

LMP3825EAF 30V P-Channel MOSFET

Features

- -30V/-0.19A, $R_{DS(ON)} < 2500m\Omega @ V_{GS} = -4.5V$
- Low-Voltage Operation
- High-Speed Circuits
- ESD Protection
- SOT-723 package design

Product Description

LMP3825EAF, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent

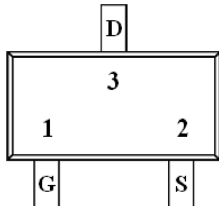
$R_{DS(ON)}$, low gate charge.

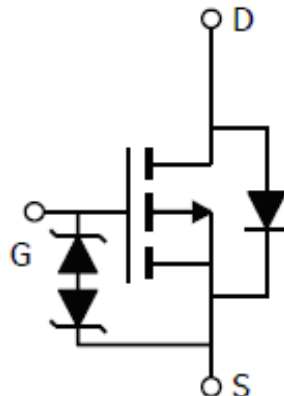
These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

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

Pin Configuration

LMP3825EAF (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
LMP3825EAF	LMP3825E	A	F	SOT-723	8000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
5XM	5	XM

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	±10	V
I _D	Continuous Drain Current (T _J =150°C)	T _A =25°C	A
		T _A =70°C	
I _{DM}	Pulsed Drain Current	-0.7	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =70°C	
R _{θJA}	Thermal Resistance Junction to ambient	833	°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	-30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.4		-1.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±8V			±10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V			-1	uA
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-0.5A		1.5	2.5	Ω
		V _{GS} =-2.5V, I _D =-0.2A		1.9	2.9	
		V _{GS} =-1.8V, I _D =-0.1A		2.4	5.0	
g _{FS}	Forward Transconductance	V _{DS} =-10V, I _D =-0.25A		600		mS
V _{SD}	Diode Forward Voltage	I _S =-0.5A, V _{GS} =0V			1.3	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-1A		1.0		nC
Q _{gs}	Gate-Source Charge	V _{DS} =-15V, V _{GS} =-8V, I _D =-1A		0.2		
Q _{gd}	Gate-Drain Charge			0.1		
C _{iSS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V f=1MHz		54		pF
C _{oSS}	Output Capacitance			10.9		
C _{rSS}	Reverse Transfer Capacitance			5.8		
t _{d(on)}	Turn-On Time	V _{DD} =-10V, R _L =47Ω, I _D ≡-0.2A V _{GEN} =-4.5V, R _G =10Ω		3.8		ns
t _r				11		
t _{d(off)}	Turn-Off Time			45		
t _f				20		

Typical Performance Characteristics

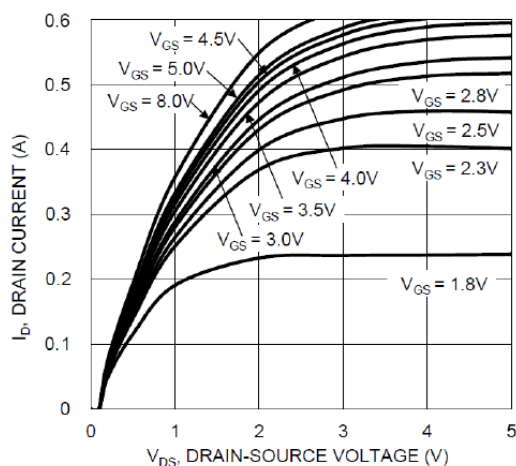


Fig. 1 Typical Output Characteristics

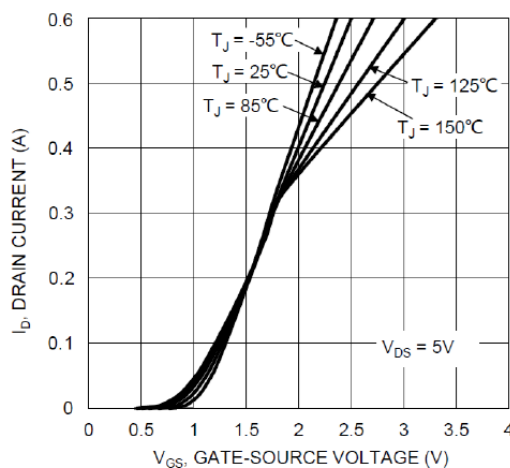


Fig. 2 Typical Transfer Characteristics

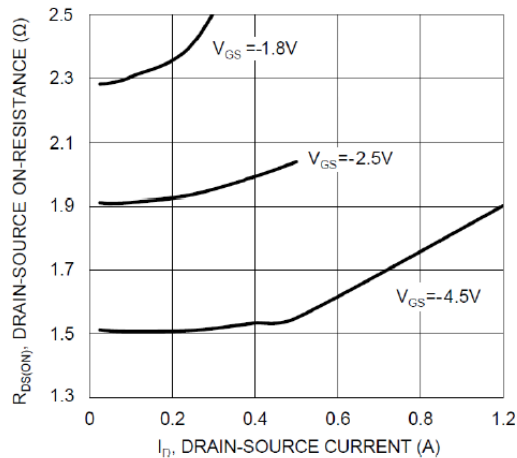


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

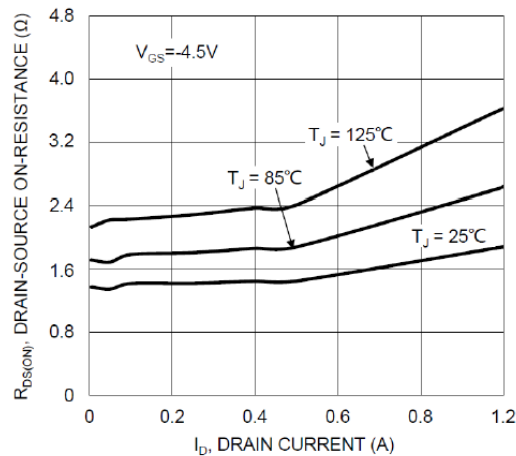


Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_J

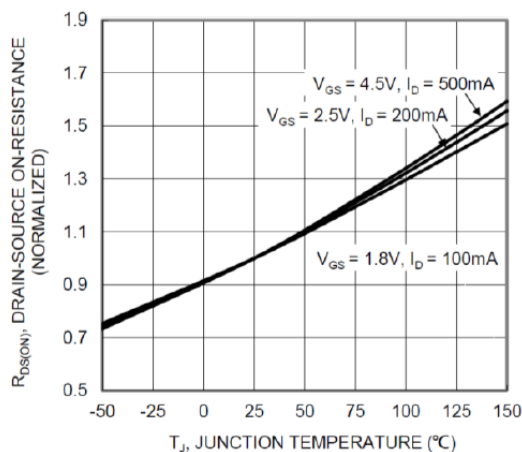


Fig. 5 On-Resistance Variation with T_J

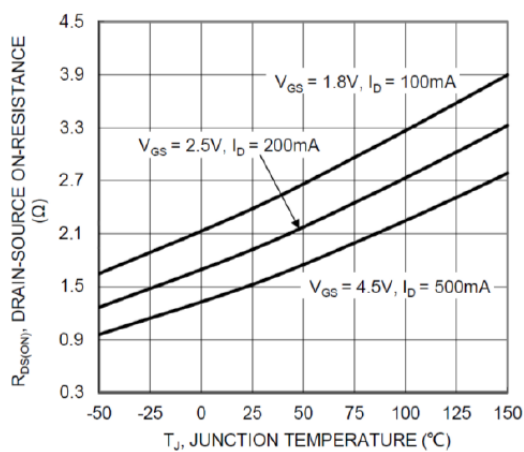
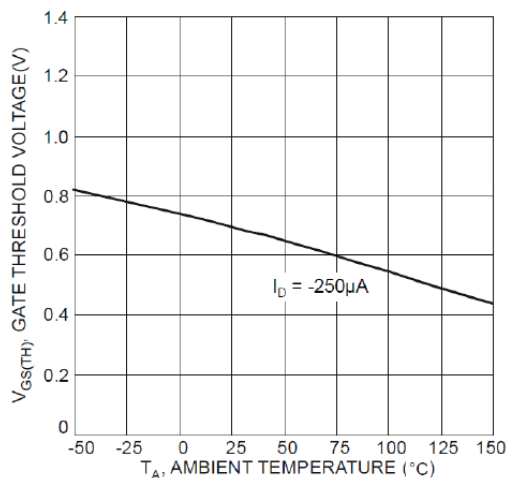
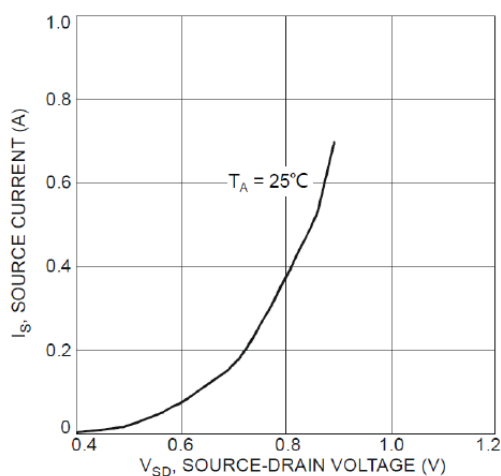
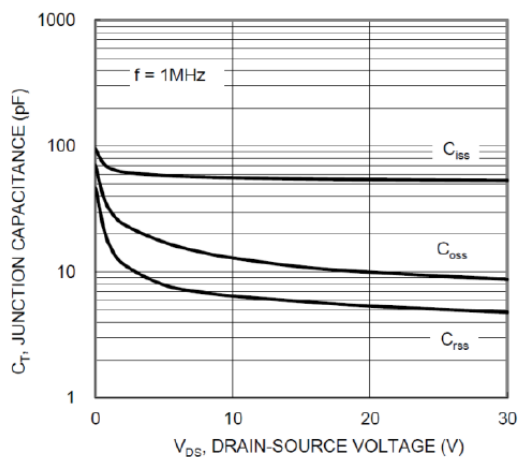
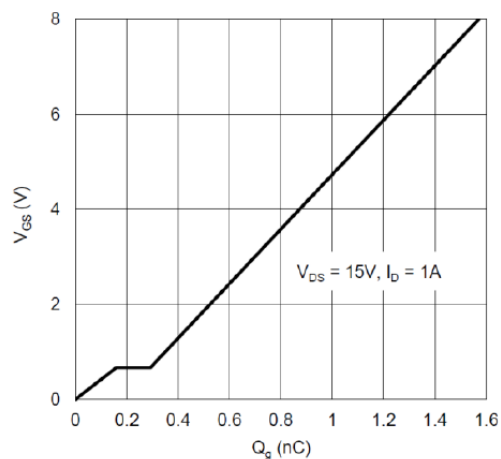
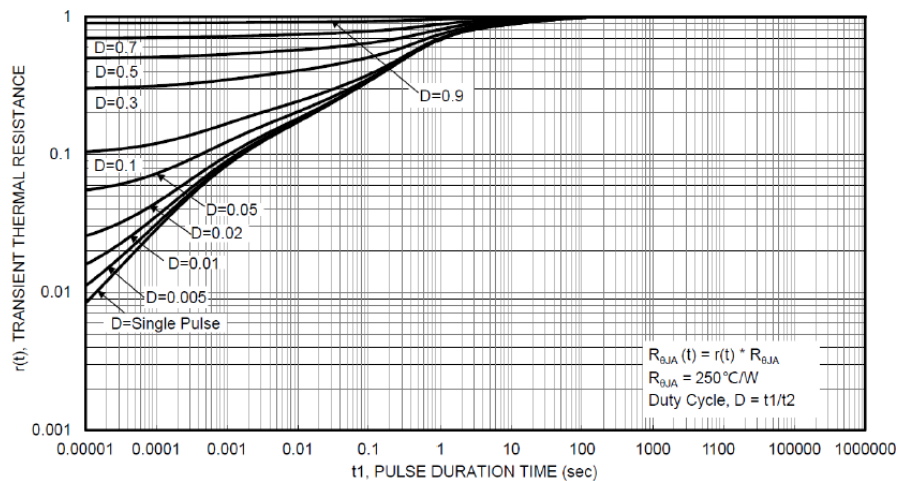
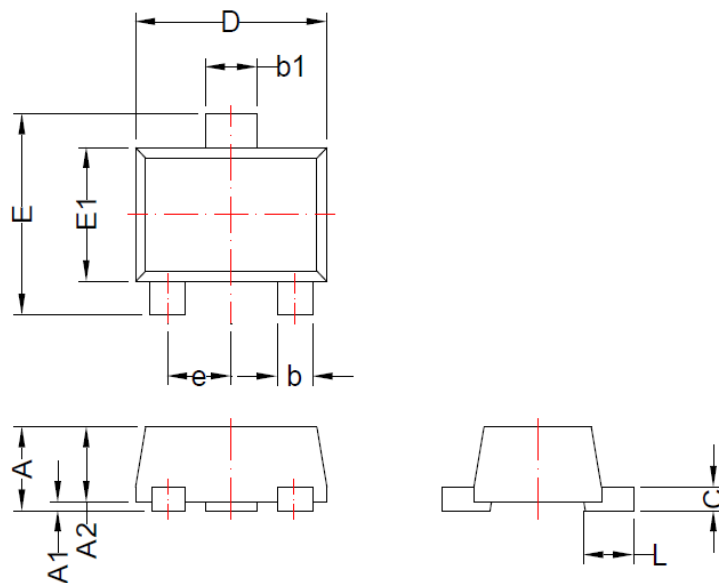


Fig. 6 On-Resistance Variation with T_J

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 Gate Charge

Fig. 11 Transient Thermal Response

Package Dimension:

SOT-723



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

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
A2	0.45	0.55	0.018	0.022
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.20	0.003	0.008
D	1.10	1.30	0.043	0.051
E	1.10	1.30	0.043	0.051
E1	0.70	0.90	0.028	0.035
e	0.4 BSC		0.016 BSC	
L	0.2	0.42	0.008	0.017

NOTICE:
LMP3825EAF

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