Elektronische Bauelemente

SSD40N10S-C

40A, 100V, $R_{DS(ON)}$ 20mΩ

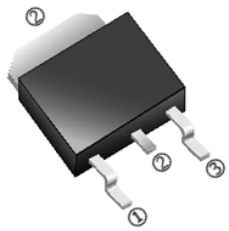
N-Channel Shielded Gate Trench Power MOSFET

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

DESCRIPTION

SSD40N10S-C use advanced SGT MOSFET technology to provide low $R_{DS(ON)}$, low gate charge, fast switching and excellent avalanche characteristics.

TO-252(D-Pack)



FEATURES

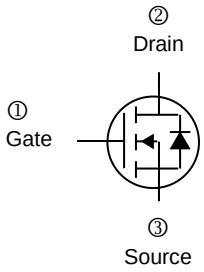
- Extremely Low Switching Loss
- Excellent Stability and Uniformity or Invertors

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSD40N10S-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS (T_J=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 [1]	T_C=25℃	I_D	40	A
Pulsed Drain Current [2]	T_C=25℃	I_{DM}	120	A
Power Dissipation [3]	T_C=25℃	P_D	72	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient		$R_{\theta JA}$	62	℃/W
Thermal Resistance Junction-Case		$R_{\theta JC}$	1.74	

Notes:

1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating：pulse width limited by max. junction temperature.
3. Pd is based on max. junction temperature, using junction-case thermal resistance.

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, V_{DS}=0V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=100V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	20	mΩ	V_{GS}=10V, I_D=8A
		-	-	26		V_{GS}=4.5V, I_D=6A
Total Gate Charge	Q_g	-	19.8	-	nC	V_{DS}=50V V_{GS}=10V I_D=8A
Gate-Source Charge	Q_{gs}	-	2.4	-		
Gate-Drain Change	Q_{gd}	-	5.3	-		
Turn-on Delay Time	$T_{d(on)}$	-	17.8	-	nS	V_{DS}=50V V_{GS}=10V I_D=10A R_G=2.2Ω
Rise Time	T_r	-	3.9	-		
Turn-off Delay Time	$T_{d(off)}$	-	33.5	-		
Fall Time	T_f	-	3.2	-		
Input Capacitance	C_{iss}	-	1190.6	-	pF	V_{DS}=50V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	194.6	-		
Reverse Transfer Capacitance	C_{rss}	-	4.1	-		
Source-Drain Diode						
Continuous Source Current	I_S	-	-	40	A	V_G=V_D=0, Force Current
Pulsed Source Current	I_{SM}	-	-	120		
Diode Forward Voltage	V_{SD}	-	-	1.3	V	I_S=8A, V_{GS}=0
Reverse Recovery Time	T_{rr}	-	50.2	-	nS	I_S=8A, di/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	95.1	-	nC	

CHARACTERISTIC CURVES

Fig 1: Typ. Output Characteristics

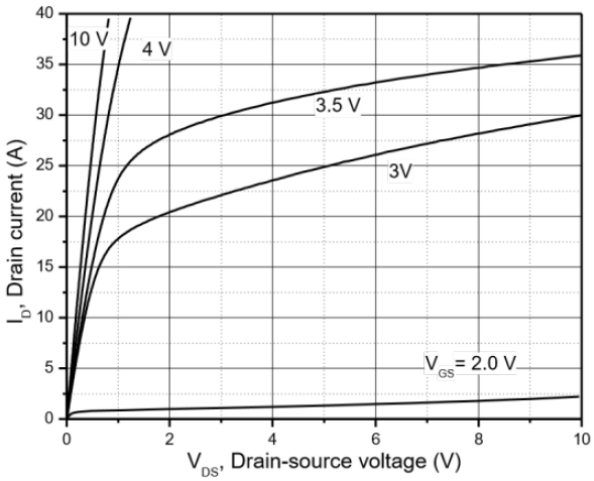


Fig 2: Typ. Transfer Characteristics

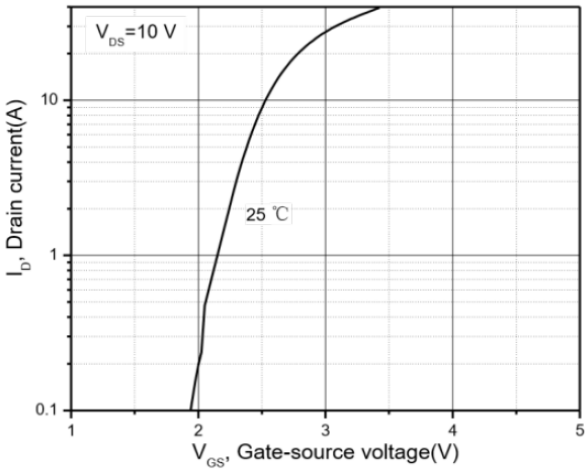


Fig 3: Typ. Capacitances

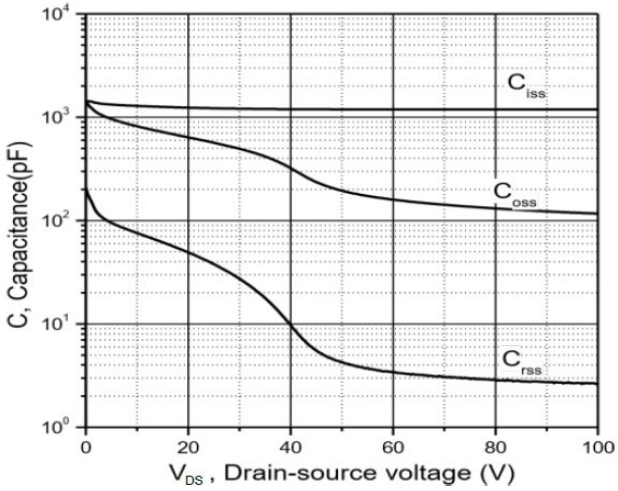


Fig 4: Typ. Gate Charge

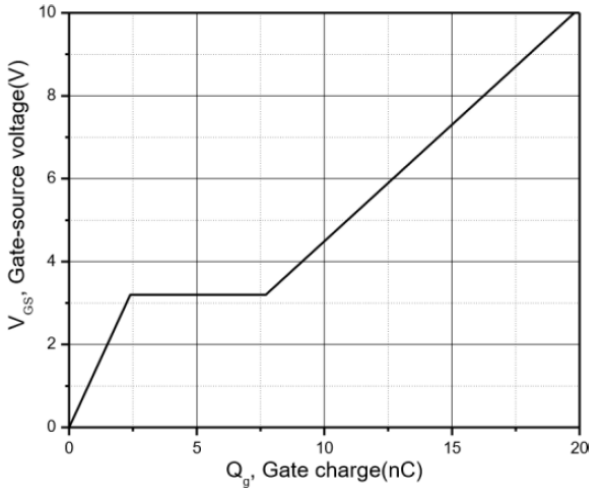


Fig 5: Drain-Source Breakdown Voltage

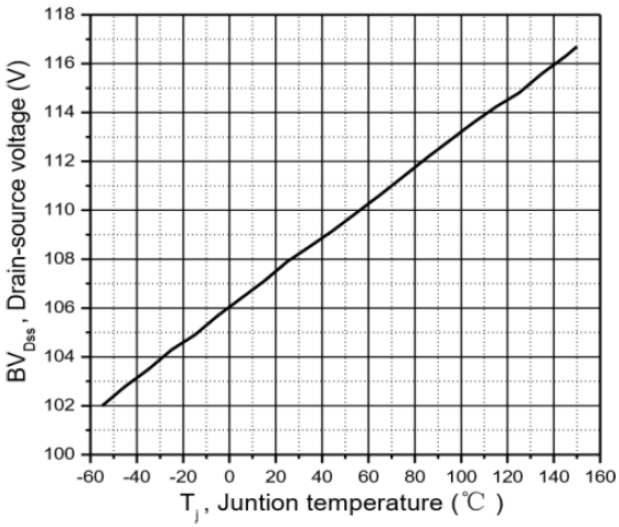
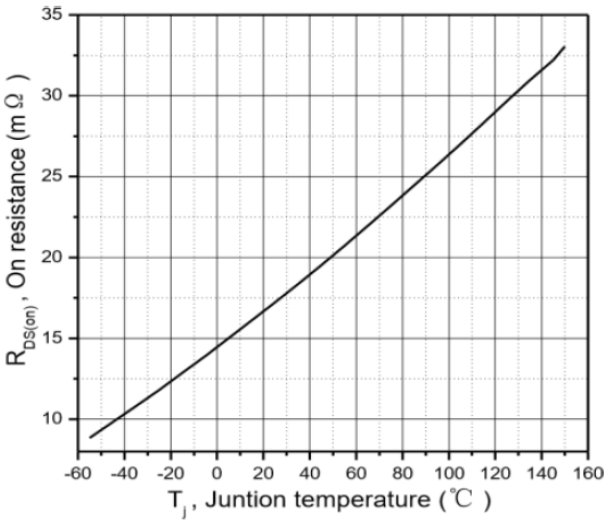


Fig 6: Drain-Source On-State Resistance



CHARACTERISTIC CURVES

Fig 7: Forward Characteristic of Body Diode

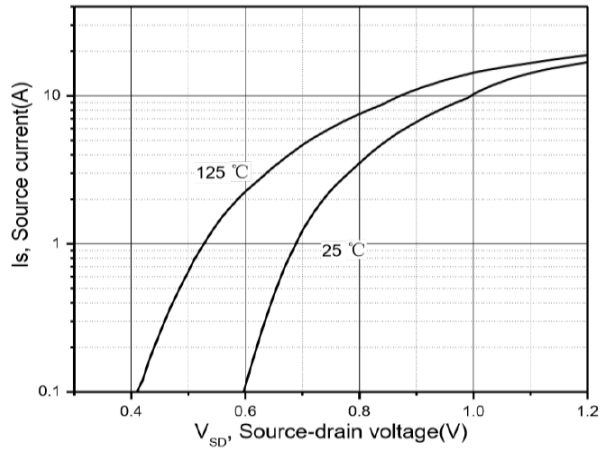


Fig 8: Drain-Source On-Resistance

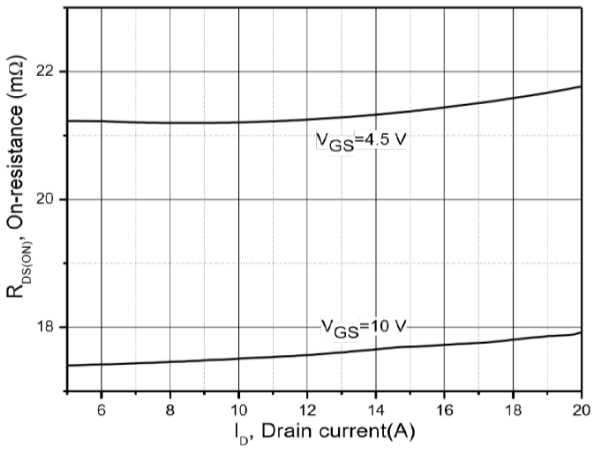
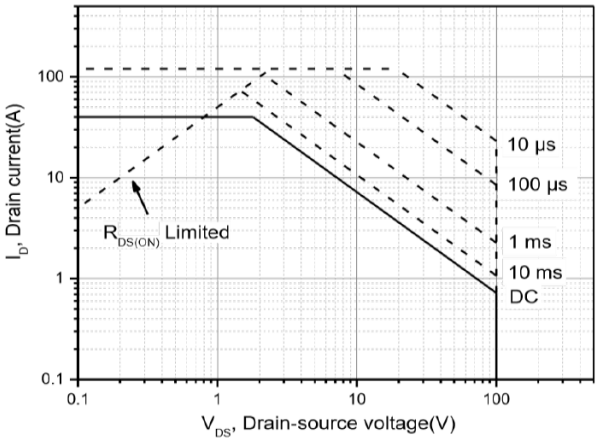
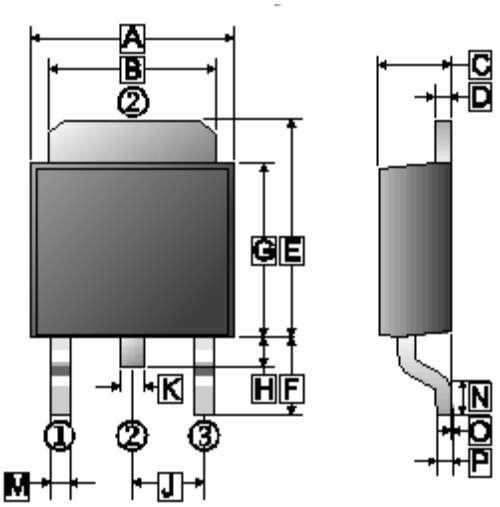


Fig 9: Safe Operation Area T_C=25℃



PACKAGE OUTLINE DIMENSIONS

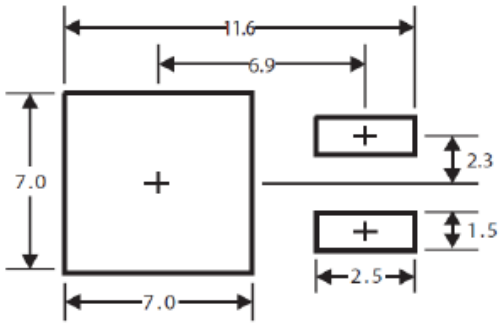
TO-252



REF.	Millimeter	
	Min.	Max.
A	6.30	6.90
B	4.95	5.53
C	2.10	2.50
D	0.35	0.90
E	6.00	7.70
F	2.90 REF.	
G	5.30	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