

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.

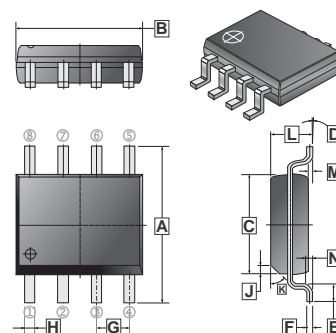
FEATURES

- 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.

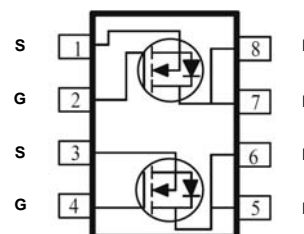
PACKAGE INFORMATION

Package	MPQ	LeadPitch
SOP-8	2.5K	13' inch

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	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.				



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}	± 20	V	
Continuous Drain Current ¹	$I_D @ T_A = 25^\circ\text{C}$	8.3	A	
	$I_D @ T_A = 70^\circ\text{C}$	6.8	A	
Pulsed Drain Current ²	I_{DM}	50	A	
Continuous Source Current (Diode Conduction) ¹	I_S	2.3	A	
Total Power Dissipation ¹	$P_D @ T_A = 25^\circ\text{C}$	2.1	W	
	$P_D @ T_A = 70^\circ\text{C}$	1.3	W	
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	$^\circ\text{C}$	
THERMAL RESISTANCE RATINGS				
Maximum Junction to Ambient ^a	$t \leq 10$ sec	$R_{\theta JA}$	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 ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Gate-Body Leakage	I_{GSS}	-	-	± 100	nA	$V_{DS} = 0V, V_{GS} = 20V$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS} = 24V, V_{GS} = 0V$
		-	-	25	μA	$V_{DS} = 24V, V_{GS} = 0V, T_J = 55^\circ\text{C}$
On-State Drain Current ¹	$I_{D(on)}$	20	-	-	A	$V_{DS} = 5V, V_{GS} = 10V$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	22	m Ω	$V_{GS} = 10V, I_D = 8.3A$
		-	-	27		$V_{GS} = 4.5V, I_D = 7.3A$
Forward Transconductance ¹	g_{fs}	-	40	-	S	$V_{DS} = 15V, I_D = 8.3A$
Diode Forward Voltage	V_{SD}	-	0.7	-	V	$I_S = 2.3A, V_{GS} = 0V$
Pulsed Source Current(BodyDiode) ¹	I_{SM}	-	5	-	A	
Dynamic ²						
Total Gate Charge	Q_g	-	20	-	nC	$I_D = 10A$ $V_{DS} = 15V$ $V_{GS} = 5V$
Gate-Source Charge	Q_{gs}	-	7.0	-		
Gate-Drain Charge	Q_{gd}	-	7.0	-		
Input Capacitance	C_{iss}	-	1317	-	pF	N-Channel $V_{DS} = 15V, V_{GS} = 0V, f = 1\text{MHz}$
Output Capacitance	C_{oss}	-	272	-		
Turn-On Delay Time	$T_{d(on)}$	-	20	-	nS	$V_{DD} = 25V$ $I_D = 1A$ $V_{GEN} = 10V$ $R_L = 25\Omega$
Rise Time	T_r	-	9	-		
Turn-Off Delay Time	$T_{d(off)}$	-	70	-		
Fall Time	T_f	-	20	-		

Notes

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