

LMP3385SF 30V P-Channel MOSFET

Features

- -30V/-12A, $R_{DS(ON)} < 9.5m\Omega @ V_{GS} = -10V$
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- SOP-8 package design

Product Description

These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance,

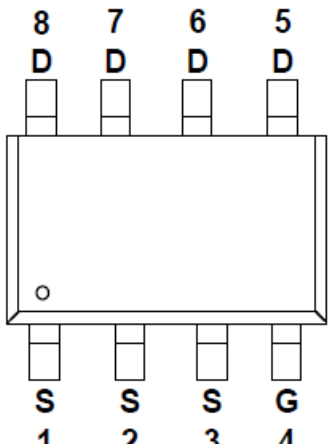
provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

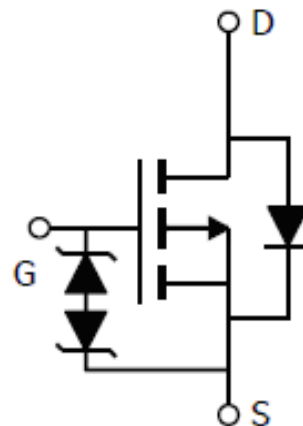
These devices are well suited for high efficiency fast switching applications.

Applications

- MB / VGA / Vcore
- POL Applications
- Load Switch
- LED Application

Pin Configuration

LMP3385SF (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
LMP3385SF	LMP3385	S	F	SOP-8	4000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
3385SF XWMMMM	3385SF	XWMMMM

Absolute Maximum Ratings

(T_C=25°C Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V _{DS}	Drain-Source Voltage		-30	V
V _{GS}	Gate –Source Voltage		±25	V
I _D	Continuous Drain Current	T _A =25°C	-12	A
		T _A =70°C	-8.1	
I _{DM}	Pulsed Drain Current		-52	A
P _D	Power Dissipation (T _A =25°C)		2.1	W
T _J	Operating Junction Temperature Range		-55 to +150	°C
T _{STG}	Storage Temperature Range		-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient		60	°C/W
R _{θJC}	Thermal Resistance-Junction to Case		30	°C/W

Electrical Characteristics

(T_C=25°C 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	-1.2	-1.6	-2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±25V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V			-1	uA
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			-13	A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-10A		8.3	9.5	mΩ
		V _{GS} =-4.5V, I _D =-8A		12.4	14	
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-1A			-1	V
Dynamic						
Q _g	Total Gate Charge ^{3,4}	V _{DD} =-15V, V _{GS} =10V, I _D =-15A		68		nC
Q _{gs}	Gate-Source Charge ^{3,4}			10		
Q _{gd}	Gate-Drain Charge ^{3,4}			12		
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz		4319		pF
C _{oss}	Output Capacitance			439		
C _{rss}	Reverse Transfer Capacitance			299		
t _{d(on)}	Turn-On Time Rise Time	V _{DD} =-15V, V _{GS} =-10V, R _g =3.3Ω, I _D =-15A		12		ns
t _r				11		
t _{d(off)}	Turn-Off Time Fall Time			105		
t _f				21		

Typical Performance Characteristics

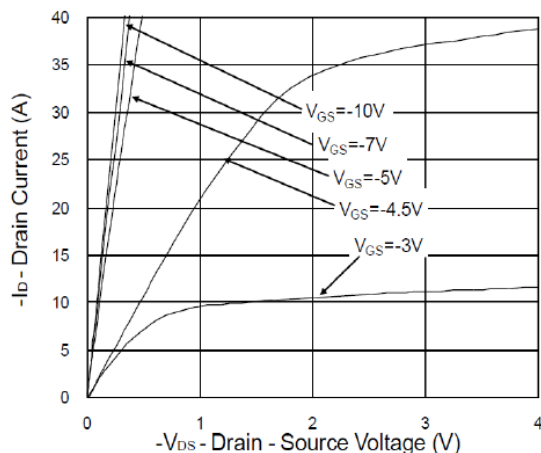


Figure 1. Output Characteristics

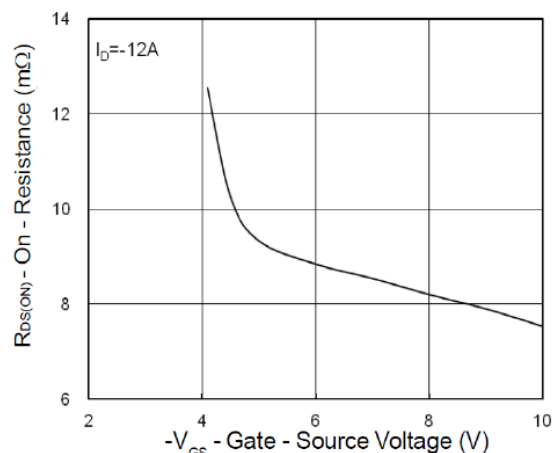


Figure 2. On-Resistance Variation with V_{GS}

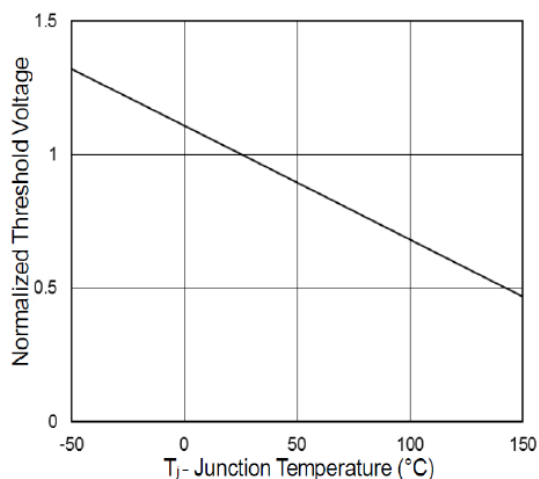


Figure 3. Normalized $V_{GS(th)}$ vs. T_J

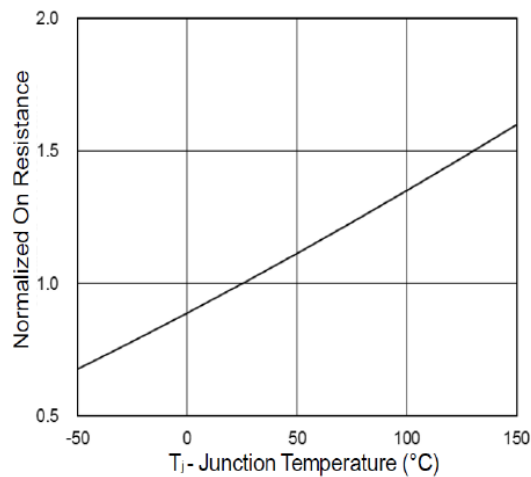


Figure 4. Normalized $R_{DS(on)}$ vs. T_J

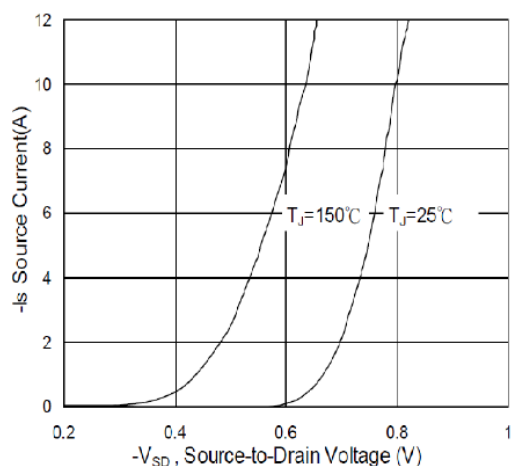


Figure 5. Diode Forward Voltage vs. Current

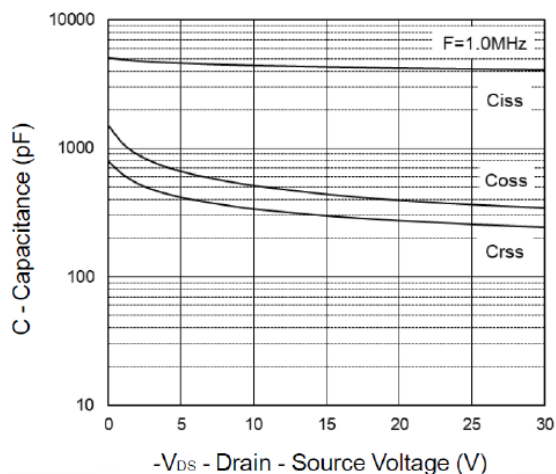


Figure 6. Capacitance

Typical Performance Characteristics(continue)

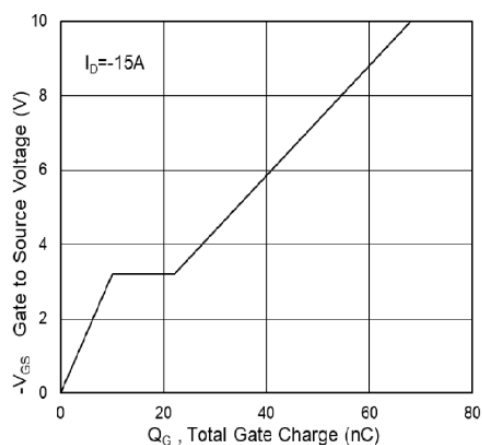


Figure 7. Gate Charge Waveform

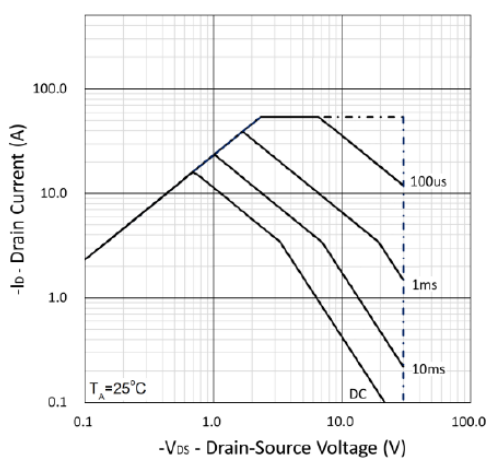


Figure 8. Maximum Safe Operating Area

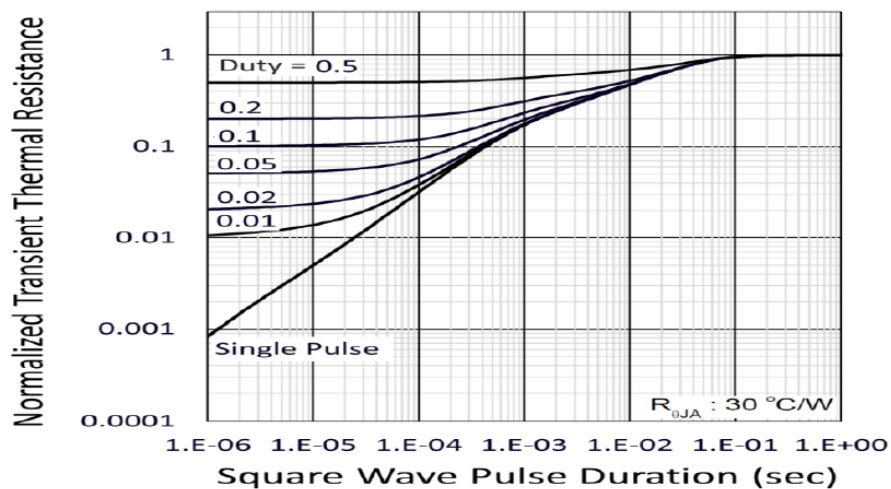
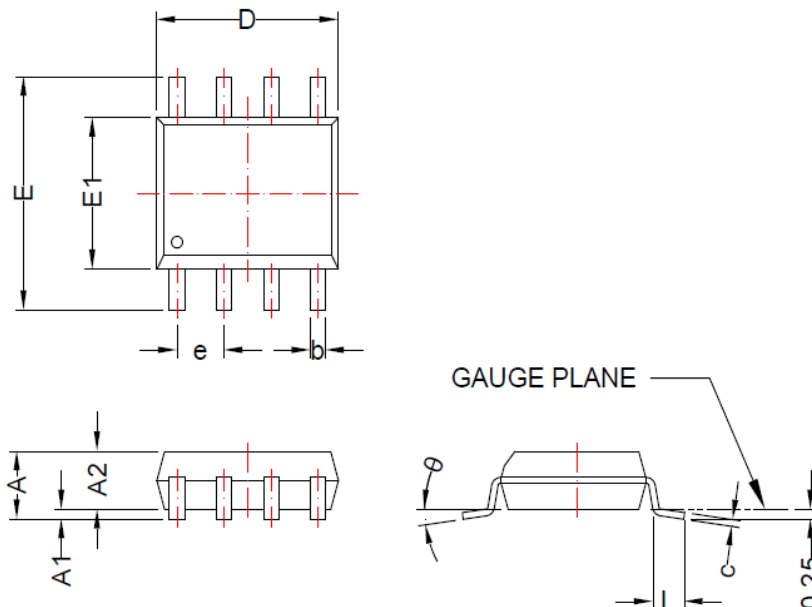


Figure 9. Normalized Transient Thermal Resistance

Package Dimension:

SOP-8



DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 mm PER END. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 mm PER SIDE.

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

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