LMP3401S 30V P-Channel Enhancement Mode MOSFET

Features

- 30V/-4.0A $R_{DS(ON)}$=65m @V_{GS}=-10V
- 30V/-3.2A $R_{DS(ON)}$=80m @V_{GS}=-4.5V
- 30V/-1.0A $R_{DS(ON)}$=105m @V_{GS}=-2.5V
- Suit for -2.5V Gate Drive Applications

Product Description

LMP3401S, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent RDS(ON), low gate charge. provide superior switching performance, and withstand These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

- Notebook
- LED Display
- DC-DC System
- LCD Panel

Pin Configuration

LMP3401SZF(SOT-23)

PIN	Description
1	Gate
2	Source
3	Drain

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Ordering Information

LMP3401S	Z	F
LFC P/N	PKG code	Pb Free code

Marking Information

3S	X	W
Part Number	LFC code	

Part Number	Package	Part Marking	Quantity
LMP3401S	SOT-23	3SXW	3000pcs

Absolute Maximum Ratings

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	TC=25℃	-4.0	A
		TC=70℃	-2.8	
I_{DM}	Pulsed Drain Current		-15	A
I_S	Continuous Source Current(Diode Conduction)		-1.5	A
P_D	Power Dissipation	T_A=25ºC	1.25	W
		T_A=70ºC	0.8	
T_J	Operating Junction Temperature		150	℃
T_{STG}	Storage Temperature Range		-50 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		100	℃/W

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Electrical Characteristics

(T_A=25ºC Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	-30			V
$V_{GS\ (th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	-0.4		-1.1	
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V			-1	uA
		V_{DS}=-24V, V_{GS}=0V, T_A=85ºC			-30	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10.0V, I_D=-4.0A		55	65	mΩ
		V_{GS}=-4.5V, I_D=-3.2A		65	80	
		V_{GS}=-2.5V, I_D=-1.0A		82	105	
g_{FS}	Forward Transconductance	V_{DS}=-5.0V, I_D=-2.8A		5.4		S
V_{SD}	Diode Forward Voltage	I_S=-1.0A, V_{GS}=0V		-0.7	-1.3	V
Dynamic						
Q_g	Total Gate Charge	V_{DS}=-15V, V_{GS}=-10V, I_D=-4A		10	18	nC
Q_{gs}	Gate-Source Charge			1.6		
Q_{gd}	Gate-Drain Charge			3.0		
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz		810		pF
C_{oss}	Output Capacitance			85		
C_{rss}	Reverse Transfer Capacitance			50		
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, R_L=15Ω, I_D=-1.0A, V_{GEN}=-10V, R_G=6.0Ω		8	18	ns
t_r				19.4	37	
$t_{d(off)}$	Turn-Off Time			45.9	87	
t_f				12.4	84	

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Typical Performance Characteristics

Figure 1. Maximum Safe Operation Area

Figure 2. Drain Current vs. T_C

Figure 3. Normalized Transient Impedance

Figure 4. Normalized Vth vs. TJ

Figure 5. Gate Charge Waveform

Figure 6. Normalized R_{DSON} vs. T_J

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Package Dimension:

SOT-23

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.043
b	0.300	0.500	0.012	0.020
c	0.132	0.202	0.005	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0º	8º	0º	8º

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