

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

### SOP-8PP

## DESCRIPTION

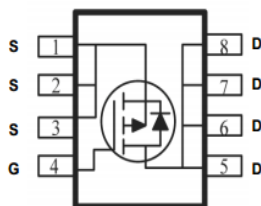
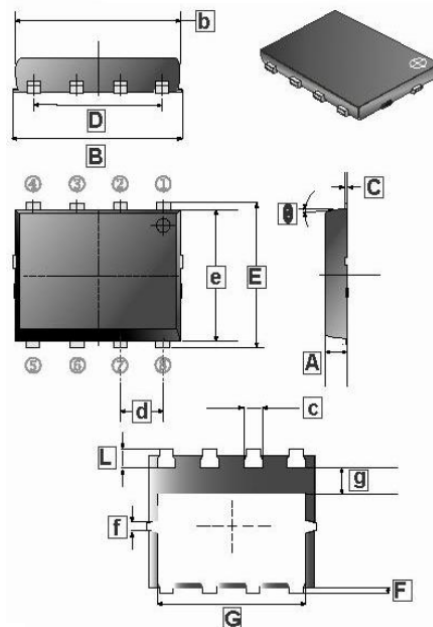
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low  $R_{DS(on)}$  and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

## FEATURES

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

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8PP	3K	13 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.85	1.00	$\theta$	0°	10°
B	5.3 BCS.		b	5.2 BCS.	
C	0.15	0.25	c	0.30	0.50
D	3.8 BCS.		d	1.27 BCS.	
E	6.05 BCS.		e	5.55 BCS.	
F	0.03	0.30	f	0.10	0.40
G	4.35 BCS.		g	1.2 BCS.	
L	0.40	0.70			

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current <sup>1</sup>	$I_D$	$T_A=25^\circ\text{C}$	-20
		$T_A=70^\circ\text{C}$	-17
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	$\pm 50$	A
Continuous Source Current (Diode Conduction) <sup>1</sup>	$I_S$	-2.1	A
Power Dissipation <sup>1</sup>	$P_D$	$T_A=25^\circ\text{C}$	5.0
		$T_A=70^\circ\text{C}$	3.2
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 ~ 150	$^\circ\text{C}$
<b>Thermal Resistance Data</b>			
Maximum Junction to Ambient <sup>A</sup>	$t \leq 10$ sec	$R_{\theta JA}$	25
	Steady-State		65

### 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	$V_{GS(th)}$	-0.4	-	-	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	$\mu\text{A}$	$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$
		-	-	-5		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}, T_J=55^\circ\text{C}$
On-State Drain Current <sup>A</sup>	$I_{D(ON)}$	-50	-	-	A	$V_{DS} = -4.5\text{V}, V_{GS} = -10\text{V}$
Drain-Source On-Resistance <sup>A</sup>	$R_{DS(ON)}$	-	-	8.4	m $\Omega$	$V_{GS} = -4.5\text{V}, I_D = -13.5\text{A}$
		-	-	10.4		$V_{GS} = -2.5\text{V}, I_D = -12\text{A}$
Forward Transconductance <sup>A</sup>	$g_{FS}$	-	70	-	S	$V_{DS} = -15\text{V}, I_D = -11.5\text{A}$
Diode Forward Voltage	$V_{SD}$	-	-0.6	-	V	$I_S = 2.5\text{A}, V_{GS} = 0\text{V}$
<b>Dynamic <sup>2</sup></b>						
Total Gate Charge	$Q_g$	-	66	-	nC	$I_D = -13.5\text{A}$ $V_{DS} = -10\text{V}$ $V_{GS} = -4.5\text{V}$
Gate-Source Charge	$Q_{gs}$	-	13	-		
Gate-Drain Charge	$Q_{gd}$	-	17	-		
Turn-On Delay Time	$T_{d(ON)}$	-	20	-	nS	$I_D = -1\text{A}, V_{DD} = -10\text{V}$ $V_{GEN} = -4.5\text{V}$ $R_L = 6\Omega$
Rise Time	$T_r$	-	23	-		
Turn-Off Delay Time	$T_{d(OFF)}$	-	289	-		
Fall Time	$T_f$	-	134	-		

Notes

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