Elektronische Bauelemente

STT3434N-C

6.5A, 30V, $R_{DS(ON)}$ 32mΩ
N-Channel Enhancement Mode MOSFET

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

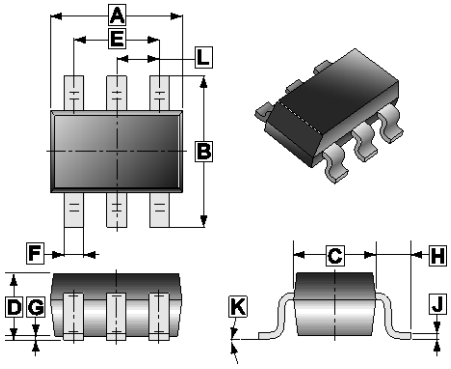
DESCRIPTION

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.

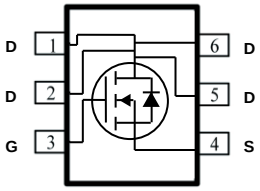
FEATURES

- Low $R_{DS(ON)}$ Provides Higher Efficiency and Extends Battery Life
- Low Thermal Impedance Copper Lead Frame TSOP-6 Saves Board Space
- Fast Switching Speed
- High Performance Trench Technology

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			



PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7 inch

ORDER INFORMATION

Part Number	Type
STT3434N-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [1]	T_A=25°C	I_D	6.5	A
	T_A=70°C		5.3	
Pulsed Drain Current [2]		I_{DM}	25	A
Continuous Source Current (Diode Conduction) [1]		I_S	2.9	A
Power Dissipation [1]	T_A=25°C	P_D	2	W
	T_A=70°C		1.3	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Maximum Thermal Resistance from Junction-Ambient [1]	t≦ 10sec	$R_{\theta JA}$	62.5	°C/W
	Steady State		110	
Maximum Thermal Resistance from Junction-Case [1]		$R_{\theta JC}$	70	

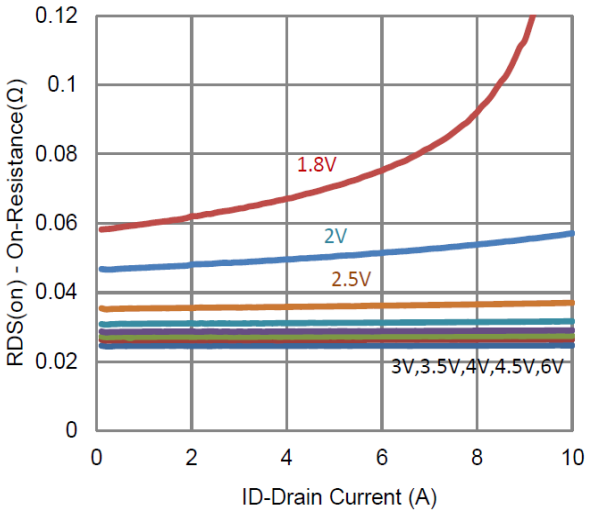
Notes:
1. The surface of the device is mounted on a 1" x 1" FR-4 Board.
2. The pulse width is limited by the maximum junction temperature.

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

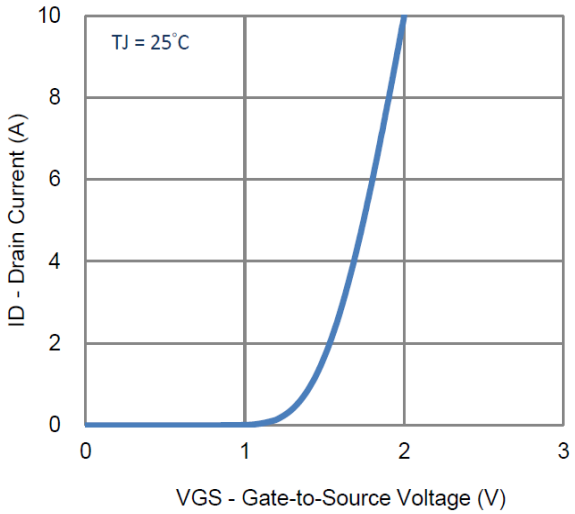
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Gate-Threshold Voltage	$V_{GS(th)}$	0.4	-	-	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance [1]	g_{fs}	-	8	-	S	V_{DS}=15V, I_D=2A
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}= ±12V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
		-	-	10		V_{DS}=24V, V_{GS}=0, T_J=55°C
On-State Drain Current [1]	$I_{D(on)}$	9	-	-	A	V_{DS}=5V, V_{GS}=4.5V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	32	mΩ	V_{GS}=4.5V, I_D=2A
		-	-	40		V_{GS}=2.5V, I_D=1.6A
Total Gate Charge	Q_g	-	9	-	nC	V_{DS}=15V V_{GS}=4.5V I_D=2A
Gate-Source Charge	Q_{gs}	-	1.7	-		
Gate-Drain Charge	Q_{gd}	-	3	-		
Turn-on Delay Time	$T_{d(on)}$	-	10	-	nS	V_{DS}=15V V_{GEN}=4.5V R_L=7.5Ω R_{GEN}=6Ω I_D=2A
Rise Time	T_r	-	17	-		
Turn-off Delay Time	$T_{d(off)}$	-	40	-		
Fall Time	T_f	-	11	-		
Input Capacitance	C_{iss}	-	640	-	pF	V_{GS}=0 V_{DS}=15V f=1MHz
Output Capacitance	C_{oss}	-	52	-		
Reverse Transfer Capacitance	C_{rss}	-	46	-		
Source-Drain Diode						
Diode Forward Voltage [1]	V_{SD}	-	0.67	-	V	I_S=1.5A, V_{GS}=0

Note:
1. Pulse test: Pulse width≦300μs, duty cycle≦2%.

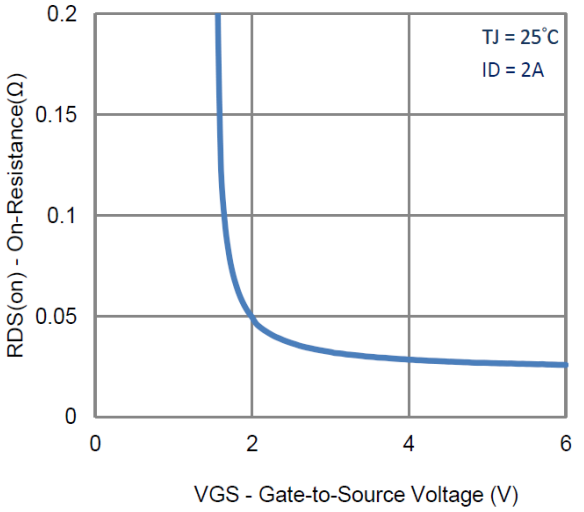
CHARACTERISTICS CURVE



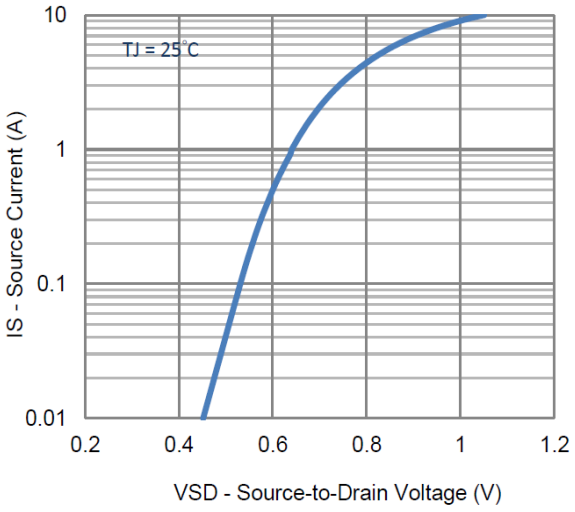
1. On-Resistance vs. Drain Current



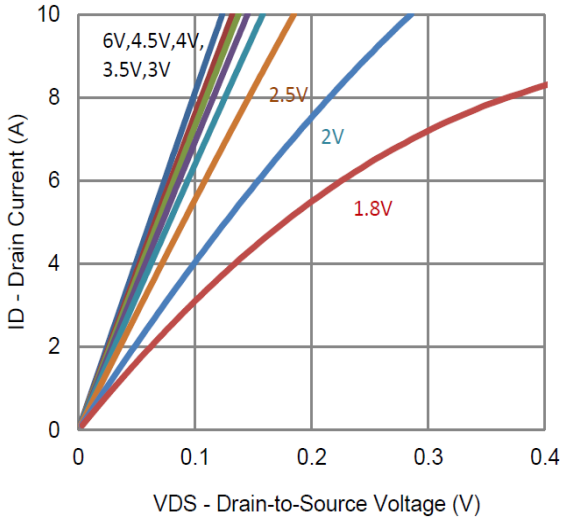
2. Transfer Characteristics



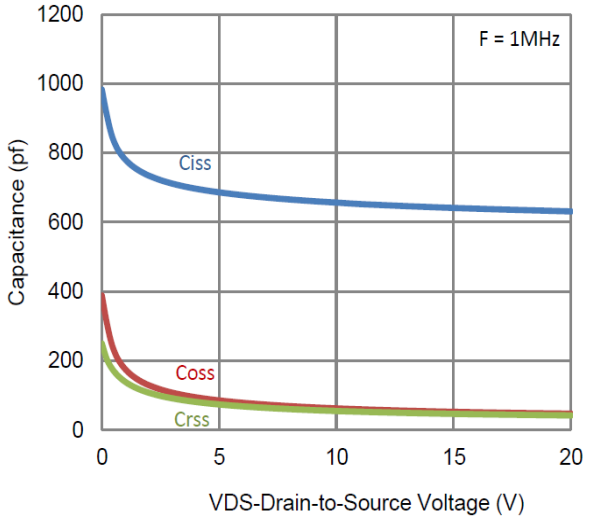
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

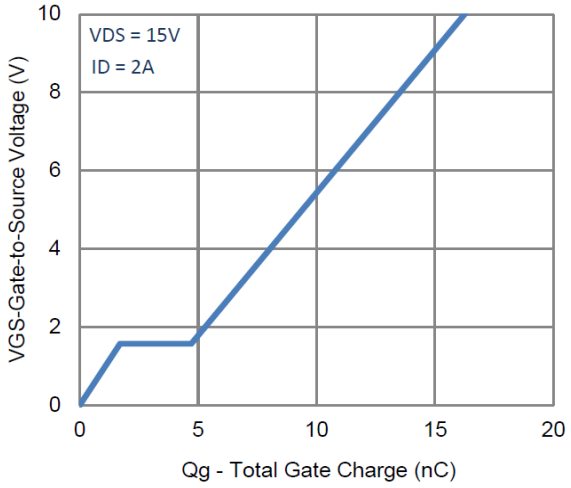


5. Output Characteristics

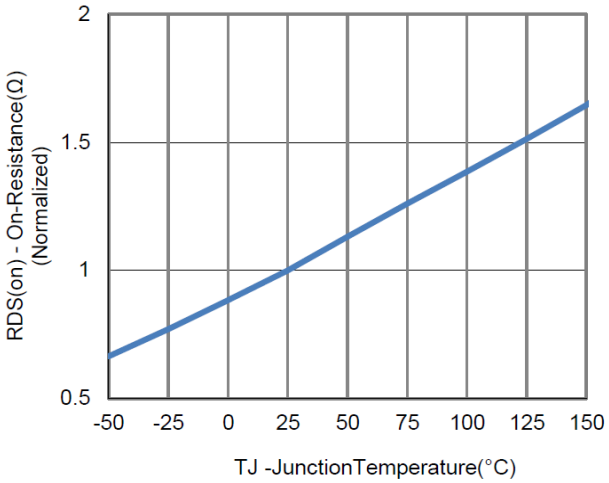


6. Capacitance

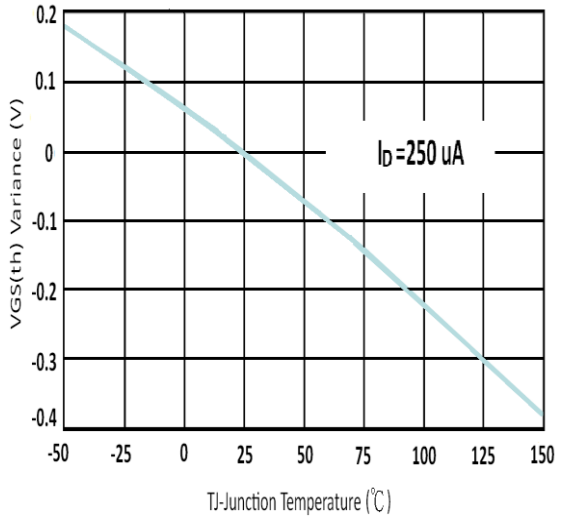
CHARACTERISTICS CURVE



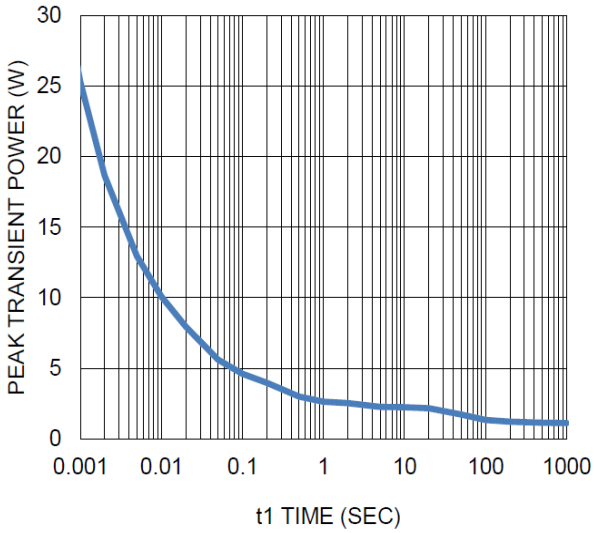
7. Gate Charge



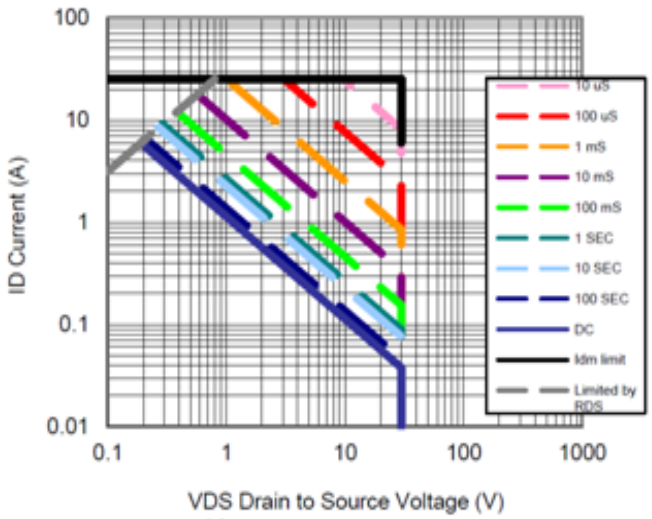
8. Normalized On-Resistance Vs Junction Temperature



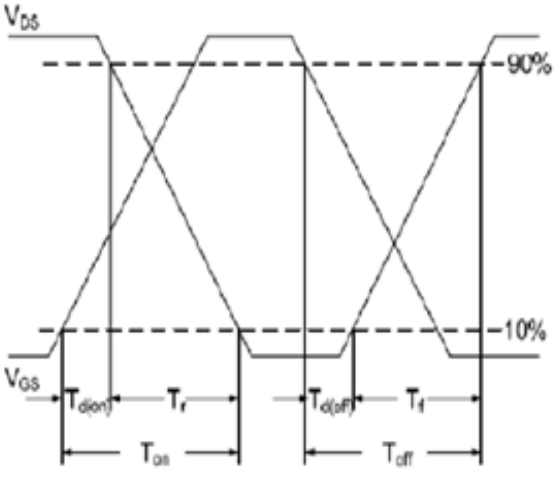
9. VGS(th) Variance vs. TJ



10. Single Pulse Maximum Power Dissipation

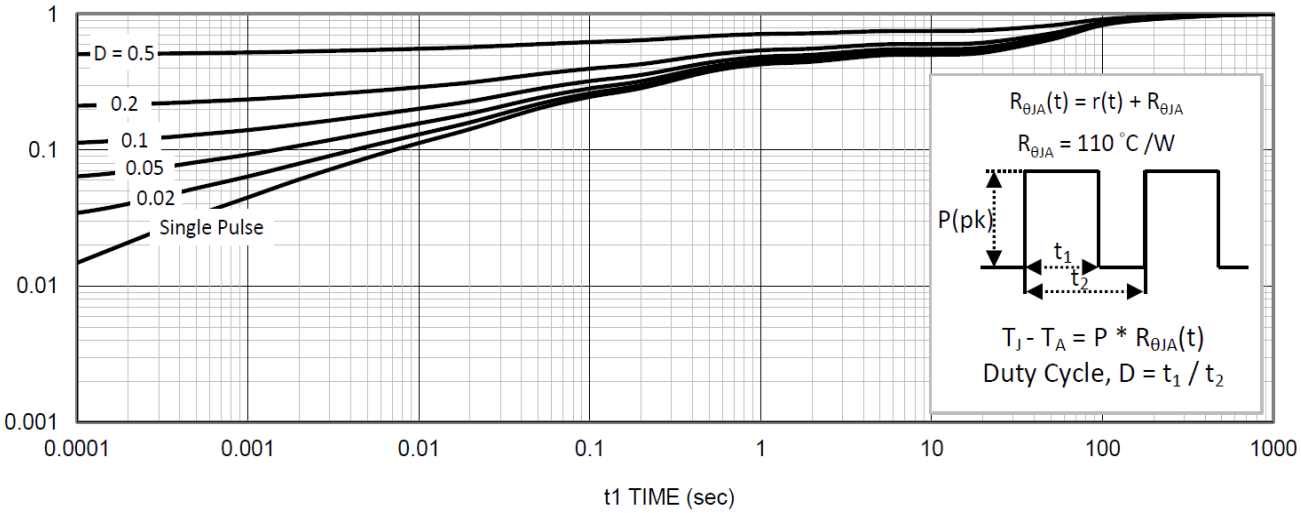


11. Safe Operating Area

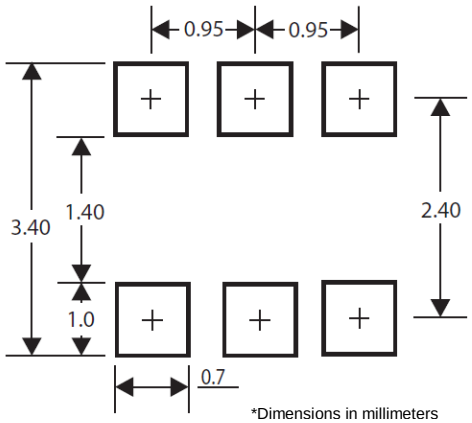


12. Switching Time Waveform

CHARACTERISTICS CURVE



13. Normalized Thermal Transient Junction to Ambient



14. Mounting Pad Layout