

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.

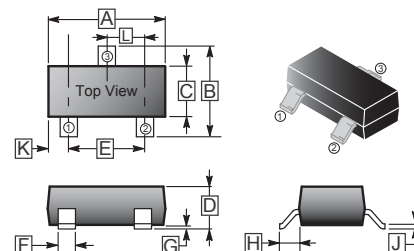
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature SC-59 surface mount Package saves board space.

Application

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

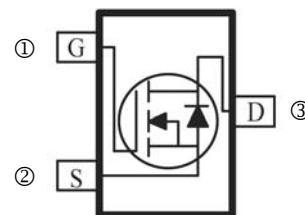
SC-59



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			

PACKAGE INFORMATION

Package	MPQ	LeaderSize
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_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current ¹	$T_A = 25^\circ\text{C}$	I_D	2.2	A
	$T_A = 70^\circ\text{C}$		1.8	
Pulsed Drain Current ²		I_{DM}	8	A
Continuous Source Current (Diode Conduction) ¹		I_S	0.6	A
Power Dissipation ¹	$T_A = 25^\circ\text{C}$	P_D	1.25	W
	$T_A = 70^\circ\text{C}$		0.8	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	$^\circ\text{C}$
Thermal Resistance Ratings				
Maximum Junction to Ambient ¹	$t \leq 5 \text{ sec}$	$R_{\theta JA}$	100	$^\circ\text{C/W}$
	Steady-State		166	

Notes:

- Surface Mounted on 1" x 1" FR4 Board.
- 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						
Gate-Threshold Voltage	$V_{GS(th)}$	0.7	-	-	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	1	μA	$V_{DS}=0$, $V_{GS}=12\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	0.1	μA	$V_{DS}=16\text{V}$, $V_{GS}=0$
		-	-	1		$V_{DS}=16\text{V}$, $V_{GS}=0$, $T_J=55^\circ\text{C}$
On-State Drain Current ^A	$I_{D(ON)}$	5	-	-	A	$V_{DS}=5\text{V}$, $V_{GS}=4.5\text{V}$
Drain-Source On-Resistance ^A	$R_{DS(ON)}$	-	-	70	m Ω	$V_{GS}=4.5\text{V}$, $I_D=2.2\text{A}$
		-	-	80		$V_{GS}=2.5\text{V}$, $I_D=2\text{A}$
		-	-	120		$V_{GS}=1.8\text{V}$, $I_D=1.8\text{A}$
Forward Transconductance ^A	g_{FS}	-	11	-	S	$V_{DS}=5\text{V}$, $I_D=2\text{A}$
Diode Forward Voltage	V_{SD}	-	0.6	-	V	$I_S=0.6\text{A}$, $V_{GS}=0$
Dynamic ²						
Total Gate Charge	Q_g	-	4.5	-	nC	$I_D=2\text{A}$ $V_{DS}=10\text{V}$ $V_{GS}=4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	0.89	-		
Gate-Drain Charge	Q_{gd}	-	0.95	-		
Turn-On Delay Time	$T_{d(ON)}$	-	6	-	nS	$I_D=1\text{A}$, $V_{DD}=10\text{V}$ $V_{GS}=4.5\text{V}$ $R_G=6\Omega$
Rise Time	T_r	-	6.5	-		
Turn-Off Delay Time	$T_{d(OFF)}$	-	14	-		
Fall Time	T_f	-	2	-		

Notes:

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