitance		C_{rss}	-	315	-		
Guaranteed Avalanche Characteristics							
Single Pulse Avalanche Energy [5]		E_{AS}	98	-	-	mJ	V_{DD}=25V, L=1mH, I_{AS}=14A
Source-Drain Diode							
Continuous Source Current [1,6]		I_S	-	-	110	A	
Pulsed Source Current [2,6]		I_{SM}	-	-	220	A	
Diode Forward Voltage [4]		V_{SD}	-	-	1	V	I_S=1A, V_{GS}=0

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. Pulse width limited by maximum junction temperature, Pulse Width≦300μs, Duty Cycle≦1%.
3. The E_{AS} data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=1mH, I_{AS}=25.2A.
4. Pulse Test: Pulse Width≦300μs, Duty Cycle≦2%.
5. The Min. value is 100% E_{AS} tested guarantee.
6. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

TYPICAL CHARACTERISTIC

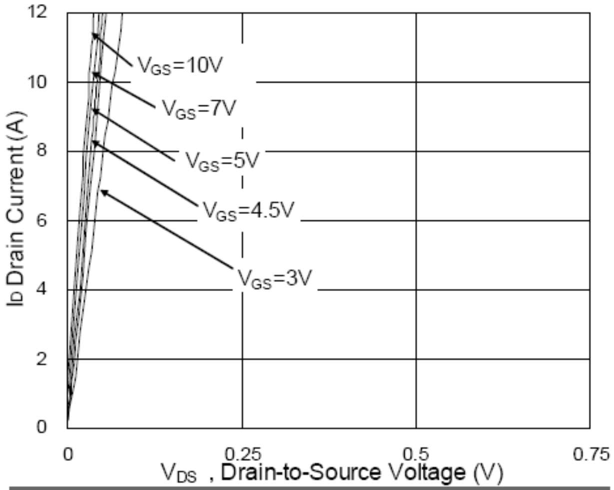


Fig.1 Typical Output Characteristics

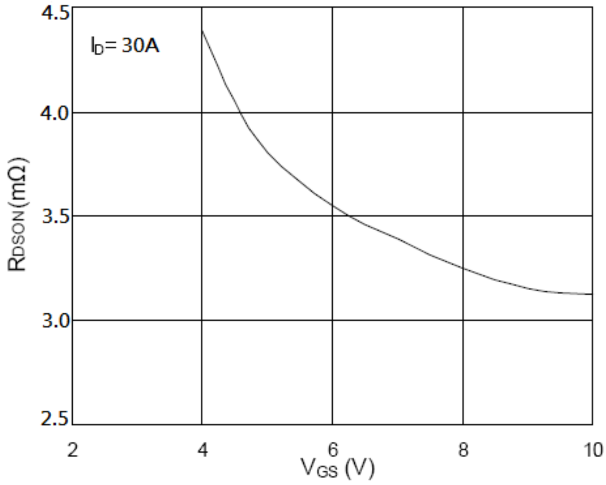


Fig.2 On-Resistance vs. G-S Voltage

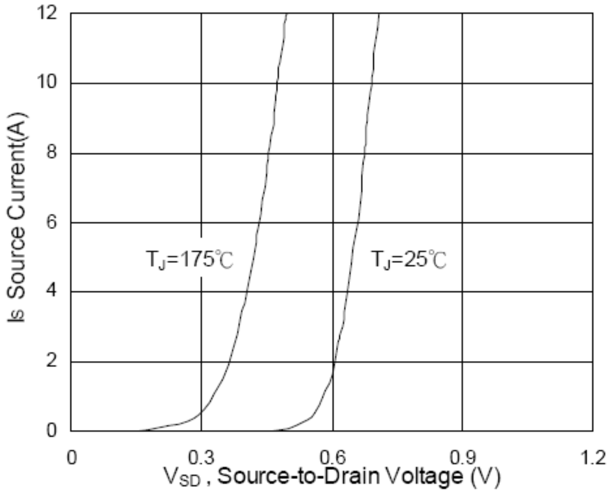


Fig.3 Forward Characteristics of Reverse

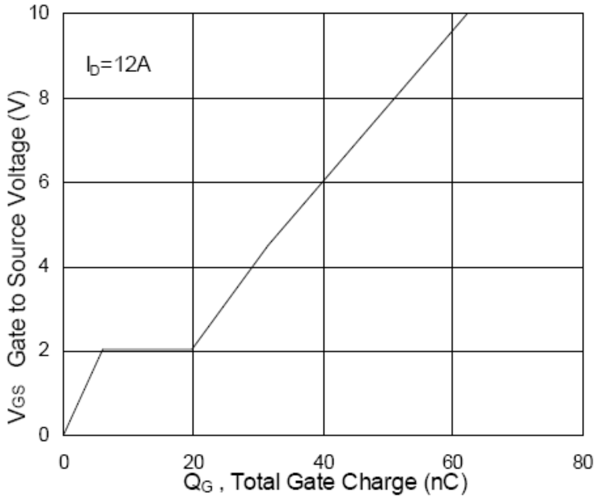


Fig.4 Gate-charge Characteristics

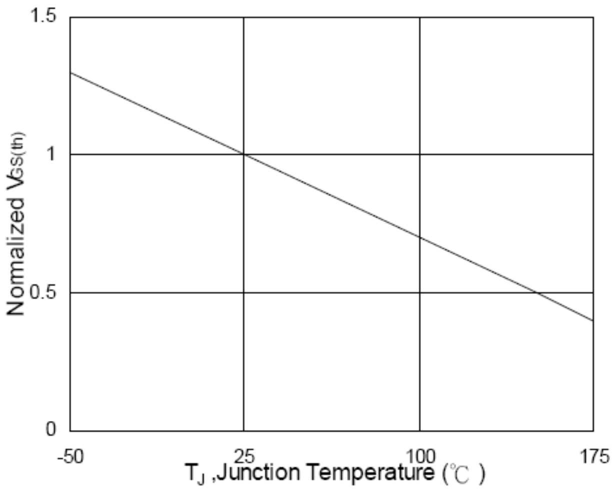


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

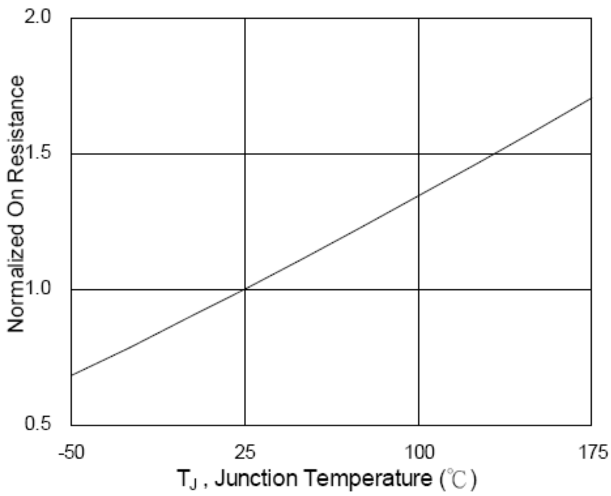


Fig.6 Normalized R_{DSON} vs. T_J

TYPICAL CHARACTERISTIC

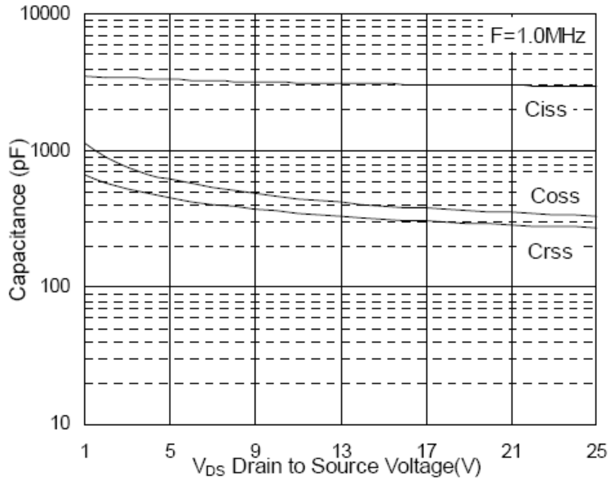


Fig.7 Capacitance

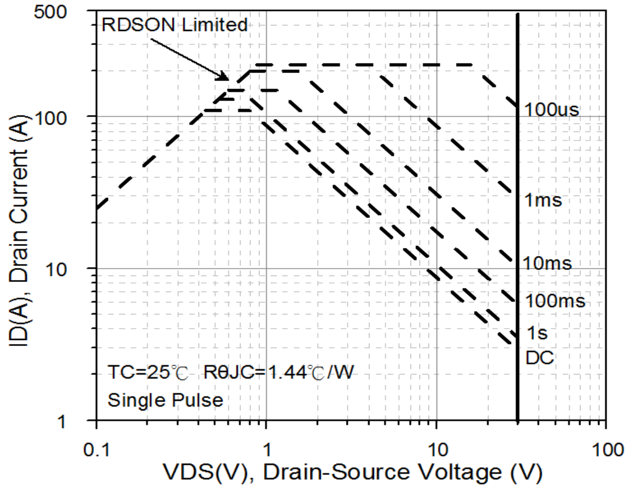


Fig.8 Safe Operating Area

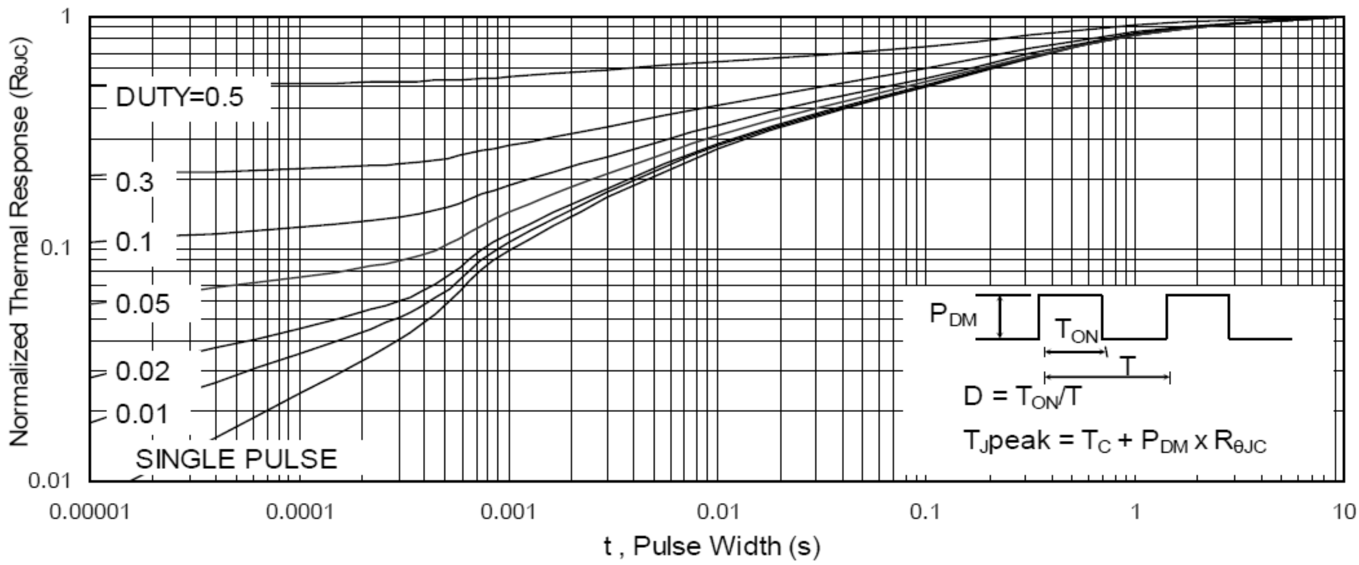


Fig.9 Normalized Maximum Transient Thermal Impedance

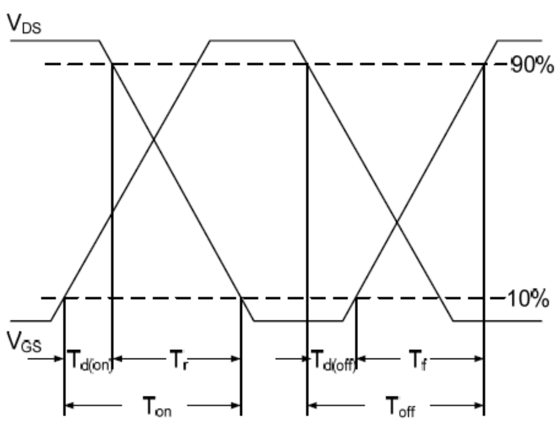


Fig.10 Switching Time Waveform

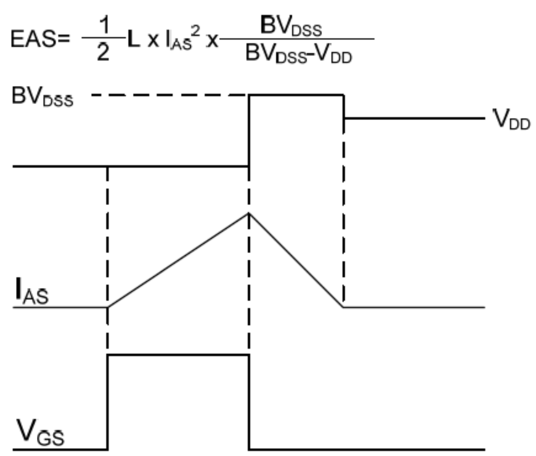


Fig.11 Unclamped Inductive Switching Waveform