

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.

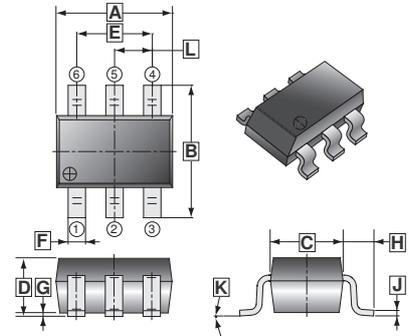
**FEATURES**

- 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**

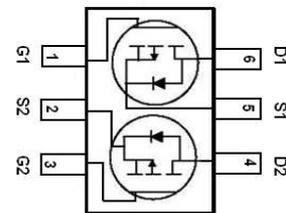


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

**PACKAGE INFORMATION**

Package	MPQ	Leader Size
TSOP-6	3K	7 inch

**Top View**



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1</sup>	$I_D$	$T_A=25^\circ\text{C}$	-2.5
		$T_A=70^\circ\text{C}$	-1.9
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	-10	A
Continuous Source Current (Diode Conduction) <sup>1</sup>	$I_S$	-1.6	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	110
		Steady State	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
<b>Static</b>						
Gate-Threshold Voltage	$V_{GS(th)}$	-0.6	-	-	V	$V_{DS}=V_{GS}$ , $I_D = -250\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS}=0$ , $V_{GS} = \pm 12\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	-1	$\mu\text{A}$	$V_{DS} = -16\text{V}$ , $V_{GS}=0$
		-	-	-10		$V_{DS} = -16\text{V}$ , $V_{GS}=0$ , $T_J=55^\circ\text{C}$
On-State Drain Current <sup>1</sup>	$I_{D(on)}$	-3	-	-	A	$V_{DS} = -5\text{V}$ , $V_{GS} = -10\text{V}$
Drain-Source On-Resistance <sup>1</sup>	$R_{DS(ON)}$	-	-	130	m $\Omega$	$V_{GS} = -4.5\text{V}$ , $I_D = -2.5\text{A}$
		-	-	190		$V_{GS} = -2.5\text{V}$ , $I_D = -1.9\text{A}$
Forward Transconductance <sup>1</sup>	$g_{fs}$	-	3	-	S	$V_{DS} = -5\text{V}$ , $I_D = -2.5\text{A}$
Diode Forward Voltage	$V_{SD}$	-	-0.7	-	V	$I_S = -1.6\text{A}$ , $V_{GS}=0$
<b>Dynamic <sup>2</sup></b>						
Total Gate Charge	$Q_g$	-	12.2	-	nC	$V_{DS} = -5\text{V}$ , $V_{GS} = -4.5\text{V}$ , $I_D = -2.5\text{A}$
Gate-Source Charge	$Q_{gs}$	-	1.1	-		
Gate-Drain Charge	$Q_{gd}$	-	1.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	6.5	-	nS	$V_{DD} = -5\text{V}$ , $V_{GEN} = -4.5\text{V}$ , $R_L = 5\Omega$ , $R_G = 6\Omega$
Rise Time	$T_r$	-	20	-		
Turn-off Delay Time	$T_{d(off)}$	-	31	-		
Fall Time	$T_f$	-	21	-		

Notes:

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