

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.

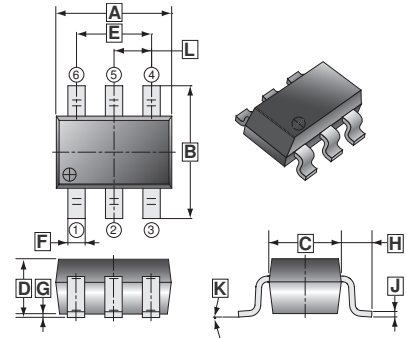
## FEATURES

- 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



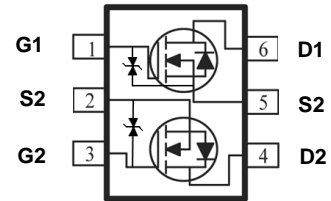
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

## 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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	$T_A=25^\circ\text{C}$	2.3
		$T_A=70^\circ\text{C}$	1.9
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	8	A
Continuous Source Current (Diode Conduction) <sup>1</sup>	$I_S$	1.05	A
Power Dissipation <sup>1</sup>	$P_D$	$T_A=25^\circ\text{C}$	1.15
		$T_A=70^\circ\text{C}$	0.7
Operating Junction and Storage Temperature Range	$T_j, T_{stg}$	-55~150	$^\circ\text{C}$
<b>Thermal Resistance Rating</b>			
Maximum Junction to Ambient <sup>1</sup>	$R_{\theta JA}$	$t \leq 10$ 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
<b>Static</b>						
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	$\mu\text{A}$	$V_{DS}=0, V_{GS}=20\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=48\text{V}, V_{GS}=0$
		-	-	10		$V_{DS}=48\text{V}, V_{GS}=0, T_J=55^\circ\text{C}$
On-State Drain Current <sup>1</sup>	$I_{D(on)}$	5	-	-	A	$V_{DS}=5\text{V}, V_{GS}=10\text{V}$
Drain-Source On-Resistance <sup>1</sup>	$R_{DS(ON)}$	-	-	0.153	$\Omega$	$V_{GS}=10\text{V}, I_D=2.3\text{A}$
		-	-	0.185		$V_{GS}=4.5\text{V}, I_D=2.1\text{A}$
Forward Transconductance <sup>1</sup>	$g_{fs}$	-	10	-	S	$V_{DS}=5\text{V}, I_D=2.3\text{A}$
Diode Forward Voltage <sup>1</sup>	$V_{SD}$	-	0.8	-	V	$I_S=1.05\text{A}, V_{GS}=0$
<b>Dynamic <sup>2</sup></b>						
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.