

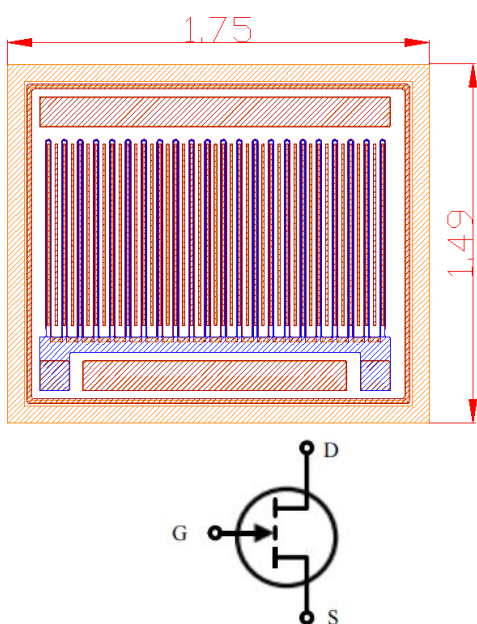
GJ650D450NA01

1.一般说明/General description

650V 蓝宝石衬底 GaN 耗尽型功率晶体管裸芯片

650V GaN-on-Al₂O₃ Depletion-mode Power Transistor Bare Die

2.芯片示意图和尺寸/Chip drawing



物理特征/Physical Characteristics		单位 Unit
晶圆尺寸 Wafer Size	4/6	inches
晶圆厚度 Wafer Thickness	150	um
芯粒尺寸 Die Size (with L/S)	1.75×1.49	mm ²
栅极焊盘尺寸 Gate Pad Size	120×120	um ²
源极焊盘尺寸 Source Pad Size	935×120	um ²
漏极焊盘尺寸 Drain Pad Size	1350×120	um ²
切割道宽度 Scribe Street Width	50	um
金属厚度 Metal Thickness	2.5	um
顶层金属 Top Metallization	Al	
背面材料 Backside	Al ₂ O ₃	

3.最大额定值/ Maximum ratings

at T_J = 25 °C unless otherwise specified

Exceeding the maximum ratings may destroy the device

Table 1 Maximum ratings

参 数/Parameter	符号 Symbol	值/Values	单位 Unit	备注：测试条件 Note/Test Condition
Drain source voltage	V _{DS, min}	650	V	V _{GS} = -28V; T _J = -55 °C to 150 °C
Continuous current, drain source	I _D	9.5	A	T _c = 25 °C
Pulsed current, drain source	I _{D, pulse}	14	A	T _c = 25 °C; V _{GS} = 0 V; t _{PULSE} = 10 μs

Gate source voltage, continuous	V_{GS}	- 30 to 0	V	$T_J = -55\text{ }^{\circ}\text{C}$ to $150\text{ }^{\circ}\text{C}$
Operating temperature	T_J	-55 to +150	$^{\circ}\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$	

4. 电性参数/ Electric characteristics

at $T_J = 25\text{ }^{\circ}\text{C}$, unless specified otherwise

Table 2 Static characteristics

参 数/Parameter	符号 Symbol	值/Values			单位 Unit	备注：测试条件 Note/Test Condition
		最小值 Min.	典型值 Typ.	最大值 Max.		
Gate threshold voltage	$V_{GS(th)}$	-24	-21	-16	V	$I_D = 100\mu\text{A}$; $V_{DS} = 10\text{V}$; $T_J = 25\text{ }^{\circ}\text{C}$
Drain-source leakage current	I_{DSS}	-	0.01	1	μA	$V_{DS} = 650\text{ V}$; $V_{GS} = -28\text{ V}$; $T_J = 25\text{ }^{\circ}\text{C}$
Gate-source leakage current	I_{GSS}	-	0.005	-	μA	$V_{GS} = -28\text{ V}$; $T_J = 25\text{ }^{\circ}\text{C}$
Drain-source on-state resistance	$R_{DS(on)}$	-	0.38	0.45	Ω	$V_{GS} = 0\text{V}$; $I_D = 1\text{A}$; $T_J = 25\text{ }^{\circ}\text{C}$

5. 特点/Features

Depletion mode transistor-Normally off power switch
 Ultra high switching frequency
 No reverse-recovery charge
 Low gate charge, low output charge
 Qualified for industrial applications according to JEDEC Standards
 ESD safeguard
 RoHS, Pb-free, REACH-compliant

6. 应用/Applications

DCM/BCM PFC
 AHB/QR Flyback/ACF DCDC converter
 LED driver
 Fast battery charger
 Standard adaptor

7.修订历史记录/Revision history

自上次修订以来的主要变化/Major changes since the last revision

修订/Revision	日期/Date	变更说明/Description of changes
A00	2023-04-11	A00 版：新建立/A00: version update