Elektronische Bauelemente

STT3922N

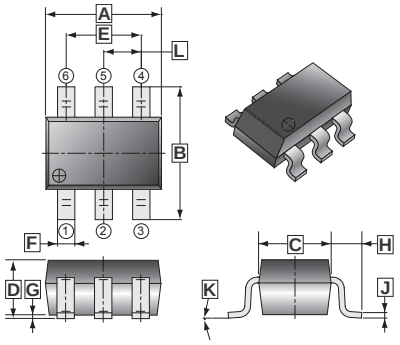
4.1A, 20V, $R_{DS(ON)}$ 47mΩ
N-Channel Enhancement Mode Power MOSFET

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 RDS(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, and PCMCIA cards, cellular and cordless telephones.

TSOP-6



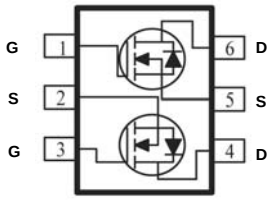
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60 REF.	
C	1.40	1.80	J	0.12 REF.	
D	1.10 MAX.		K	0°	10°
E	1.90 REF.		L	0.95 REF.	
F	0.30	0.50			

FEATURES

- Low on-resistance
- Low drive current
- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Fast switching speed
- High performance trench technology

PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7 inch



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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain Current [1]	T_A= 25°C	I_D	4.1	A
	T_A= 70°C		3.2	
Pulsed Drain Current [2]		I_{DM}	15	A
Continuous Source Current (Diode Conduction) [1]		I_S	1.8	A
Power Dissipation [1]	T_A= 25°C	P_D	1.15	W
	T_A= 70°C		0.7	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Maximum Junction to Ambient [1]	t ≦ 10 sec	$R_{\theta JA}$	110	°C / W
	Steady State		150	

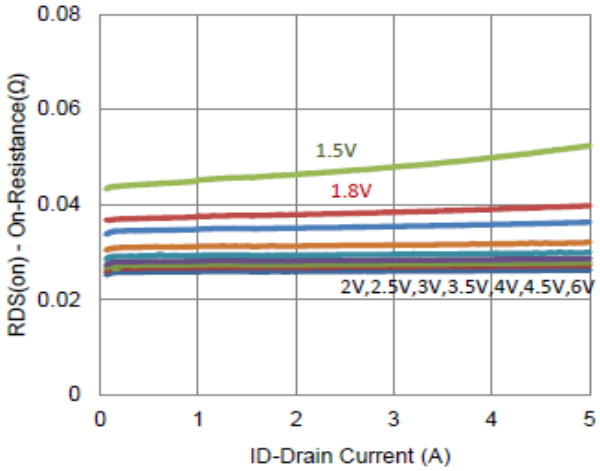
Notes:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

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

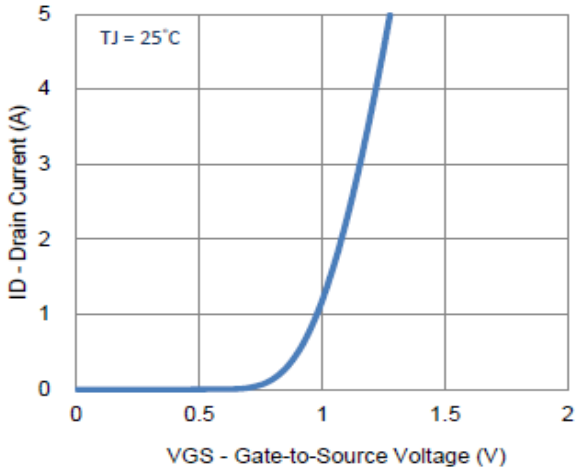
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	0.4	-	-	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}=±8V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=16V, V_{GS}=0V
		-	-	10		V_{DS}=16V, V_{GS}=0V, T_J= 55°C
On-State Drain Current [1]	$I_{D(on)}$	6	-	-	A	V_{DS} =5V, V_{GS}=4.5V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	47	mΩ	V_{GS}=4.5V, I_D=2A
		-	-	55		V_{GS}=2.5V, I_D=1.6A
Forward Transconductance [1]	g_{fs}	-	9	-	S	V_{DS}=15V, I_D=2A
Diode Forward Voltage	V_{SD}	-	0.63	-	V	I_S=0.9A, V_{GS}=0V
Dynamic [b]						
Total Gate Charge	Q_g	-	12	-	nC	V_{DS}=10V, V_{GS}=4.5V, I_D=2A
Gate-Source Charge	Q_{gs}	-	2.1	-		
Gate-Drain Charge	Q_{gd}	-	2.8	-		
Turn-on Delay Time	$T_{d(on)}$	-	8	-	nS	V_{DS}=10V, R_L=5Ω, I_D=2A, V_{GNE}=4.5V, R_{GNE}=6Ω
Rise Time	T_r	-	18	-		
Turn-off Delay Time	$T_{d(off)}$	-	60	-		
Fall Time	T_f	-	17	-		
Input Capacitance	C_{iss}	-	726	-	pF	V_{DS}=15V, V_{GS}=0V, f=1Mhz
Output Capacitance	C_{oss}	-	74	-		
Reverse Transfer Capacitance	C_{rss}	-	69	-		

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

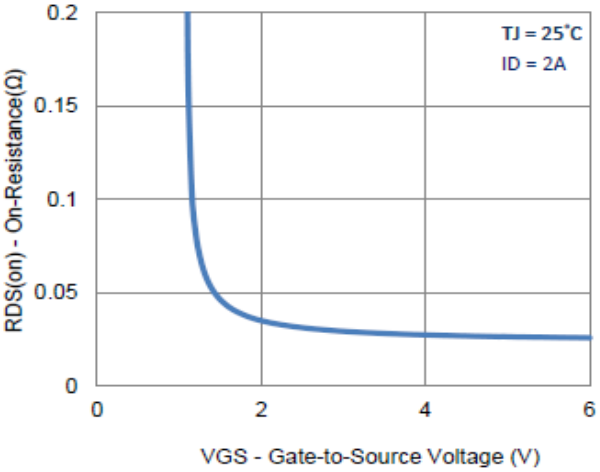
Typical Electrical Characteristics



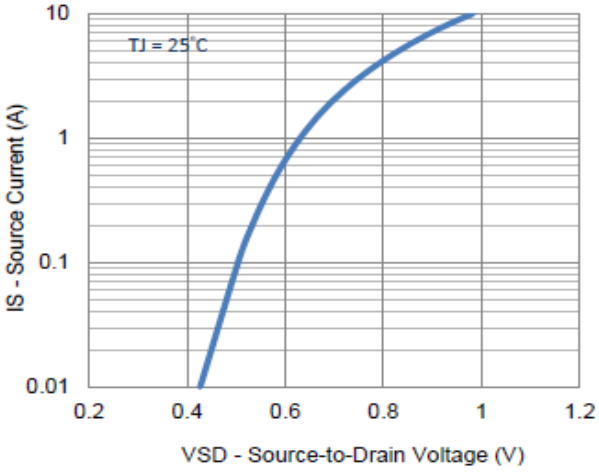
1. On-Resistance vs. Drain Current



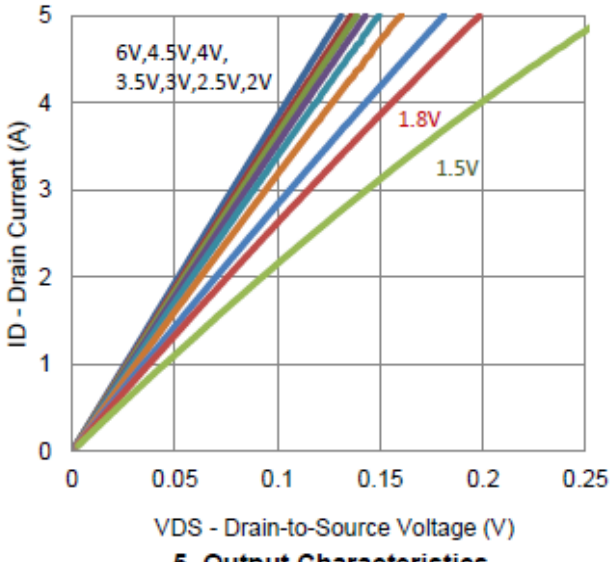
2. Transfer Characteristics



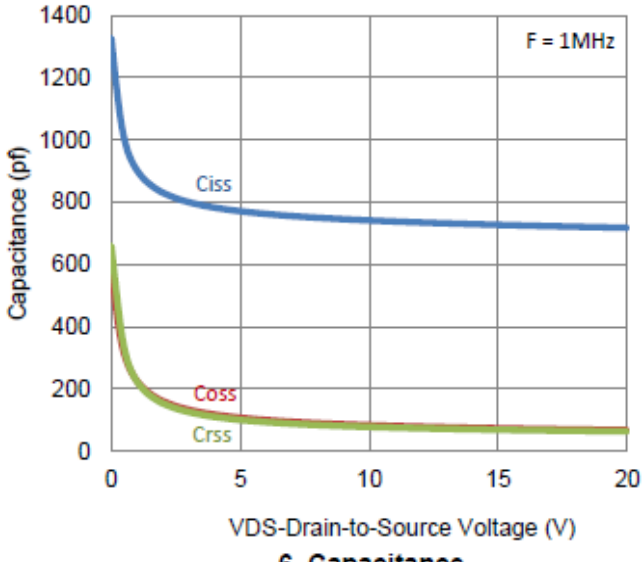
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

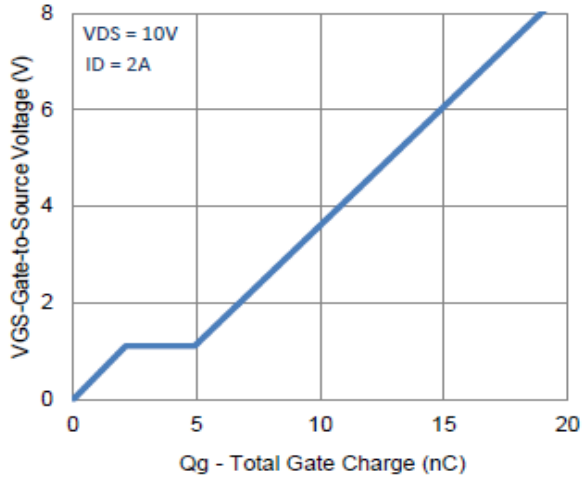


5. Output Characteristics

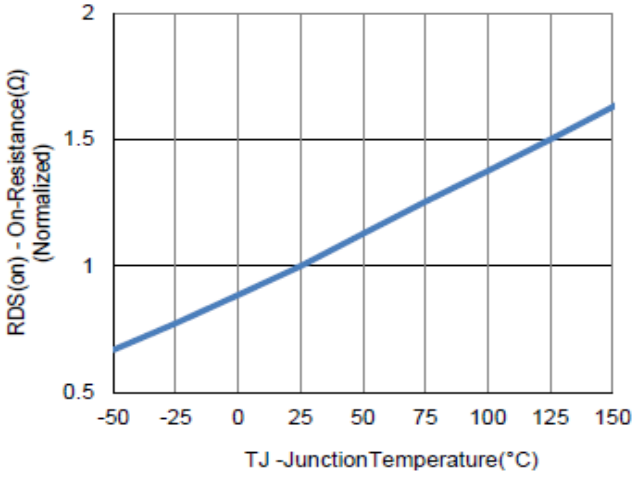


6. Capacitance

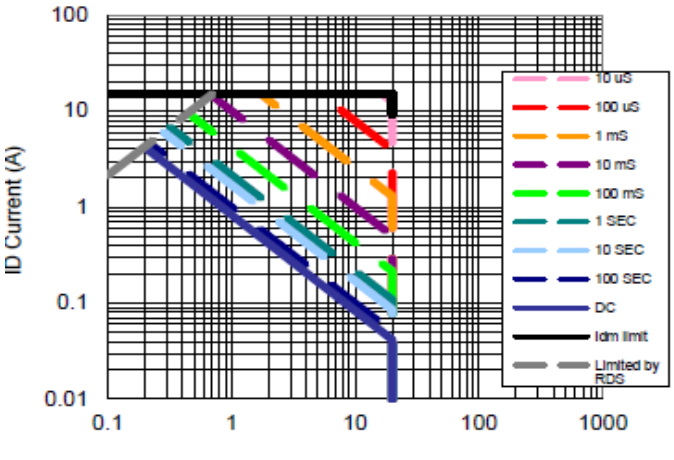
Typical Electrical Characteristics



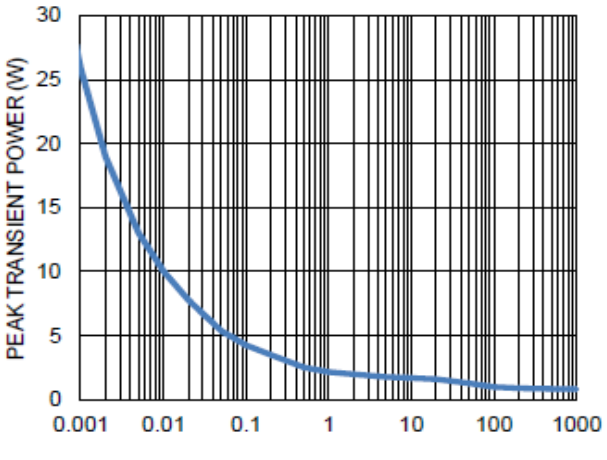
7. Gate Charge



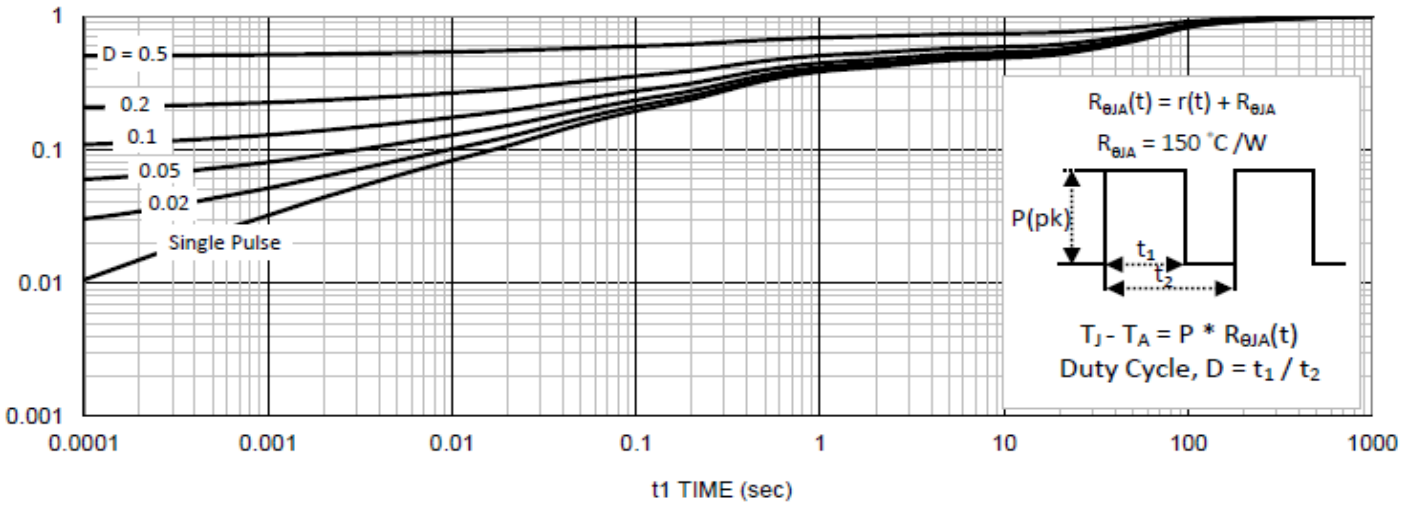
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient