Elektronische Bauelemente

SMG2314NE

4 A, 20 V, $R_{DS(ON)}$ 32 mΩ
N-Channel Enhancement Mode Mos.FET

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

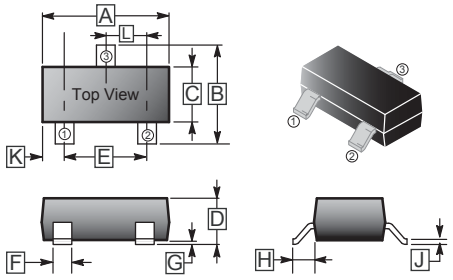
DESCRIPTION

These miniature surface mount MOSFETs utilize High Cell Density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature SC-59 surface mount package saves board space.
- High power and current handling capability.
- MLow side high current DC-DC Converter applications

SC-59

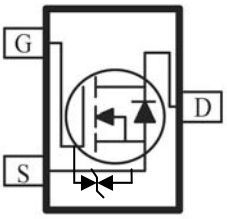


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.10 REF.	
B	2.25	3.00	H	0.40 REF.	
C	1.30	1.70	J	0.10	0.20
D	1.00	1.40	K	0.45	0.55
E	1.70	2.30	L	0.85	1.15
F	0.35	0.50			

PACKAGE INFORMATION

Package	MPQ	LeaderSize
SC-59	3K	7' inch

ESD
Protection Diode
2KV



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 [1]	I_D @ T_A=25°C	I_D	4.0	A
	I_D @ T_A=70°C		3.1	A
Pulsed Drain Current [2]		I_{DM}	±20	A
Continuous Source Current (Diode Conduction) [1]		I_S	1.6	A
Power Dissipation [1]	P_D @ T_A=25°C	P_D	1.3	W
	P_D @ T_A=70°C		0.8	W
Operating Junction and Storage Temperature Range		Tj, Tstg	-55 ~ 150	°C

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Unit
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	$V_{GS(th)}$	0.7	-	-	V	V_{DS}=V_{GS}, I_D= 250uA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±8V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	uA	V_{DS}= 16V, V_{GS}= 0V
		-	-	10		V_{DS}= 16V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [1]	$I_{D(on)}$	10	-	-	A	V_{DS} = 5V, V_{GS}= 4.5V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	32	mΩ	V_{GS}= 4.5V, I_D= 4.6A
		-	-	44		V_{GS}= 2.5V, I_D= 3.9A
Forward Transconductance [1]	g_{fs}	-	11.3	-	S	V_{DS}= 10V, I_D= 4.0A
Diode Forward Voltage	V_{SD}	-	0.75	-	V	I_S= 1.6A, V_{GS}= 0V
Dynamic [2]						
Total Gate Charge	Q_g	-	13.4	-	nC	V_{DS}= 10V, V_{GS}= 4.5V, I_D= 4.0A
Gate-Source Charge	Q_{gs}	-	0.9	-		
Gate-Drain Charge	Q_{gd}	-	2.0	-		
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	-		
Source-Ddrain Reverse Recovery Time	T_{rr}	-	40	-		I_F=1.6A, di/dt =100 A/uS

Notes

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

2 Guaranteed by design, not subject to production testing.