

LMP1073KAF 20V P-Channel Enhancement Mode MOSFETs

Features

- -20V/-0.45A, $R_{DS(ON)}=650m\Omega@V_{GS}=-4.5V$
- -20V/-0.35A, $R_{DS(ON)}=900m\Omega@V_{GS}=-2.5V$
- -20V/-0.25A, $R_{DS(ON)}=1500m\Omega@V_{GS}=-1.8V$
- 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

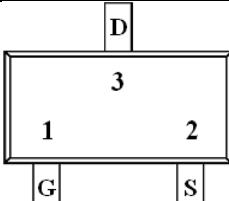
provide excellent $R_{DS(ON)}$, low gate charge.

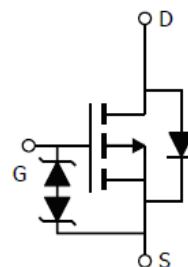
These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

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



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
<u>3XW</u>	<u>3</u>	<u>XW</u>

Absolute Maximum Ratings

(T_C=25°C 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°C	A
		TC=70°C	
I _{DM}	Pulsed Drain Current	-1.0	A
I _S	Continuous Source Current(Diode Conduction)	-0.3	
P _D	Power Dissipation	TC=25°C	W
		TC=70°C	W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

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	-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°C			-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	

Typical Performance Characteristics

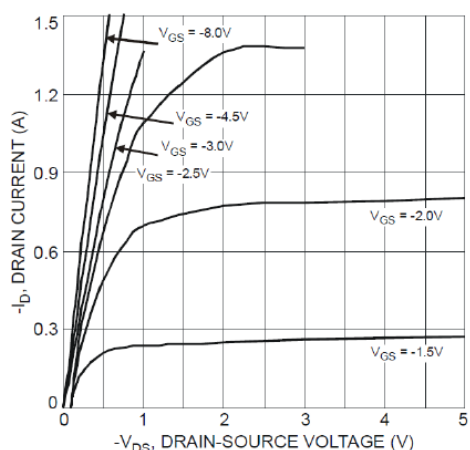


Fig. 1 Typical Output Characteristics

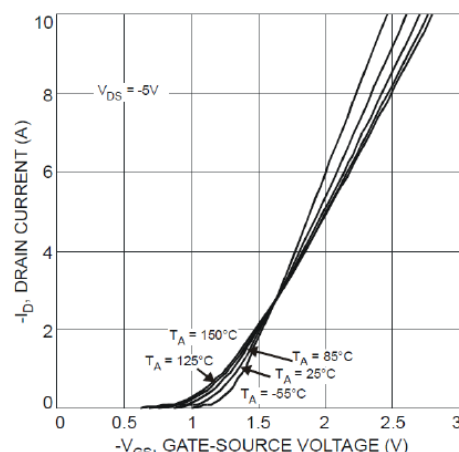


Fig. 2 Typical Transfer Characteristics

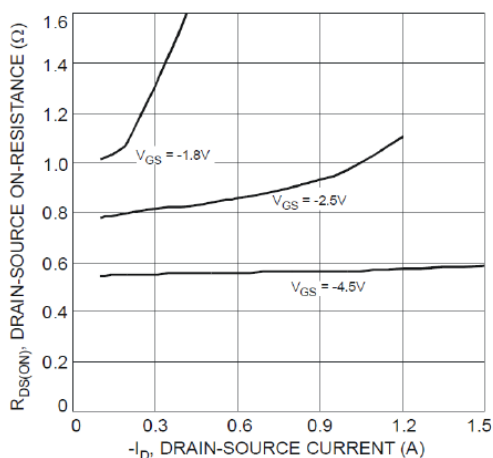


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

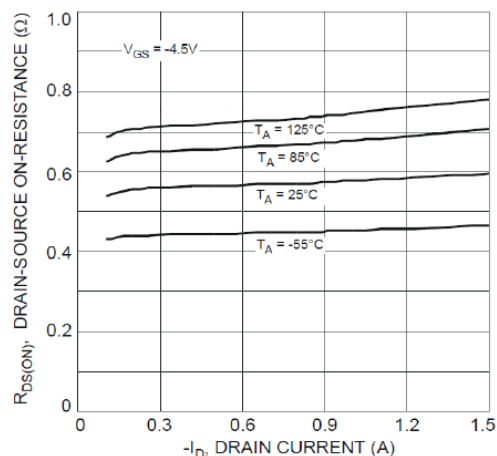


Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_A

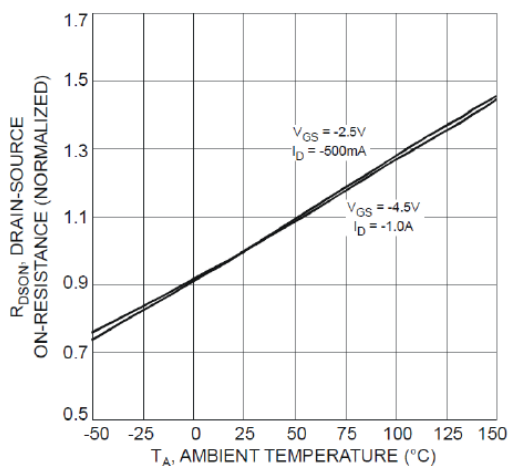


Fig. 5 On-Resistance Variation with T_J

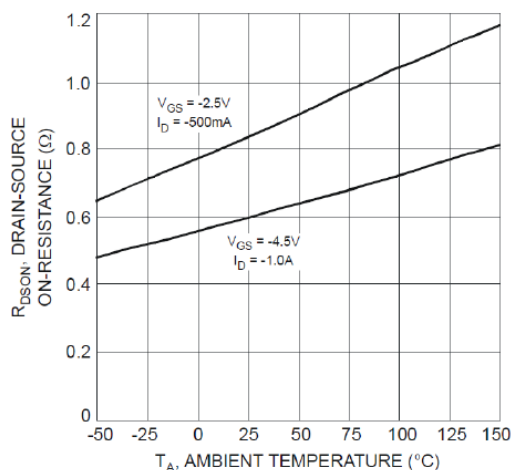


Fig. 6 On-Resistance Variation with T_J

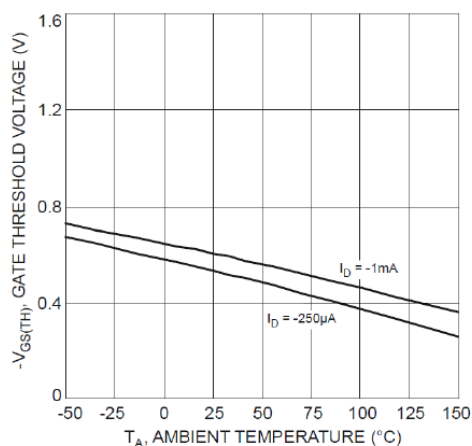
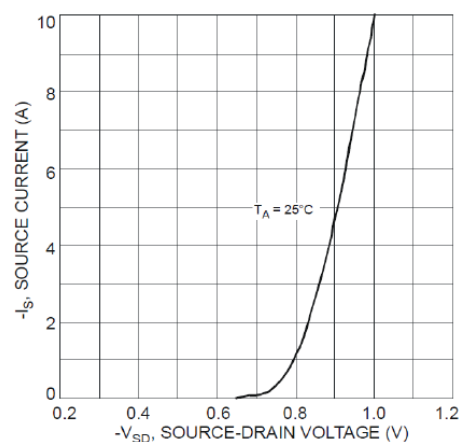
Typical Performance Characteristics(continue)

Fig. 7 Gate Threshold Variation vs. T_A


Fig. 8 Diode Forward Voltage vs. Current

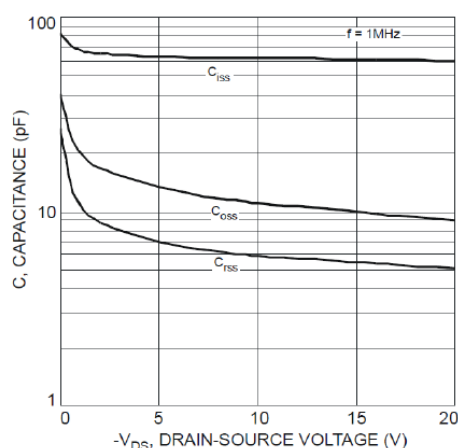


Fig. 9 Typical Capacitance

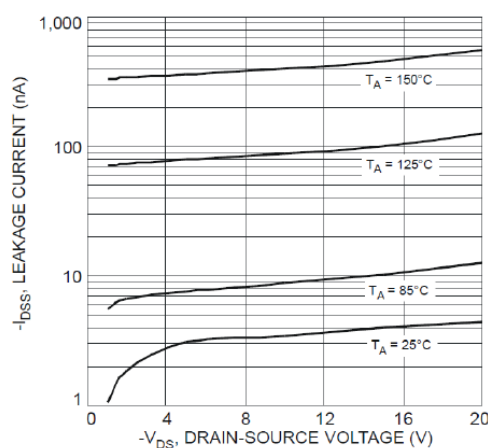


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

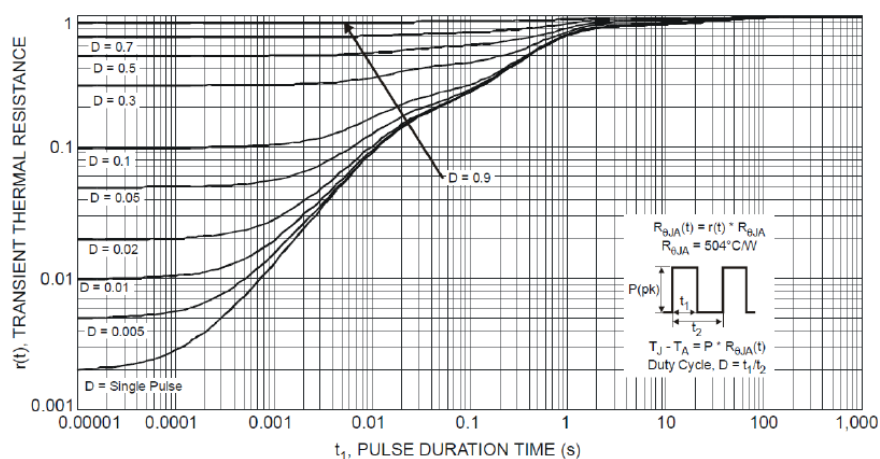
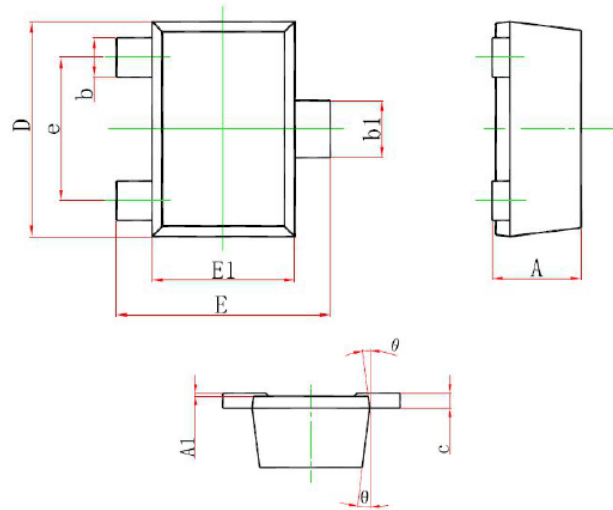


Fig. 11 Transient Thermal Response

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	7° REF		7° REF	

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