Elektronische Bauelemente

STT3998N

Dual N-Ch Enhancement Mode Mos.FET

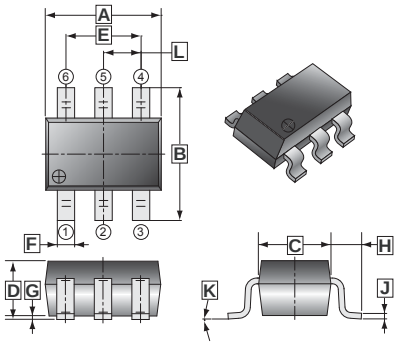
3.7 A, 20 V, $R_{DS(ON)}$ 58 mΩ

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.

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 $R_{DS(on)}$ provide higher efficiency and extends battery life.
- Low thermal impedance copper leadframe TSOP-6 saves board space.
- Fast switching speed.
- High performance trench technology.

PRODUCT SUMMARY

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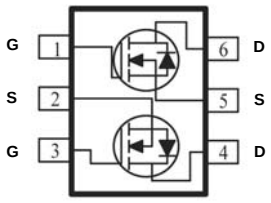
V_{DS}(V)	R_{DS}(on) (mΩ)	I_D(A)
20	58@V_{GS}= 4.5V	3.7
	82@V_{GS}= 2.5V	3.1



ABSOLUTE MAXIMUM RATINGS(T_A=25°C UNLESS OTHERWISE NOTED)

Parameter		Symbol	Ratings	Unit
			Maximum	
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [a]	T_A= 25°C	I_D	3.7	A
	T_A= 70°C		2.9	
Pulsed Drain Current [b]		I_{DM}	8	A
Continuous Source Current (Diode Conduction) [a]		I_S	1.05	A
Power Dissipation [a]	T_A= 25°C	P_D	1.15	W
	T_A= 70°C		0.7	
Operating Junction and Storage Temperature Range		Tj, Tstg	-55 ~ 150	°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typ.	Max.	Unit
Maximum Junction to Ambient [a]	t ≦ 10 sec	$R_{\theta JA}$	93	110	°C / W
	Steady State		130	150	

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

b. Pulse width limited by maximum junction temperature.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-Threshold Voltage	$V_{GS(th)}$	0.7	-	-	V	V_{DS}=V_{GS}, I_D= 250uA
Gate-Body Leakage	I_{GSS}	-	-	1	uA	V_{DS}= 0V, V_{GS}= 12V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	0.1	uA	V_{DS}= 16V, V_{GS}= 0V
		-	-	1		V_{DS}= 16V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [a]	$I_{D(on)}$	30	-	-	A	V_{DS} = 5V, V_{GS}= 4.5V
Drain-Source On-Resistance [a]	$R_{DS(ON)}$	-	-	58	mΩ	V_{GS}= 4.5V, I_D= 3.7A
		-	-	82		V_{GS}= 2.5V, I_D= 2.7A
Forward Transconductance [a]	g_{fs}	-	10	-	S	V_{DS}= 10V, I_D= 6.8A
Diode Forward Voltage [a]	V_{SD}	-	0.8	-	V	I_S= 1.05A, V_{GS}= 0V
DYNAMIC [b]						
Total Gate Charge	Q_g	-	7.5	-	nC	V_{DS}= 10V, V_{GS}= 4.5V, I_D= 3.7A
Gate-Source Charge	Q_{gs}	-	0.6	-		
Gate-Drain Charge	Q_{gd}	-	1.0	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	V_{DD}= 10V, V_{GS}= 4.5V, R_{GEN}= 15Ω, I_D= 1A
Rise Time	T_r	-	12	-		
Turn-off Delay Time	$T_{d(off)}$	-	13	-		
Fall Time	T_f	-	7	-		

Notes

a. Pulse test : PW ≦ 300 us duty cycle ≦ 2%.

b. Guaranteed by design, not subject to production testing.