

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

## DESCRIPTION

The SSE80N06-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 SSE80N06-C meet the RoHS and Green Product requirement with full function reliability approved.

## FEATURES

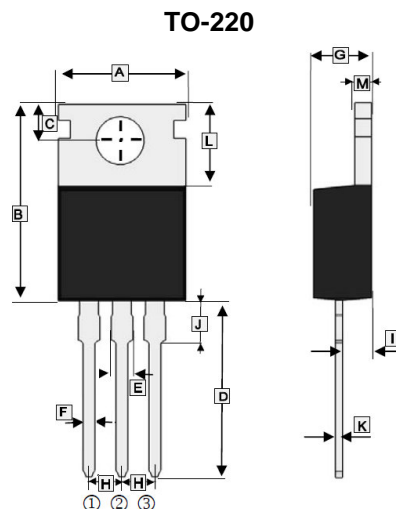
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Green Device Available

## MARKING

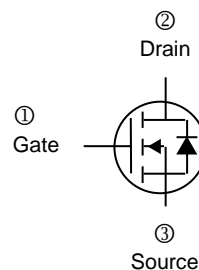


## ORDER INFORMATION

Part Number	Type
SSE80N06-C	Lead (Pb)-free and Halogen-free



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	9.70	10.60	H	2.54 TYP.	
B	14.22	16.5	I	2.03	2.92
C	2.54	3.40	J	2.70	3.30
D	12.7	14.7	K	0.33	0.65
E	1.17	1.78	L	5.5	7
F	0.4	1.00	M	1.20	1.40
G	3.60	4.82			



## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup> @ $V_{GS}=10\text{V}$	$T_C=25^\circ\text{C}$	80	A
	$T_C=100^\circ\text{C}$	55	
Pulsed Drain Current <sup>4</sup>	$I_{DM}$	300	A
Power Dissipation <sup>3</sup>	$P_D$	113.6	W
Operating Junction & Storage Temperature	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
<b>Thermal Resistance Rating</b>			
Thermal Resistance Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	62	$^\circ\text{C/W}$
Thermal Resistance Junction-Case <sup>1</sup>	$R_{\theta JC}$	1.1	

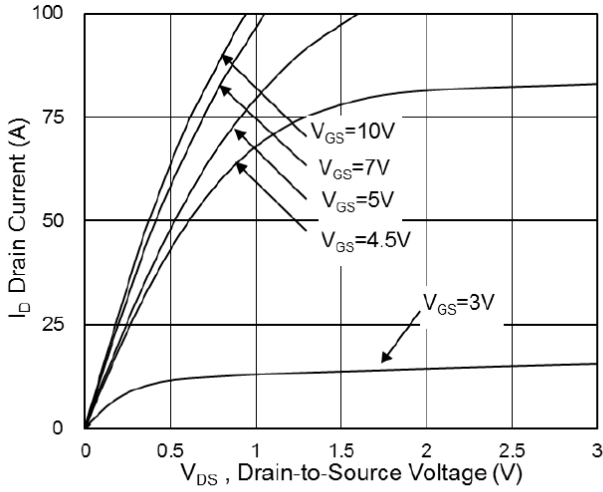
**ELECTRICAL CHARACTERISTICS** ( $T_J=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	$V_{GS}=0V, I_D=250\mu A$	
Gate-Threshold Voltage	$V_{GS(th)}$	2	-	4.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$	
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20V$	
Drain-Source Leakage Current	$I_{DSS}$	$T_J=25^\circ\text{C}$	-	-	1	$\mu A$	$V_{DS}=48V, V_{GS}=0V$
		$T_J=55^\circ\text{C}$	-	-	5		$V_{DS}=48V, V_{GS}=0V$
Static Drain-Source On-Resistance <sup>2</sup>	$R_{DS(ON)}$	-	7.1	8.5	m $\Omega$	$V_{GS}=10V, I_D=20A$	
Total Gate Charge	$Q_g$	-	57	-	nC	$I_D=18A$ $V_{DS}=30V$ $V_{GS}=10V$	
Gate-Source Charge	$Q_{gs}$	-	8.7	-			
Gate-Drain Charge	$Q_{gd}$	-	14	-			
Turn-on Delay Time	$T_{d(on)}$	-	16.2	-	nS	$V_{DD}=30V$ $I_D=20A$ $V_{GS}=10V$ $R_G=3.3\Omega$	
Rise Time	$T_r$	-	41.2	-			
Turn-off Delay Time	$T_{d(off)}$	-	56.4	-			
Fall Time	$T_f$	-	16.2	-			
Input Capacitance	$C_{iss}$	-	3307	-	pF	$V_{GS}=0V$ $V_{DS}=30V$ $f=1\text{MHz}$	
Output Capacitance	$C_{oss}$	-	201	-			
Reverse Transfer Capacitance	$C_{rss}$	-	151	-			
<b>Source-Drain Diode</b>							
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	-	-	1.2	V	$I_S=1A, V_{GS}=0V$	
Continuous Source Current <sup>1</sup>	$I_S$	-	-	80	A	$V_{DS}=V_{GS}=0V, \text{Force Current}$	
Reverse Recovery Time	$T_{rr}$	-	22	-	ns	$I_F=20A, di/dt=100A/\mu s,$	
Reverse Recovery Charge	$Q_{rr}$	-	72	-	nC	$T_J=25^\circ\text{C}$	

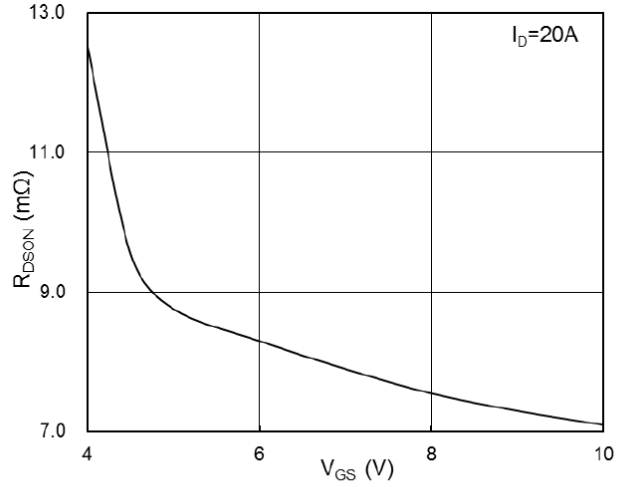
Notes:

1. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width $\leq 300\mu s$ , Duty Cycle $\leq 2\%$ .
3. The power dissipation is limited by 150 $^\circ\text{C}$  junction temperature.
4. Pulse width limited by maximum junction temperature, pulse width $\leq 10\mu s$ , duty cycle $\leq 2\%$ .

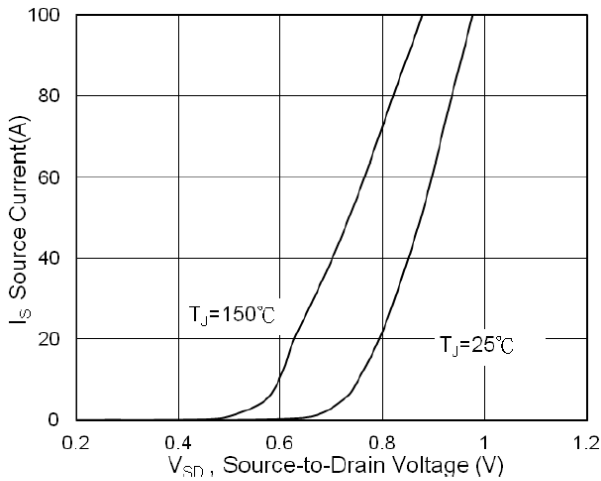
**CHARACTERISTIC CURVES**



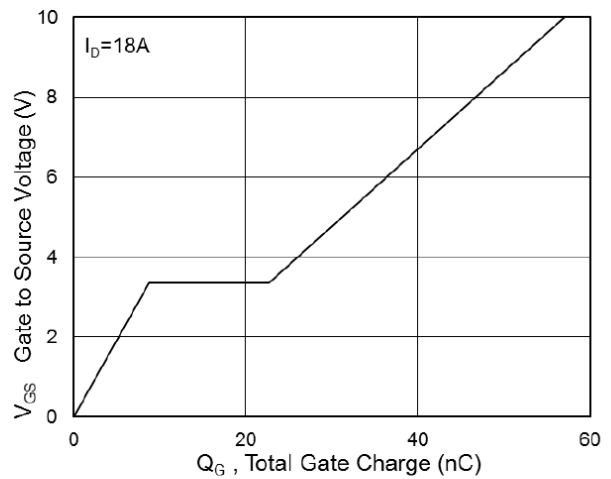
**Fig.1 Typical Output Characteristics**



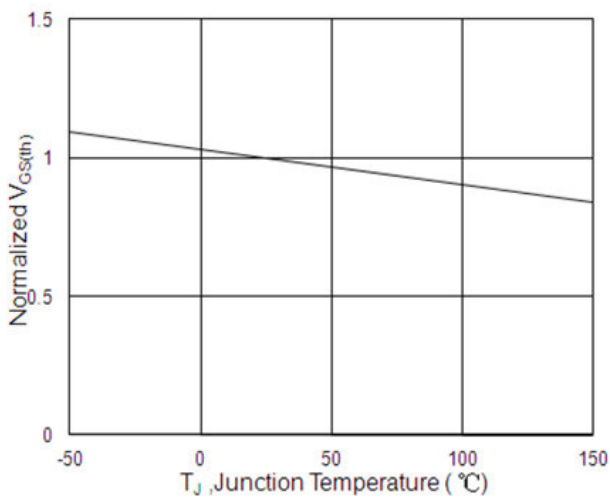
**Fig.2 On-Resistance vs G-S Voltage**



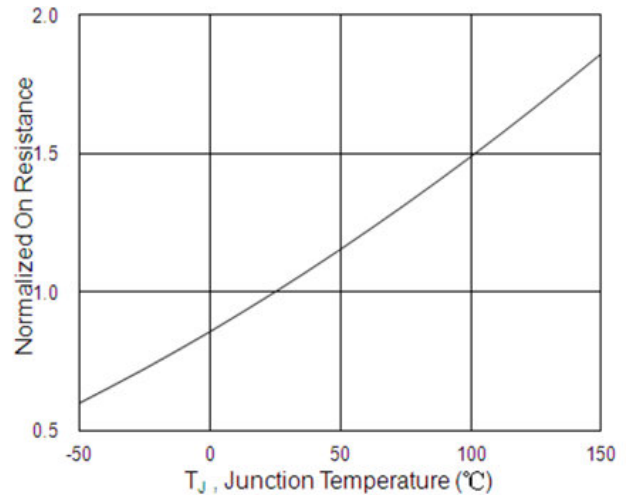
**Fig.3 Source Drain Forward Characteristics**



**Fig.4 Gate-Charge Characteristics**

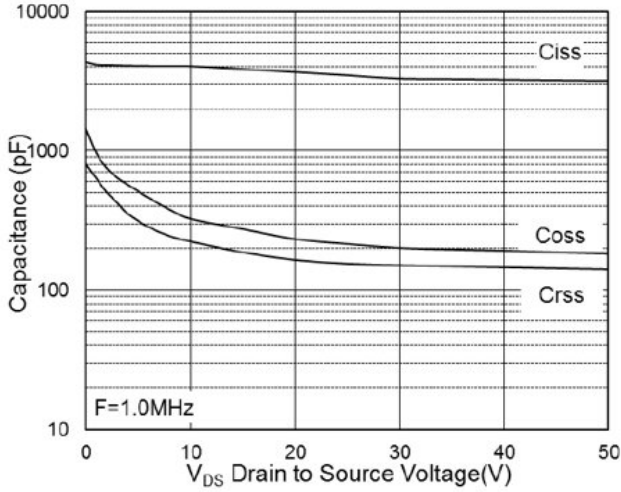


**Fig.5 Normalized  $V_{GS(th)}$  vs  $T_J$**

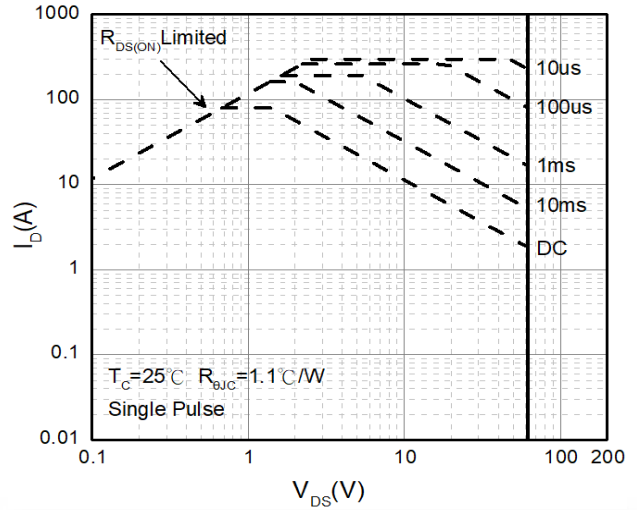


**Fig.6 Normalized  $R_{DS(ON)}$  vs  $T_J$**

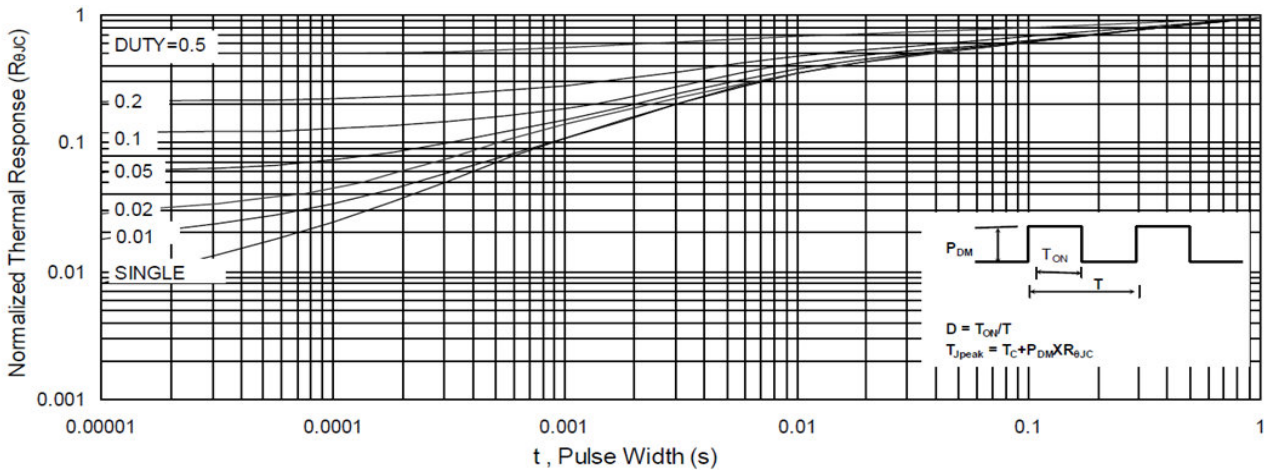
**CHARACTERISTIC CURVES**



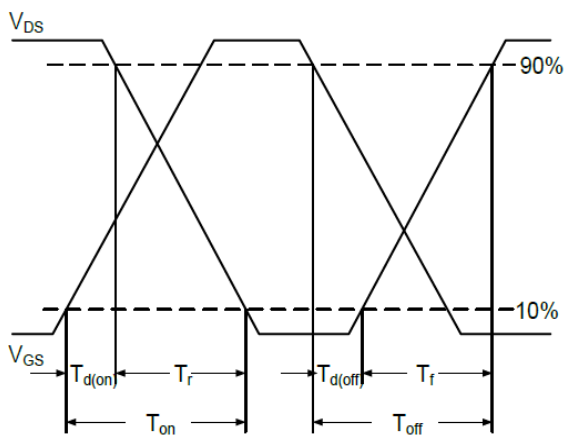
**Fig.7 Capacitance**



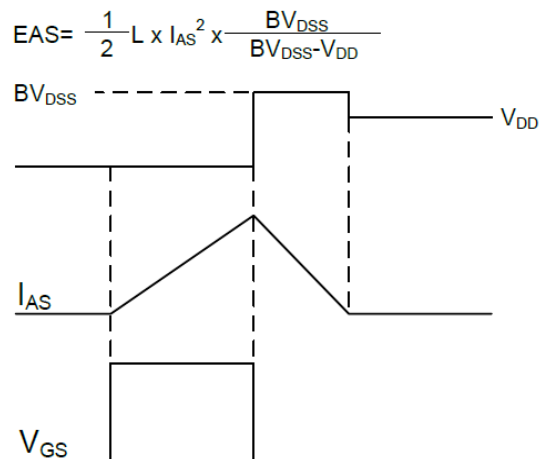
**Fig.8 Safe Operating Area**



**Fig.9 Normalized Maximum Transient Thermal Impedance**



**Fig.10 Switching Time Waveform**



**Fig.11 Unclamped Inductive Switching Waveform**