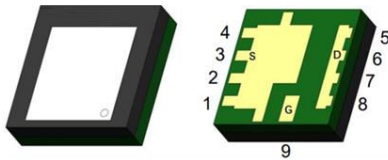
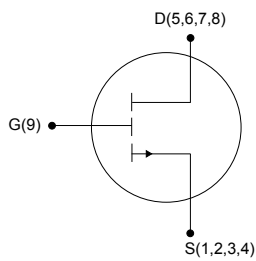


100 V, 2.9 mΩ typ., 201 A, e-mode PowerGaN transistor



En-FCLGA 3.3x3.3



G9D5678S1234



Product status link

[SGT3D5R10MEB](#)

Product summary

Order code	SGT3D5R10MEB
Marking	3D5R10M
Package	En-FCLGA 3.3x3.3
Packing	Tape and reel

Features

Order code	V _{DS}	R _{DS(on)} max.	I _D	Series
SGT3D5R10MEB	100 V	3.5 mΩ	201 A	G-HEMT

- Enhancement mode normally off transistor
- Very high switching speed
- High power management capability
- Extremely low capacitances
- Zero reverse recovery charge

Applications

- DC-DC converters
- Motor driver
- Solar system MPPT

Description

The **SGT3D5R10MEB** is a 100 V, 201 A e-mode PowerGaN transistor. The resulting device provides extremely low conduction losses, high current capability and ultra-fast switching operation to enable high power density and unbeatable efficiency performances.

1 Electrical ratings

$T_C = 25\text{ °C}$ unless otherwise specified.

Table 1. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{DS}	Drain-source voltage	100	V
	Drain-source voltage (transient)	TBD ⁽¹⁾	
V_{GS}	Gate-source voltage	-4 to 6	V
I_D	Drain current (continuous) at $T_C = 25\text{ °C}$	201	A
	Drain current (continuous) at $T_C = 100\text{ °C}$	127	
I_{DM}	Pulse drain current ($t_p = 300\text{ }\mu\text{s}$)	230	A
P_{TOT}	Total power dissipation at $T_C = 25\text{ °C}$	255	W
T_{stg}	Storage temperature range	-40 to 150	°C
T_J	Operating junction temperature range		°C

1. TBD stands for "to be defined".

Table 2. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance, junction-to-case	0.49	°C/W
R_{thJA} ⁽¹⁾	Thermal resistance, junction-to-ambient	62.41	°C/W

1. When mounted on a standard 1 inch² area of FR-4 PCB with 2-oz copper.

2 Electrical characteristics

$T_C = 25\text{ °C}$ unless otherwise specified.

Table 3. Static

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{DSS}	Drain-source leakage current	$V_{GS} = 0\text{ V}, V_{DS} = 100\text{ V}$		1	100	μA
		$V_{GS} = 0\text{ V}, V_{DS} = 100\text{ V}, T_J = 125\text{ °C}$		TBD		
I_{GSS}	Gate-source leakage current	$V_{DS} = 0\text{ V}, V_{GS} = 6\text{ V}$		0.5	100	μA
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 7.6\text{ mA}$	0.8	1.1	2.1	V
$R_{DS(on)}$	Static drain-source on-resistance	$V_{GS} = 5\text{ V}, I_D = 25\text{ A}$		2.9	3.5	m Ω

Table 4. Dynamic

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
C_{iss}	Input capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}$	-	905	-	pF
C_{oss}	Output capacitance		-	425	-	pF
C_{rss}	Reverse transfer capacitance		-	7	-	pF
$C_{o(er)}^{(1)}$	Equivalent output capacitance energy related	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}$	-	595	-	pF
$C_{o(tr)}^{(2)}$	Equivalent output capacitance time related		-	835	-	pF
R_g	Intrinsic gate resistance	$f = 5\text{ MHz}, I_D = 0\text{ A}$	-	1.5	-	Ω
Q_g	Total gate charge	$V_{GS} = 0\text{ to }5\text{ V}, V_{DS} = 50\text{ V}, I_D = 25\text{ A}$	-	7.6	-	nC
Q_{gs}	Gate-source charge		-	1.6	-	nC
Q_{gd}	Gate-drain charge		-	1.5	-	nC
$Q_{gs(th)}$	Gate charge at threshold		-	0.9	-	nC
Q_{rr}	Reverse recovery charge	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}$	-	0	-	nC
Q_{oss}	Output charge		-	42	-	nC

- $C_{o(er)}$ is a constant capacitance value that gives the same stored energy as C_{oss} while V_{DS} is rising from 0 to the stated value.
- $C_{o(tr)}$ is a constant capacitance value that gives the same charging time as C_{oss} while V_{DS} is rising from 0 to the stated value.

Table 5. Reverse conduction

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{SD}	Source-drain reverse voltage	$V_{GS} = 0\text{ V}, I_{SD} = 25\text{ A}$	-	1.5	-	V

Revision history

Table 6. Document revision history

Date	Revision	Changes
16-Oct-2025	1	First release.
04-Nov-2025	2	Updated Table 1. Absolute maximum ratings and Table 4. Dynamic .

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