

## 650V GaN FET

## Briefing

### 1. Description

The KX1N65R200PD3, 650V, 200mΩ Gallium Nitride (GaN) FETs are hybrid normally-off Gallium Nitride (GaN) field effect transistors with the strongest gate and the lowest reverse voltage drop of all wide-band-gap devices in the market. They allow simple gate drive, offer best-in-class performance and outstanding reliability.

#### Features

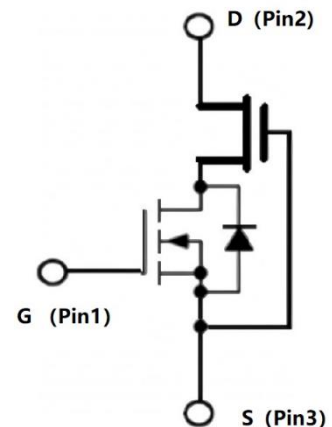
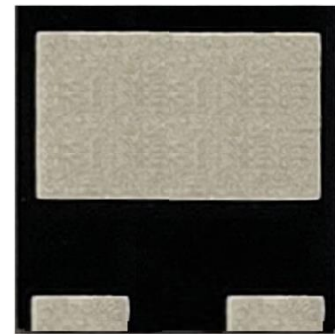
- Strong gate with a high threshold, no need for negative gate drive, and a high repetitive input voltage tolerance of  $\pm 20V$ .
- Fast turn-on/off speed for reduced cross-over losses.
- Low  $Q_G$  and simple gate drive for lowest driver consumption at high frequencies.
- Lowest  $V_F$  in off-state reverse conduction among all GaN FETs for low loss during dead-times.
- Low  $Q_{RR}$  for outstanding hard-switched bridge applications.
- High spike tolerance of 800V for enhanced reliability.

#### Benefits

- Enable very high conversion efficiencies.
- Enable higher frequency for compact power supplies.
- End-product cost & size savings due to reduced cooling requirements
- Improved safety & reliability due to cooler operation temperature

#### Applications

- High-frequency compact chargers with QR or ACF flyback topologies.
- Half-bridge buck/boost, totem-pole PFC circuits or inverter circuits
- High-efficiency/High-frequency LLC or other soft-switching topologies.



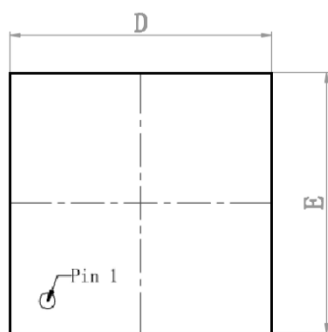
Key Performance Parameters	
$V_{DSS}(V)$	650
$V_{DSS(PK)}(V)$ <sup>1)</sup>	800
$R_{DS(ON)}(m\Omega)$ typ <sup>2)</sup>	200
$V_{th}(V)$	1.8
$Q_{oss}(nC)$ typ	37
$Q_G(nC)$ typ	12.6
$Q_{RR}(nC)$ typ	37.5

- 1) Duty < 1%, spike duration < 1μs, nonrepetitive
- 2) Dynamic on-resistance, see below figures

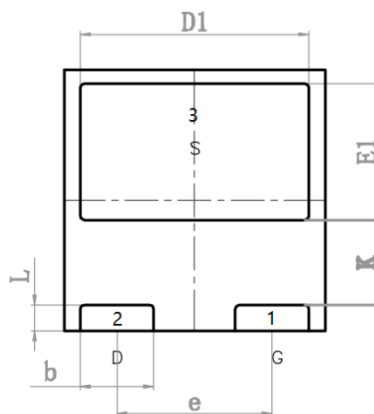
Package Information	
Part #	KX1N65R200PD3
Package	DFN8x8-3
Size	8.0mm*8.0mm *1.0mm(H)

## 2. Package Dimensions

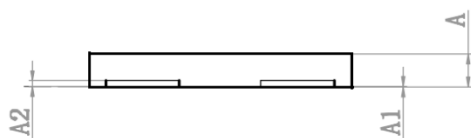
Dimension Symbol	MIN	NOM	MAX	Dimension Symbol	MIN	NOM	MAX
A	0.90	1.00	1.10	K	---	2.50	---
A1	0.00	---	0.05	b	2.15	2.25	2.35
A2	---	0.20	---	L	0.70	0.80	0.90
D	7.90	8.00	8.10	e	---	4.75	---
D1	6.90	7.00	7.10	<b>DFN 8x8-3 (KuanXin: KX1N65R***PD3)</b>			
E	7.90	8.00	8.10				
E1	4.10	4.20	4.30	Unit:	mm	Date:	Jul.,2022



Top View



Bottom View



Side View

### 3. Revision History

Revision No.	Date	Description of Change(s)
Rev0.1	2022-07-18	Draft