Elektronische Bauelemente

SJP60N10S-C

60A, 100V, $R_{DS(ON)}$ 11.5mΩ
N-Channel Fast Switching MOSFET

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

DESCRIPTION

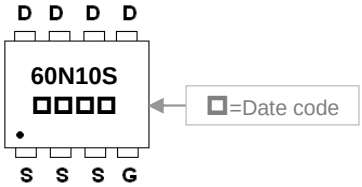
The SJP60N10S-C is the highest performance N-Ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications .

The SJP60N10S-C meet the RoHS and Green Product Requirement witch full function reliability approved.

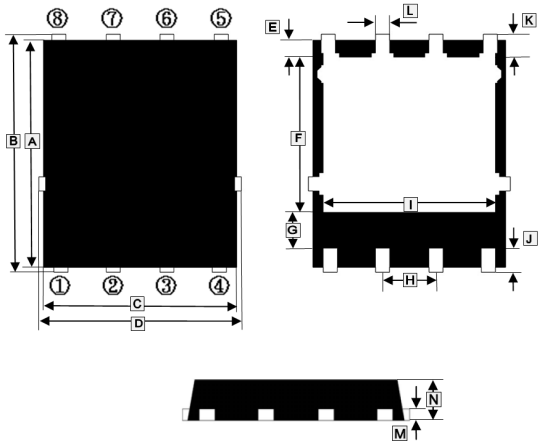
FEATURES

- Advanced Trench MOS Technology
- Fast Switching Speed
- Green Device Available
- Super Low Gate Charge

MARKING



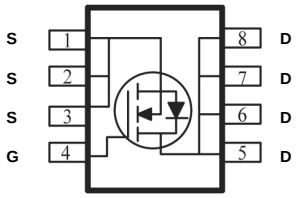
DFN5x6-8J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.65	5.85	H	1.27 TYP.	
B	5.90	6.15	I	3.85	4.15
C	4.80	5.00	J	0.51	0.86
D	5.02 TYP.		K	0.55	0.85
E	0.38	0.576	L	0.33	0.50
F	3.25	3.58	M	0.254 REF.	
G	1.10	1.39	N	0.90	1.17

PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN5x6-8J	5K	13 inch



ORDER INFORMATION

Part Number	Type
SJP60N10S-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}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	60	A
	T_C=100℃		39	
Pulsed Drain Current [2]		I_{DM}	160	A
Total Power Dissipation [3]	T_C=25℃	P_D	56.5	W
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	℃
Thermal Data				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	50	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	2.2	

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	-	2.4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0, T_J=25℃
		-	-	5		V_{DS}=80V, V_{GS}=0, T_J=55℃
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	8	11.5	mΩ	V_{GS}=10V, I_D=20A
		-	11.6	15		V_{GS}=4.5V, I_D=10A
Total Gate Charge (4.5V)	Q_g	-	14	-	nC	I_D=20A V_{DS}=50V V_{GS}=10V
Total Gate Charge		-	29	-		
Gate-Source Charge	Q_{gs}	-	6.5	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	5.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	8	-	nS	V_{DD}=50V I_D=20A V_{GS}=10V R_G=3.3Ω
Rise Time	T_r	-	4	-		
Turn-off Delay Time	$T_{d(off)}$	-	28	-		
Fall Time	T_f	-	6	-		
Input Capacitance	C_{iss}	-	2550	-	pF	V_{GS}=0 V_{DS}=50V f=1MHz
Output Capacitance	C_{oss}	-	305	-		
Reverse Transfer Capacitance	C_{rss}	-	12	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V
Continuous Source Current [1,4]	I_S	-	-	60	A	V_G=V_D=0, Force Current
Reverse Recovery Time	t_{rr}	-	45	-	nS	I_F=20A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	165	-	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≦300us, 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

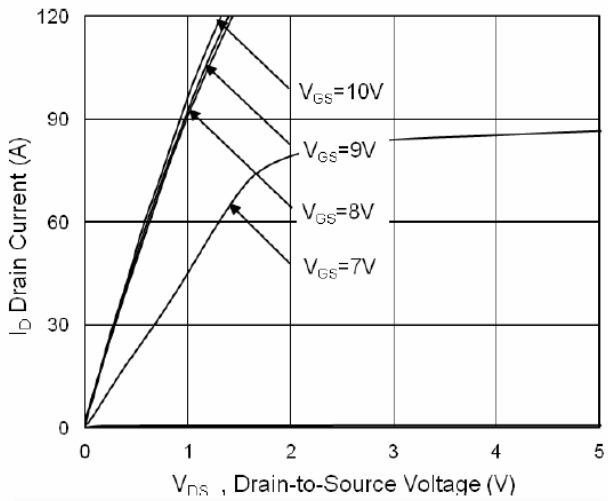


Fig.1 Typical Output Characteristics

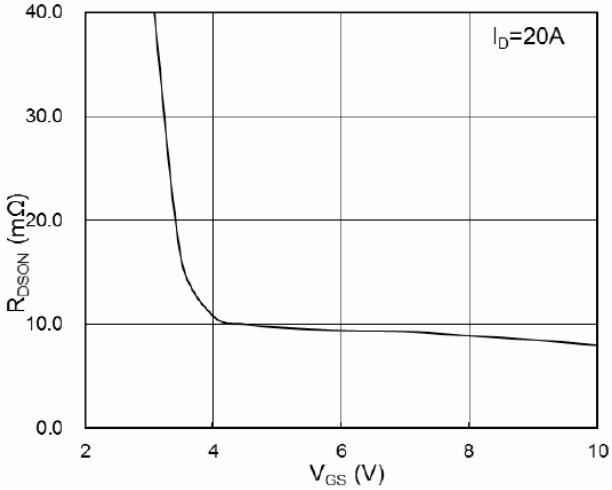


Fig.2 On-Resistance vs G-S Voltage

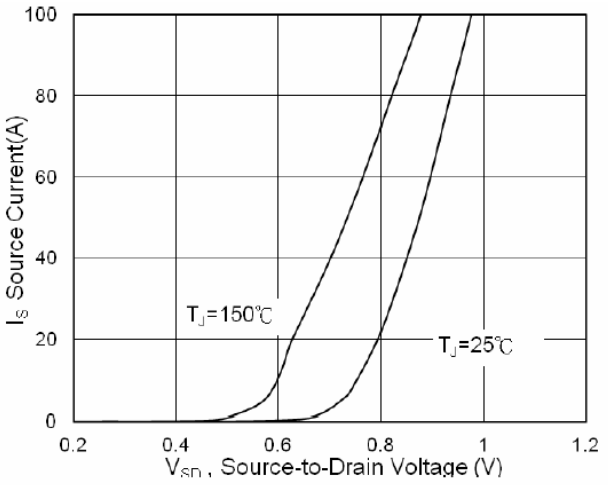


Fig.3 Source Drain Forward Characteristics

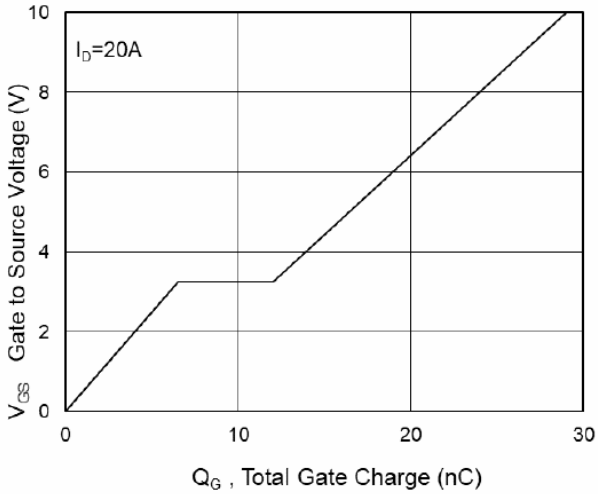


Fig.4 Gate-Charge Characteristics

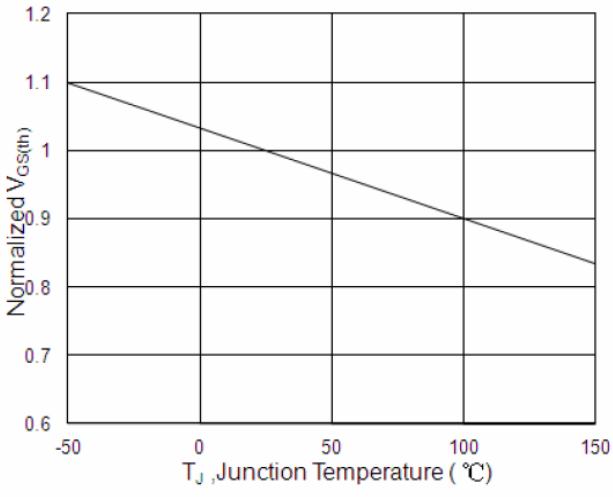


Fig.5 Normalized $V_{GS(th)}$ vs T_J

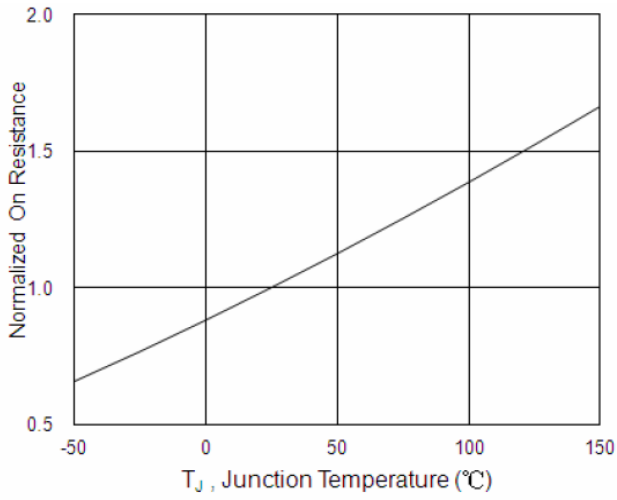


Fig.6 Normalized R_{DSON} vs T_J

CHARACTERISTIC CURVES

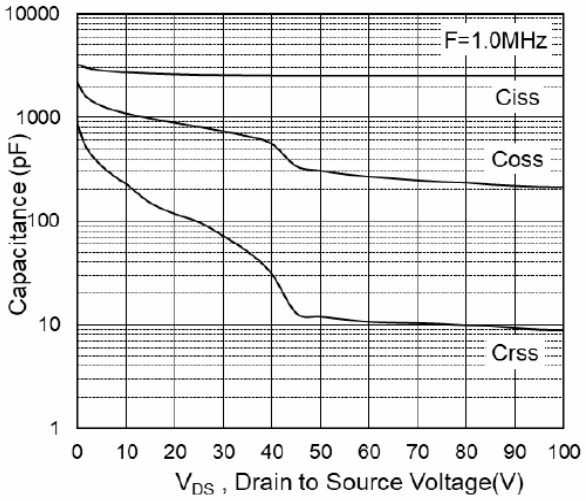


Fig.7 Capacitance

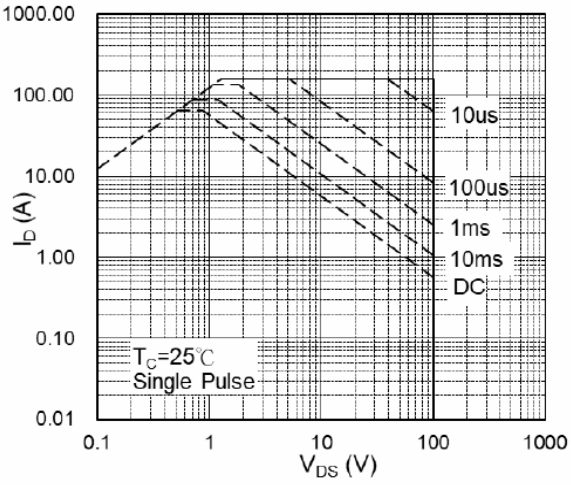


Fig.8 Safe Operating Area

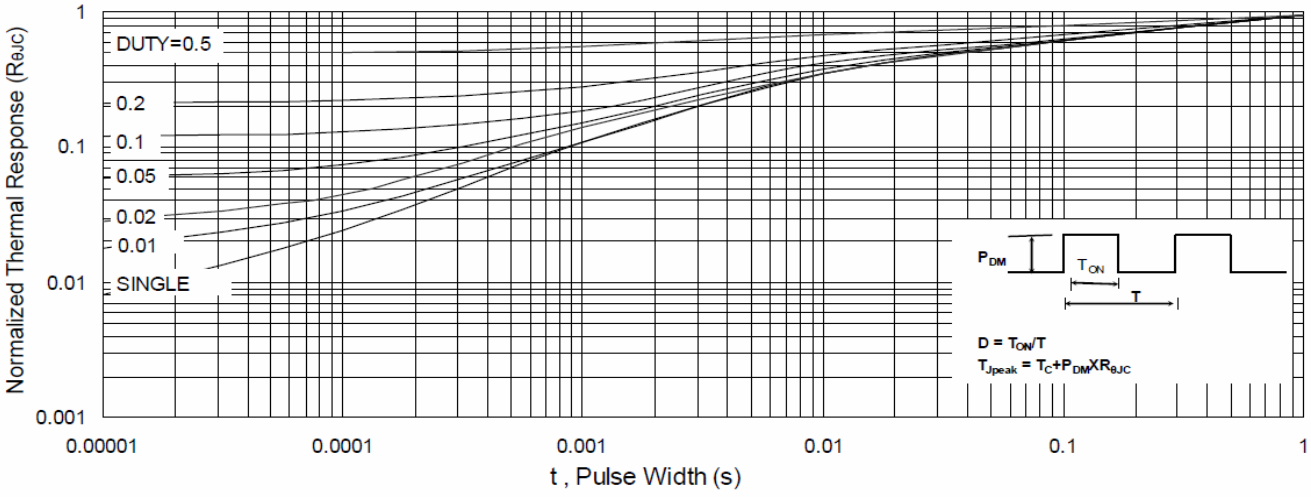


Fig.9 Normalized Maximum Transient Thermal Impedance

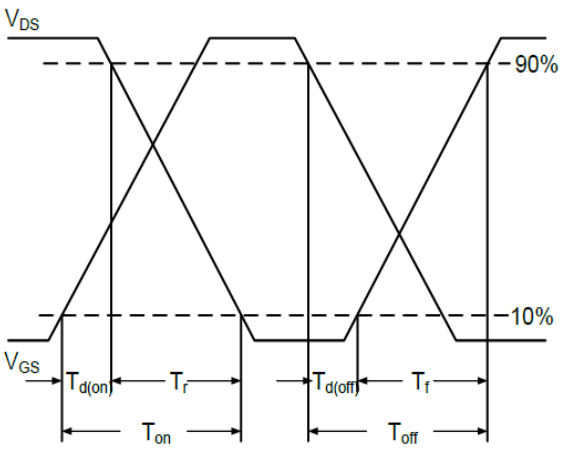


Fig.10 Switching Time Waveform

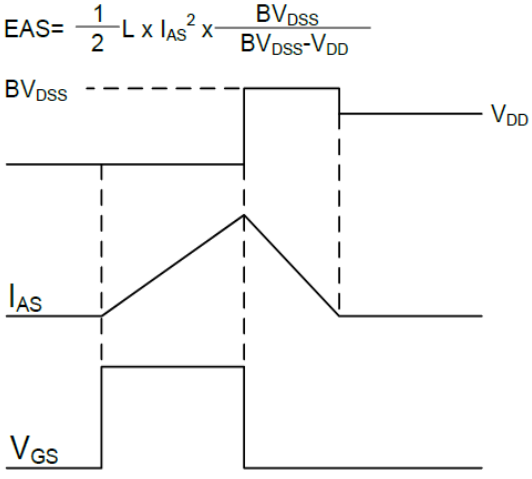


Fig.11 Unclamped Inductive Switching Waveform