Elektronische Bauelemente

SMG1330N

2.0A , 30V , $R_{DS(ON)}$ 58 mΩ
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.

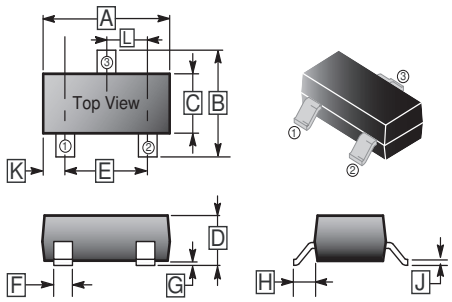
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SC59 saves board space.
- Fast switching speed.
- High performance trench technology.

APPLICATION

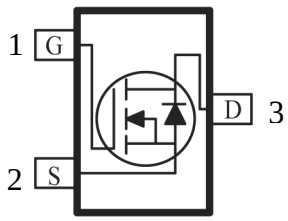
DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

SC-59



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.10 REF.	
B	2.25	3.00	H	0.40 REF.	
C	1.30	1.70	J	0.10	0.20
D	1.00	1.40	K	0.45	0.55
E	1.70	2.30	L	0.85	1.15
F	0.35	0.50			

TOP VIEW



PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_A=25°C	I_D	2.0	A
	T_A=70°C		1.7	A
Pulsed Drain Current [2]		I_{DM}	±20	A
Continuous Source Current (Diode Conduction) [1]		I_S	1.6	A
Power Dissipation [1]	T_A=25°C	P_D	0.34	W
	T_A=70°C		0.22	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Maximum Junction to Ambient [1]	t ≦ 5 sec	$R_{\theta JA}$	100	°C / W
	Steady State		166	

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
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}= ±20V
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]	$I_{D(on)}$	10	-	-	A	V_{DS} =5V, V_{GS}=10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	58	mΩ	V_{GS}=10V, I_D=2A
		-	-	82		V_{GS}=4.5V, I_D=1.7A
Forward Transconductance [1]	g_{fs}	-	11.3	-	S	V_{DS}=10V, I_D=2A
Diode Forward Voltage	V_{SD}	-	0.75	-	V	I_S=1.6A, V_{GS}=0
Dynamic [2]						
Total Gate Charge	Q_g	-	7.5	-	nC	V_{DS}=10V, V_{GS}=5V, I_D=2A
Gate-Source Charge	Q_{gs}	-	0.6	-		
Gate-Drain Charge	Q_{gd}	-	1	-		
Turn-on Delay Time	$T_{d(on)}$	-	8	-	nS	V_{DD}=10V, V_{GEN}=4.5V, R_L=15Ω, I_D=1A
Rise Time	T_r	-	24	-		
Turn-off Delay Time	$T_{d(off)}$	-	35	-		
Fall Time	T_f	-	10	-		

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