

## GR-15E007GJ: E-mode GaN Power Transistor

### Description

GR-15E007GJ is an enhancement mode GaN on Silicon power transistor. 15E007GJ provides, high current and high operating speed which is suitable for DC to DC power supply applications.

### Key Specifications

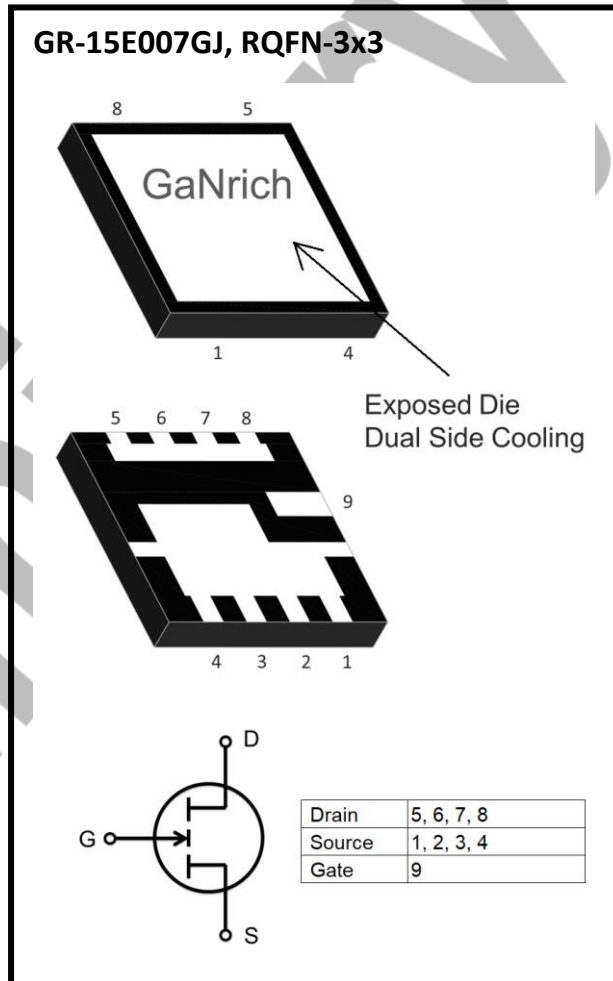
Part Number	GR-15E007GJ
V <sub>DSS</sub> , min.	150V
I <sub>DS</sub> , Pulse (25°C, TPULSE = 300 μs)	102A
R <sub>DS(ON)</sub> , typ. @V <sub>GS</sub> =5V	7.2mΩ
Q <sub>G</sub> , typ.	8.5nC

### Features

- 150V enhancement mode power transistor
- High operating frequency
- R<sub>DS(on)</sub> = Typ. 7.2 mΩ
- RoHS compliant

### Applications

- Switch Mode Power Supplies (SMPS)
- DC-DC Converters
- Fast Battery Charging
- Appliance Motor Drives



## 1. Electrical Characteristics

➤ **Table 1 Absolute maximum ratings**

Symbol	Parameter	Value	Unit
V <sub>DSS</sub>	Drain-source voltage	150	V
V <sub>(TR)DSS</sub>	Transient drain to source voltage <sup>a</sup>	180	V
V <sub>GSS</sub>	Gate- source voltage	-6V ~ +6V	V
I <sub>D</sub>	Drain current (continuous) at T <sub>C</sub> = 25°C operation	32.8	A
	Drain current (continuous) at T <sub>C</sub> = 100°C operation	22.6	A
I <sub>D,Pulse</sub>	Pulsed drain current (pulse width: 300μs, V <sub>gs</sub> =5V) <sup>b</sup>	101.6	A
T <sub>J</sub>	Operating temperature	-40 to +150	°C
T <sub>S</sub>	Storage temperature	-40 to +150	°C
MSL	Moisture sensitivity level	MSL3	-

- a. In off-state, spike duty cycle D<0.01, spike duration <1μs
- b. Defined by product design and characterization. Value is not tested to full current in production

➤ **Table 2 Thermal Characteristics**

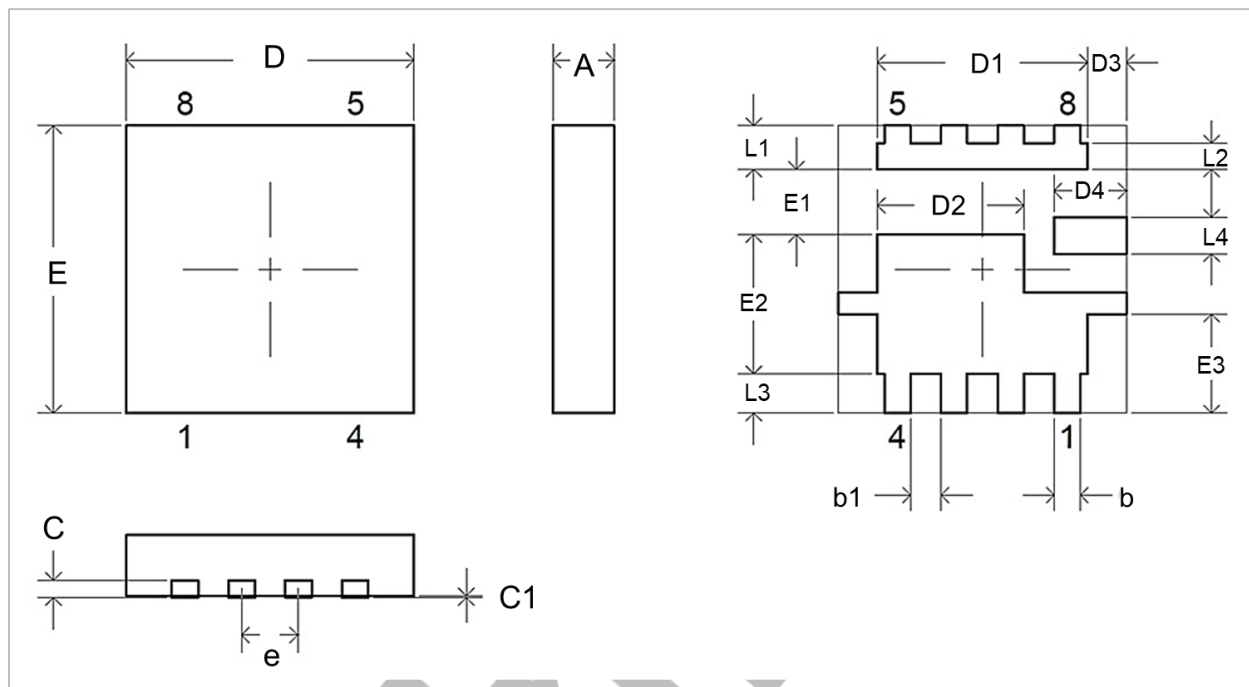
Symbol	Parameter	Value	Unit
R <sub>θJC_Top</sub>	Thermal resistance junction-case, Top	0.65	°C/W
R <sub>θJC_Bot</sub>	Thermal resistance junction-case, Bottom	0.80	°C/W
R <sub>θJA</sub>	Thermal resistance junction-ambient	60	°C/W

- a. Tested in package DFN 3x3.

➤ **Table 3 Electrical Characteristics** ( $T_{CASE} = 25\text{ }^{\circ}\text{C}$  unless otherwise stated)

Symbol	Parameter	Conditions	Values			Unit
			min.	typ.	max.	
$V_{DSS}$	Drain-source voltage	$V_{GS} = 0V, I_D = 150\mu A$	150	-	-	V
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 15mA$	0.8	1.2	1.8	V
$R_{DS(on)}$	Drain-source on-resistance	$V_{GS} = 5V, I_D = 50A$	-	7.2	9.4	m $\Omega$
$I_{DSS}$	Drain-source leakage current	$V_{DS} = 120V, V_{GS} = 0V$	-	5.0	400	$\mu A$
$I_{GSS}$	Gate-to-Source Forward Leakage current	$V_{GS} = +5V$	-	0.036	7.2	mA
	Gate-to-Source Forward Leakage current	$V_{GS} = +5V, T_J = 125^{\circ}\text{C}$	-	0.30	9.0	mA
	Gate-to-Source Reverse Leakage current	$V_{GS} = -4V$	-	0.03	0.9	mA
$C_{ISS}$	Input capacitance	$V_{DS} = 75V, V_{GS} = 0V$	-	440	-	pF
$C_{OSS}$	Output capacitance		-	215	-	
$C_{RSS}$	Reverse transfer capacitance		-	24.7	-	
$Q_G$	Gate charge	$V_{DS} = 75V, V_{GS} = 5V, I_D = 50A$	-	8.5	-	nC
$Q_{GS}$	Gate-source charge	$V_{DS} = 75V, I_D = 50A$	-	2.0	-	
$Q_{GD}$	Gate-drain charge		-	1.9	-	
$Q_{OSS}$	Output charge		$V_{DS} = 75V, V_{GS} = 0V$	-	26	
$Q_{RR}$	Source-Drain Recovery Charge	-	-	0	-	

### 2. Package Outline Dimensions



➤ Table 4 Dimension of GR-RQFN-3x3

SYMBOL	DIMENSION (IN MM)			SYMBOL	DIMENSION (IN MM)		
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.
A	---	---	0.70	D3	0.345	0.445	0.545
C	0.203 REF			D4	0.730	0.830	0.930
C1	---	---	0.05	E1	0.650	0.750	0.850
D	3.20	3.30	3.40	E2	1.500	1.600	1.700
E	3.20	3.30	3.40	E3	1.035	1.135	1.235
e	0.65 BSC			L1	0.400	0.500	0.600
b	0.20	0.30	0.40	L2	0.200	0.300	0.400
b1	0.25	0.35	0.45	L3	0.350	0.450	0.550
D1	2.31	2.41	2.51	L4	0.320	0.420	0.520
D2	1.58	1.68	1.78	---	---	---	---



## 4. Change Log

Version	Date	Description
0.1	March 28, 2025	Initial version
0.2	April 16, 2026	Electrical characteristics revised

- **Note:** GaNrich semiconductor reserves the right to revise products and/or specifications without notice.