LMP1073KAF 20V P-Channel Enhancement Mode MOSFETs

Features

- -20V/-0.45A, $R_{DS(ON)}$=650mΩ@V_{GS}=-4.5V
- -20V/-0.35A, $R_{DS(ON)}$=900mΩ@V_{GS}=-2.5V
- -20V/-0.25A, $R_{DS(ON)}$=1500mΩ@V_{GS}=-1.8V
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- ESD Protection
- SOT-723 package design

Product Description

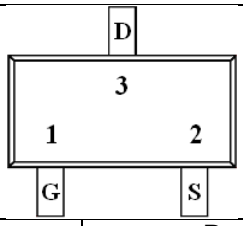
LMP1073KAF, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent RDS(ON), low gate charge. These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

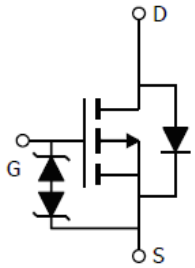
- Drivers, Relays, Solenoids, Lamps, Hammers
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

Pin Configuration

LMP1073KAF (SOT-723)



PIN	Description
1	Gate
2	Source
3	Drain



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Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP1073KAF	LMP1073K	A	F	SOT-723	8000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
3XW	3	XW

Absolute Maximum Ratings

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		-20	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	TC=25℃	-0.45	A
		TC=70℃	-0.35	
I_{DM}	Pulsed Drain Current		-1.0	A
Is	Continuous Source Current(Diode Conduction)		-0.3	
P_D	Power Dissipation	TC=25℃	0.27	W
		TC=70℃	0.16	W
T_J	Operating Junction Temperature		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃

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Electrical Characteristics

(T_C=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	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.35		-1.0	
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±30	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V, V_{GS}=0V			-1	uA
		V_{DS}=-20V, V_{GS}=0V, T_J=55℃			-5	
$I_{D(on)}$	On-State Drain Current	V_{DS}≦-5V, V_{GS}=-4.5V	-0.7			A
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-4.5V, I_D=-0.45A			650	mΩ
		V_{GS}=-2.5V, I_D=-0.35A			900	
		V_{GS}=-1.8V, I_D=-0.25A			1500	
g_{FS}	Forward Transconductance	V_{DS}=-10V, I_D=-0.25A		0.4		S
V_{SD}	Diode Forward Voltage	I_S=-0.5A, V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Q_g	Total Gate Charge	V_{DS}=-10V, V_{GS}=-4.5V, I_D=-0.6A		1.5	2.0	nC
Q_{gs}	Gate-Source Charge			0.3		
Q_{gd}	Gate-Drain Charge			0.35		
C_{iss}	Input Capacitance	V_{DS}=-10V, V_{GS}=0V f=1MHz		40	78	pF
C_{oss}	Output Capacitance			15	30	
C_{rss}	Reverse Transfer Capacitance			6.5	13	
$t_{d(on)}$	Turn-On Time	V_{DD}=-10V, R_L=10Ω, I_D=-0.4A, V_{GS}=-4.5V, R_G=10Ω		5	10	ns
t_r				15	25	
$t_{d(off)}$	Turn-Off Time			8	15	
t_f				1.4	1.8	

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Typical Performance Characteristics

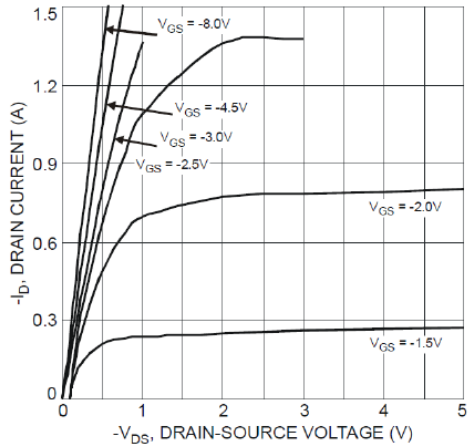

Fig. 1 Typical Output Characteristics

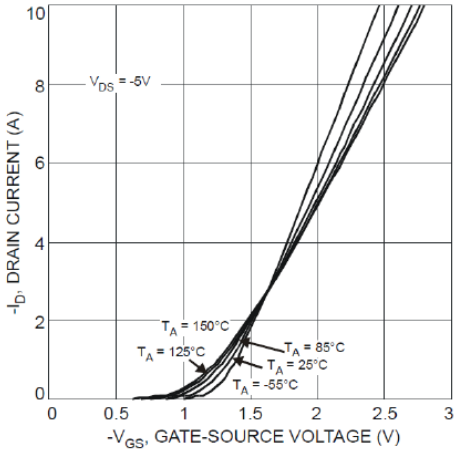

Fig. 2 Typical Transfer Characteristics

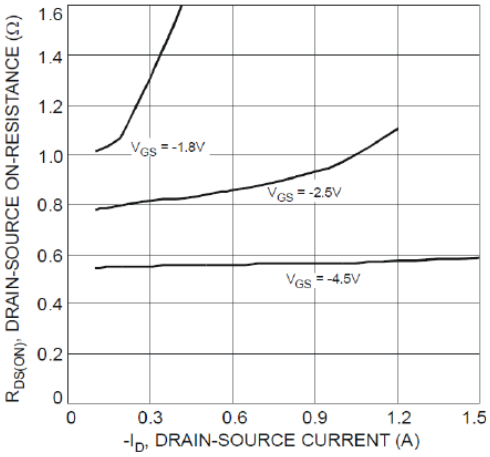

Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

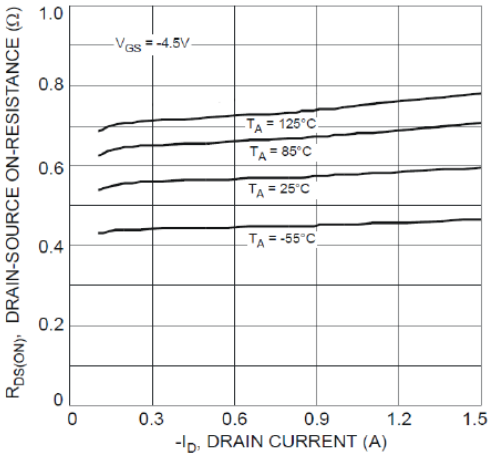

Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_A

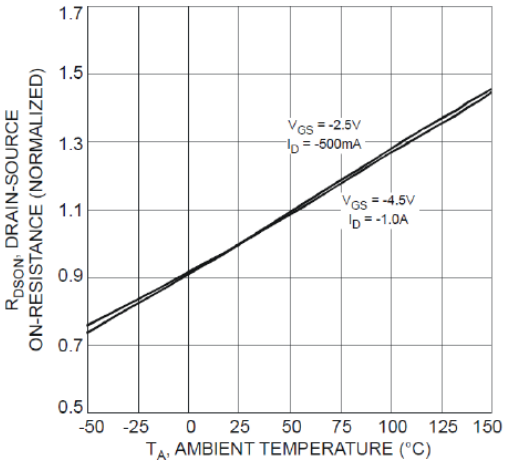

Fig. 5 On-Resistance Variation with T_J

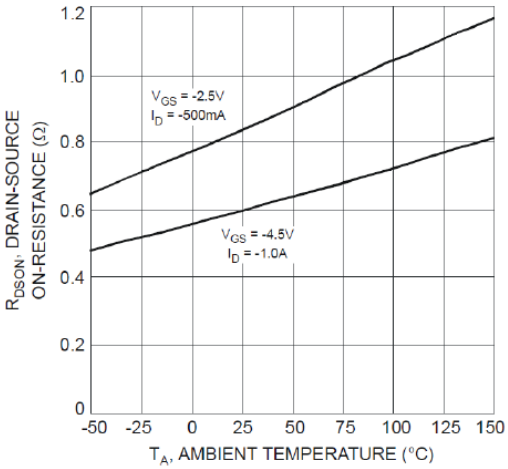

Fig. 6 On-Resistance Variation with T_J

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Typical Performance Characteristics(continue)

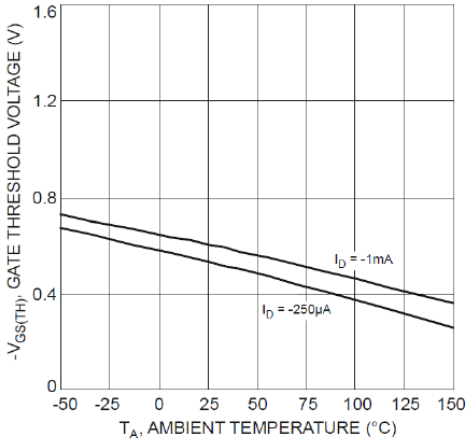

Fig. 7 Gate Threshold Variation vs. T_A

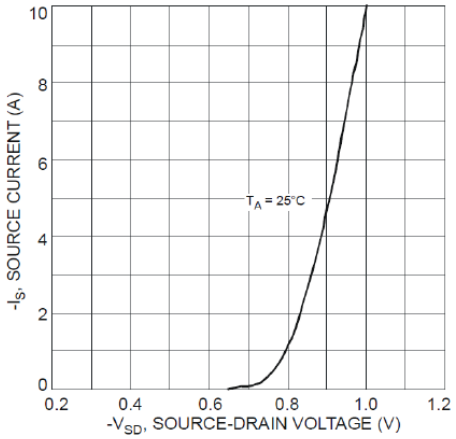

Fig. 8 Diode Forward Voltage vs. Current

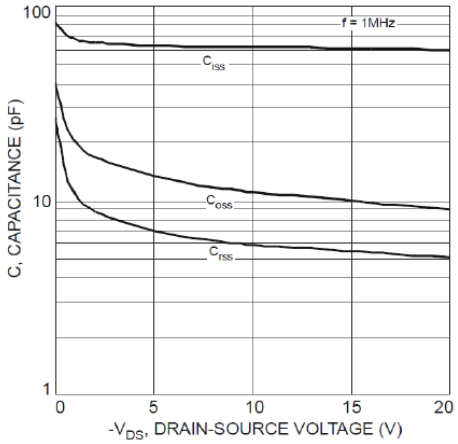

Fig. 9 Typical Capacitance

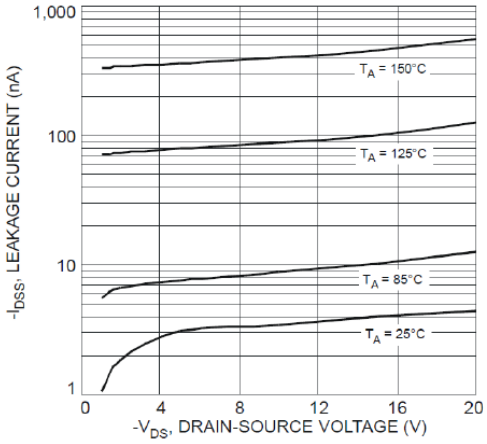

Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

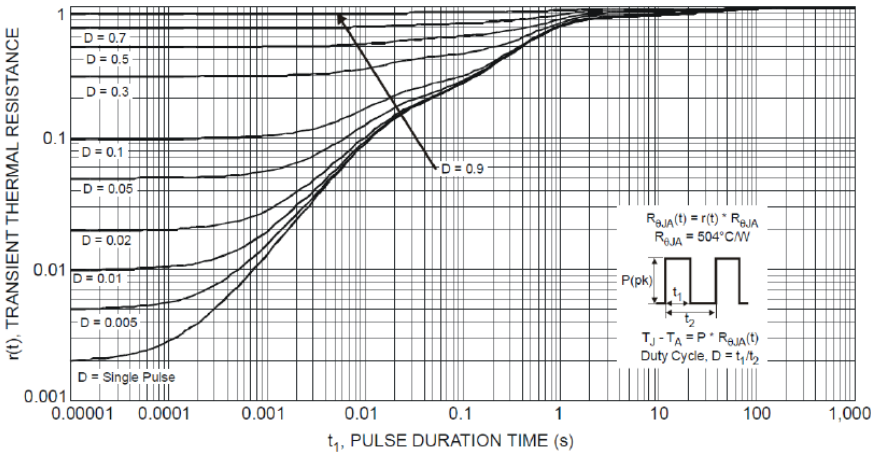

Fig. 11 Transient Thermal Response

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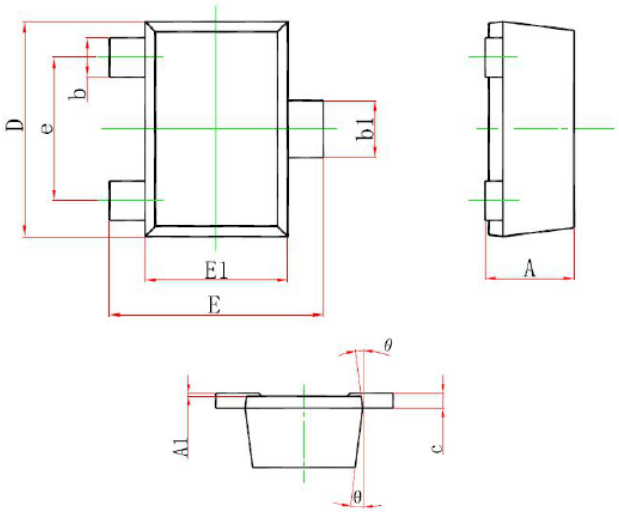
Package Dimension:

SOT-723



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	-	0.500	-	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	-	0.150	-	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800 TYP		0.031 TYP	
θ	7º REF		7º REF	

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