

RoHS Compliant Product
A suffix of "-C" specifies halogen & 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, and PCMCIA cards, cellular and cordless telephones.

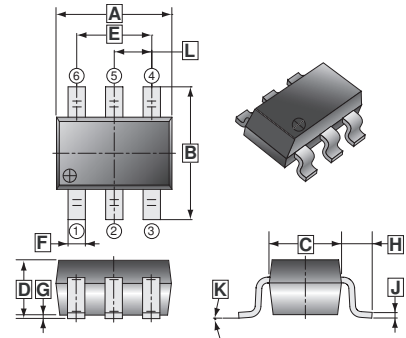
FEATURES

- Low on-resistance
- Low drive current
- Low R_{DS(on)} Provides Higher Efficiency and Extends Battery Life
- Fast switching speed
- High performance trench technology

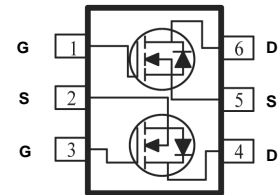
PACKAGE INFORMATION

Package	MPQ	Leader Size
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°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±8	V
Continuous Drain Current ¹	I _D	T _A = 25°C	4.1
		T _A = 70°C	3.3
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°C	1.15
		T _A = 70°C	0.7
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55~150	°C
Thermal Resistance Rating			
Maximum Junction to Ambient ¹	R _{θJA}	t ≤ 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
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	0.4	-	-	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	1	μA	$V_{DS}=0$, $V_{GS}=8\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	0.1	μA	$V_{DS}=16\text{V}$, $V_{GS}=0$
		-	-	1		$V_{DS}=16\text{V}$, $V_{GS}=0$, $T_J=55^\circ\text{C}$
On-State Drain Current ¹	$I_{D(on)}$	30	-	-	A	$V_{DS}=5\text{V}$, $V_{GS}=4.5\text{V}$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	47	m Ω	$V_{GS}=4.5\text{V}$, $I_D=4.1\text{A}$
		-	-	55		$V_{GS}=2.5\text{V}$, $I_D=3.8\text{A}$
Forward Transconductance ¹	g_{fs}	-	10	-	S	$V_{DS}=10\text{V}$, $I_D=4.1\text{A}$
Diode Forward Voltage	V_{SD}	-	0.8	-	V	$I_S=1.05\text{A}$, $V_{GS}=0$
Dynamic ²						
Total Gate Charge	Q_g	-	7.5	-	nC	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=4.1\text{A}$
Gate-Source Charge	Q_{gs}	-	0.6	-		
Gate-Drain Charge	Q_{gd}	-	1	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=1\text{A}$, $R_{GNE}=15\Omega$
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.