

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

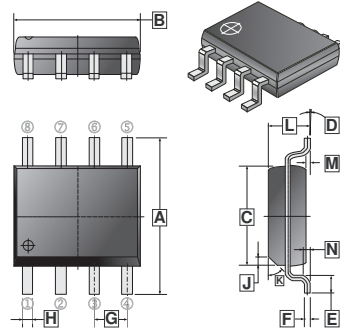
APPLICATION

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

PACKAGE INFORMATION

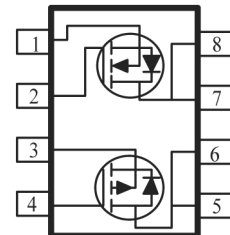
Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

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	I_D	$T_A = 25^\circ\text{C}$	7.1	-6	A
		$T_A = 70^\circ\text{C}$	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	P_D	$T_A = 25^\circ\text{C}$	2.1		W
		$T_A = 70^\circ\text{C}$	1.3		W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ 150		$^\circ\text{C}$	
Thermal Resistance Ratings					
Maximum Junction-to-Ambient ¹	$R_{\theta JA}$	$t \leq 10$ sec	62.5		$^\circ\text{C} / \text{W}$
		Steady State	110		$^\circ\text{C} / \text{W}$

Notes:

1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Ch	Min.	Typ.	Max.	Unit	Test Conditions
Static							
Gate Threshold Voltage	V _{GS(th)}	N	1	-	-	V	V _{DS} =V _{GS} , I _D =250μA
		P	-1	-	-		V _{DS} =V _{GS} , I _D = -250μA
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	mΩ	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} =6Ω P-Channel V _{DD} = -15V, V _{GS} = -10V I _D = -1A, R _{GEN} = 6Ω
		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 ≤ 300μs duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.