SSG4462N

9.7 A, 60 V, $R_{DS(ON)}$ 22 mΩ
N-Ch Enhancement Mode Power MOSFET

Elektronische Bauelemente

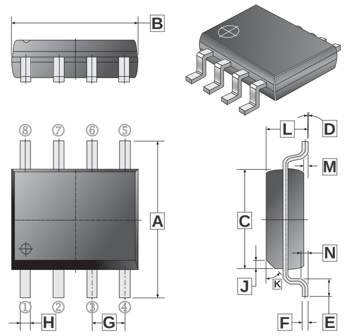
RoHS Compliant Product

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

SOP-8



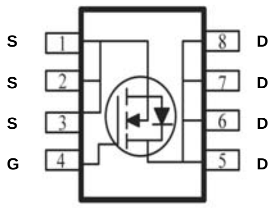
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				

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.

PACKAGE INFORMATION

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



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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_A = 25°C	I_D	9.7	A
	T_A = 70°C	I_D	8	A
Pulsed Drain Current [2]		I_{DM}	50	A
Continuous Source Current (Diode Conduction) [1]		I_S	4.1	A
Total Power Dissipation [1]	T_A = 25°C	P_D	3.1	W
	T_A = 70°C	P_D	2.2	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	°C
THERMAL RESISTANCE RATINGS				
Maximum Junction to Ambient [1]	t ≦ 10 sec	$R_{\theta JA}$	40	°C / W
	Steady State		80	°C / W

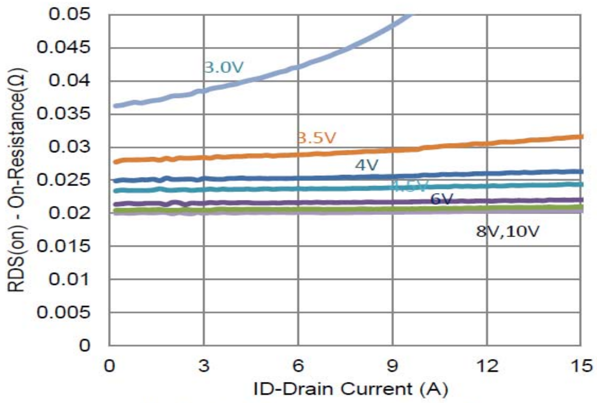
Notes:
1 Surface Mounted on 1" x 1" FR4 Board.
2 Pulse width limited by maximum junction temperature.

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

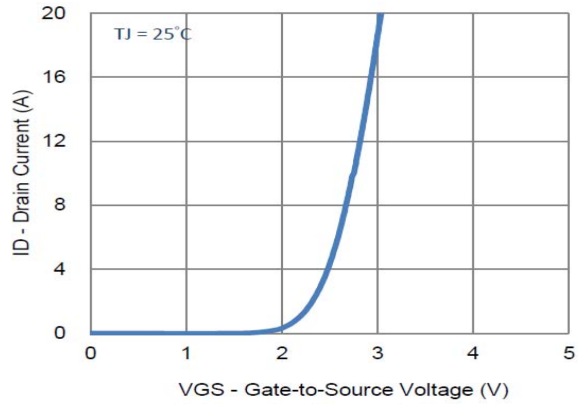
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}= V_{GS}, I_D= 250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}=±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}= 48V, V_{GS}= 0V
		-	-	25	μA	V_{DS}= 48V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [1]	$I_{D(on)}$	20	-	-	A	V_{DS}= 5V, V_{GS}= 10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	22	mΩ	V_{GS}= 10V, I_D= 7.8A
		-	-	26		V_{GS}= 4.5V, I_D= 7.2A
Forward Transconductance [1]	g_{fs}	-	8	-	S	V_{DS}= 15V, I_D= 7.8A
Diode Forward Voltage	V_{SD}	-	0.7	-	V	I_S= 2.1A, V_{GS}= 0V
Dynamic [2]						
Input Capacitance	C_{iss}	-	1443	-	pF	V_{GS}=0 V_{DS}=15V f =1MHz
Output Capacitance	C_{oss}	-	125	-		
Reverse Transfer Capacitance	C_{rss}	-	123	-		
Total Gate Charge	Q_g	-	14	-	nC	I_D= 7.8A V_{DS}= 30V V_{GS}= 4.5V
Gate-Source Charge	Q_{gs}	-	4.3	-		
Gate-Drain Charge	Q_{gd}	-	6.8	-		
Turn-On Delay Time	$T_{d(on)}$	-	6	-	nS	V_{DD}= 30V I_D= 7.8A V_{GEN}= 10V R_L= 3.9Ω R_{GEN}= 6Ω
Rise Time	T_r	-	9	-		
Turn-Off Delay Time	$T_{d(off)}$	-	53	-		
Fall Time	T_f	-	17	-		

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

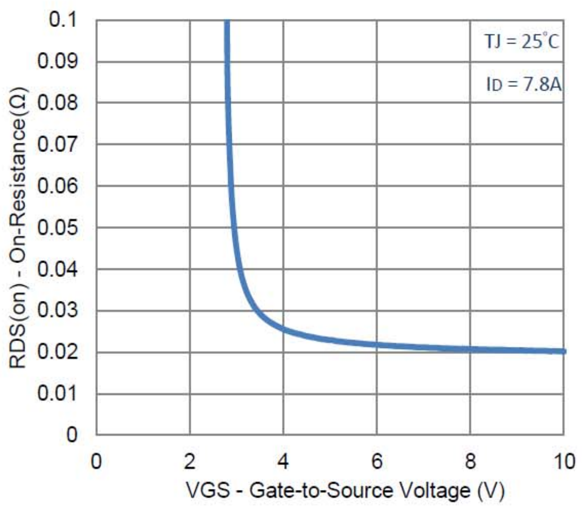
CHARACTERISTIC CURVES



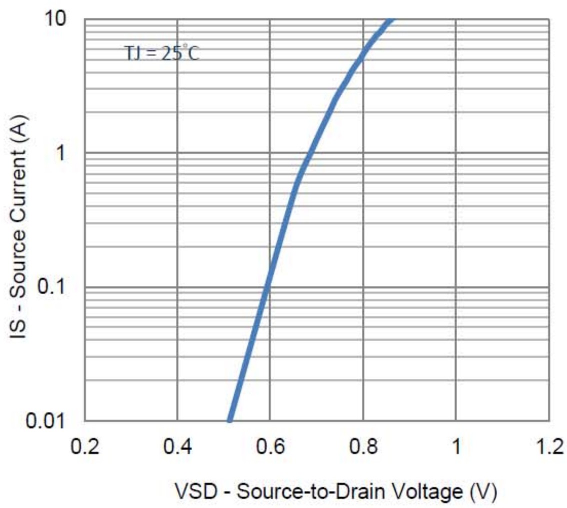
1. On-Resistance vs. Drain Current



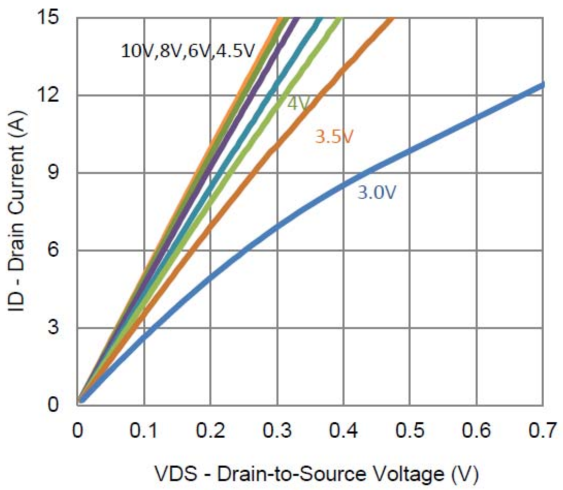
2. Transfer Characteristics



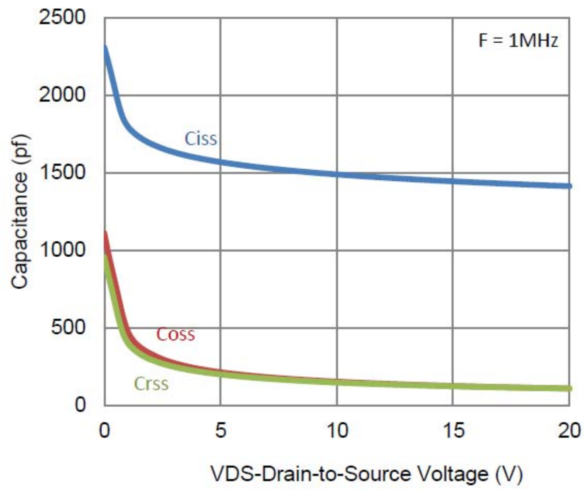
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

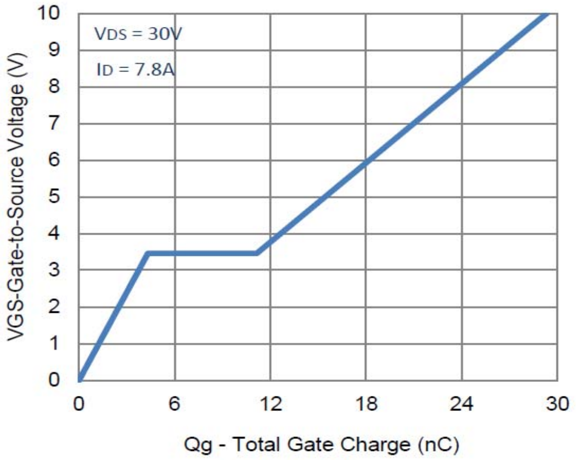


5. Output Characteristics

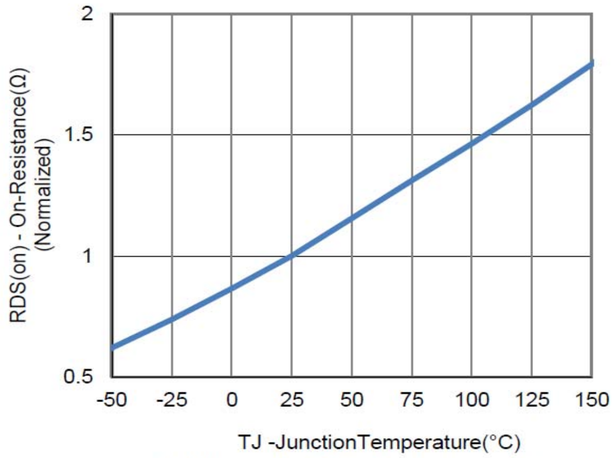


6. Capacitance

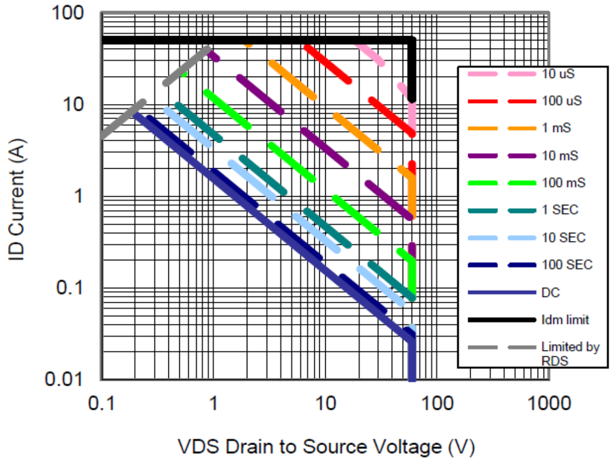
CHARACTERISTIC CURVES



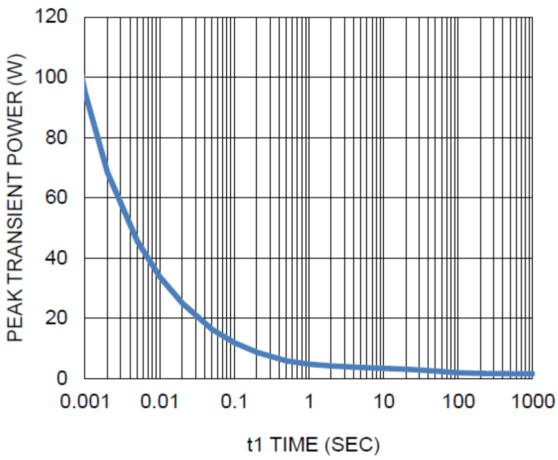
7. Gate Charge



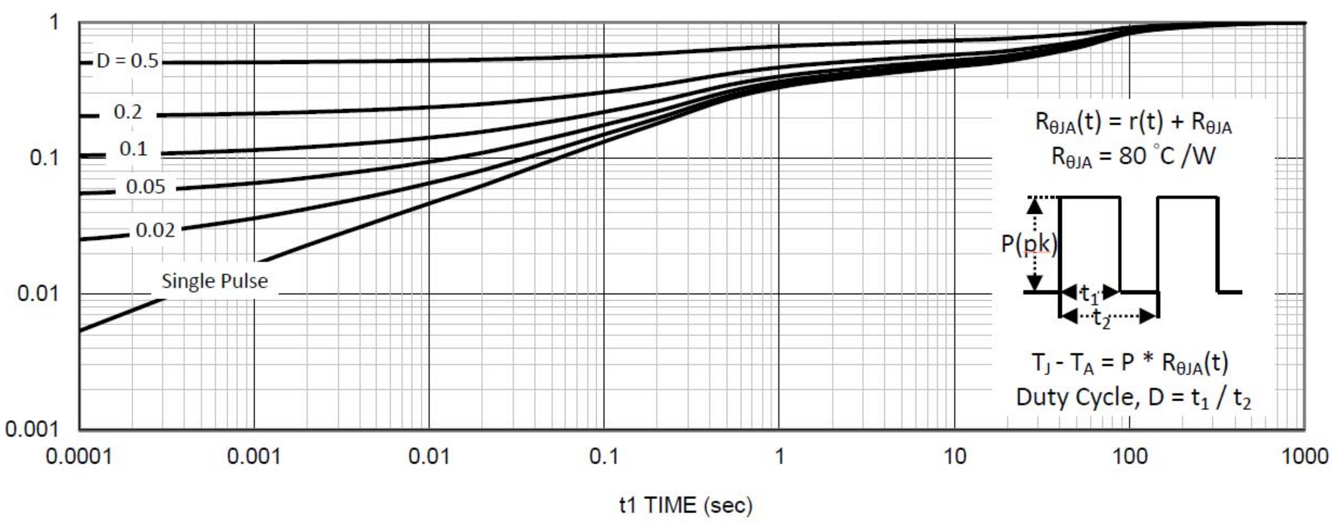
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient