

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.

FEATURES

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

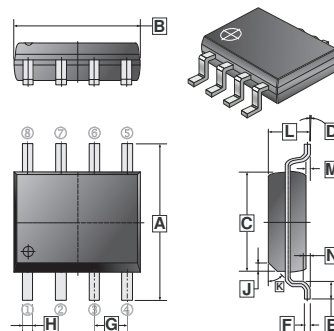
APPLICATION

DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones

PACKAGE INFORMATION

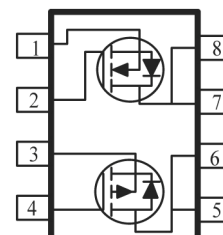
Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.8	6.20	H	0.35	0.51
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	0.50	0.93	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				

Top View



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

Parameter		Symbol	Rating		Unit
			N-CH	P-CH	
Drain-Source Voltage		V _{DS}	30	-30	V
Gate-Source Voltage		V _{GS}	±20	±20	V
Continuous Drain Current ¹	T _A = 25℃	I _D	7.1	-6	A
	T _A = 70℃		5.8	-4.9	A
Pulsed Drain Current ²		I _{DM}	20	-20	A
Continuous Source Current (Diode Conduction) ¹		I _S	1.3	-1.3	A
Total Power Dissipation ¹	T _A = 25℃	P _D	2.1		W
	T _A = 70℃		1.3		W
Operating Junction & Storage Temperature Range		T _J , T _{STG}	-55 ~ 150		℃
Thermal Resistance Ratings					
Maximum Junction-to-Ambient ¹	t≤10 sec	R _{θJA}	62.5		℃ / W
	Steady State		110		℃ / 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	Ch	Min.	Typ.	Max.	Unit	Teat Conditions
Static							
Gate Threshold Voltage	$V_{GS(th)}$	N	1	-	-	V	$V_{DS}=V_{GS}$, $I_D=250\mu A$
		P	-1	-	-		$V_{DS}=V_{GS}$, $I_D= -250\mu A$
Gate-Body Leakage Current	I_{GSS}	N	-	-	± 100	nA	$V_{DS}=0$, $V_{GS}=20V$
		P	-	-	± 100		$V_{DS}=0$, $V_{GS}= -20V$
Zero Gate Voltage Drain Current	I_{DSS}	N	-	-	1	μA	$V_{DS}=24V$, $V_{GS}=0$
		P	-	-	-1		$V_{DS}= -24V$, $V_{GS}=0$
On-State Drain Current ¹	$I_{D(on)}$	N	20	-	-	A	$V_{DS}=5V$, $V_{GS}=10V$
		P	-20	-	-		$V_{DS}= -5V$, $V_{GS}= -10V$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	N	-	-	28	m Ω	$V_{GS}=10V$, $I_D=7.1A$
			-	-	42		$V_{GS}=4.5V$, $I_D=5.8A$
		P	-	-	39		$V_{GS}= -10V$, $I_D= -6A$
			-	-	59		$V_{GS}= -4.5V$, $I_D= -4.9A$
Forward Transconductance ¹	g_{fs}	N	-	25	-	S	$V_{DS}=15V$, $I_D=6.9A$
		P	-	10	-		$V_{DS}= -15V$, $I_D= -5.2A$
Dynamic ²							
Total Gate Charge	Q_g	N	-	4	-	nC	N-Channel $I_D=6.9A$, $V_{DS}=15V$, $V_{GS}=10V$ P-Channel $I_D= -5.2A$, $V_{DS}= -15V$, $V_{GS}= -10V$
		P	-	10	-		
Gate-Source Charge	Q_{gs}	N	-	1.1	-		
		P	-	2.2	-		
Gate-Drain(“Miller”) Charge	Q_{gd}	N	-	1.4	-		
		P	-	1.7	-		
Turn-On Delay Time	$T_{d(on)}$	N	-	8	-	nS	N-Channel $V_{DD}=15V$, $V_{GS}=10V$ $I_D=1A$, $R_{GEN}=6\Omega$ P-Channel $V_{DD}= -15V$, $V_{GS}= -10V$ $I_D= -1A$, $R_{GEN}= 6\Omega$
		P	-	10	-		
Rise Time	T_r	N	-	5	-		
		P	-	2.8	-		
Turn-Off Delay Time	$T_{d(off)}$	N	-	23	-		
		P	-	53.6	-		
Fall Time	T_f	N	-	3	-		
		P	-	46	-		

Notes

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