

-12V P-Channel Trench Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON) TYP}$	I_D
-12V	17.3m Ω @ $V_{GS}=-4.5V$	-6A
	27m Ω @ $V_{GS}=-2.5V$	

Description

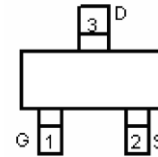
- Trench Power MOSFET Technology
- Low RDSON and Low Gate Charge
- RoHS and Halogen-Free Complaint

Applications

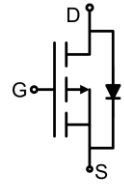
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

Marking Information

Device	Marking	Package	Shipping
LPM9019B3F	LPM N2YWXX	SOT23	3K/REEL
Marking indication: Y: Production year W: Production week X: Series Number			



Marking and pin assignment



Schematic diagram

Absolute Maximum Ratings (TA = 25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-6	A
Pulsed Drain Current ¹	I_{DM}	-24	A
Total Power Dissipation ³	$T_A=25^\circ C$ P_D	1.75	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient ²	$R_{\theta JA}$	70	$^\circ C/W$

1. Repetitive rating, pulse width limited by junction temperature $T_J(MAX)=150^\circ C$

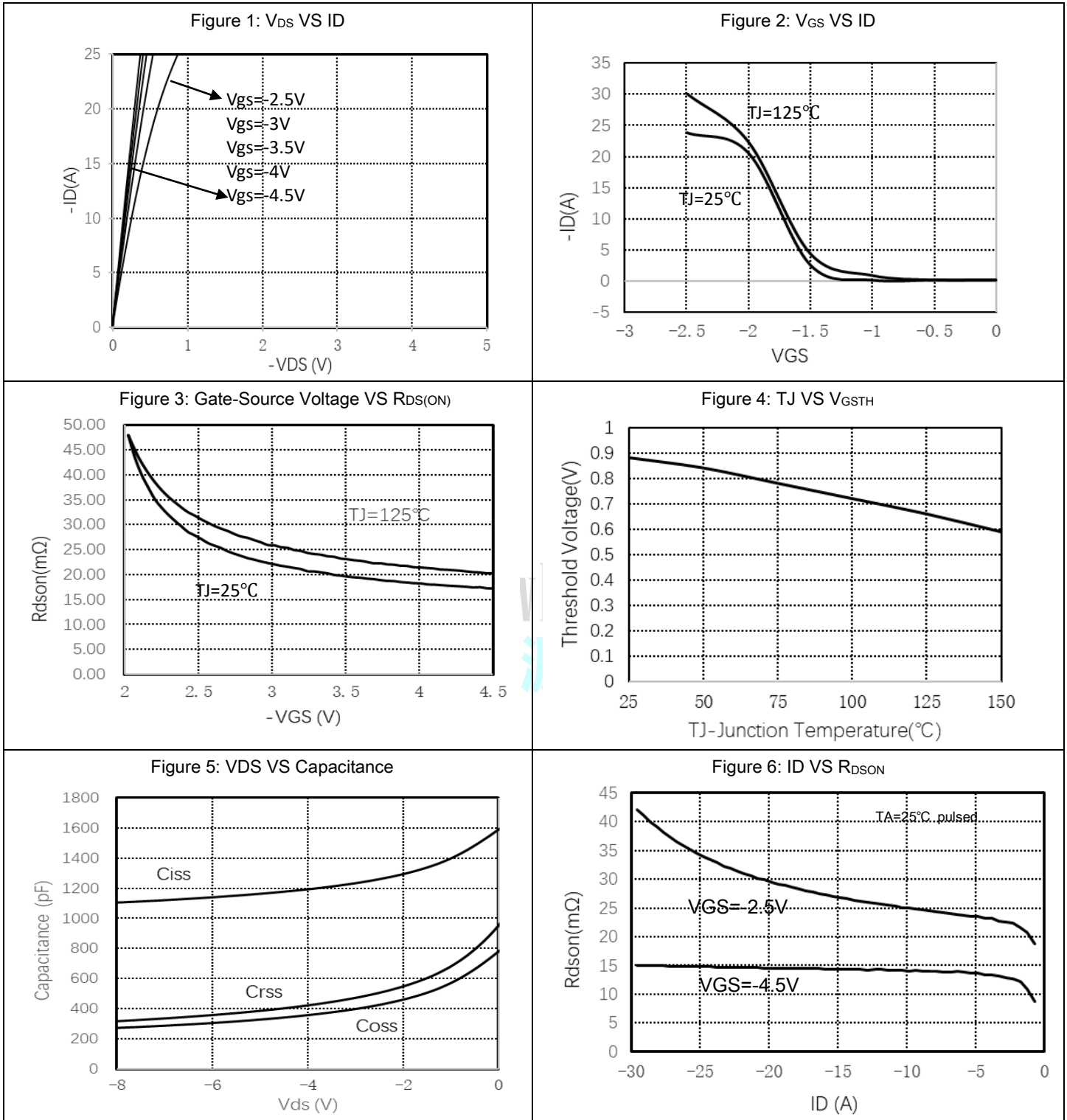
Electrical Characteristics (T_J = 25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-12V	-	-	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V	-	-	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-9V, V _{GS} =0V			-1	μA
Gate Threshold Voltage ³	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-0.6	-0.9	-1.1	V
Drain-Source on-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3A	-	17.3	22	mΩ
		V _{GS} =-2.5V, I _D =-3A	-	27	34	mΩ
Forward Transconductance	g _{fs}	V _{DS} =-5V, I _D =-6A	-	11.5	-	S
Dynamic Characteristics⁴						
Input Capacitance	C _{iss}	V _{DS} =-6V, V _{GS} =0V, f=1MHz	-	1080	-	pF
Output Capacitance	C _{oss}		-	290	-	pF
Reverse Transfer Capacitance	C _{rss}		-	249	-	pF
Gate Resistance	R _G	f=1MHz	-	9.1	-	Ω
Switching Characteristics⁴						
Total Gate Charge	Q _g	V _{GS} = -4.5V, V _{DS} = -6V, I _D = -3A	-	11.2	-	nC
Gate-Source Charge	Q _{gs}		-	2.26	-	nC
Gate-Drain Charge	Q _{gd}		-	3.7	-	nC
Turn-on Delay Time	T _{d(on)}	V _{GS} = -4.5V, V _{DS} = -10V, R _G =10Ω, I _D = -1A	-	8.8	-	nS
Rise Time	T _r		-	28	-	nS
Turn-off Delay Time	T _{d(off)}		-	67	-	nS
Fall Time	T _f		-	80	-	nS
Drain-Source Body Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	I _S =-8A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current ²	I _S			-6		A

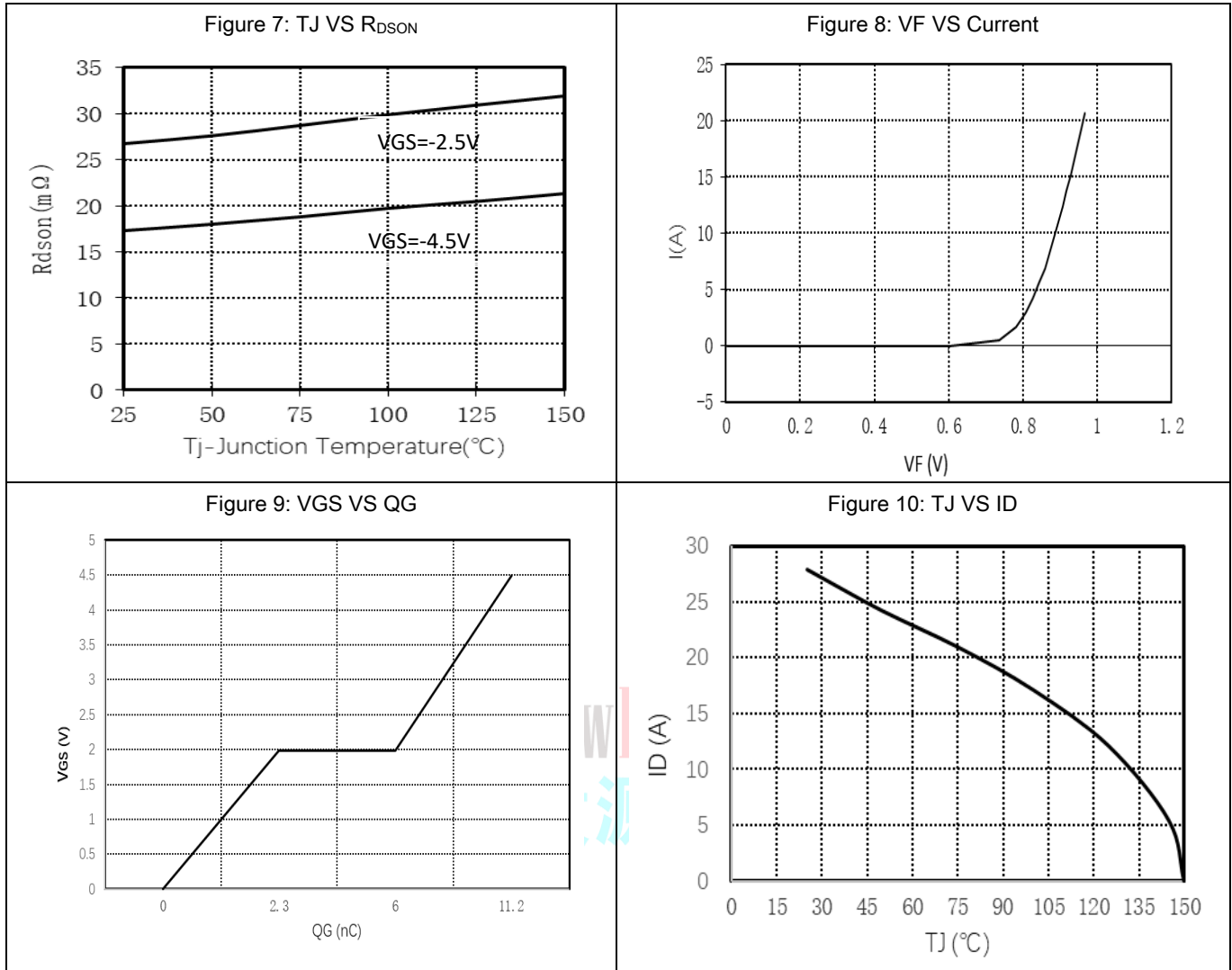
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board , Area 6cm²(one layer,70um thick) , t ≤ 10 sec
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics (Ta=25°C, unless otherwise noted)

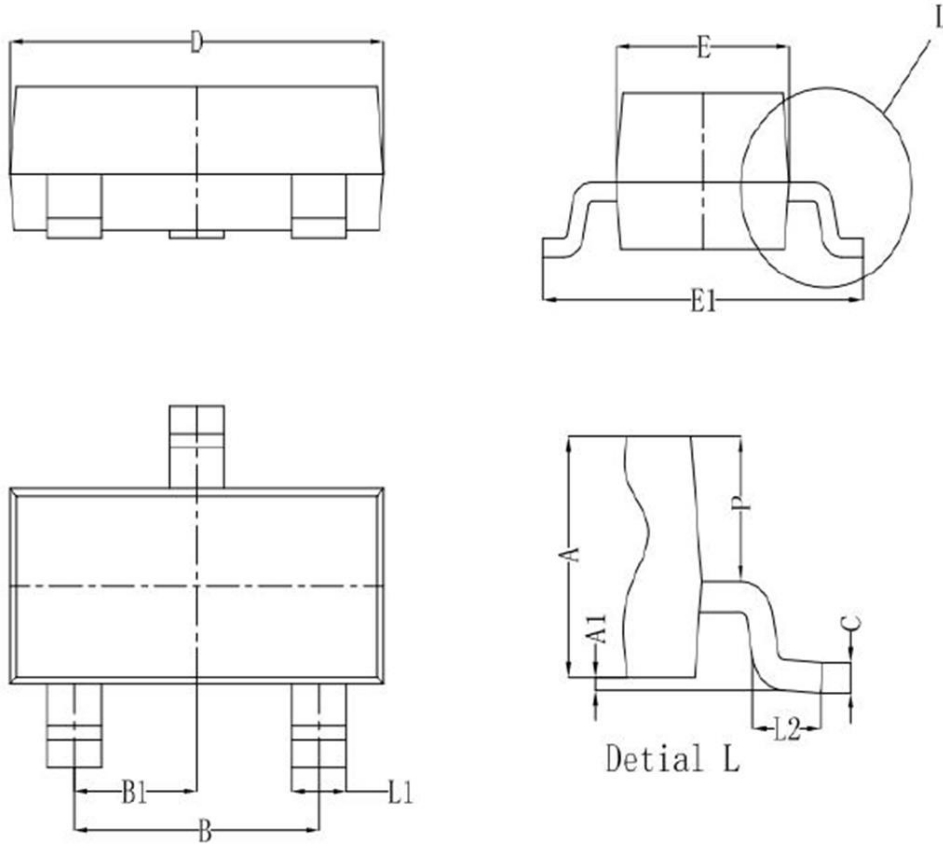


Typical Characteristics (Ta=25°C, unless otherwise noted):



Packaging Information:

Mechanical Dimensions for SOT23



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.900	1.000	1.30
A1	0.000	0.050	0.13
B	1.800	1.900	2.000
B1		0.950TYP	
C	0.100	0.110	0.120
D	2.800	2.900	3.000
E	1.20	1.300	1.40
E1	2.20	2.400	2.60
L1	0.30	0.400	0.500
L2	0.200	0.350	0.500
P	0.55	0.575	0.6