

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.

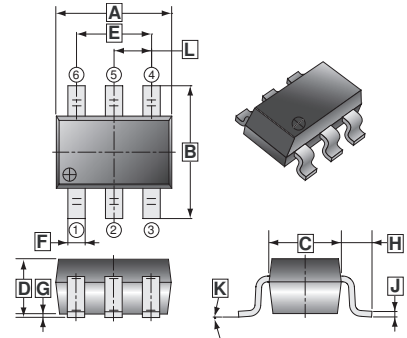
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe TSOP-6 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.

TSOP-6



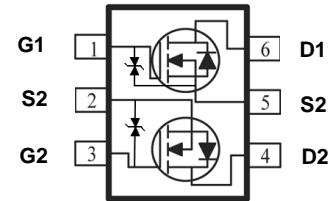
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7 inch



ESD
Protection Diode
2KV



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	$T_A=25^\circ\text{C}$	2.3
		$T_A=70^\circ\text{C}$	1.9
Pulsed Drain Current ²	I_{DM}	8	A
Continuous Source Current (Diode Conduction) ¹	I_S	1.05	A
Power Dissipation ¹	P_D	$T_A=25^\circ\text{C}$	1.15
		$T_A=70^\circ\text{C}$	0.7
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Maximum Junction to Ambient ¹	$R_{\theta JA}$	$t \leq 10$ 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	Teat Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Gate-Body Leakage Current	I_{GSS}	-	-	100	μA	$V_{DS}=0, V_{GS}=20\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=48\text{V}, V_{GS}=0$
		-	-	10		$V_{DS}=48\text{V}, V_{GS}=0, T_J=55^\circ\text{C}$
On-State Drain Current ¹	$I_{D(on)}$	5	-	-	A	$V_{DS}=5\text{V}, V_{GS}=10\text{V}$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	0.153	Ω	$V_{GS}=10\text{V}, I_D=2.3\text{A}$
		-	-	0.185		$V_{GS}=4.5\text{V}, I_D=2.1\text{A}$
Forward Transconductance ¹	g_{fs}	-	10	-	S	$V_{DS}=5\text{V}, I_D=2.3\text{A}$
Diode Forward Voltage ¹	V_{SD}	-	0.8	-	V	$I_S=1.05\text{A}, V_{GS}=0$
Dynamic ²						
Total Gate Charge	Q_g	-	3	-	nC	$V_{DS}=15\text{V},$ $V_{GS}=4.5\text{V},$ $I_D=2.3\text{A}$
Gate-Source Charge	Q_{gs}	-	0.6	-		
Gate-Drain Charge	Q_{gd}	-	1	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=15\text{V},$ $V_{GS}=4.5\text{V},$ $R_{GEN}=15\Omega,$ $I_D=1\text{A}$
Rise Time	T_r	-	12	-		
Turn-off Delay Time	$T_{d(off)}$	-	13	-		
Fall Time	T_f	-	7	-		

Notes:

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