

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

DESCRIPTION

The SSG10N10 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 .

FEATURES

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

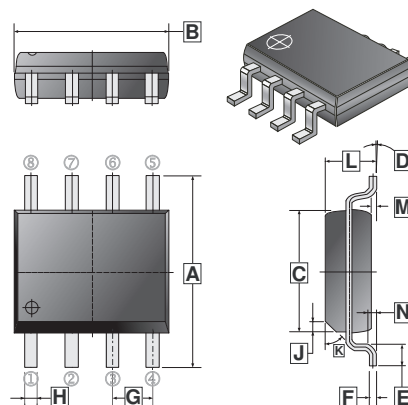
MARKING



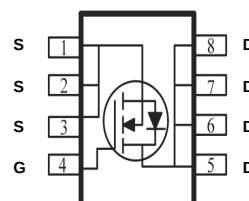
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	3K	13 inch

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ 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	$T_A=25^\circ\text{C}$	I_D	10	A
	$T_A=70^\circ\text{C}$		7.5	A
Pulsed Drain Current ²		I_{DM}	50	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$ ⁴		P_D	1.6	W
Single Pulse Avalanche Energy ³		E_{AS}	98	mJ
Single Pulse Avalanche Current		I_{AS}	41	A
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient ¹		$R_{\theta JA}$	80	$^\circ\text{C} / \text{W}$

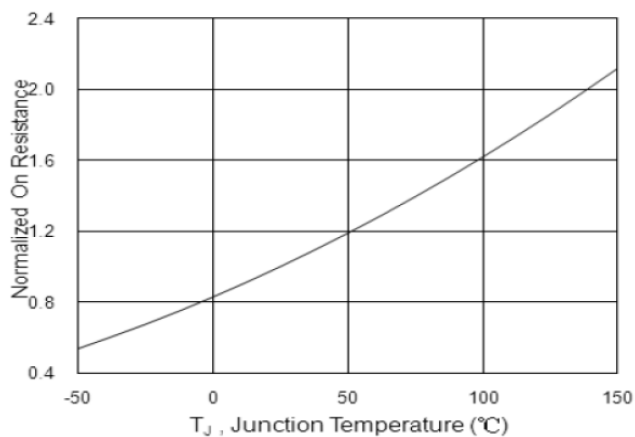
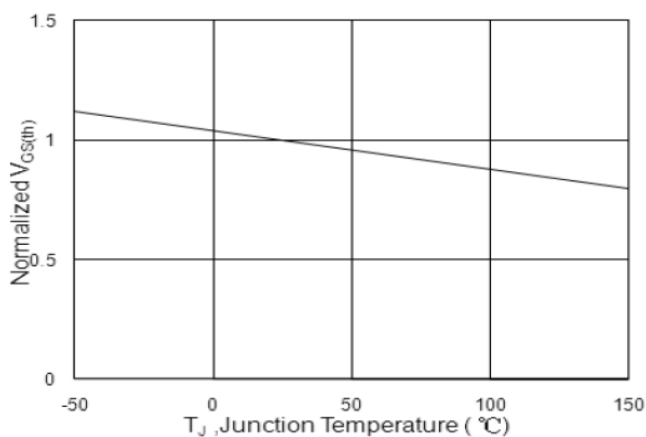
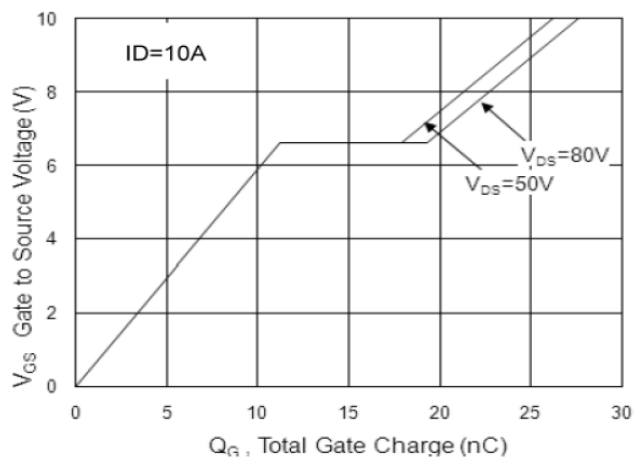
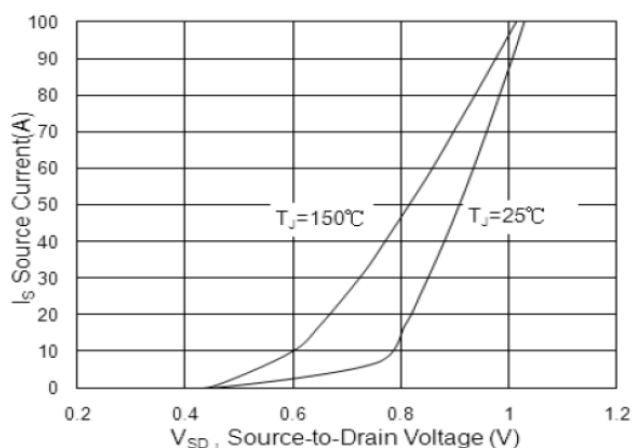
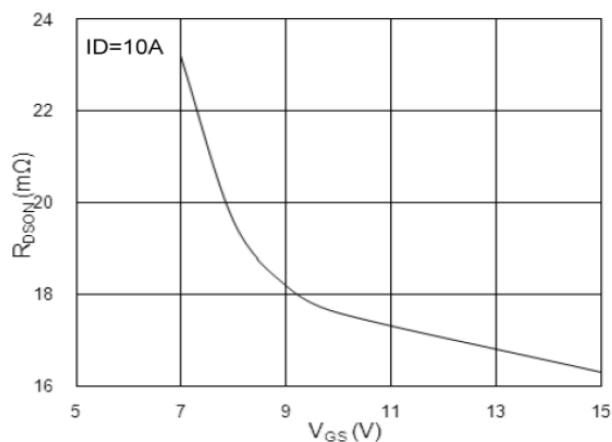
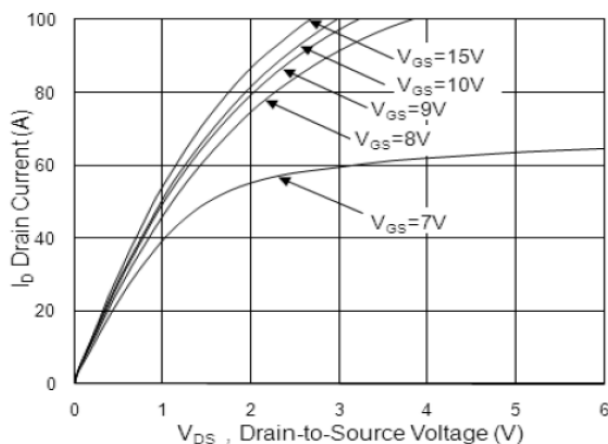
ELECTRICAL CHARACTERISTICS ($T_J=25^\circ C$ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static							
Drain-Source Breakdown Voltage		BV _{DSS}	100	-	-	V	V _{GS} =0, I _D = 250μA
Gate-Threshold Voltage		V _{GS(th)}	2.5	-	4.5	V	V _{DS} =V _{GS} , I _D =250μA
Gate-Source Leakage Current		I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-Source Leakage Current	T _J =25℃	I _{DSS}	-	-	1	μA	V _{DS} =80V, V _{GS} =0
	T _J =55℃		-	-	5		V _{DS} =80V, V _{GS} =0
Static Drain-Source On-Resistance ²		R _{DS(ON)}	-	-	21	mΩ	V _{GS} =10V, I _D =10A
			-	-	30		V _{GS} =7V, I _D =6A
Total Gate Charge ²		Q _g	-	27.6	-	nC	I _D =7A V _{DS} =80V V _{GS} =10V
Gate-Source Charge		Q _{gs}	-	11.4	-		
Gate-Drain (“Miller”) Change		Q _{gd}	-	7.9	-		
Turn-on Delay Time ²		T _{d(on)}	-	15.6	-	nS	V _{DS} =50V I _D =7A V _{GS} =10V R _L =3.3 Ω
Rise Time		T _r	-	17.2	-		
Turn-off Delay Time		T _{d(off)}	-	16.8	-		
Fall Time		T _f	-	9.2	-		
Input Capacitance		C _{iss}	-	1890	-	pF	V _{GS} =0 V _{DS} =15V f =1.0MHz
Output Capacitance		C _{oss}	-	268	-		
Reverse Transfer Capacitance		C _{rss}	-	67	-		
Guaranteed Avalanche Characteristics							
Single Pulse Avalanche Energy ⁵		EAS	53	-	-	mJ	V _{DD} =25V, L=0.1mH, I _{AS} =30A
Source-Drain Diode							
Diode Forward Voltage ²		V _{SD}	-	-	1.2	V	I _S =1A, V _{GS} =0, T _J =25℃
Continuous Source Current ^{1,6}		I _S	-	-	10	A	V _D =V _G =0, Force Current
Pulsed Source Current ^{2,6}		I _{SM}	-	-	50	A	
Reverse Recovery Time		T _{rr}	-	34	-	nS	I _F =7A, dI/dt=100A/μs ,
Reverse Recovery Charge		Q _{rr}	-	47	-	nC	T _J =25℃

Notes:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2_{oz} copper. 125°C/W when mounted on Min. copper pad.
- The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- The EAS data shows Max. rating . The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=41A$
- The power dissipation is limited by 150°C, junction temperature
- The Min. value is 100% EAS tested guarantee.
- The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

CHARACTERISTIC CURVES



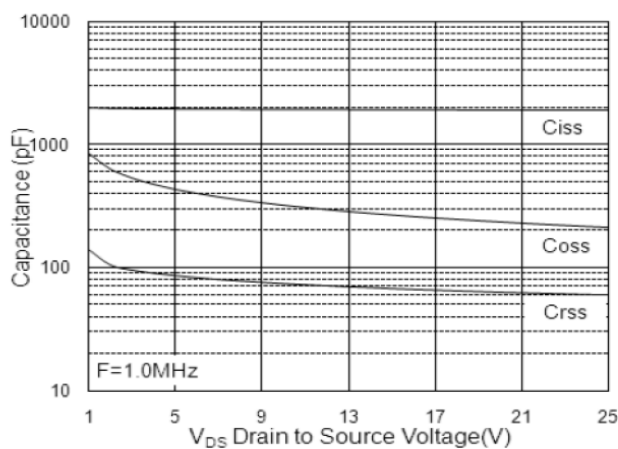


Fig.7 Capacitance

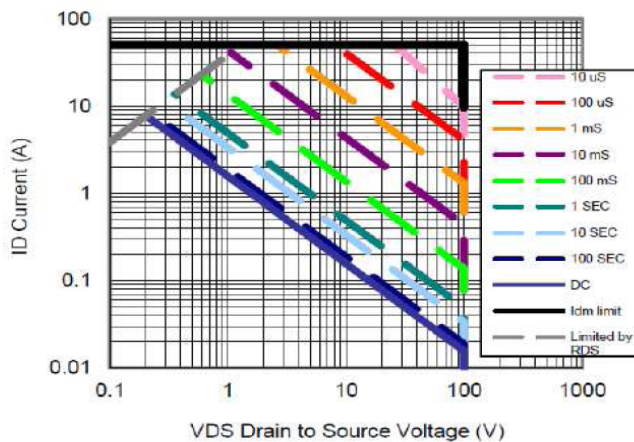


Fig.8 Safe Operating Area

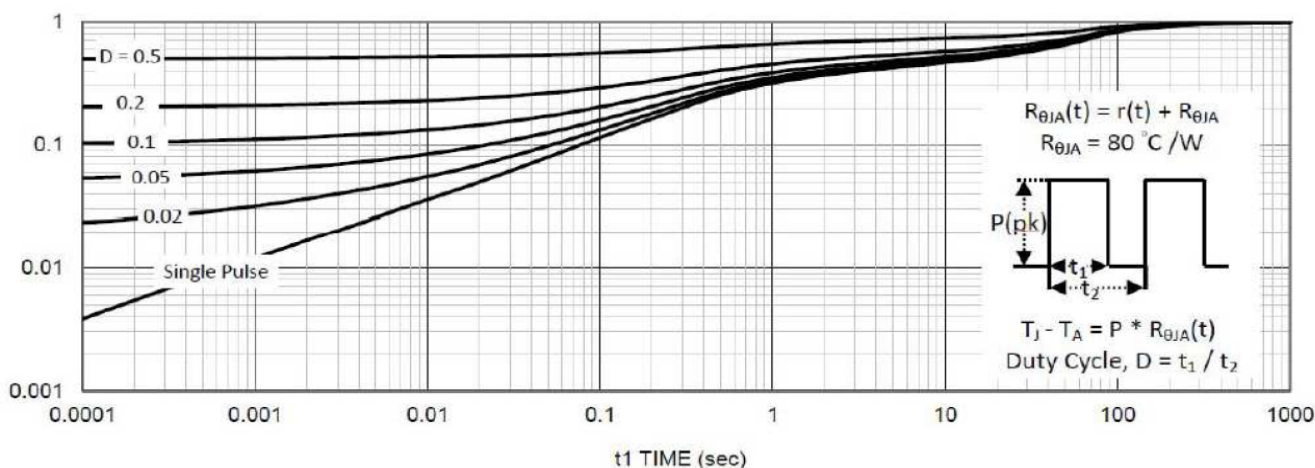


Fig.9 Normalized Maximum Transient Thermal Impedance

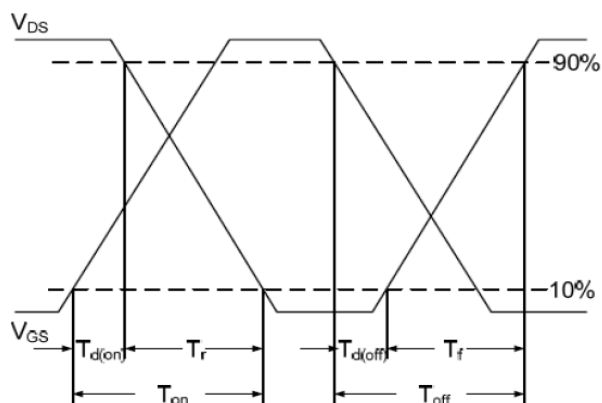


Fig.10 Switching Time Waveform

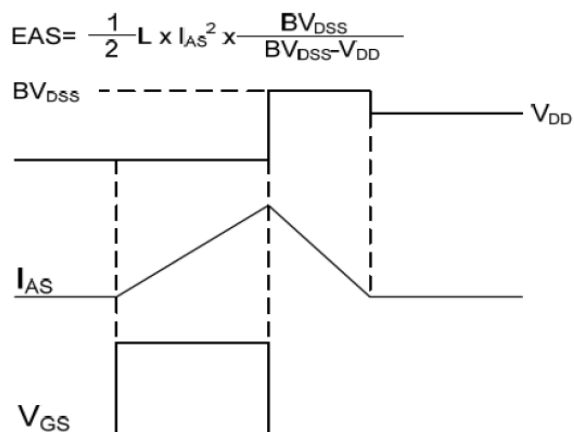


Fig.11 Unclamped Inductive Switching Waveform