

RoHS Compliant Product
 A suffix of "-C" specifies halogen and lead-free

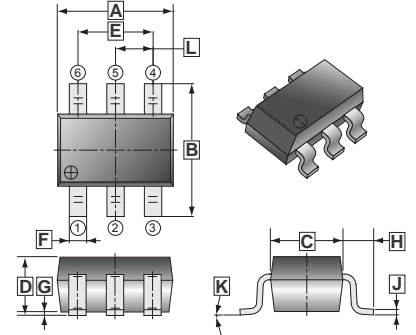
DESCRIPTION

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)} provide higher efficiency and extends battery life.
- Low thermal impedance copper leadframe TSOP-6 saves board space.
- Fast switching speed.
- High performance trench technology.

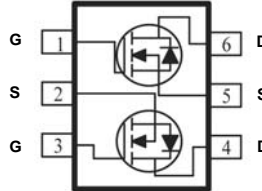
TSOP-6



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			

PRODUCT SUMMARY

PRODUCT SUMMARY		
V _{DS} (V)	R _{DS(on)} (mΩ)	I _D (A)
20	58@V _{GS} = 4.5V	3.7
	82@V _{GS} = 2.5V	3.1



ABSOLUTE MAXIMUM RATINGS(T_A=25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Ratings	Unit
		Maximum	
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current ^a	I _D	T _A = 25°C	3.7
		T _A = 70°C	2.9
Pulsed Drain Current ^b	I _{DM}	8	A
Continuous Source Current (Diode Conduction) ^a	I _S	1.05	A
Power Dissipation ^a	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 RATINGS

Parameter	Symbol	Typ.	Max.	Unit
Maximum Junction to Ambient ^a	R _{θJA}	t ≤ 10 sec	93	°C / W
		Steady State	130	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- 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	$V_{GS(th)}$	0.7	-	-	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	1	μA	$V_{DS}=0\text{V}$, $V_{GS}=12\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	0.1	μA	$V_{DS}=16\text{V}$, $V_{GS}=0\text{V}$
		-	-	1		$V_{DS}=16\text{V}$, $V_{GS}=0\text{V}$, $T_J=55^\circ\text{C}$
On-State Drain Current ^a	$I_{D(on)}$	30	-	-	A	$V_{DS}=5\text{V}$, $V_{GS}=4.5\text{V}$
Drain-Source On-Resistance ^a	$R_{DS(ON)}$	-	-	58	m Ω	$V_{GS}=4.5\text{V}$, $I_D=3.7\text{A}$
		-	-	82		$V_{GS}=2.5\text{V}$, $I_D=2.7\text{A}$
Forward Transconductance ^a	g_{fs}	-	10	-	S	$V_{DS}=10\text{V}$, $I_D=6.8\text{A}$
Diode Forward Voltage ^a	V_{SD}	-	0.8	-	V	$I_S=1.05\text{A}$, $V_{GS}=0\text{V}$
DYNAMIC ^b						
Total Gate Charge	Q_g	-	7.5	-	nC	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=3.7\text{A}$
Gate-Source Charge	Q_{gs}	-	0.6	-		
Gate-Drain Charge	Q_{gd}	-	1.0	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=10\text{V}$, $V_{GS}=4.5\text{V}$, $R_{GEN}=15\Omega$, $I_D=1\text{A}$
Rise Time	T_r	-	12	-		
Turn-off Delay Time	$T_{d(off)}$	-	13	-		
Fall Time	T_f	-	7	-		

Notes

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