Elektronische Bauelemente

SSPR65N03-C

65A, 30V, $R_{DS(ON)}$ 4.9mΩ

N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

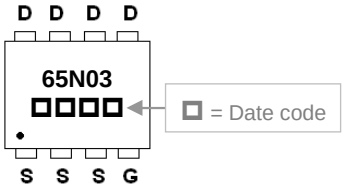
The SSPR65N03-C is the highest performance trench N-Ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSPR65N03-C meet the RoHS and Green Product requirement with full function reliability approved.

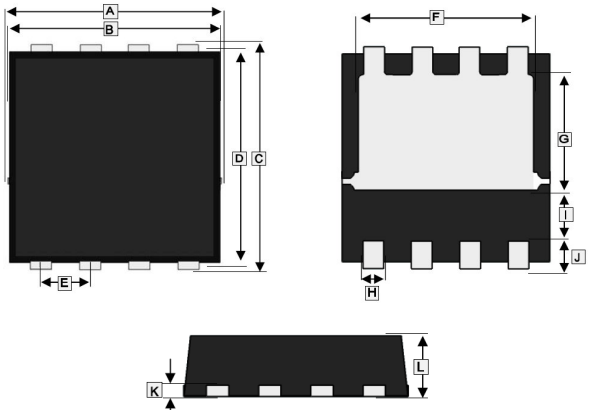
FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



SPR-8PP



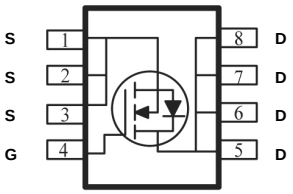
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	3.00	3.40	G	1.35	1.98
B	3.00	3.25	H	0.24	0.35
C	3.20	3.45	I	0.35 TYP.	
D	3.00	3.20	J	0.60 TYP.	
E	0.65 BSC.		K	0.10	0.25
F	2.39	2.60	L	0.70	0.90

PACKAGE INFORMATION

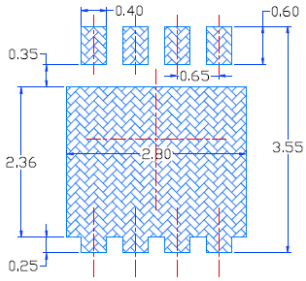
Package	MPQ	Leader Size
SPR-8PP	3K	13 inch

ORDER INFORMATION

Part Number	Type
SSPR65N03-C	Lead (Pb)-free and Halogen-free



Mounting Pad Layout



*Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	65	A
	T_C=100℃		43	
Pulsed Drain Current [2]		I_{DM}	120	A
Power Dissipation [4]	T_C=25℃	P_D	31	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	65	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	4	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	30	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	0.4	-	1	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±12V, V_{DS}=0V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	uA	V_{DS}=24V, V_{GS}=0V
	T_J=55℃		-	-	5		V_{DS}=24V, V_{GS}=0V
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	4.2	4.9	mΩ	V_{GS}=10V, I_D=12A
			-	4.6	5.5		V_{GS}=4.5V, I_D=12A
			-	5.5	7.5		V_{GS}=2.5V, I_D=10A
Forward Transconductance		g_{fs}	-	25	-	S	V_{DS}=5V, I_D=12A
Gate Resistance		R_g	-	1.4	-	Ω	V_{DS}=V_{GS}=0V, f=1MHz
Total Gate Charge		Q_g	-	32	-	nC	I_D=12A V_{DS}=20V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	6.1	-		
Gate-Drain Change		Q_{gd}	-	14	-		
Turn-on Delay Time		$T_{d(on)}$	-	12	-	nS	V_{DD}=15V I_D=12A V_{GS}=10V R_G=1.5Ω
Rise Time		T_r	-	46	-		
Turn-off Delay Time		$T_{d(off)}$	-	33	-		
Fall Time		T_f	-	7.5	-		
Input Capacitance		C_{iss}	-	3100	-	pF	V_{GS}=0V V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	405	-		
Reverse Transfer Capacitance		C_{rss}	-	310	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	1	V	I_S=1A, V_{GS}=0V
Continuous Source Current [1 4]		I_S	-	-	65	A	V_G=V_D=0V, Force Current
Pulsed Source Current [2 4]		I_{SM}	-	-	120		

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The data is tested by pulse: pulse with≤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, it should be limited by the total power dissipation.

CHARACTERISTIC CURVES

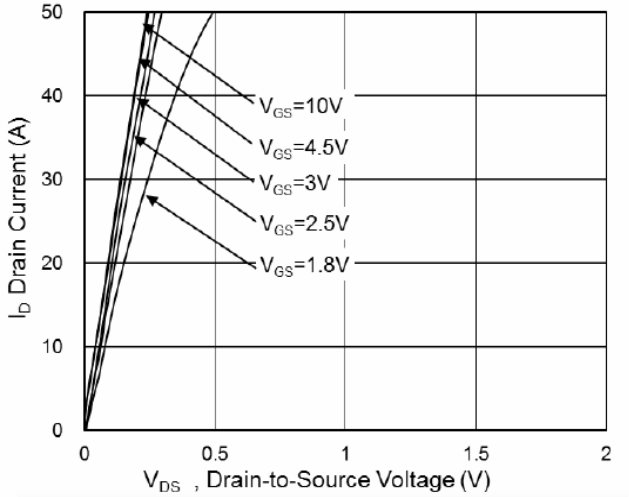


Fig.1 Typical Output Characteristics

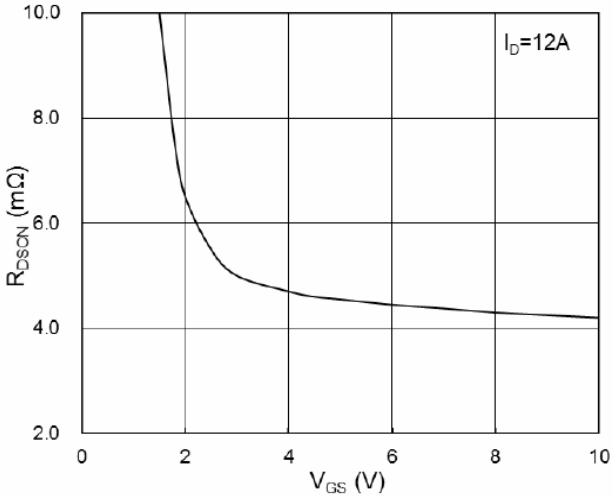


Fig.2 On-Resistance vs. G-S Voltage

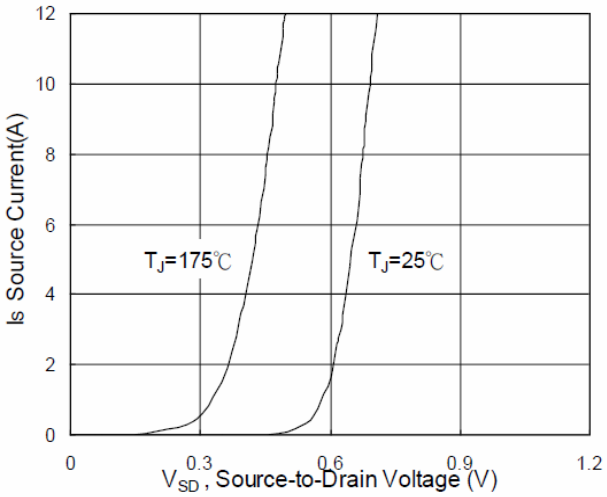


Fig.3 Forward Characteristics of Reverse

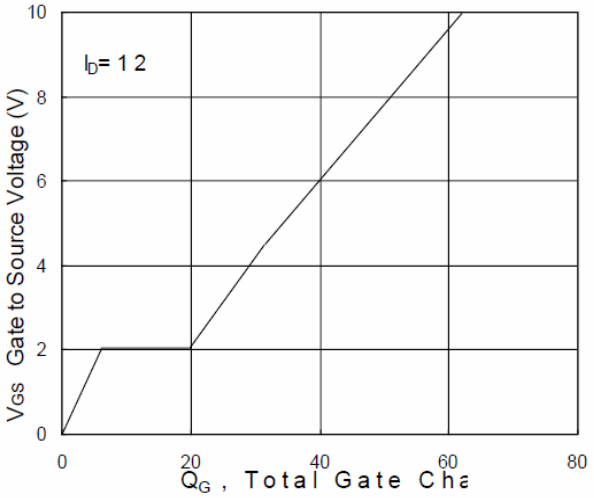


Fig.4 Gate-Charge Characteristics

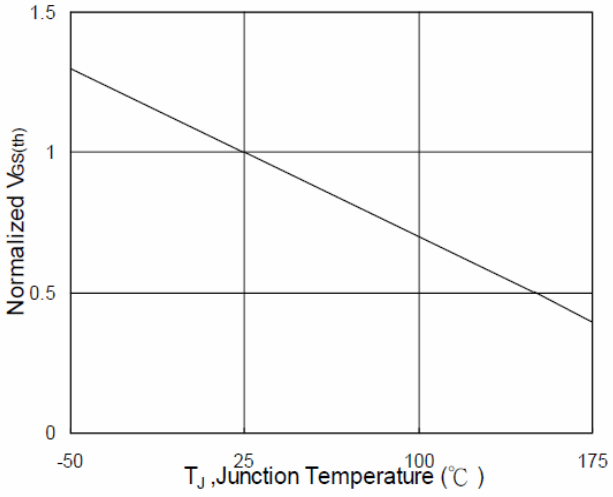


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

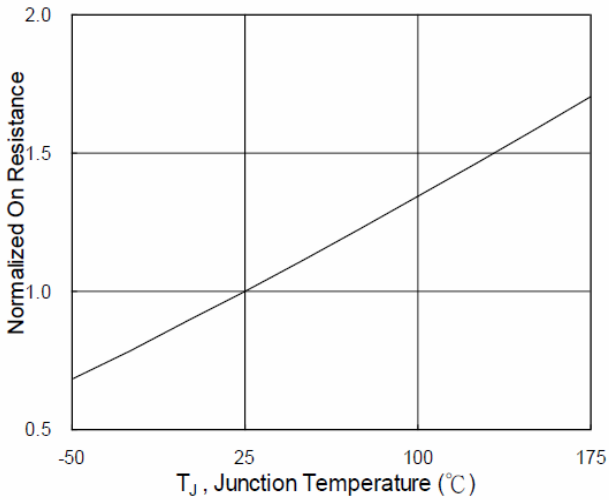


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

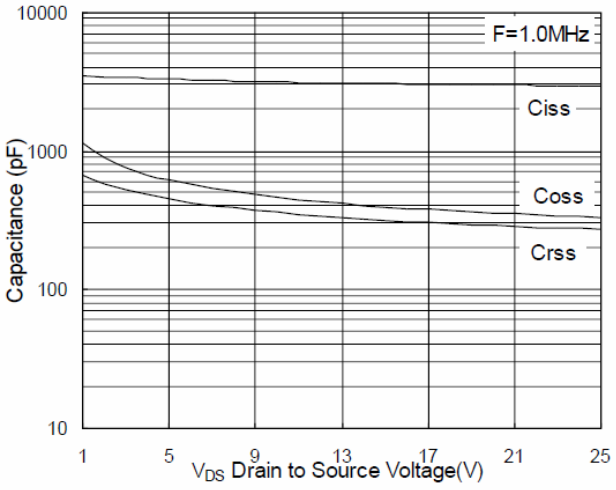


Fig.7 Capacitance

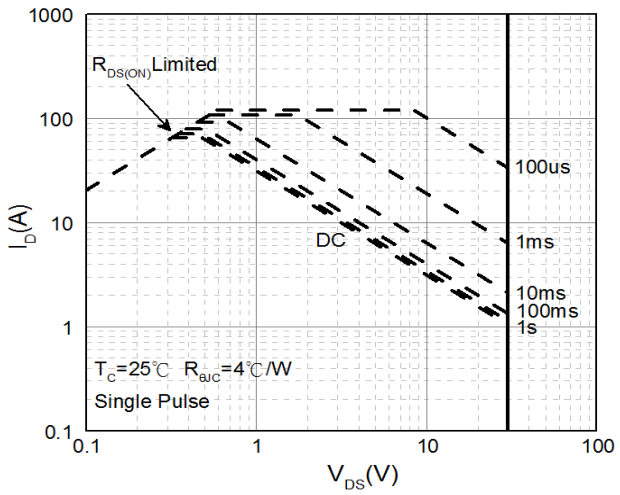


Fig.8 Safe Operating Area

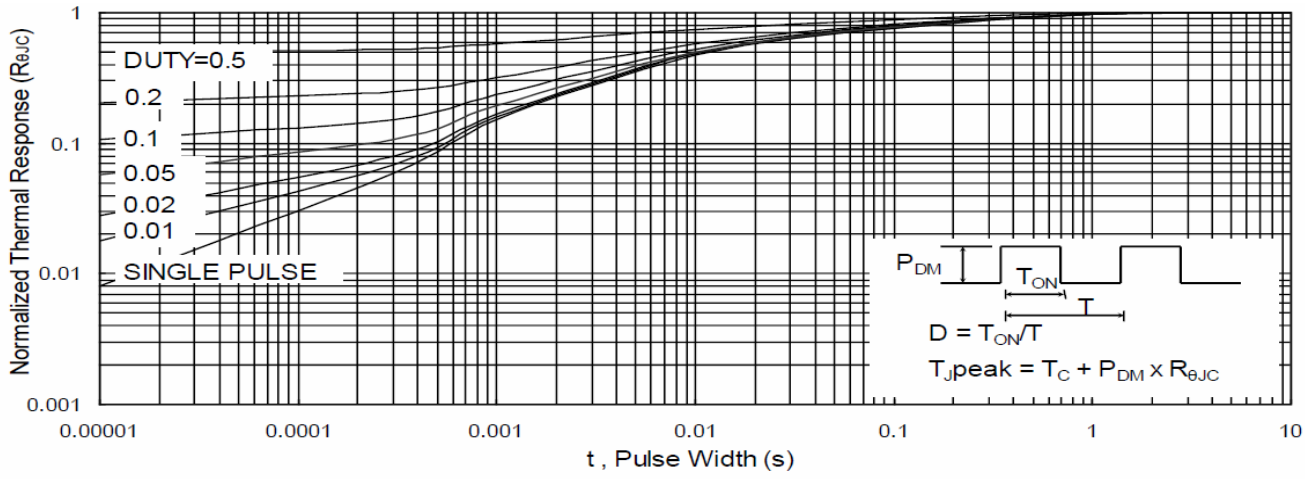


Fig.9 Normalized Maximum Transient Thermal Impedance

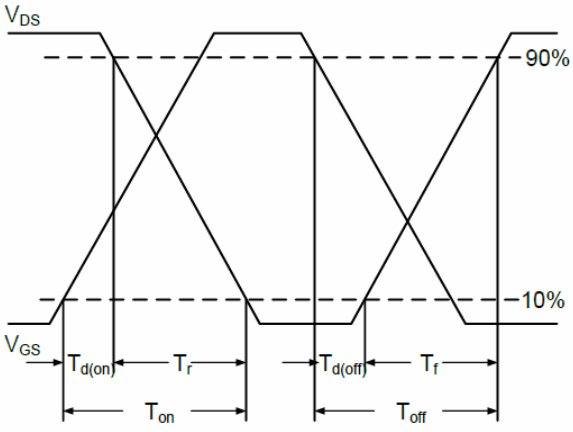


Fig.10 Switching Time Waveform

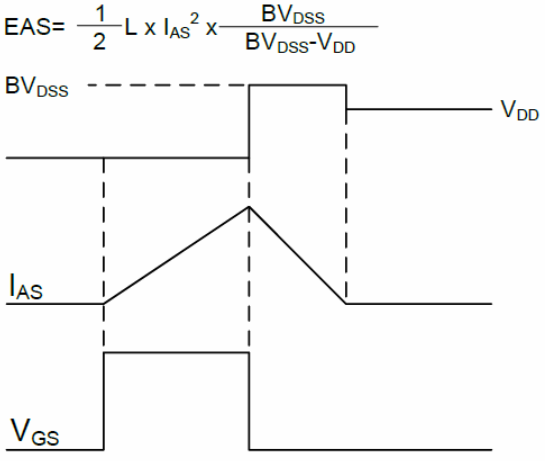


Fig.11 Unclamped Inductive Switching Waveform