

LMP1073KX7F 20V P-Channel Enhancement Mode MOSFETs

Features

- -20V/-0.5A, $R_{DS(ON)}=800m\Omega@V_{GS}=-4.5V$
- -20V/-0.2A, $R_{DS(ON)}=1100m\Omega@V_{GS}=-2.5V$
- -20V/-0.1A, $R_{DS(ON)}=1800m\Omega@V_{GS}=-1.8V$
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- ESD Protection
- SOT-523 package design

Product Description

LMP1073KX7F, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to

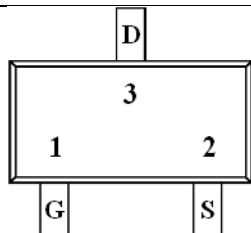
provide excellent $R_{DS(ON)}$, low gate charge.

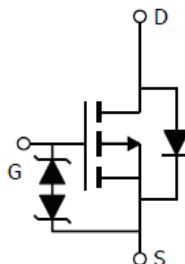
These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

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

Pin Configuration

LMP1073KX7F (SOT-523)	
	
PIN	Description
1	Gate
2	Source
3	Drain



Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP1073KX7F	LMP1073K	X7	F	SOT-523	-

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
<u>3XWM</u>	<u>3</u>	<u>XWM</u>

Absolute Maximum Ratings

(T_C=25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	-20	V
V _{GSS}	Gate-Source Voltage	±8	V
I _D	Continuous Drain Current (T _J =150°C)	T _A =25°C	A
		T _A =70°C	
I _{DM}	Pulsed Drain Current	-1.5	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =70°C	
R _{θJA}	Thermal Resistance Junction to ambient	450	°C/W
T _J	Operating Junction Temperature Range	-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	-0.3		-1.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±8V			±10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			-1	uA
		V _{DS} =-16V, V _{GS} =0V T _J =85°C			-30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-0.5A		550	800	mΩ
		V _{GS} =-2.5V, I _D =-0.2A		780	1100	
		V _{GS} =-1.8V, I _D =-0.1A		990	1800	
		V _{GS} =-1.5V, I _D =-0.1A		1230	2600	
g _{FS}	Forward Transconductance	V _{DS} =-10V, I _D =-0.3A		0.8		S
V _{SD}	Diode Forward Voltage	I _S =-0.5A, V _{GS} =0V			-1.3	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-0.25A		0.58		nC
Q _{gs}	Gate-Source Charge			0.1		
Q _{gd}	Gate-Drain Charge			0.13		
C _{iss}	Input Capacitance	V _{DS} =-16V, V _{GS} =0V f=1MHz		59.8		pF
C _{oss}	Output Capacitance			12.1		
C _{rss}	Reverse Transfer Capacitance			6.4		
t _{d(on)}	Turn-On Time	V _{DD} =-10V, R _L =47Ω, I _D ≡-0.2A V _{GEN} =-4.5V, R _G =10Ω		5.1		ns
t _r				8.1		
t _{d(off)}	Turn-Off Time			28.4		
t _f				20.7		

Typical Performance Characteristics

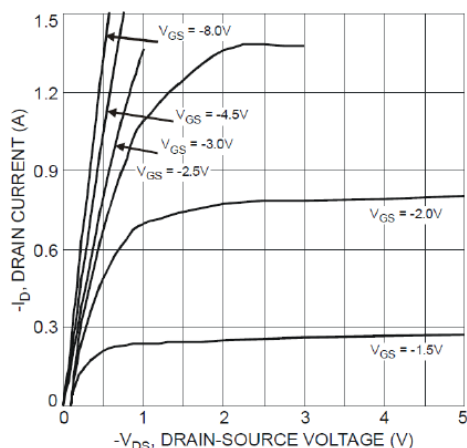


Fig. 1 Typical Output Characteristics

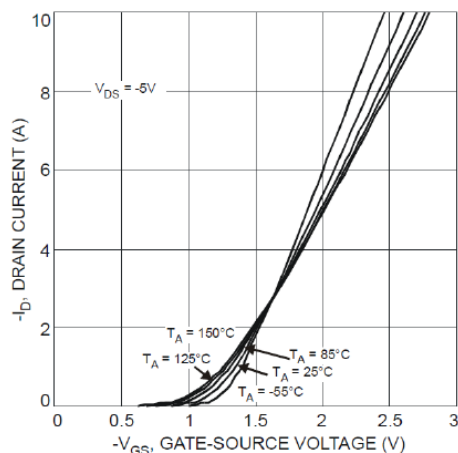


Fig. 2 Typical Transfer Characteristics

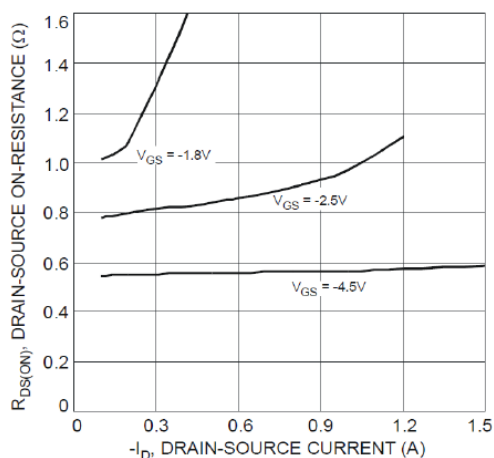


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

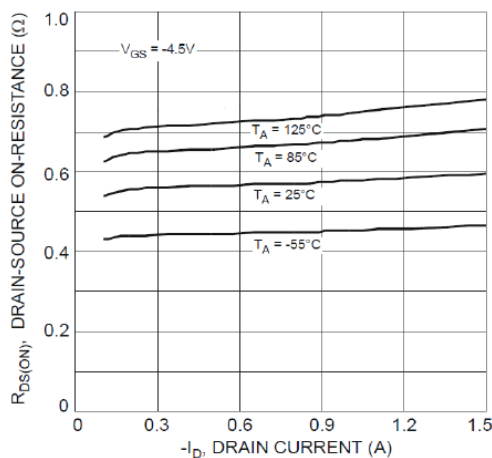


Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_A

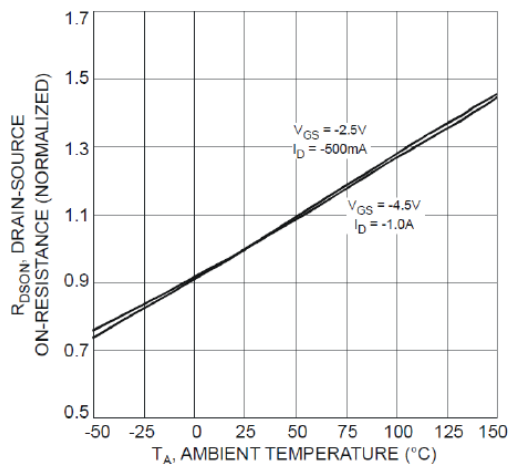


Fig. 5 On-Resistance Variation with T_J

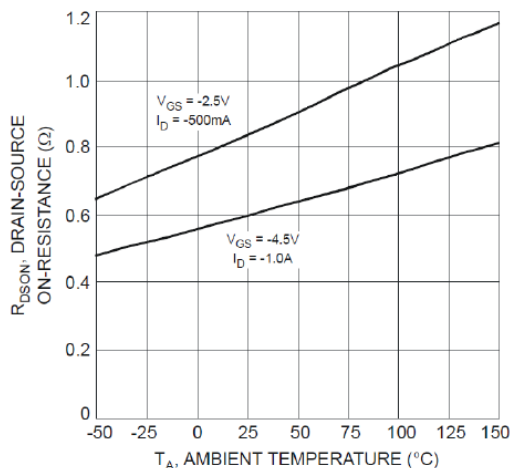
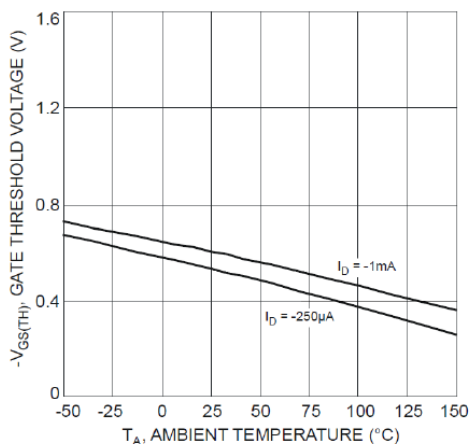
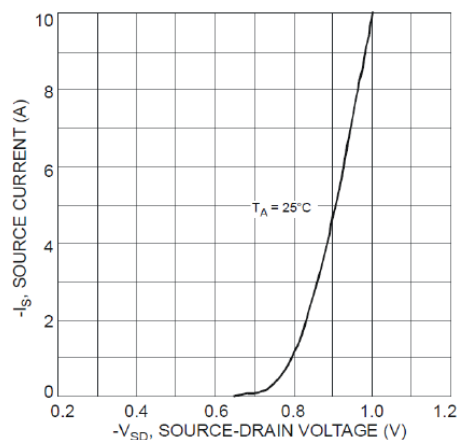
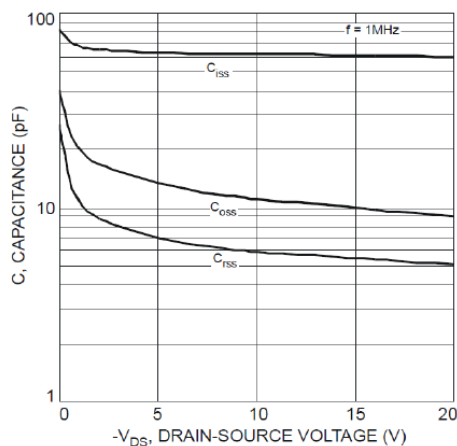
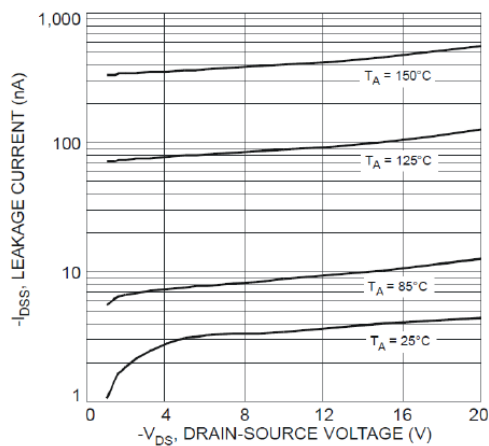
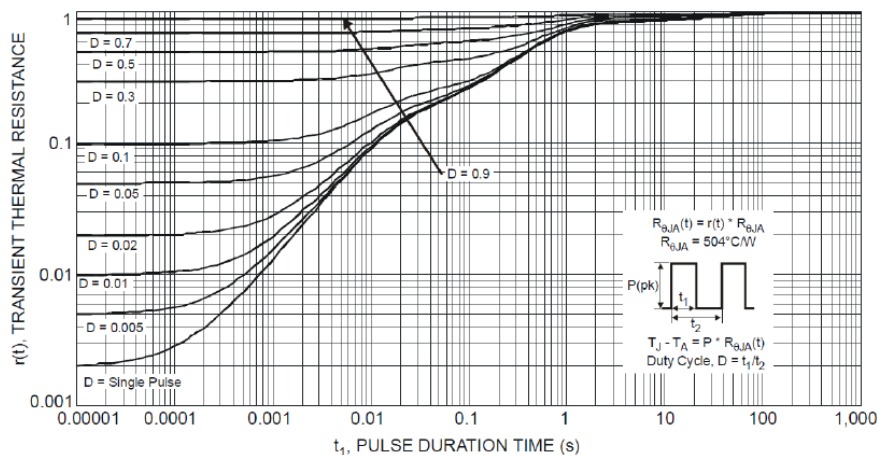
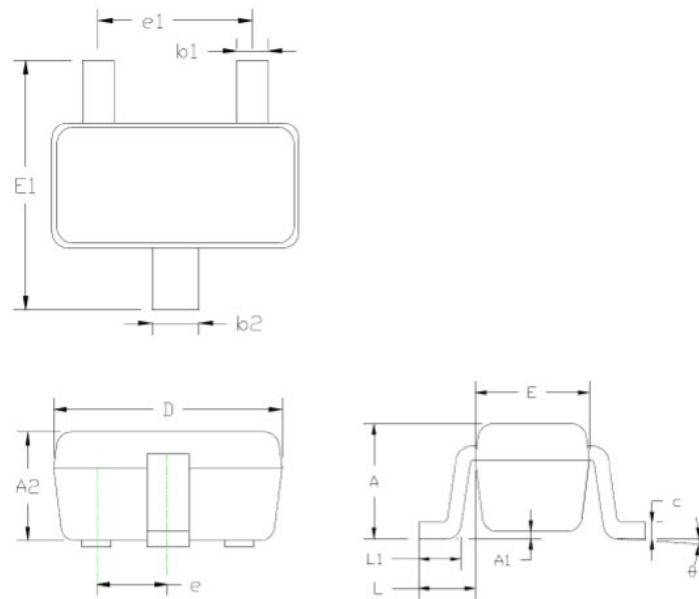


Fig. 6 On-Resistance Variation with T_J

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-523


Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.013
c	0.100	0.200	0.004	0.009
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.068
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.400 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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