

## LMP3153SF 30V P-Channel Enhancement Mode MOSFET

### Features

- $R_{DS(ON)}=54m\Omega@V_{GS}=-10V$
- $R_{DS(ON)}=72m\Omega@V_{GS}=-4.5V$
- $R_{DS(ON)}=120m\Omega@V_{GS}=-2.5V$
- Suit for -2.5V Gate Drive Applications

### Product Description

LMP3153SF, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge.

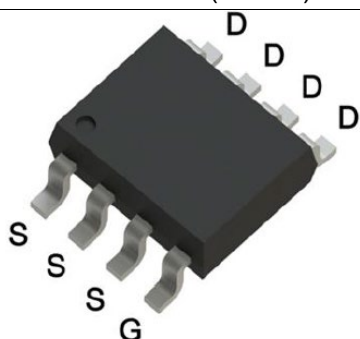
These devices are particularly suited for low

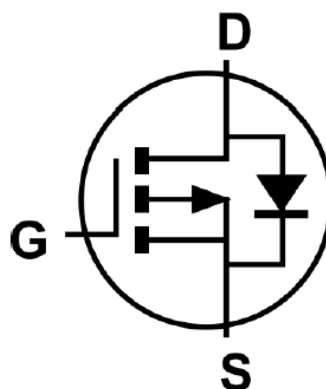
voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

### Applications

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

### Pin Configuration

LMP3153SF (SOP-8)	
	
PIN	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain



**Ordering Information**

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP3153SF	LMP3153	S	F	SOP-8	4000pcs

**Marking Information**

Marking Information	
Product Code:	LFC code
3153S	□□□□□□

**Absolute Maximum Ratings**

(T<sub>C</sub>=25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	-30	V
V <sub>GSS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Continuous Drain Current (T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	A
		T <sub>A</sub> =70°C	
I <sub>DM</sub>	Pulsed Drain Current	-18	A
I <sub>S</sub>		-1	
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	W
		T <sub>A</sub> =70°C	
T <sub>J</sub>	Operating Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
R <sub>θJA</sub>	Thermal Resistance-Junction to Case	80	°C/W

**Electrical Characteristics**

(T<sub>C</sub>=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-30			V
V <sub>GS (th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.4		-1.3	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	uA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	uA
		V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C			-30	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V		-0.7	-1.0	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.8A		44	54	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3.8A		62	72	
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-3.0A		98	120	
Dynamic characteristics						
Q <sub>g</sub>	Total Gate Charge	V <sub>DD</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.8A		13.6		nC
Q <sub>gs</sub>	Gate-Source Charge			1.2		
Q <sub>gd</sub>	Gate-Drain Charge			2.0		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, f=1.0MHz		573		pF
C <sub>oss</sub>	Output Capacitance			74		
C <sub>rss</sub>	Reverse Transfer Capacitance			53		
t <sub>d(on)</sub>	Turn-On Time	V <sub>DD</sub> =-15V, V <sub>GEN</sub> =-10V, R <sub>L</sub> =10Ω, I <sub>D</sub> =-1.0A, R <sub>G</sub> =6.0Ω		6.9		ns
t <sub>r</sub>				12.3		
t <sub>d(off)</sub>	Turn-Off Time			25		
t <sub>f</sub>				13		

## Typical Performance Characteristics

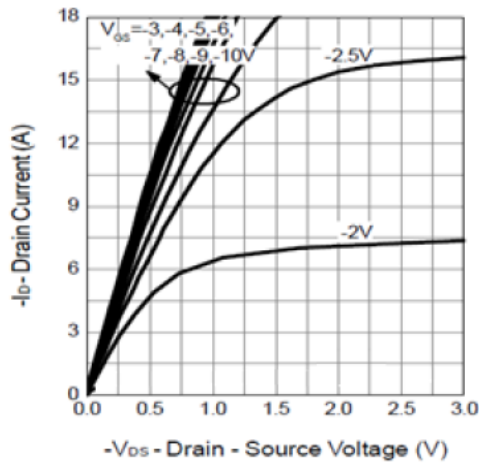


Figure 1. Output Characteristics

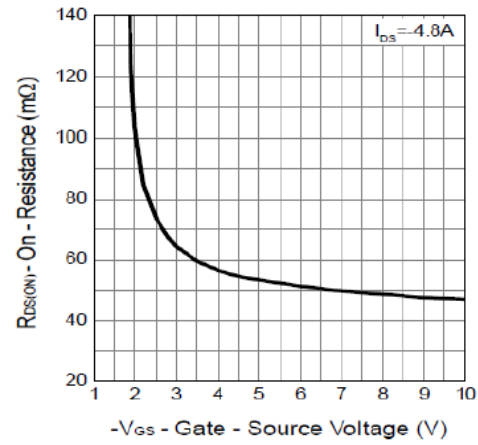


Figure 2. On-Resistance vs. Gate-Source Voltage

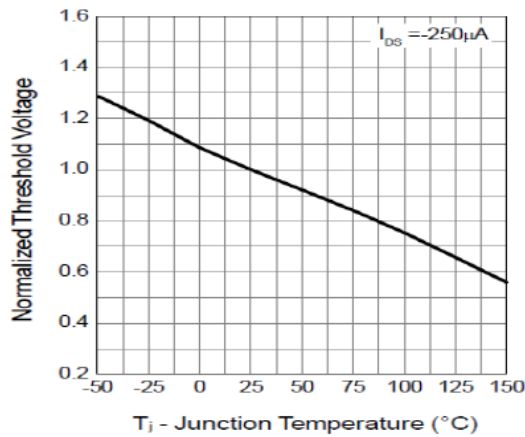


Figure 3. Threshold Voltage

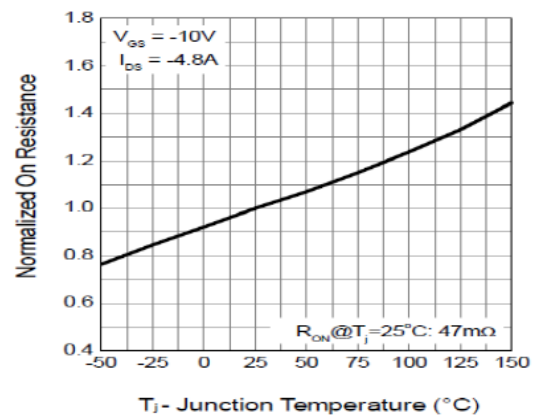


Figure 4. Drain-Source On-State Resistance vs TJ

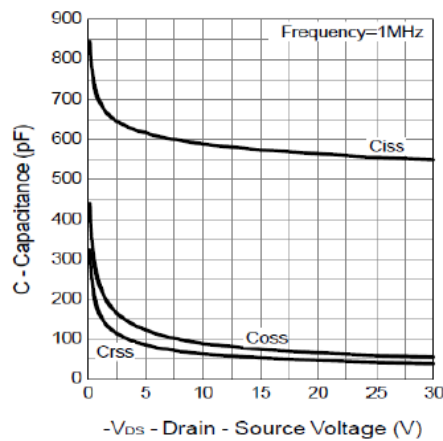


Figure 5. Capacitance

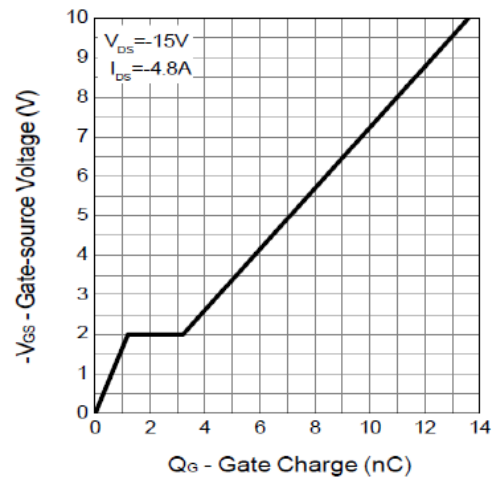


Figure 6. Gate Charge

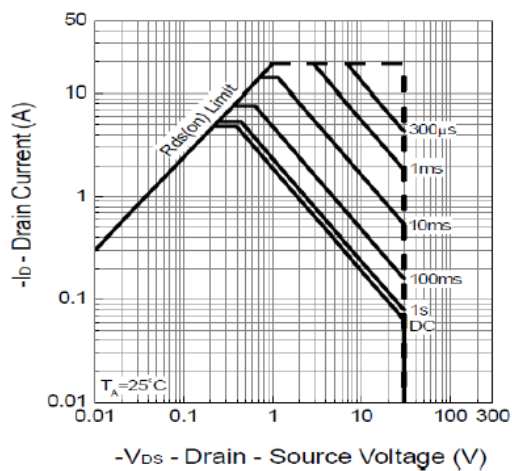


Figure 7. Safe Operation Area

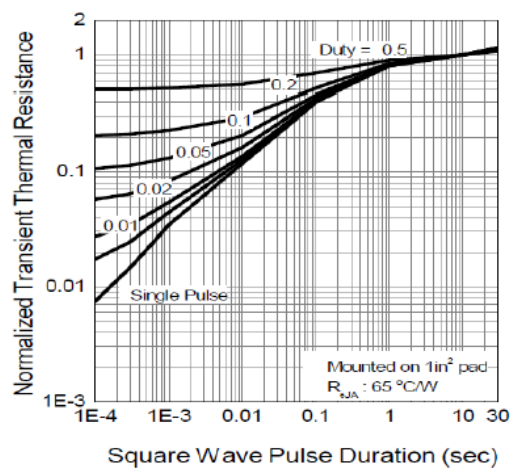
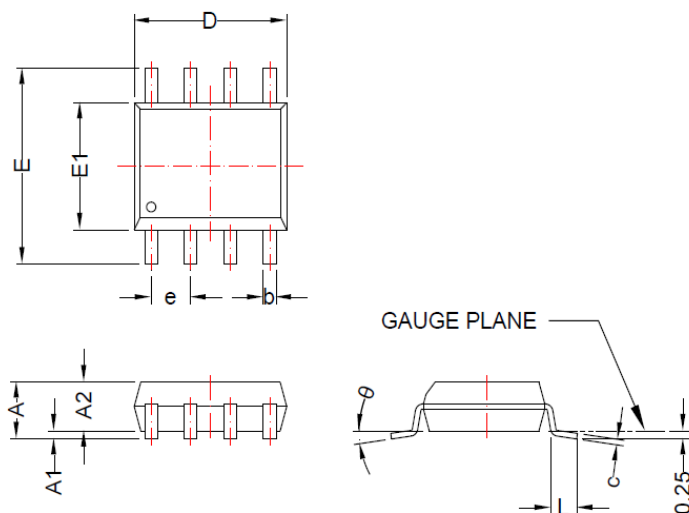


Figure 8. Normalized Thermal Transient Impedance

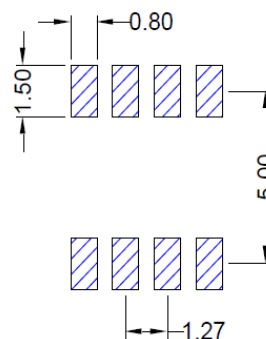
**Package Dimension:**

# SOP-8

## Package Dimension



## Recommended Land Pattern



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
<b>A</b>	-	1.75	-	0.069
<b>A1</b>	0.10	0.25	0.004	0.010
<b>A2</b>	1.25	-	0.049	-
<b>b</b>	0.31	0.51	0.012	0.020
<b>c</b>	0.10	0.25	0.004	0.010
<b>D</b>	4.70	5.10	0.185	0.201
<b>E</b>	5.80	6.20	0.228	0.244
<b>E1</b>	3.80	4.00	0.150	0.157
<b>e</b>	1.27 (BSC)		0.050 (BSC)	
<b>L</b>	0.4	1.27	0.016	0.050
<b>θ</b>	0°	8°	0°	8°

**NOTE:**

Dimensions are exclusive of Burrs, Mold Flash &amp; Tie Bar extrusions.

**NOTICE:**

LFC Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all LFC Semiconductor products described or contained herein. LFC Semiconductor products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.

Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. LFC Semiconductor makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Information furnished is believed to be accurate and reliable. However LFC Semiconductor assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of LFC Semiconductor. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information without express written approval of LFC Semiconductor.