SSD95N03-C

96A, 30V, $R_{DS(ON)}$ 4mΩ
N-Ch Enhancement Mode Power MOSFET

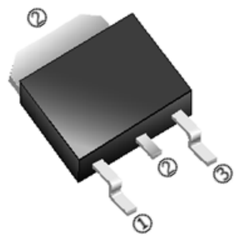
Elektronische Bauelemente

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

DESCRIPTION

The SSD95N03-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)

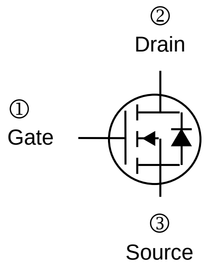


FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Excellent CdV/dt Effect Decline
- 100% EAS Guaranteed
- Green Device Available

MARKING

95N03
□□□□ ← □= Date Code



PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSD95N03-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Rating	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°C	I_D	96	A
	T_C=100°C		88	A
Pulsed Drain Current [2]		I_{DM}	192	A
Total Power Dissipation [4]	T_C=25°C	P_D	62.5	W
Linear Derating Factor			0.42	W/°C
Single Pulse Avalanche Energy [3]		E_{AS}	317	mJ
Single Pulse Avalanche Current		I_{AS}	53.8	A
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~175	°C
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{θJA}$	62	°C/W
Maximum Thermal Resistance Junction-Case [1]		$R_{θJC}$	2.4	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Breakdown Voltage Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	-	0.0213	-	V/°C	Reference to 25°C, I_D=1mA
Gate-Threshold Voltage		$V_{GS(th)}$	1.0	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	26.5	-	S	V_{DS}=5V, I_D=30A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
	T_J=55°C		-	-	5		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	3.4	4	mΩ	V_{GS}=10V, I_D=30A
			-	5.2	6		V_{GS}=4.5V, I_D=15A
Total Gate Charge		Q_g	-	31.6	-	nC	I_D=15A V_{DS}=15V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	8.6	-		
Gate-Drain ("Miller") Change		Q_{gd}	-	11.7	-		
Turn-on Delay Time		$T_{d(on)}$	-	9	-	nS	V_{DD}=15V I_D=15A V_{GS}=10V R_G=3.3Ω
Rise Time		T_r	-	19	-		
Turn-off Delay Time		$T_{d(off)}$	-	58	-		
Fall Time		T_f	-	15.2	-		
Input Capacitance		C_{iss}	-	3075	4000	pF	V_{GS}=0 V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	400	530		
Reverse Transfer Capacitance		C_{rss}	-	315	-		
Guaranteed Avalanche Characteristics							
Single Pulse Avalanche Energy [5]		EAS	98	-	-	mJ	V_{DD}=25V, L=0.1mH, I_{AS}=30A
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	1.2	V	I_S=30A, V_{GS}=0
Continuous Source Current [1 6]		I_S	-	-	96	A	V_D=V_G=0, Force Current
Pulsed Source Current [2 6]		I_{SM}	-	-	192	A	

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The data tested by pulsed, pulse width≦ 300μs, duty cycle≦ 2%.
3. The E_{AS} data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=53.8A.
4. The power dissipation is limited by 175°C junction temperature.
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.

CHARACTERISTIC CURVES

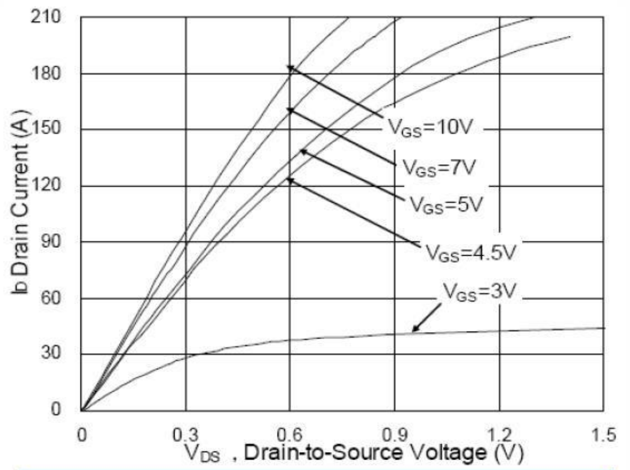


Fig.1 Typical Output Characteristics

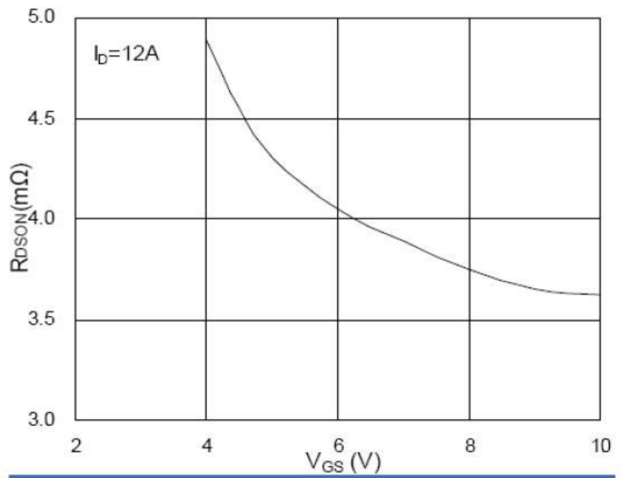


Fig.2 On-Resistance vs. G-S Voltage

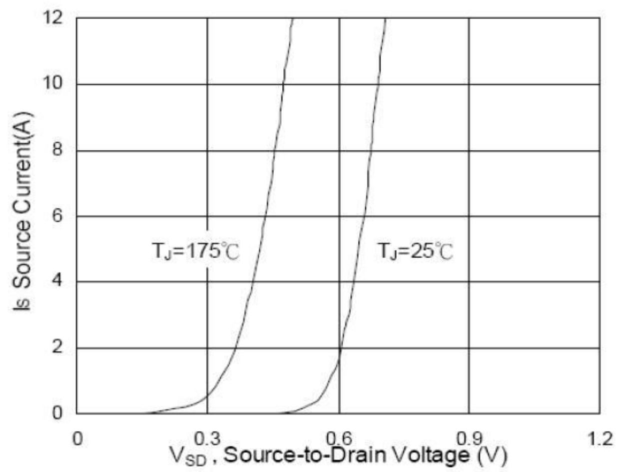


Fig.3 Forward Characteristics of Reverse

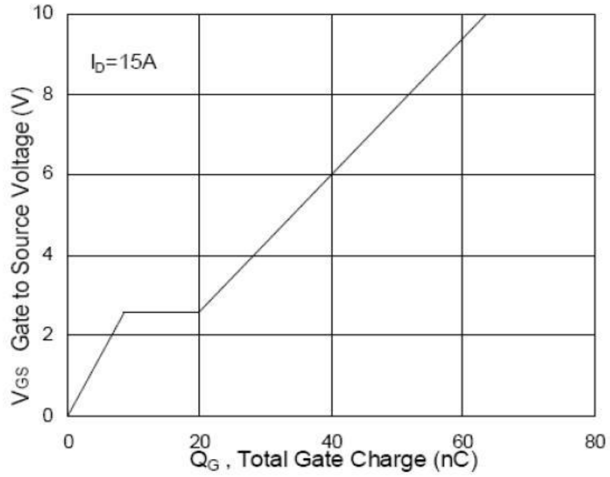


Fig.4 Gate-Charge Characteristics

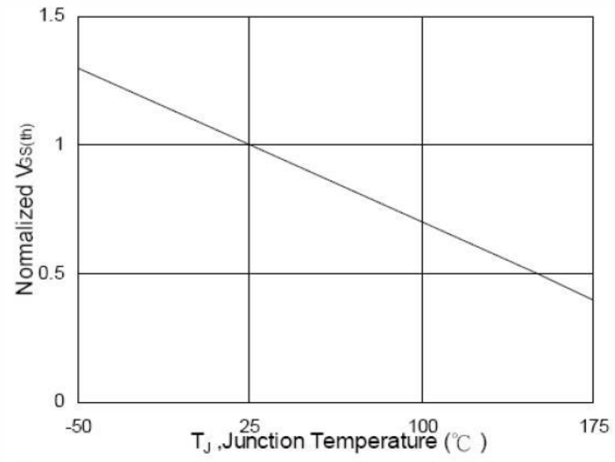


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

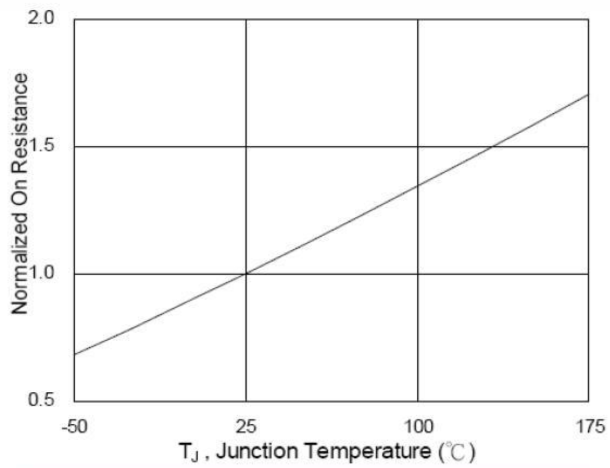


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

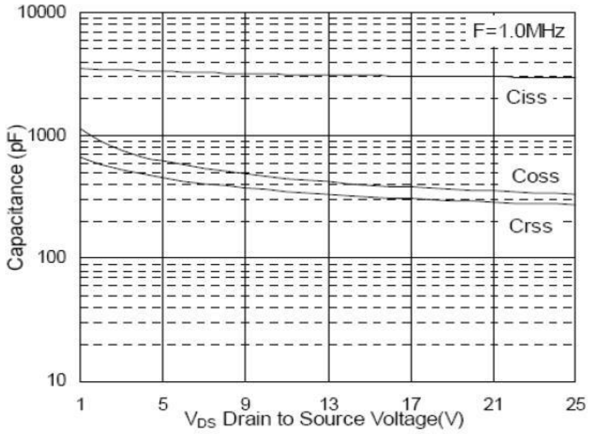


Fig.7 Capacitance

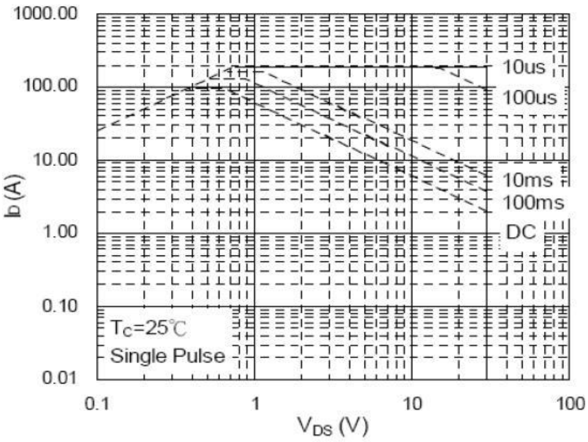


Fig.8 Safe Operating Area

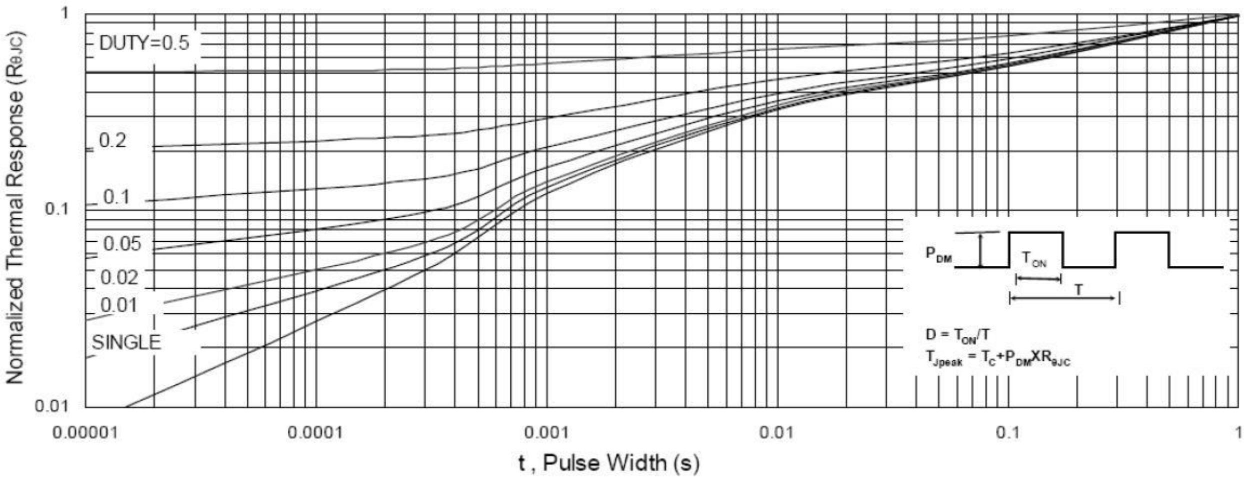


Fig.9 Normalized Maximum Transient Thermal Impedance

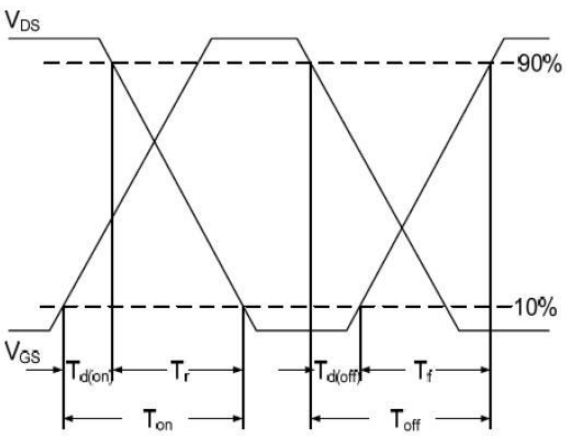


Fig.10 Switching Time Waveform

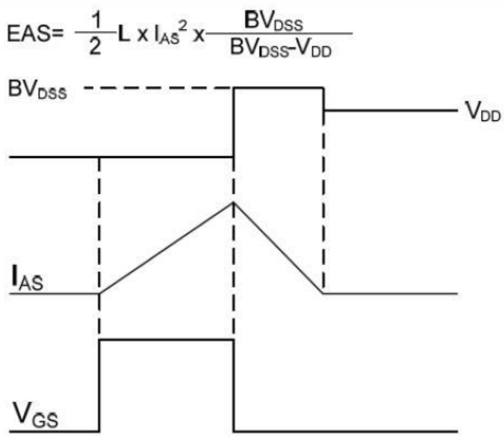
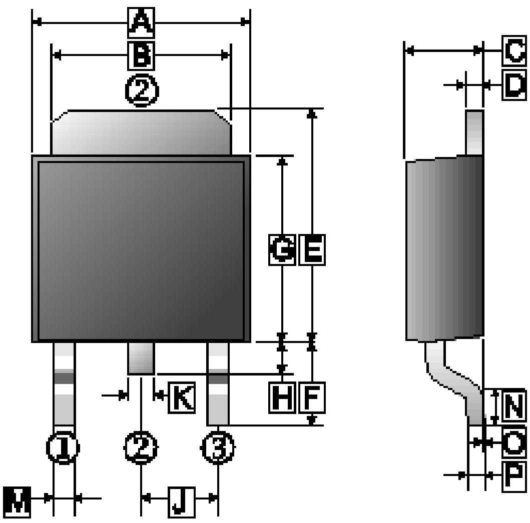


Fig.11 Unclamped Inductive Switching Wave

PACKAGE OUTLINE DIMENSIONS

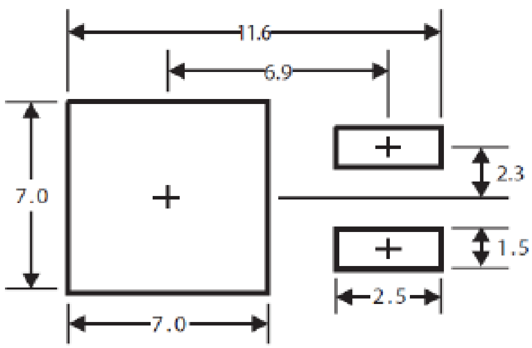
TO-252



REF.	Millimeter	
	Min.	Max.
A	6.30	6.90
B	4.95	5.53
C	2.10	2.50
D	0.40	0.90
E	6.00	7.70
F	2.90 REF.	
G	5.40	6.40
H	0.60	1.20
J	2.30 REF.	
K	0.89 REF.	
M	0.45	1.14
N	1.55 TYP.	
O	0	0.15
P	0.58 REF.	

MOUNTING PAD LAYOUT

TO-252



*Dimensions in millimeters