Elektronische Bauelemente

SSE45N06-C

45A, 60V, $R_{DS(ON)}$ 20mΩ
N-Ch Enhancement Mode Power MOSFET

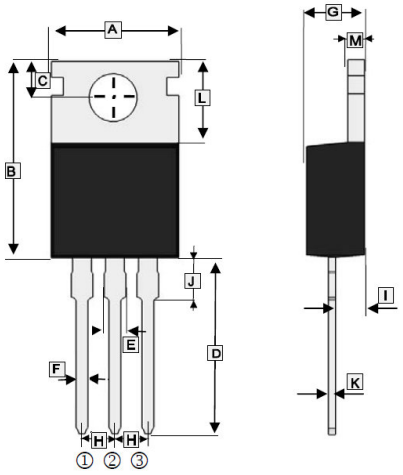
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSE45N06-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 SSE45N06-C meet the RoHS and Green Product requirement with full function reliability approved.

TO-220



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			

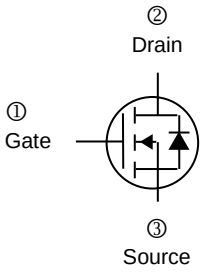
FEATURES

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

MARKING

ORDER INFORMATION

Part Number	Type
SSE45N06-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}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	45	A
	T_C=100℃		29	
Pulsed Drain Current [2]		I_{DM}	100	A
Power Dissipation [3]	T_C=25℃	P_D	74	W
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	1.68	

ELECTRICAL CHARACTERISTICS (T_J=25℃ 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=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	25	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=48V, V_{GS}=0V
	T_J=55℃		-	-	5		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	20	mΩ	V_{GS}=10V, I_D=20A
			-	-	26		V_{GS}=4.5V, I_D=10A
Total Gate Charge		Q_g	-	19.3	-	nC	I_D=15A V_{DS}=48V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	7.1	-		
Gate-Drain Change		Q_{gd}	-	7.6	-		
Turn-on Delay Time		$T_{d(on)}$	-	7.2	-	nS	V_{DD}=30V I_D=15A V_{GS}=10V R_G=3.3Ω
Rise Time		T_r	-	50	-		
Turn-off Delay Time		$T_{d(off)}$	-	36.4	-		
Fall Time		T_f	-	7.6	-		
Input Capacitance		C_{iss}	-	2423	-	pF	V_{GS}=0V V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	145	-		
Reverse Transfer Capacitance		C_{rss}	-	97	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	1	V	I_S=1A, V_{GS}=0V, T_J=25℃
Continuous Source Current [1 4]		I_S	-	-	45	A	V_{DS}=V_{GS}=0V, Force Current
Reverse Recovery Time		T_{rr}	-	16.3	-	ns	I_F=15A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge		Q_{rr}	-	11	-	nC	

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 power dissipation is limited by 150℃ juncti on temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

CHARACTERISTIC CURVES

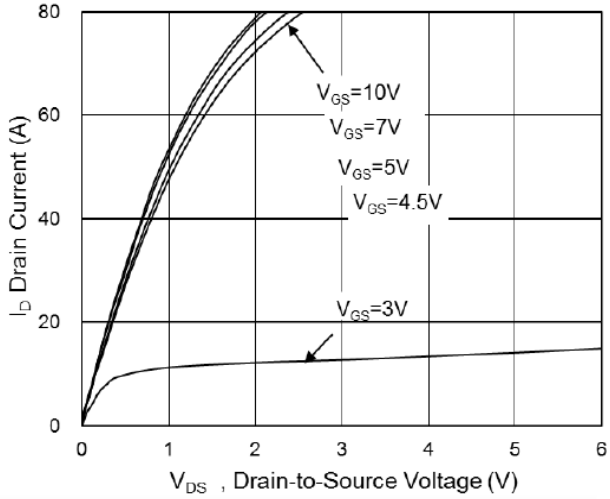


Fig.1 Typical Output Characteristics

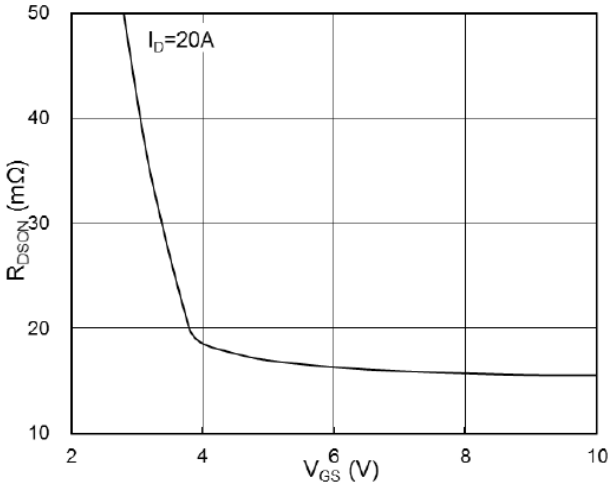


Fig.2 On-Resistance vs Gate-Source Voltage

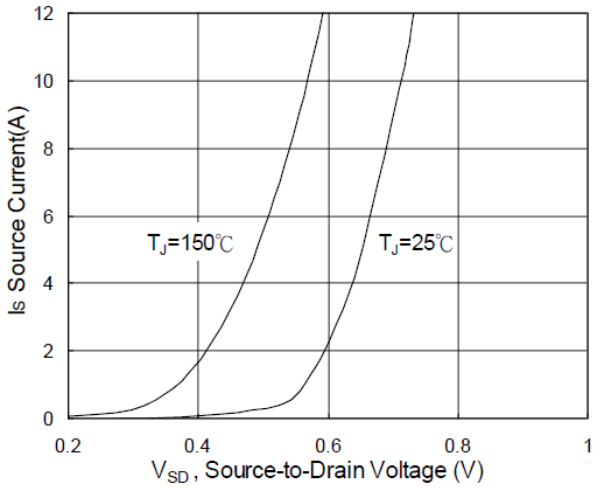


Fig.3 Forward Characteristics of Reverse

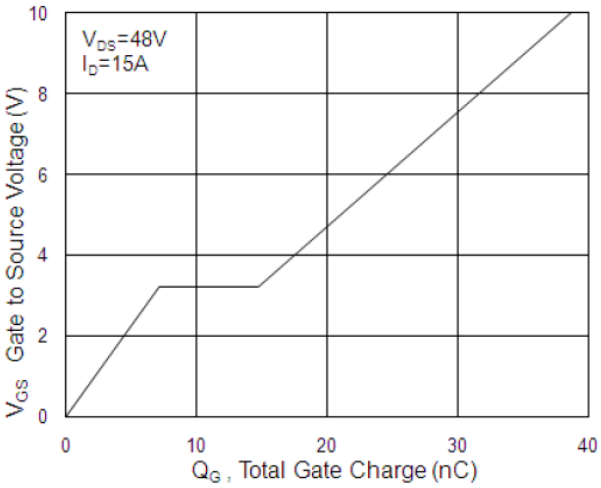


Fig.4 Gate-Charge Characteristics

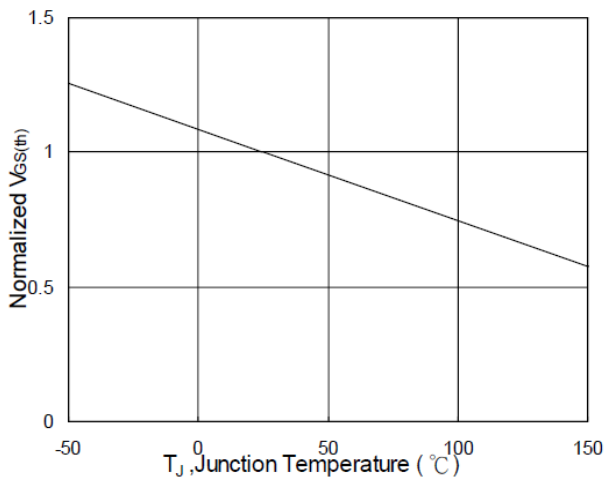


Fig.5 Normalized $V_{GS(th)}$ vs T_J

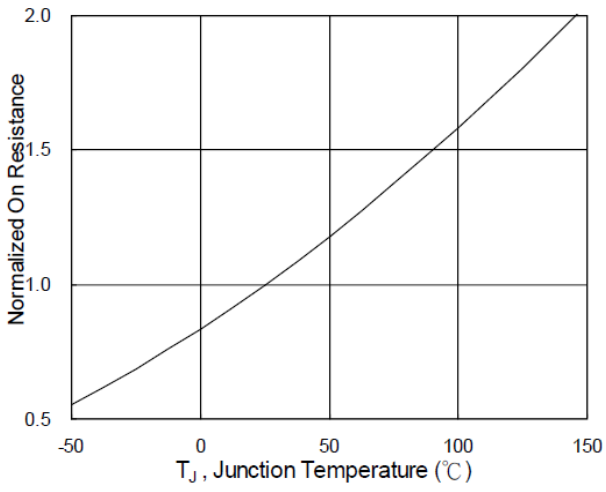


Fig.6 Normalized R_{DSON} vs T_J

CHARACTERISTIC CURVES

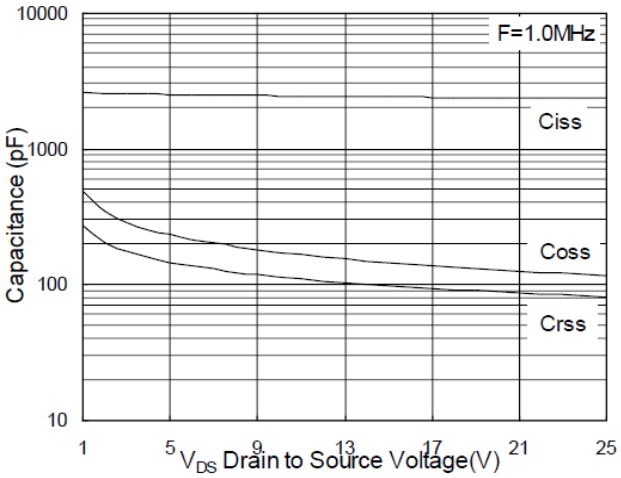


Fig.7 Capacitance

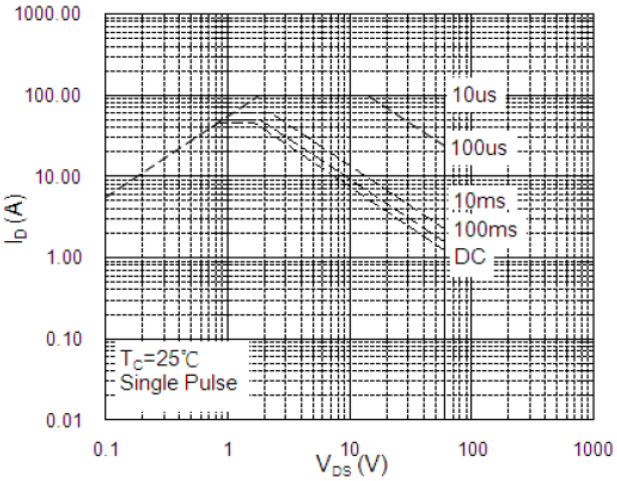


Fig.8 Safe Operating Area

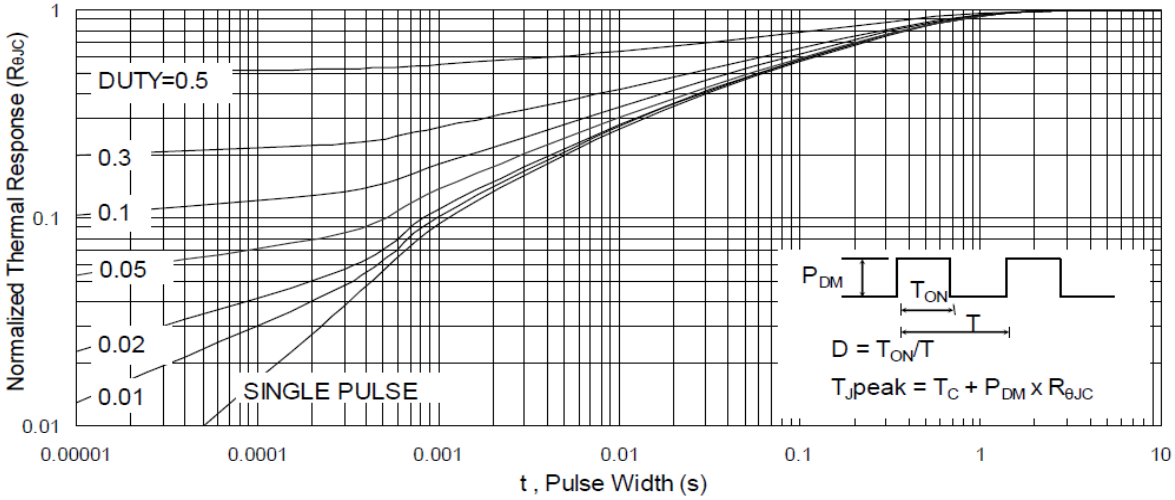


Fig.9 Normalized Maximum Transient Thermal Impedance

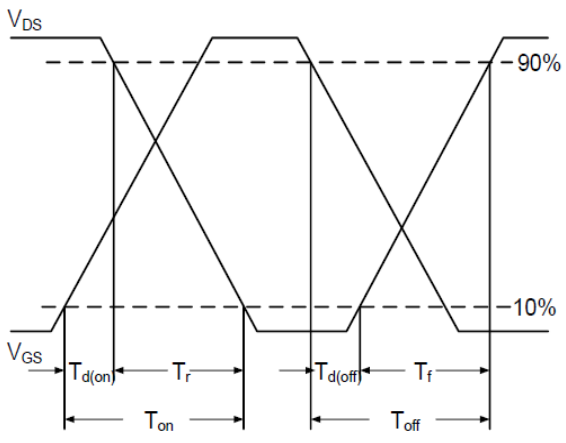


Fig.10 Switching Time Waveform

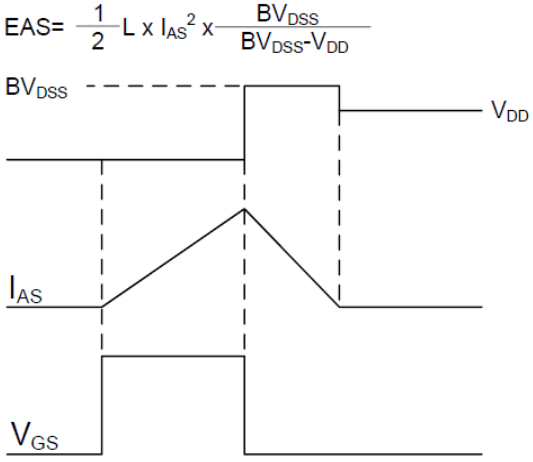


Fig.11 Unclamped Inductive Switching Waveform