

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.

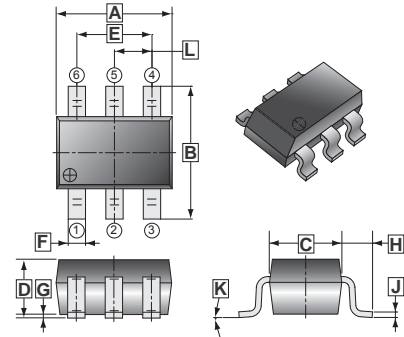
## FEATURES

- Low  $R_{DS(on)}$  provides higher efficiency and extend battery life
- Low thermal impedance copper leadframe TSOP-6 saves board space
- Fast switching speed
- High performance trench technology

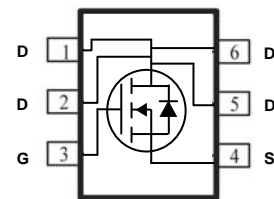
## PACKAGE INFORMATION

Package	MPQ	LeaderSize
TSOP-6	3K	7' inch

## 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			



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	2.2	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	$\pm 10$	A
Continuous Source Current (Diode Conduction) <sup>1</sup>	$I_S$	1.1	A
Power Dissipation <sup>1</sup>	$P_D$	2	W
Operating Junction and Storage Temperature Range	$T_j, T_{stg}$	-55 ~ 150	$^\circ\text{C}$

## Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Maximum Junction to Ambient <sup>1</sup>	$R_{\theta JA}$	93	110	$^\circ\text{C} / \text{W}$
		130	150	

### 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
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$
Gate-Body Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 8\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=80\text{V}$ , $V_{GS}=0\text{V}$
		-	-	10		$V_{DS}=80\text{V}$ , $V_{GS}=0\text{V}$ , $T_J=55^\circ\text{C}$
On-State Drain Current <sup>1</sup>	$I_{D(on)}$	10	-	-	A	$V_{DS}=5\text{V}$ , $V_{GS}=10\text{V}$
Drain-Source On-Resistance <sup>1</sup>	$R_{DS(ON)}$	-	-	280	m $\Omega$	$V_{GS}=10\text{V}$ , $I_D=2.2\text{A}$
		-	-	355		$V_{GS}=5.5\text{V}$ , $I_D=2\text{A}$
Forward Transconductance <sup>1</sup>	$g_{fs}$	-	11.3	-	S	$V_{DS}=10\text{V}$ , $I_D=2.2\text{A}$
Diode Forward Voltage	$V_{SD}$	-	0.75	-	V	$I_S=1.6\text{A}$ , $V_{GS}=0\text{V}$
<b>Dynamic <sup>2</sup></b>						
Total Gate Charge	$Q_g$	-	7.0	-	nC	$V_{DS}=10\text{V}$ , $V_{GS}=5.5\text{V}$ , $I_D=2.2\text{A}$
Gate-Source Charge	$Q_{gs}$	-	1.1	-		
Gate-Drain Charge	$Q_{gd}$	-	20	-		
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 :

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