Elektronische Bauelemente

SSG4396N

4.4A, 150V, $R_{DS(ON)}$ 110mΩ
N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

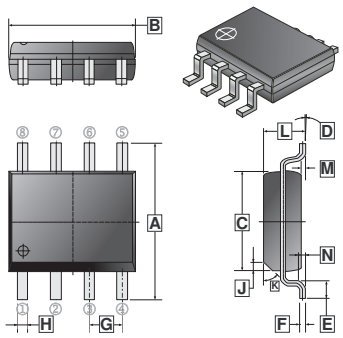
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SOP-8 saves board space.
- Fast switching speed.
- High performance trench technology.

APPLICATION

DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

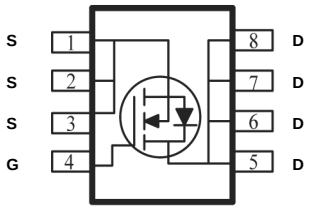
SOP-8



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.				

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13' inch



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_A = 25℃	I_D	4.4	A
	T_A = 70℃		3.7	
Pulsed Drain Current [2]		I_{DM}	20	A
Continuous Source Current (Diode Conduction) [1]		I_S	4.6	A
Total Power Dissipation [1]	T_A = 25℃	P_D	3.1	W
	T_A = 70℃		2.2	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	℃
THERMAL RESISTANCE RATINGS				
Maximum Junction to Ambient [1]	t ≦ 10 sec	$R_{\theta JA}$	40	℃ / W
	Steady State		80	℃ / W

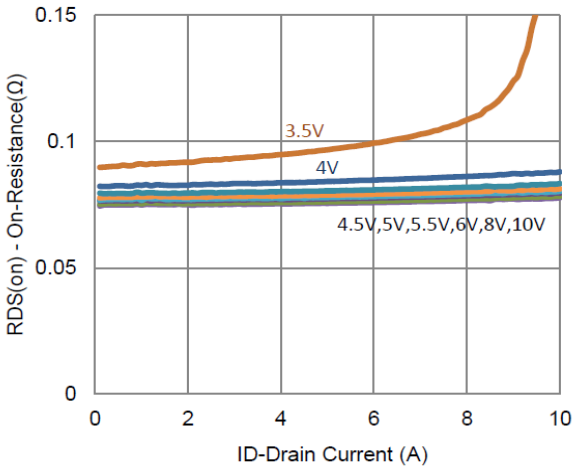
Notes:
1 Surface Mounted on 1" x 1" FR4 Board.
2 Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

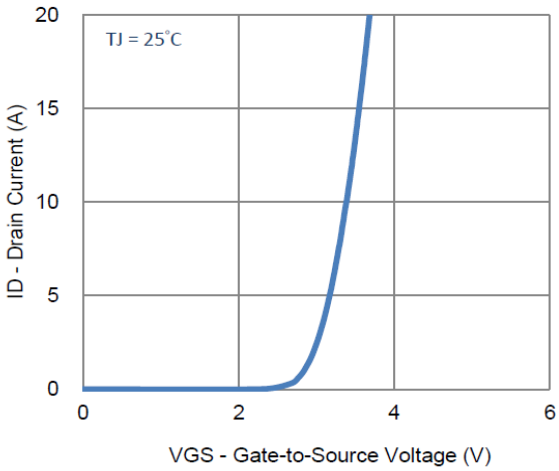
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}=±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=120V, V_{GS}=0
		-	-	25		V_{DS}=120V, V_{GS}=0, T_J= 55℃
On-State Drain Current [1]	$I_{D(on)}$	6.6	-	-	A	V_{DS}=5V, V_{GS}=10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	110	mΩ	V_{GS}=10V, I_D=3.5A
		-	-	115		V_{GS}=5.5V, I_D=2.8A
Forward Transconductance [1]	g_{fs}	-	35	-	S	V_{DS}=15V, I_D=3.5A
Diode Forward Voltage	V_{SD}	-	0.72	-	V	I_S=2.3A, V_{GS}=0
Dynamic [2]						
Total Gate Charge	Q_g	-	24	-	nC	I_D=3.5A V_{DS}=75V V_{GS}=5.5V
Gate-Source Charge	Q_{gs}	-	6.7	-		
Gate-Drain Charge	Q_{gd}	-	8.9	-		
Turn-On Delay Time	$T_{d(on)}$	-	12	-	nS	V_{DD}=75V I_D=3.5A V_{GEN}=10V R_L= 21.5Ω R_{GEN}=6Ω
Rise Time	T_r	-	14	-		
Turn-Off Delay Time	$T_{d(off)}$	-	76	-		
Fall Time	T_f	-	30	-		
Input Capacitance	C_{iss}	-	2599	-	pF	V_{DS}=15V V_{GS}=0V f=1MHz
Output Capacitance	C_{oss}	-	167	-		
Reverse Transfer Capacitance	C_{rss}	-	90	-		

Notes:
1 Pulse test：PW ≦ 300μs duty cycle ≦ 2%.
2 Guaranteed by design, not subject to production testing.

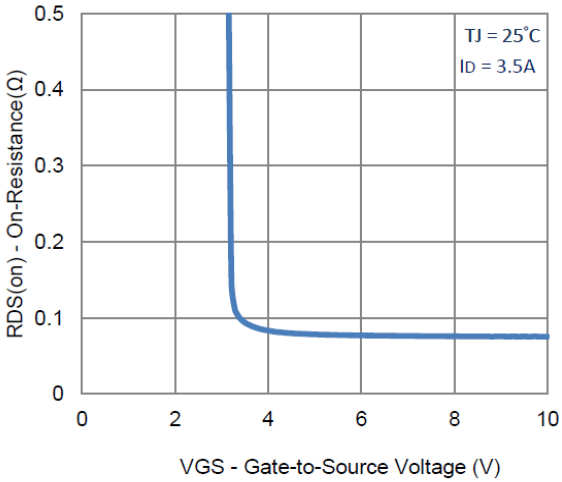
CHARACTERISTIC CURVE



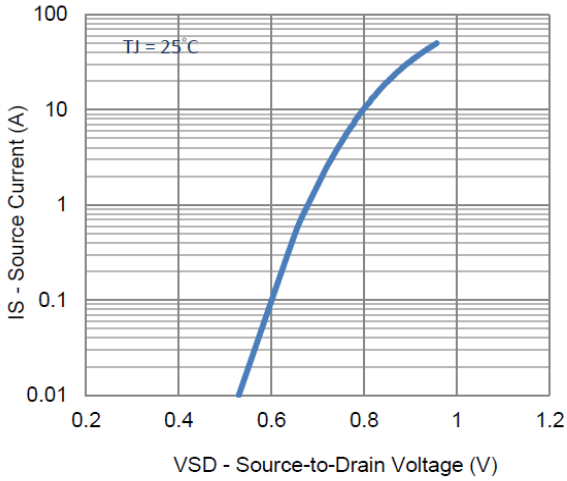
1. On-Resistance vs. Drain Current



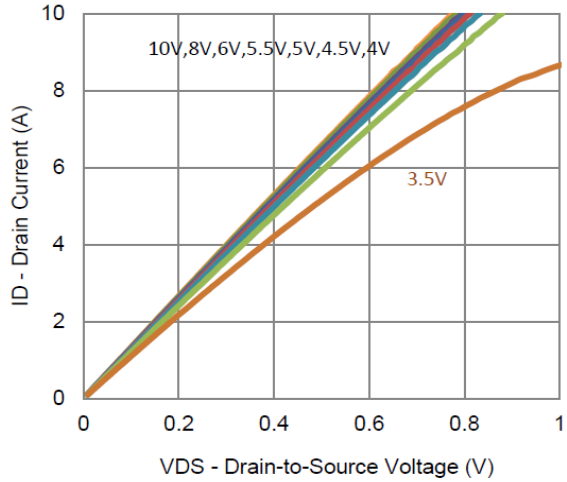
2. Transfer Characteristics



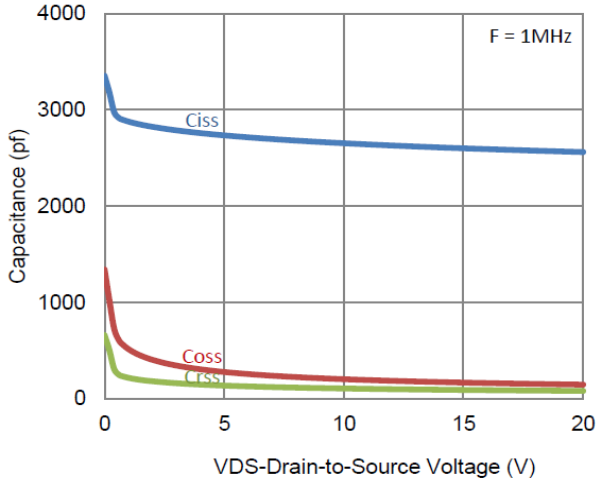
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

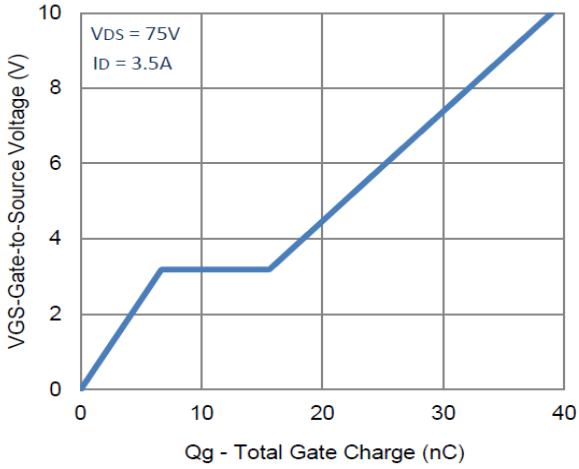


5. Output Characteristics

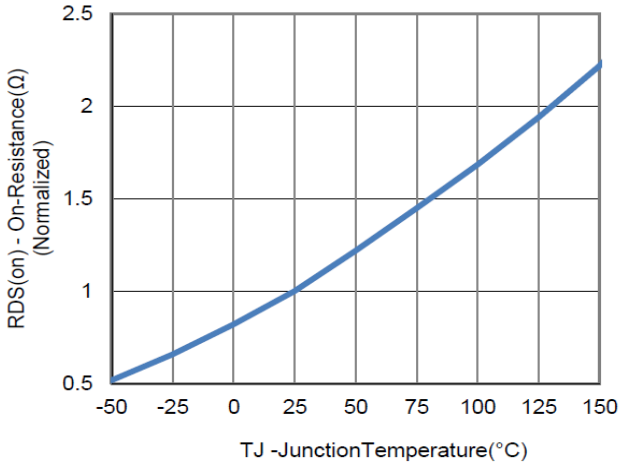


6. Capacitance

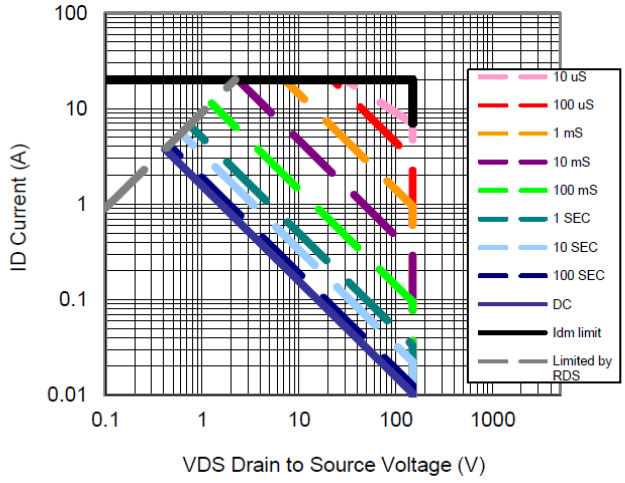
CHARACTERISTIC CURVE



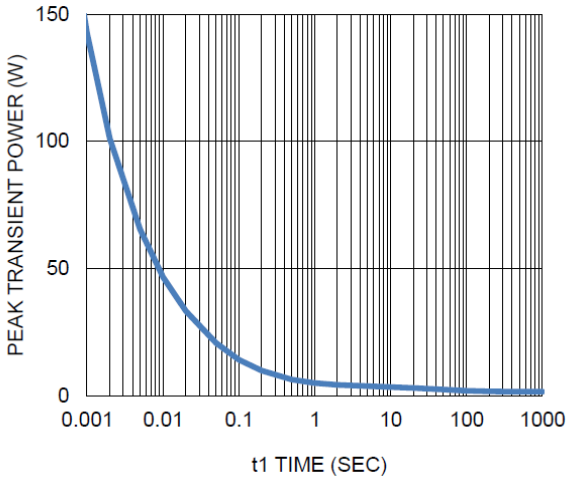
7. Gate Charge



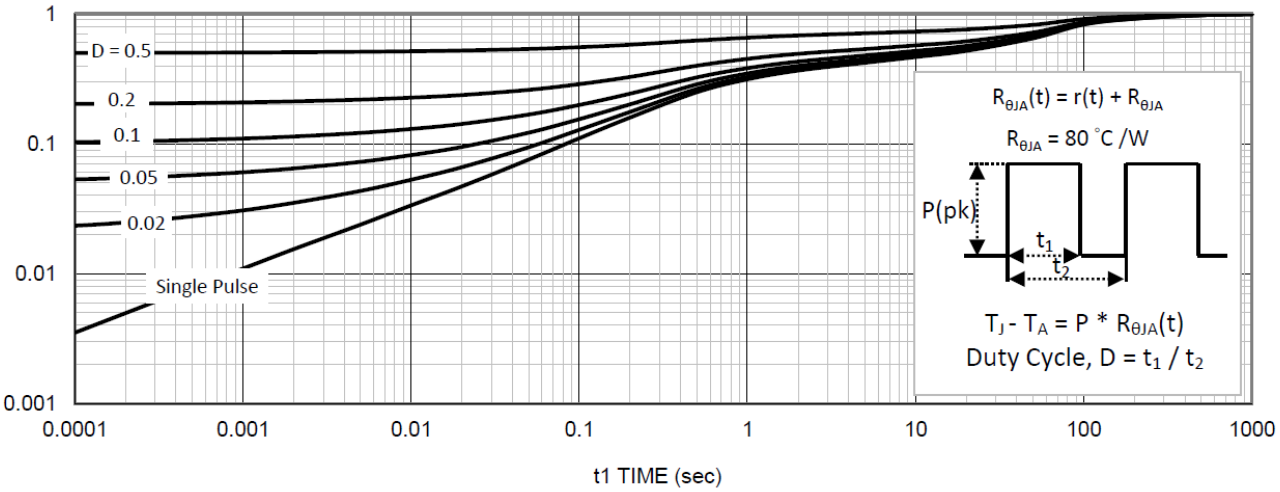
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient