

LMP3153JZF 30V P-Channel MOSFET

Features

- -30V/-4.8A, $R_{DS(ON)} < 54m\Omega @ V_{GS} = -10V$
- -30V/-3.8A, $R_{DS(ON)} < 72m\Omega @ V_{GS} = -4.5V$
- -30V/-3.0A, $R_{DS(ON)} < 120m\Omega @ V_{GS} = -2.5V$
- Suit for -4.5V Gate Drive Applications
- SOT-23 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,

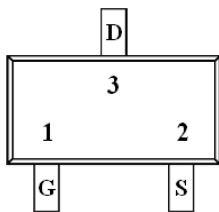
provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

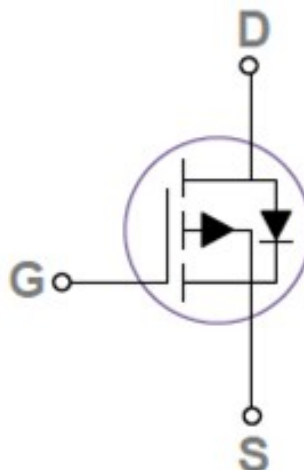
These devices are well suited for high efficiency fast switching applications.

Applications

- Notebook
- LED display
- DC-DC System
- LDC Panel

Pin Configuration

LMP3153JZF (SOT-23)	
	
PIN	Description
1	Gate
2	Source
3	Drain



Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP3153JZF	LMP3153	JZ	F	SOT-23	3000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
31XWM	31	XWM

Absolute Maximum Ratings

(T_C=25°C 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 (T _J =150°C)	T _A =25°C	A
		T _A =70°C	
I _{DM}	Pulsed Drain Current	-19	A
I _S	Continuous Source Current (Diode Conduction)	-1	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =70°C	
T _J	Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient (t ≤ 10s)	65	°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	-0.7		-1.3	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			±10 0	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V			-1	uA
		V _{DS} =-24V, V _{GS} =0V, T _J =85°C			-30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-4.8A		44	54	mΩ
		V _{GS} =-4.5V, I _D =-3.8A		62	72	
		V _{GS} =-2.5V, I _D =-3.0A		98	120	
V _{SD}	Diode Forward Voltage	I _S =-1.0A, V _{GS} =0V		-0.7	-1.0	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz		573		pF
C _{oss}	Output Capacitance			74		
C _{rss}	Reverse Transfer Capacitance			53		
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _D =- 4.8A		13. 6		nC
Q _{gs}	Gate-Source Charge			1.2		
Q _{gd}	Gate-Drain Charge			2.0		
t _{d(on)}	Turn-On Time	V _{DD} =-15V, R _L =10Ω, I _D =- 1.0A, V _{GEN} =-10V, R _G =6.0Ω		6.9		ns
T _r				12. 3		
t _{d(off)}	Turn-Off Time			25		
T _f				13		

Typical Performance Characteristics

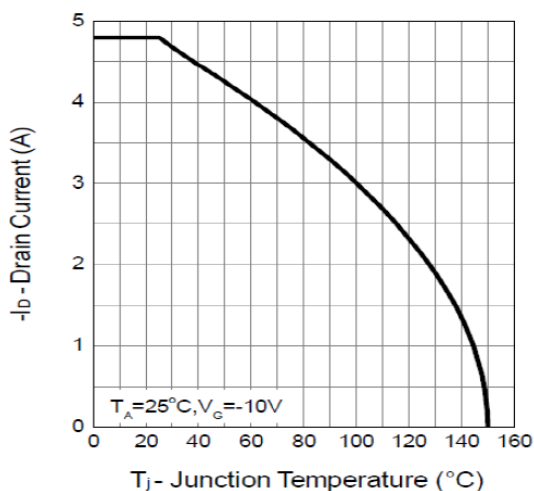


Figure 1. Drain Current vs. Temperature

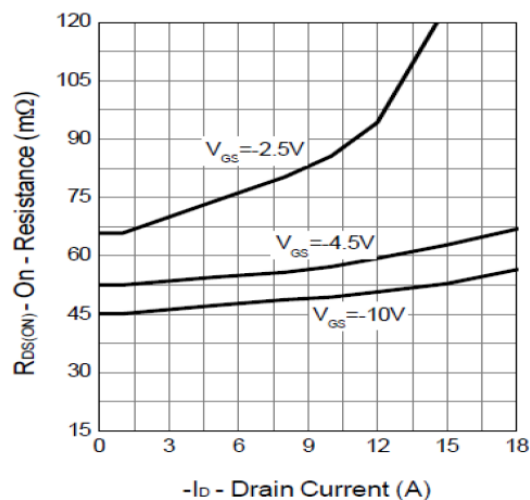


Figure 2. On-Resistance vs. Drain Current

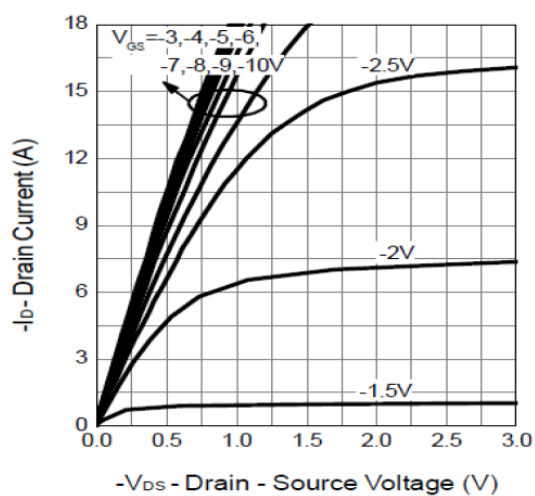


Figure 3. Output Characteristics

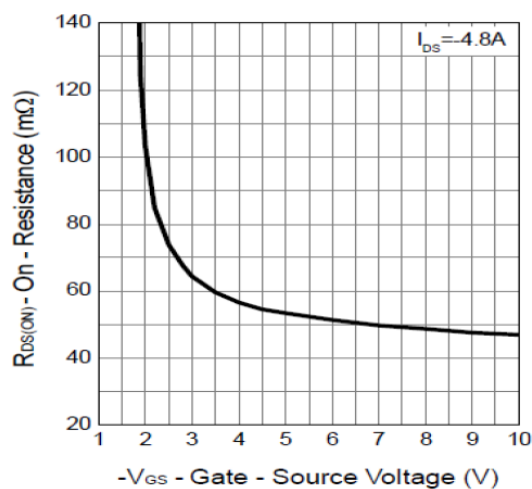


Figure 4. On-Resistance vs. Gate-Source Voltage

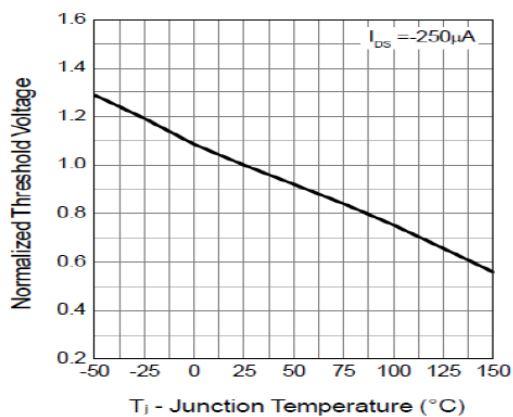


Figure 5. Threshold Voltage

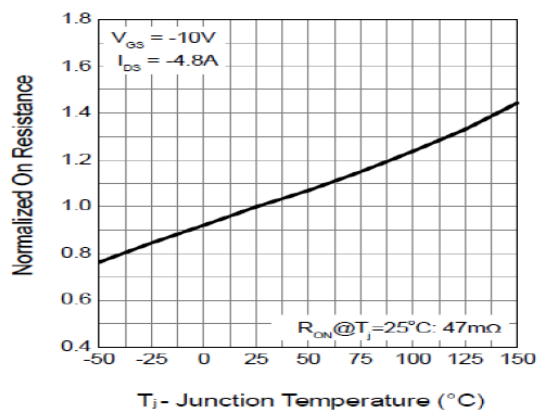
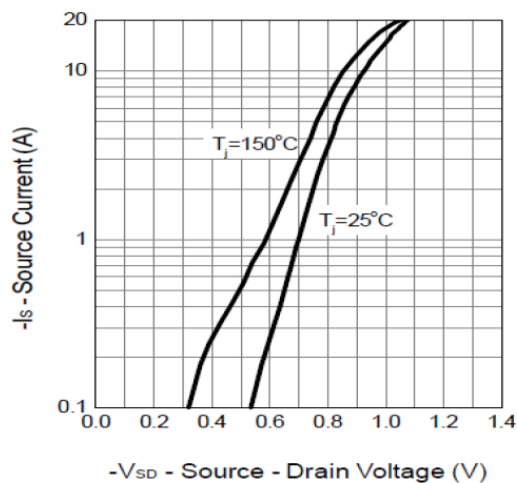
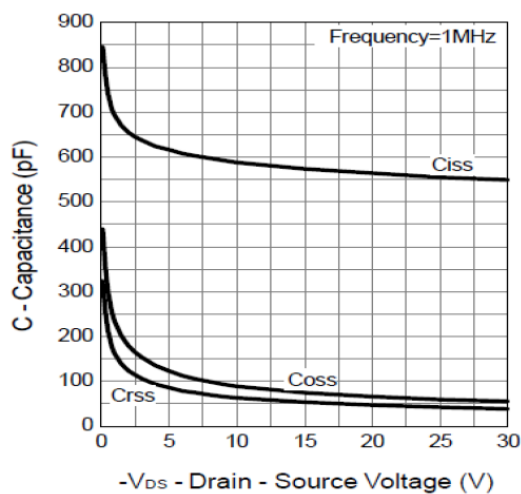
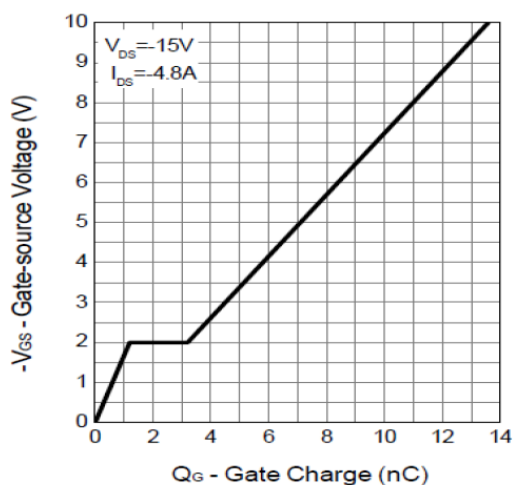
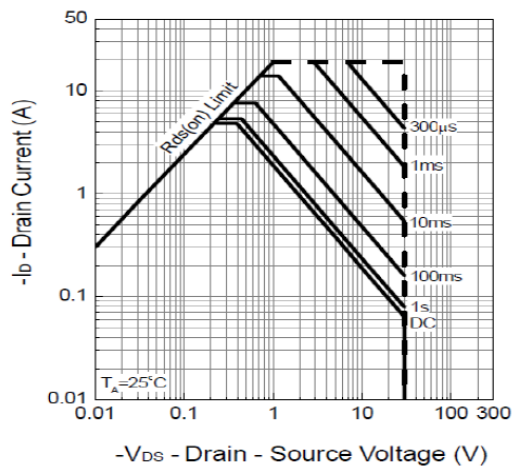
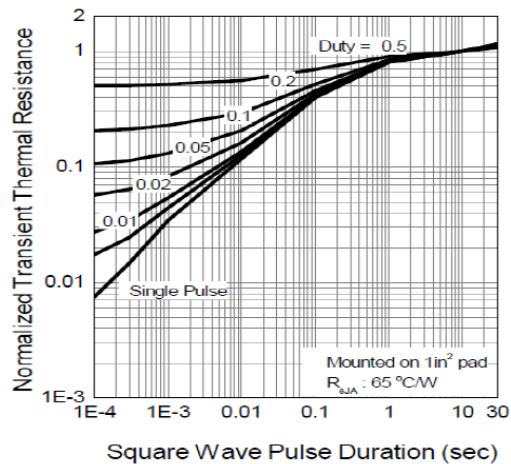
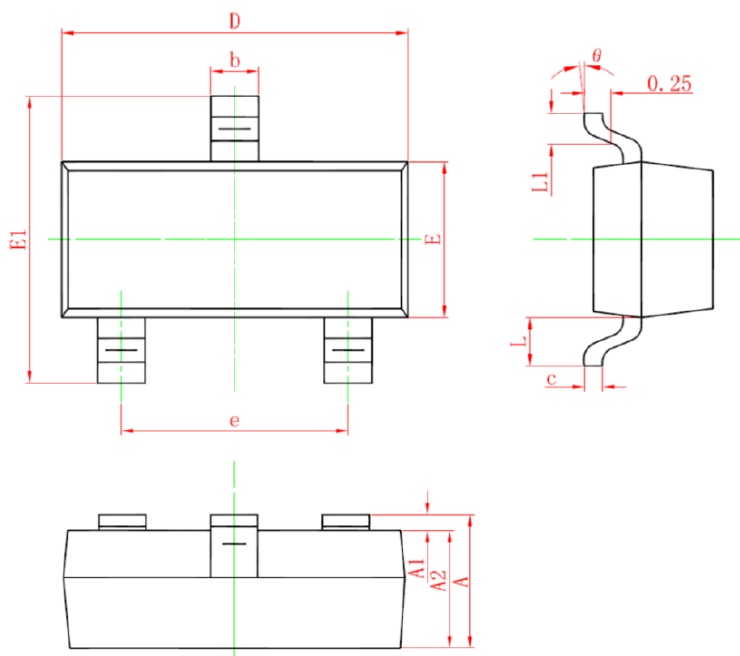


Figure 6. On-Resistance vs. Gate-Source Voltage

Typical Performance Characteristics(continue)

Figure 7. Source-Drain Diode Forward Voltage

Figure 8. Capacitance

Figure 9. Gate Charge

Figure 10. Safe Operation Area

Figure 11. Normalized Thermal Transient Impedance

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	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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