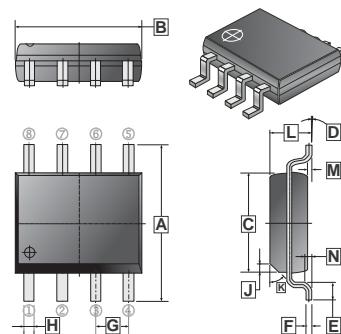


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## 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, PCMCIA cards, cellular and cordless telephones.

**SOP-8**



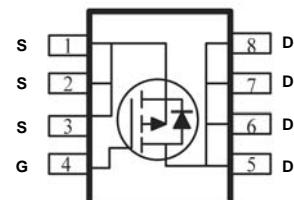
## FEATURES

- Low  $R_{DS(on)}$  provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SOIC-8 saves board space.
- Fast switching speed.
- High performance trench technology.

REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375	REF.
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25	REF.
G	1.27 TYP.				

## PACKAGE INFORMATION

Package	MPQ	LeaderSize
SOP-8	2.5K	13' inch



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D @ T_A = 25^\circ\text{C}$	-9.0	A
	$I_D @ T_A = 70^\circ\text{C}$	-7.3	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	$\pm 50$	A
Continuous Source Current (Diode Conduction) <sup>1</sup>	$I_S$	-2.1	A
Total Power Dissipation <sup>1</sup>	$P_D @ T_A = 25^\circ\text{C}$	3.1	W
	$P_D @ T_A = 70^\circ\text{C}$	2.6	W
Operating Junction & Storage Temperature Range	$T_J, T_{STG}$	-55 ~ 150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-ambient (Max.) <sup>1</sup>	$t \leq 10 \text{ sec}$	50	°C / W
	Steady State	92	°C / W

### 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	$V_{GS(\text{th})}$	-1	-	-	V	$V_{DS} = V_{GS}$ , $I_D = -250\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS} = 0\text{V}$ , $V_{GS} = \pm 25\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	-1	$\mu\text{A}$	$V_{DS} = -24\text{V}$ , $V_{GS} = 0\text{V}$
		-	-	-5	$\mu\text{A}$	$V_{DS} = -24\text{V}$ , $V_{GS} = 0\text{V}$ , $T_J = 55^\circ\text{C}$
On-State Drain Current <sup>1</sup>	$I_{D(\text{on})}$	-50	-	-	A	$V_{DS} = -5\text{V}$ , $V_{GS} = -10\text{V}$
Drain-Source On-Resistance <sup>1</sup>	$R_{DS(\text{ON})}$	-	-	35	mΩ	$V_{GS} = -10\text{V}$ , $I_D = -9.0\text{A}$
		-	-	45		$V_{GS} = -4.5\text{V}$ , $I_D = -7.2\text{A}$
Forward Transconductance <sup>1</sup>	$g_{fs}$	-	31	-	S	$V_{DS} = -15\text{V}$ , $I_D = -9.0\text{A}$
Diode Forward Voltage	$V_{SD}$	-	-0.7	-	V	$I_S = -2.1\text{A}$ , $V_{GS} = 0\text{V}$
<b>Dynamic <sup>2</sup></b>						
Total Gate Charge	$Q_g$	-	15.3	-	nC	$I_D = -9.0\text{A}$ $V_{DS} = -15\text{V}$ $V_{GS} = -4.5\text{V}$
Gate-Source Charge	$Q_{gs}$	-	5.2	-		
Gate-Drain("Miller") Charge	$Q_{gd}$	-	5.8	-		
Turn-On Delay Time	$T_{d(\text{on})}$	-	15	-	nS	$V_{DD} = -15\text{V}$ , $I_D = -1\text{A}$ $V_{GEN} = -10\text{V}$ , $R_L = 15\Omega$ $R_G = 6\Omega$
Rise Time	$T_r$	-	12	-		
Turn-Off Delay Time	$T_{d(\text{off})}$	-	62	-		
Fall Time	$T_f$	-	46	-		

Notes:

1. Pulse test : PW  $\leq$  300μs duty cycle  $\leq$  2%.
2. Guaranteed by design, not subject to production testing.