LMP02P15TSF 150V P-Channel MOSFET

Features

- -150V/-1A, $R_{DS(ON)}$<750mΩ@V_{GS}=-10V
- Fast switching
- Improved dv/dt capability
- Green Device Available
- TSOP-6 package design

Product Description

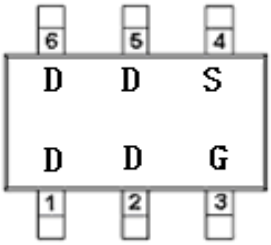
These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.
These devices are well suited for high efficiency fast switching applications.

Applications

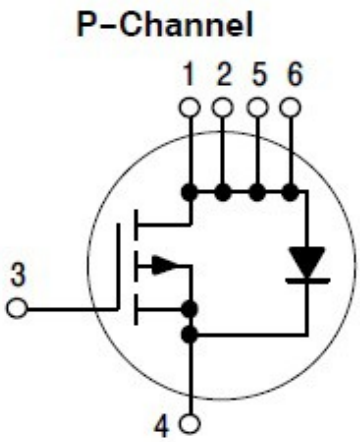
- Networking
- Load Switch
- LED Application

Pin Configuration

LMP02P15TSF (TSOP-6)



PIN	Description
1	Drain
2	Drain
3	Gate
4	Source
5	Drain
6	Drain



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Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP02P15TSF	LMP02P15	TS	F	TSOP-6	3000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
25PXW	25P	XW

Absolute Maximum Ratings

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V_{DS}	Drain-Source Voltage	-150	V
V_{GS}	Gate–Source Voltage	±20	V
I_D	Drain Current- Continuous (T_C=25ºC)	-1	A
	Drain Current- Continuous (T_C=100ºC)	-0.63	A
I_{DM}	Drain Current- Pulsed[1]	-4	A
P_D	Power Dissipation (T_C=25ºC)	1.56	W
	Power Dissipation –Derate above 25ºC	0.012	W/ºC
T_J	Operating Junction Temperature Range	-50 to 150	ºC
T_{STG}	Storage Temperature Range	-50 to 150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to ambient	80	ºC/W

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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	-150	---	---	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS},I_D=-250uA	-2	3	-4	
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V,V_{GS}=±20V	---	---	±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-150V, V_{GS}=0V, T_J=25ºC	---	---	-1	μA
		V_{DS}=-120V,V_{GS}=0V,T_J=125ºC	---	---	-10	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10V,I_D=-1A	---	650	800	mΩ
		V_{GS}=-6V,I_D=-0.5A	---	700	950	
V_{SD}	Diode Forward Voltage	I_S=-1A,V_{GS}=0V, T_J=25ºC	---	---	-1	V
I_S	Continuous Source Current	V_{GS}=V_D=0V,Force Current	---	---	-1	A
I_{SM}	Pulsed Source Current		---	---	-2	A
g_{FS}	Forward Transconductance	V_{DS}=-10V,I_D=1A	---	2	---	S
R_g	Gate resistance	V_{DS}=0V, V_{GS}=0V, F=1MHz	---	30	60	Ω
Dynamic						
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V, F=1MHz	---	430	700	pF
C_{oss}	Output Capacitance		---	38	60	
C_{rss}	Reverse Transfer Capacitance		---	28	56	
Q_g	Total Gate Charge[2,3]	V_{DS}=-75V, V_{GS}=10V, I_D=-1A	---	4.4	8	nC
Q_{gs}	Gate-Source Charge[2,3]		---	0.7	2	
Q_{gd}	Gate-Drain Charge[2,3]		---	1.5	3	
$t_{d(on)}$	Turn-On Time[2,3]	V_{DD}=-75V, V_{GS}=-10V, R_G=10Ω, I_D=-1A	---	12.5	20	ns
t_r			---	8.9	18	
$t_{d(off)}$	Turn-Off Time[2,3]		---	17.3	36	
t_f			---	11.5	24	

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

GSM02P15

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Typical Performance Characteristics

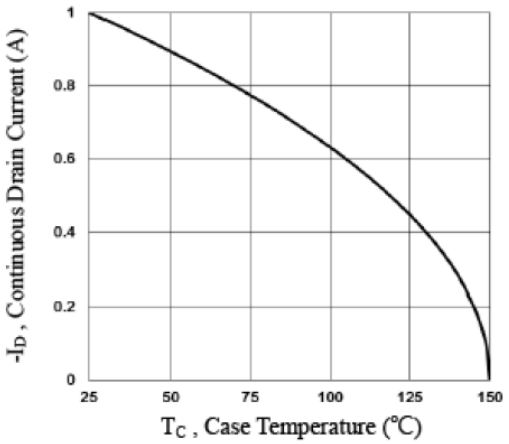

Fig.1 Continuous Drain Current vs. Tc

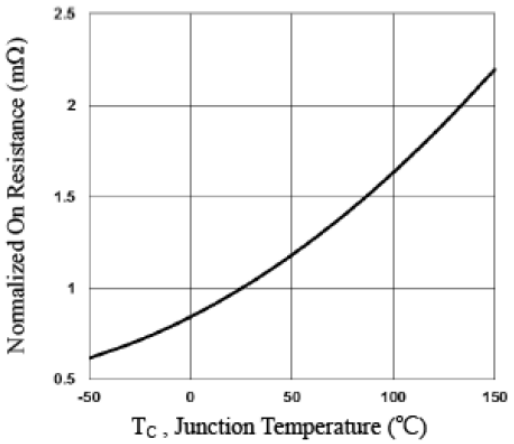

Fig.2 Continuous Drain Current vs. Tc

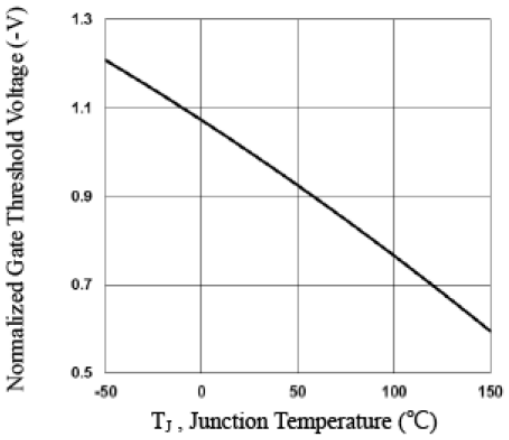

Fig.3 Normalized Vth vs. TJ

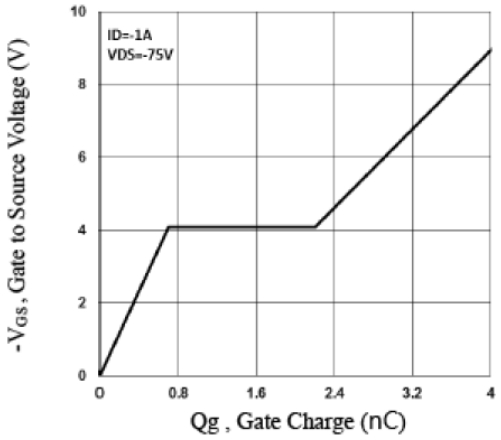

Fig.4 Gate Charge Waveform

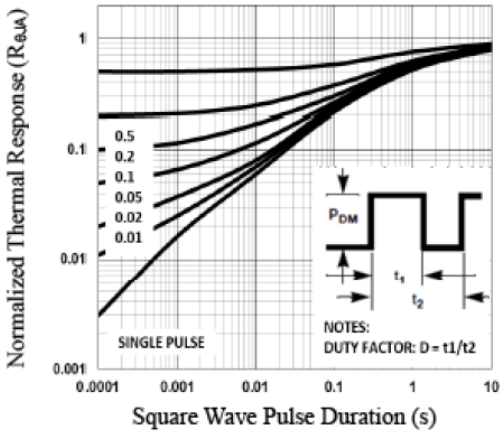

Fig.5 Normalized Transient Impedance

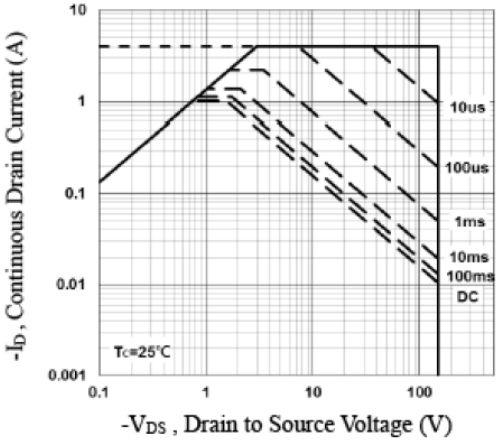

Fig.6 Maximum Safe Operation Area

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Typical Performance Characteristics(continue)

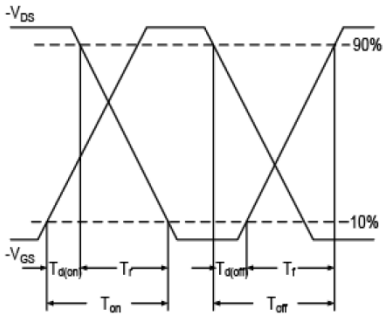


Fig.7 Switching Time Waveform

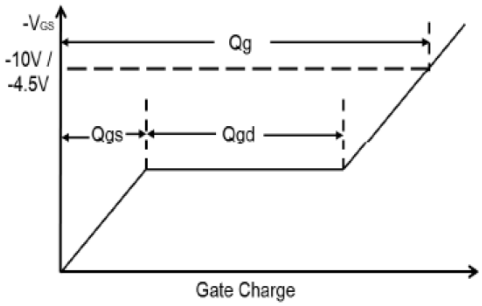
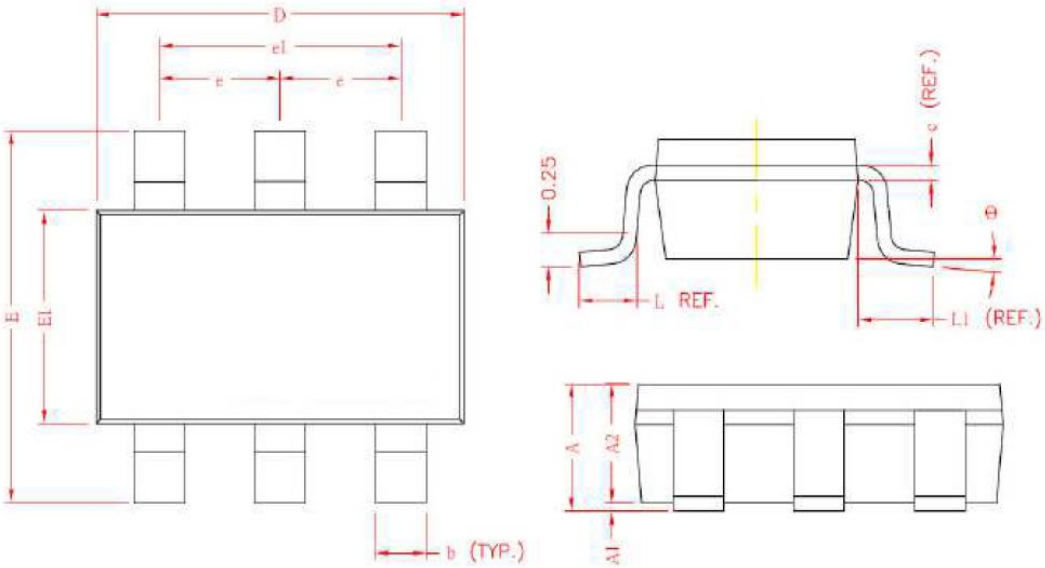


Fig.8 Gate Charge Waveform

Package Dimension:

TSOP-6



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Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	-	1.45	-	0.057
A1	0.00	0.10	0.000	0.004
A2	0.70	1.35	0.028	0.053
c	0.12 (REF)		0.005 (REF)	
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
L	0.45 (REF)		0.018 (REF)	
L1	0.60 (REF)		0.024 (REF)	
Θ	0 ˚	10 ˚	0 ˚	10 ˚
b	0.30	0.50	0.012	0.020
e	0.95 (REF)		0.037 (REF)	
e1	1.90 (REF)		0.075 (REF)	

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