

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

DESCRIPTION

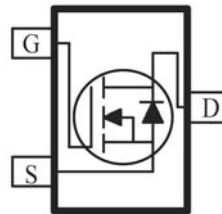
These miniature surface mount MOSFETs utilize a High Cell Density trench process to provide Low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

FEATURES

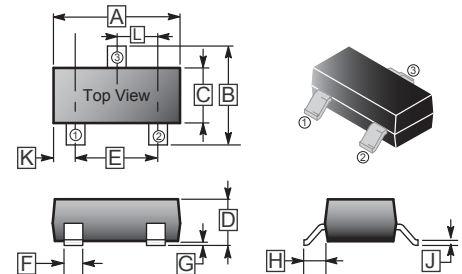
- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SC-59 saves board space.
- Fast switching speed.
- High performance trench technology.

PRODUCT SUMMARY

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$V_{DS}(V)$	$R_{DS(on)} (\Omega)$	$I_D(A)$
150	0.700@ $V_{GS}=10V$	1.1
	1.200@ $V_{GS}=5.5V$	0.8



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			

ABSOLUTE MAXIMUM RATINGS($T_A=25^\circ C$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Ratings	Unit
		Maximum	
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^a	I_D	1.1	A
Pulsed Drain Current ^b	I_{DM}	± 10	A
Continuous Source Current (Diode Conduction) ^a	I_S	1.1	A
Power Dissipation ^a	P_D	1.30	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ 150	$^\circ C$

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typ	Max	Unit
Maximum Junction to Ambient ^a	$t \leq 10$ sec	$R_{\theta JA}$	93	110	$^\circ C / W$
	Steady State		130	150	

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
Gate-Threshold Voltage	$V_{GS(th)}$	1.0	-	-	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	± 100	μA	$V_{DS}=0\text{V}$, $V_{GS}=\pm 8\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=120\text{V}$, $V_{GS}=0\text{V}$
		-	-	10		$V_{DS}=120\text{V}$, $V_{GS}=0\text{V}$, $T_J=55^\circ\text{C}$
On-State Drain Current ^a	$I_{D(on)}$	10	-	-	A	$V_{DS}=5\text{V}$, $V_{GS}=10\text{V}$
Drain-Source On-Resistance ^a	$R_{DS(ON)}$	-	-	0.700	Ω	$V_{GS}=10\text{V}$, $I_D=1.1\text{A}$
		-	-	1.200		$V_{GS}=5.5\text{V}$, $I_D=0.8\text{A}$
Forward Transconductance ^a	g_{fs}	-	11.3	-	S	$V_{DS}=10\text{V}$, $I_D=1.1\text{A}$
Diode Forward Voltage ^a	V_{SD}	-	0.75	-	V	$I_S=1.6\text{A}$, $V_{GS}=0\text{V}$
DYNAMIC ^b						
Total Gate Charge	Q_g	-	7.0	-	nC	$V_{DS}=10\text{V}$, $V_{GS}=5.5\text{V}$, $I_D=1.1\text{A}$
Gate-Source Charge	Q_{gs}	-	1.1	-		
Gate-Drain Charge	Q_{gd}	-	2.0	-		
Turn-on Delay Time	$T_{d(on)}$	-	8	-	nS	$V_{DD}=10\text{V}$, $V_{GEN}=4.5\text{V}$, $R_L=15\Omega$, $I_D=1\text{A}$
Rise Time	T_r	-	24	-		
Turn-off Delay Time	$T_{d(off)}$	-	35	-		
Fall Time	T_f	-	10	-		

Notes

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