Solid State Devices, Inc.
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SGF15D100

15 AMP, 1000 VOLTS
GaN FET Normally-On
140 mΩ typ

Designer's Data Sheet

Part Number/Ordering Information[1/]

SGF15D100 __ __ __

- **Screening[2/]**
  - __ = Not Screened
  - TX = TX Level
  - TXV = TXV Level
  - S = S Level
- **Lead Bend Options (TO-257 only)**
  - __ = Straight Leads
  - UB = Up Bend
  - DB = Down Bend
- **Package**
  - J = TO-257

FEATURES:

- 3rd Generation Gallium Nitride Technology
- Low $R_{DS(ON)}$
- Low Q_G Simplifies Gate Drive Circuit
- Very Fast Switching for High Frequency Applications
- Low Thermal Resistance
- Hermetically Sealed Package
- TX, TXV, and S-Level Screening Available[2/]
- Available as Normally Off (with FET Driver)

APPLICATIONS:

- High Efficiency DC-DC / PoL Converters
- Motor Controller
- Robotics / Automation
- Military and Aerospace

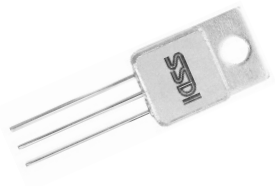
BENEFITS:

- GaN Transistor offers superior advantages over Si based MOSFET: zero Q_{RR}, low gate charge, low $R_{DS(ON)}$, fast switching speed and low temperature coefficient.
- Benefits circuit designer through higher efficiency, lower cross-over losses and On-state losses.
- Eliminates the need to add free-wheeling diode

Maximum Ratings[3/]		Symbol	Value	Unit
Continuous Drain – Source Voltage		V_{DSS}	1000	V
Gate – Source Voltage	DC (max/min) Pulse (max/min)	V_{GS}	0 / -30 +5 / -40	V
Continuous Drain Current	T_C = 25°C T_C = 100°C	I_{D1} I_{D2}	15 10	A
Pulsed Drain Current Pulse width: 10 µs		I_{D3}	58	A
Total Power Dissipation		P_D	62	W
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +150	°C
Thermal Resistance Junction to Case		$R_{\theta JC}$	2	°C/W

NOTES:
1/ For ordering information, price, operating curves, and availability- contact factory.
2/ Screening based on MIL-PRF-19500. Screening flows available on request.
3/ Unless otherwise specified, all electrical characteristics @ 25°C.
4/ Pulse Test, P_W = 300 µs, D.C. = 2%.

TO-257 (J)



NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.	**DATA SHEET #: FT0115A**	**DOCX**

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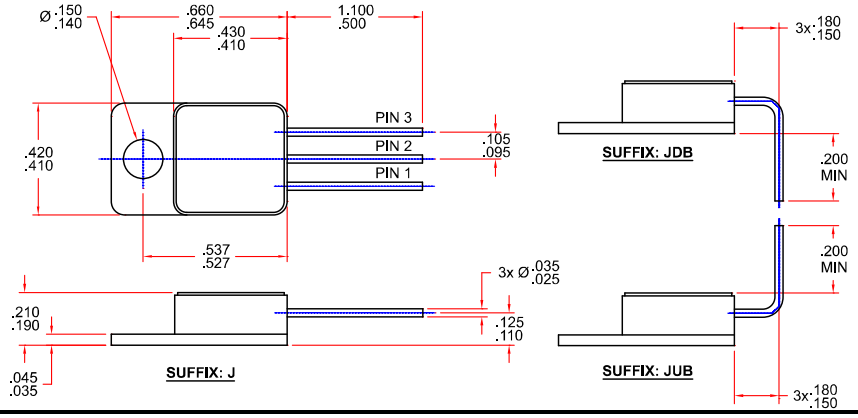
SGF15D100

Electrical Characteristics[3/]		Symbol	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage	I_D = 30 µA, V_{GS} = -30 V	BV_{DSS}	1000	-	-	**V**
Gate to Source Forward Leakage **Gate to Source Reverse Leakage**	V_{GS} = +3.8 V V_{GS} = -30 V	I_{GSSF} I_{GSSR}	- -	0.3 2.0	5 50	**µA**
Drain to Source Leakage Current	V_{DS} = 900 V, V_{GS} = -30 V	I_{DSS}	-	3	50	**µA**
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 0.5 mA	$V_{GS(TH)}$	-27	-12	-8	**V**
Drain to Source On State Resistance[4/]	V_{GS} = 0 V, I_D = 10 A V_{GS} = 0 V, I_D = 10 A, T_J = 150°C	$R_{DS(ON)}$	- -	140 350	180 -	**mΩ**
Total Gate Charge	V_{GS} = -30 V to 0 V, V_{DS} = 600 V, I_D = 10 A	Q_G	-	30	-	**nC**
Total Output Charge	V_{GS} = -30 V, V_{DS} = 0 V to 600 V	Q_{OSS}	-	48	-	**nC**
Input Capacitance **Output Capacitance** **Reverse Transfer Capacitance**	V_{GS} = -30 V, V_{DS} = 600 V, f = 1 MHz	C_{ISS} C_{OSS} C_{RSS}	- - -	135 44 25	- - -	**pF**
Output Capacitance, Energy Related	V_{GS} = -30 V, V_{DS} = 0 V to 600 V	$C_{O(ER)}$	-	57	-	**pF**
Output Capacitance, Time Related	V_{GS} = -30 V, V_{DS} = 0 V to 600 V	$C_{O(TR)}$	-	83	-	**pF**

Package Outline: TO-257 (J)



PIN ASSIGNMENT

TO-257	
Drain	1
Gate	2
Source	3

AVAILABLE PART NUMBERS:
SGF15D100J, SGF15D100JUB, SGF15D100JDB

Dimensions in Inches

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