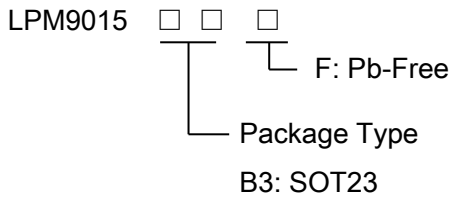


## 20V/5.0A P-Channel Power MOSFET

### General Description

The LPM9015 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , This device is suitable for use as a load switch or in PWM applications.

### Order Information



### Applications

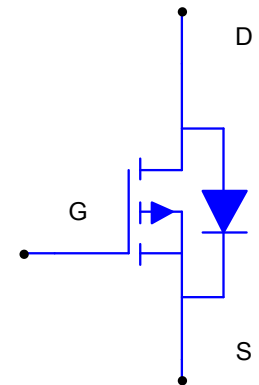
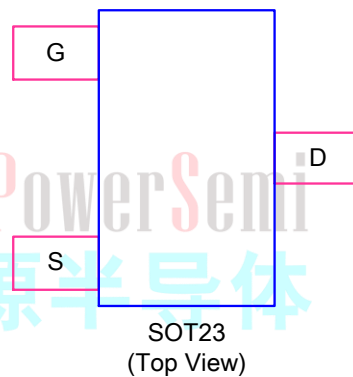
- ✧ PWM applications
- ✧ Load switch
- ✧ Power management



### Features

- ◆ -20V/-2.0A,  $R_{DS(ON)}=28m\Omega(\text{typ.})@V_{GS}=-4.5V$
- ◆ -20V/-2.0A,  $R_{DS(ON)}=38m\Omega(\text{typ.})@V_{GS}=-2.5V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ SOT23 Package

### Pin Configurations



### Marking Information

Device	Marking	Package	Shipping
LPM9015B3F	LPS A3YWX	SOT23	3K/REEL
Marking indication: Y:Production year W:Production week X: Series Number			

## Absolute Maximum Ratings

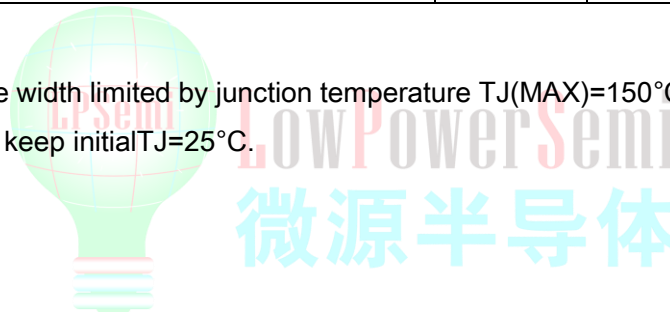
T<sub>A</sub>=25°C unless otherwise noted.

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V <sub>DS</sub>	-20	V
Gate-Source Voltage	V <sub>GS</sub>	±8	V
Continuous Drain Current	I <sub>D</sub>	-5.0	A
Pulsed Drain Current <sup>Note 1</sup>	I <sub>DM</sub>	-30	A
Power Dissipation	P <sub>D</sub>	1.5	W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to 150	°C

## Thermal resistance ratings

Parameter	Symbol	Typ.	Units
Maximum Junction-to-Lead	R <sub>θJA</sub>	80	°C/W

Note1: Repetitive rating, pulse width limited by junction temperature T<sub>J</sub>(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub>=25°C.



## Electrical Characteristics

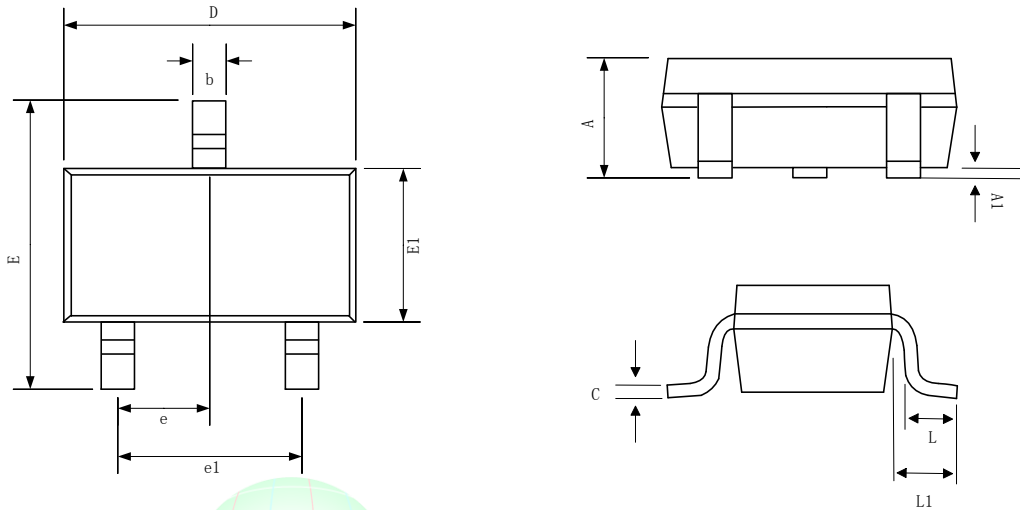
T<sub>A</sub>=25°C unless otherwise noted.

Symbol	Parameter	Condition	Min	Typ.	Max	Units
<b>Static Parameters</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	I <sub>D</sub> =-250μA, V <sub>GS</sub> =0V	-20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-18V, V <sub>GS</sub> =0V		1		μA
I <sub>GSS</sub>	Gate-body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±8V			±10	μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.3	-0.65	-1.0	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.0A		28		mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-2.0A		38		mΩ
g <sub>FS</sub>	Forward Trans-conductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-4.0A		20		S
<b>Dynamic Parameters</b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =-10V, f=1MHz		780		pF
C <sub>OSS</sub>	Output Capacitance			125		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			83		pF
<b>Switching Parameters</b>						
Q <sub>G</sub>	Total Gate Charge	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-10V, I <sub>D</sub> =-4A R <sub>L</sub> =2.5Ω, R <sub>GEN</sub> =3Ω		10		nC
Q <sub>GS</sub>	Gate Source Charge			1		nC
Q <sub>GD</sub>	Gate Drain Charge			2.2		nC
t <sub>D(ON)</sub>	Turn ON Delay Time			13		ns
t <sub>R</sub>	Turn ON Rise Time			8		ns
t <sub>D(OFF)</sub>	Turn OFF Delay Time			19		ns
t <sub>F</sub>	Turn OFF Fall Time			27		ns
<b>Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =-1A			-1.2	V
I <sub>S</sub>	Diode Forward Current				-2	A



## Packaging Information

### SOT-23



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.000	1.150	1.330
A1	0.000	0.050	0.130
b	0.300	0.380	0.450
c	0.110	0.150	0.190
D	2.820	2.920	3.020
E	2.600	2.800	3.000
E1	1.400	1.600	1.800
e	0.950BSC		
e1	1.900BSC		
L	0.300	0.450	0.600
L1	0.600REF		