

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

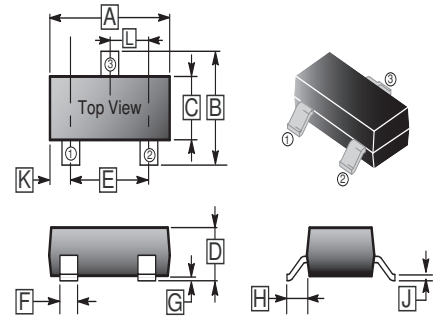
DESCRIPTION

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 SOT-23 Surface Mount Package Saves Board Space
- High power and current handling capability
- Low side high current DC-DC Converter applications

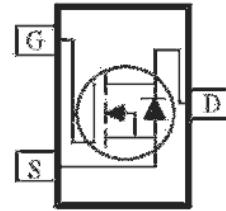
SC-59



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	Leader Size
SC-59	3K	7 inch



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ¹	I_D	$T_A=25^\circ\text{C}$	5.2
		$T_A=70^\circ\text{C}$	4.1
Pulsed Drain Current ²	I_{DM}	30	A
Continuous Source Current (Diode Conduction) ¹	I_S	1.6	A
Power Dissipation ¹	P_D	$T_A=25^\circ\text{C}$	1.3
		$T_A=70^\circ\text{C}$	0.8
Junction and Storage Temperature Range	T_J, T_{stg}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Maximum Junction to Ambient ¹	$R_{\theta JA}$	$t \leq 5 \text{ sec}$	100
		Steady-State	166

Notes:

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

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
On-State Drain Current ¹	$I_{D(on)}$	20	-	-	A	$V_{DS}=5\text{V}, V_{GS}=10\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=24\text{V}, V_{GS}=0$
		-	-	25		$V_{DS}=24\text{V}, V_{GS}=0, T_J=55^\circ\text{C}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=20\text{V}, V_{DS}=0$
Gate Threshold Voltage	$V_{GS(th)}$	1	-	-	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Drain-Source On Resistance ¹	$R_{DS(ON)}$	-	-	32	m Ω	$V_{GS}=10\text{V}, I_D=5.2\text{A}$
		-	-	64		$V_{GS}=4.5\text{V}, I_D=3.7\text{A}$
Forward Transconductance ¹	g_{FS}	-	40	-	S	$V_{DS}=15\text{V}, I_D=5.2\text{A}$
Diode Forward Voltage	V_{SD}	-	0.7	-	V	$I_S=2.3\text{A}, V_{GS}=0$
Dynamic²						
Total Gate Charge	Q_g	-	4.0	-	nC	$V_{DS}=15\text{V},$ $V_{GS}=4.5\text{V},$ $I_D=5.2\text{A}$
Gate-Source Charge	Q_{gs}	-	1.1	-		
Gate-Drain Charge	Q_{gd}	-	1.4	-		
Turn-On Delay Time	$T_{d(ON)}$	-	16	-	nS	$V_{DD}=25\text{V},$ $R_L=25\Omega,$ $I_D=1\text{A},$ $V_{GEN}=10\text{V}$
Turn-Off Delay Time	$T_{d(OFF)}$	-	23	-		
Rise Time	T_r	-	5	-		
Fall-Time	T_f	-	3	-		

Notes:

1. Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.