

-12V P-Channel Trench Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON) TYP}$	I_D
-12V	14.3 m Ω @ $V_{GS}=-4.5V$	-16A
	23.5m Ω @ $V_{GS}=-2.5V$	

Description

- Trench Power MOSFET Technology
- Low $R_{DS(ON)}$ and Low Gate Charge
- RoHS and Halogen-Free Complaint

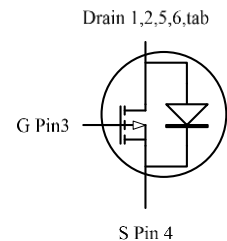
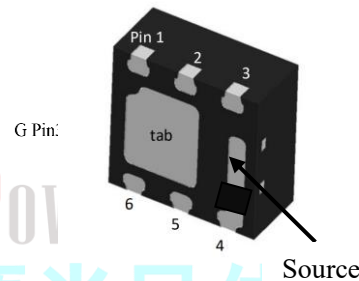
Applications

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

Marking Information

Device	Marking	Package	Shipping
LPM9019QVF	LPS MbyWX	DFN2*2	4K/REEL

Marking indication:
Y:Production year W:Production week X: Series Number



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	-16	A
Pulsed Drain Current ^(note1)	I_{DM}	-64	A
Total Power Dissipation	$T_C=25^\circ C$ P_D	13	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 ^(note2)	$R_{\theta JA}$	65	$^\circ C/W$
Thermal Resistance from Junction-to-Case ^(note2)	$R_{\theta JC}$	9.6	$^\circ C/W$

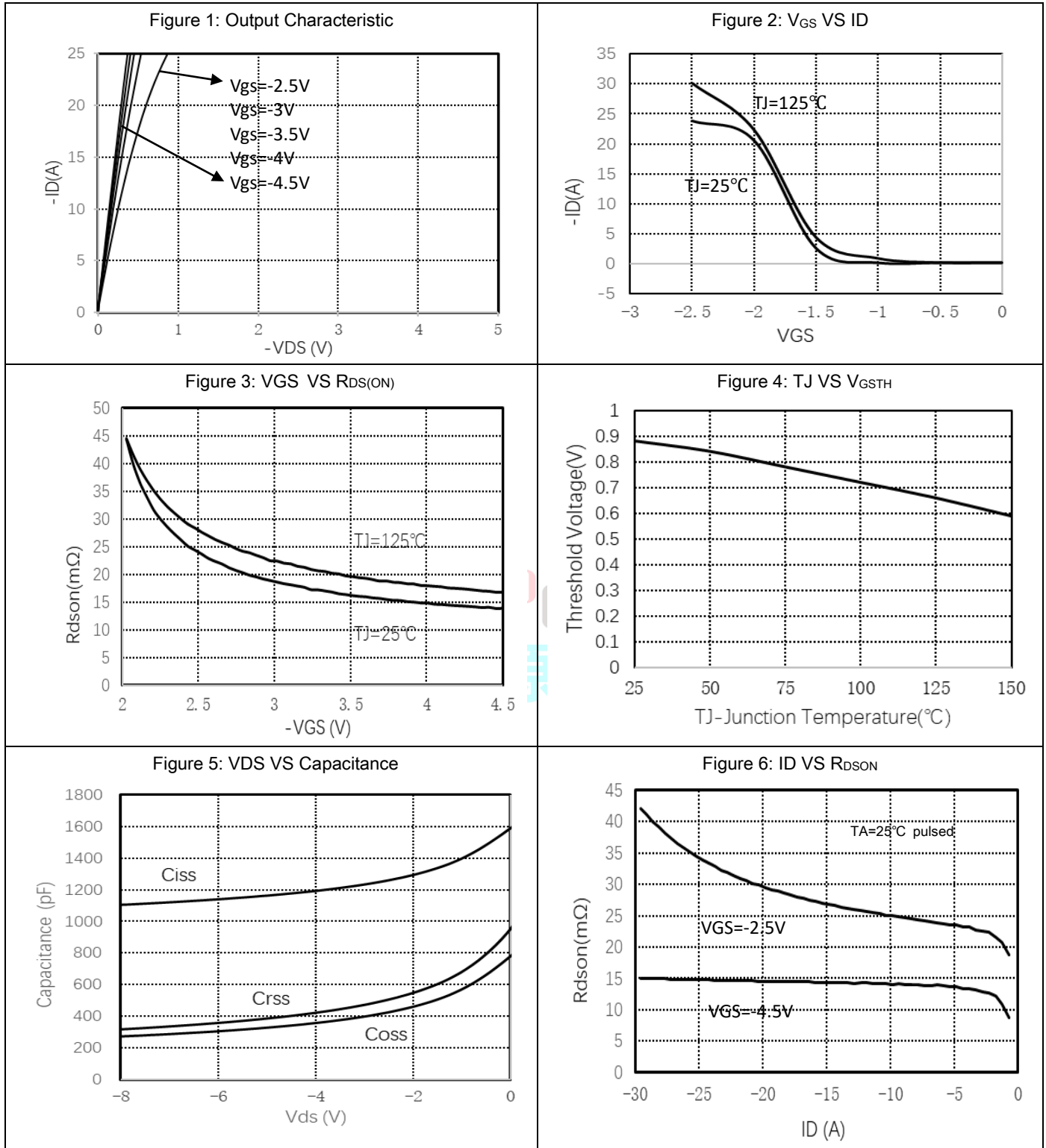
Electrical Characteristics (T_J = 25°C, unless otherwise noted)

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 (note3)	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-0.6	-0.9	-1.2	V
Drain-Source on-Resistance(note3)	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3A	-	14.3	20	mΩ
		V _{GS} =-2.5V, I _D =-3A	-	23.5	30	mΩ
Forward Transconductance(note3)	g _{fs}	V _{DS} =-5V, I _D =-6A	-	11.5	-	S
Dynamic Characteristics(note4)						
Input Capacitance	C _{iss}	V _{DS} =-10V, 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 Characteristics(note4)						
Total Gate Charge	Q _g	V _{GS} = -4.5V, V _{DS} =-6V, I _D = -10A	-	11.2	-	nC
Gate-Source Charge	Q _{gs}		-	2.26	-	nC
Gate-Drain Charge	Q _{gd}		-	3.71	-	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(note3)	V _{SD}	I _S =-8A, V _{GS} =0V	-	-	-1.2	V
Continuous Source Current(note2)	I _S			-16		A

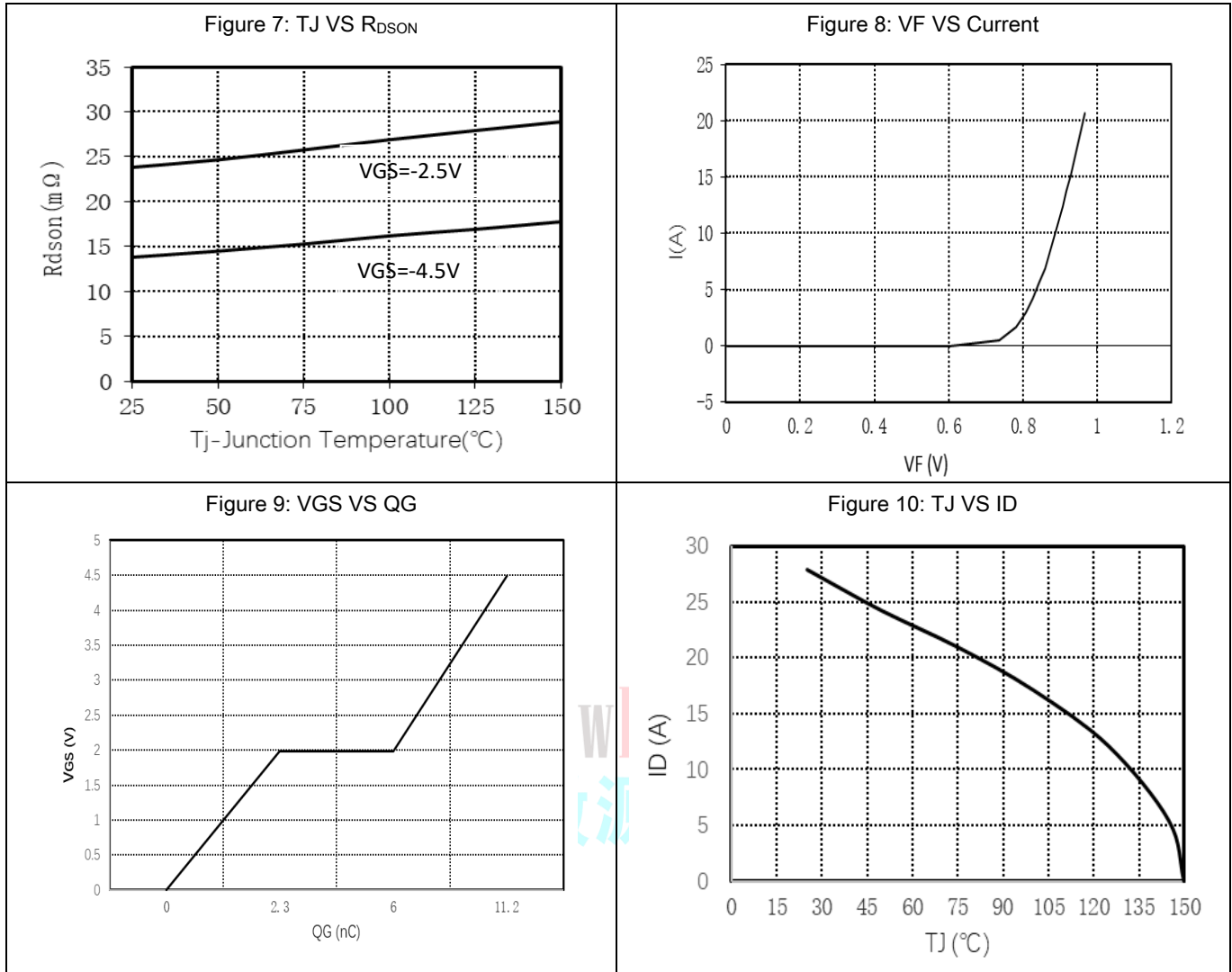
Notes:

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):

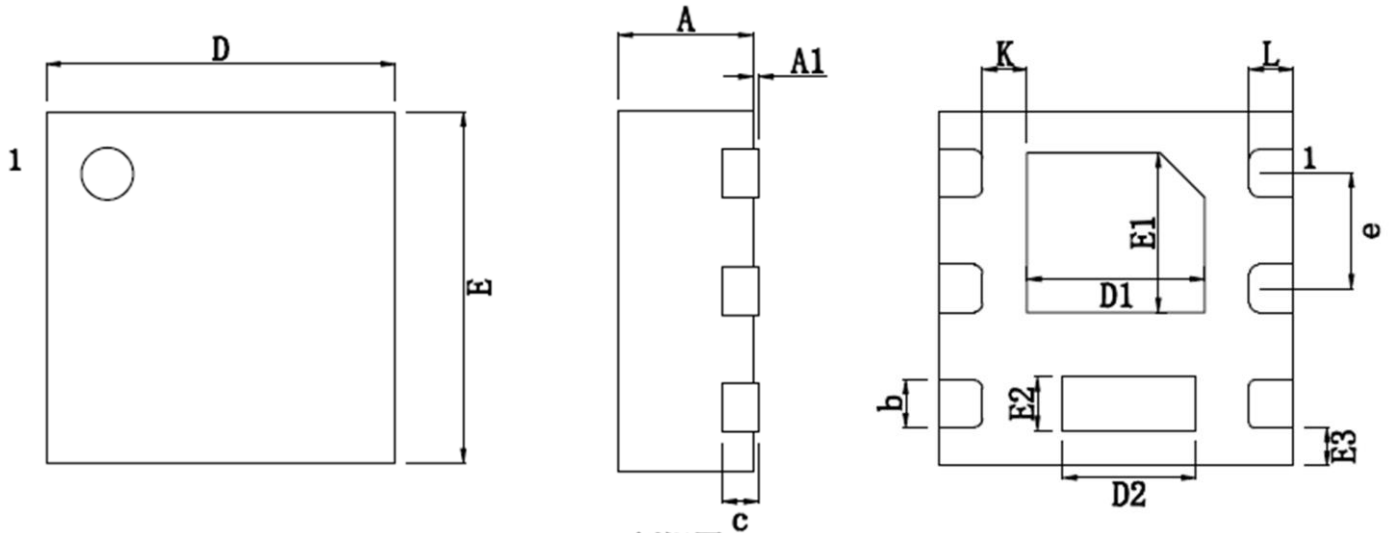


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Packaging Information:

Mechanical Dimensions for DFN2*2



BOL	SYM	MILLIMETER		
		MIN	NOM	MAX
A		0.7	0.75	0.8
A1		0	-	0.05
b		0.20	0.27	0.35
c		0.203 TYP		
D		1.95	2	2.05
D1		0.7	1	1.3
D2		0.5	0.75	1.0
E		1.95	2	2.05
E1		0.7	0.9	1.2
E2		0.2	0.3	0.5
E3		0.215REF		
e		0.65BSC		
K		0.25REF		
L		0.2	0.25	0.3