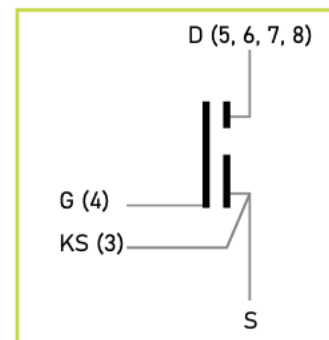


### DESCRIPTION

The WI71100A is an enhancement mode GaN-on-silicon discrete power transistor of the WiseGaN™ portfolio family of Wise-integration. The properties of GaN allow high current, high voltage breakdown and high switching frequency.

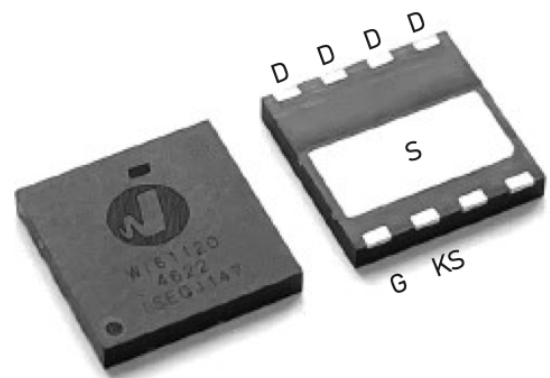
### APPLICATIONS

- High efficiency power conversion
- High density power conversion
- AC-DC, DC-DC, DC-AC
- Bridgeless Totem Pole PFC
- ACF (active clamp flyback)
- QRF (quasi resonant flyback)
- LLC resonant converter
- Half-bridge topologies
- Synchronous Buck or Boost
- Small-Medium UPS
- Fast Battery Charging



### FEATURES

- 700 V enhancement mode transistor
- Bottom-side cooled configuration
- $R_{DS(on)} = 100 \text{ m}\Omega$
- $I_{DS(max)} = 17 \text{ A}$
- Low inductance PDFN package
- Easy gate drive requirements (-4 V to 6 V)
- High switching frequency (>1 MHz)
- Zero reverse recovery loss
- Small 8 x 8 mm PCB footprint



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## 1. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Units
DRAIN-TO-SOURCE TRANSIENT VOLTAGE <sup>1</sup>	VDS	750	V
GATE-TO-SOURCE TRANSIENT VOLTAGE <sup>2</sup>	VGS	7	V
OPERATING JUNCTION TEMPERATURE	T <sub>J</sub>	-40 to +150	°C
OPERATING STORAGE TEMPERATURE	T <sub>stg</sub>	-55 to +150	°C

<sup>1</sup> maximum duration is < 1 ms

<sup>2</sup> can permanently impact the device functional performance

## 2. OPERATING CONDITIONS

Parameter	Symbol	Value	Units
CONTINUOUS DRAIN-TO-SOURCE VOLTAGE	VDS (max)	700	V
GATE-TO-SOURCE VOLTAGE	VGS	-4 to +6	V
CONTINUOUS DRAIN CURRENT (T <sub>J</sub> = 25 °C)	IDS	17	A

## 3. THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Units
THERMAL RESISTANCE (JUNCTION-TO-CASE) – BOTTOM SIDE	R <sub>θJC</sub>	0.9	K/W
THERMAL RESISTANCE (JUNCTION-TO-AMBIENT)	R <sub>θJA</sub>	30	K/W

#### 4. ESD RATINGS

Parameter	Symbol	Value	Units
HUMAN BODY MODEL	HBM	2000	V
CHARGED DEVICE MODEL	CDM	2000	V

#### 5. STATIC ELECTRICAL CHARACTERISTICS

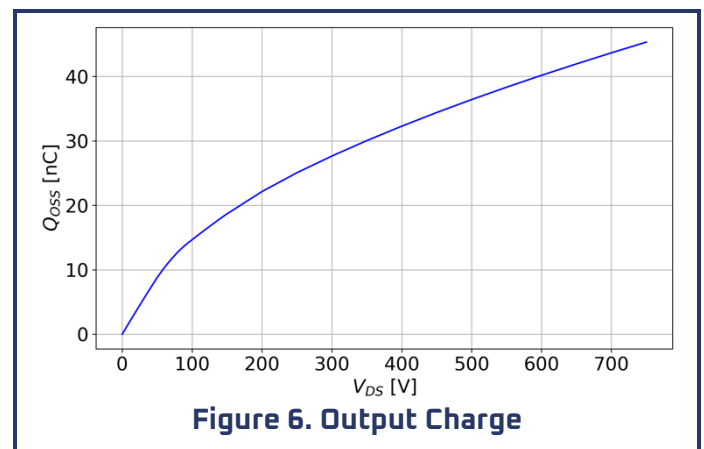
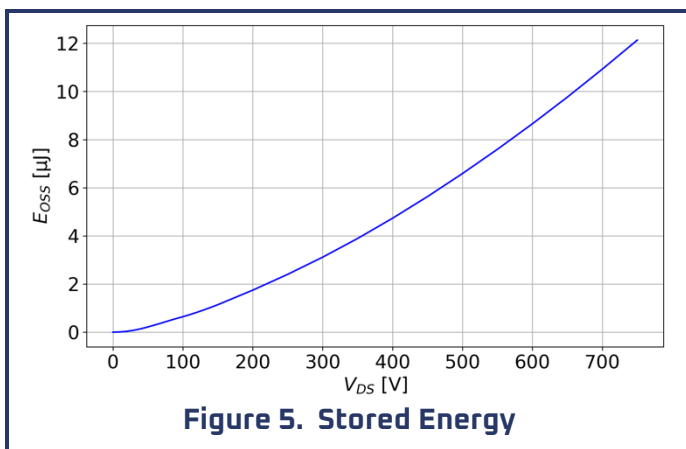
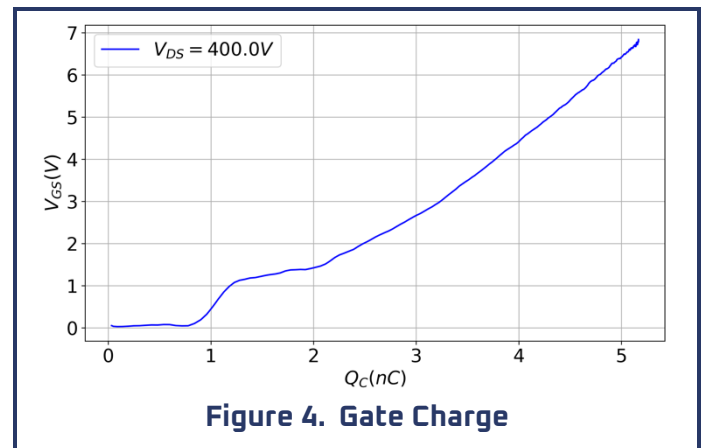
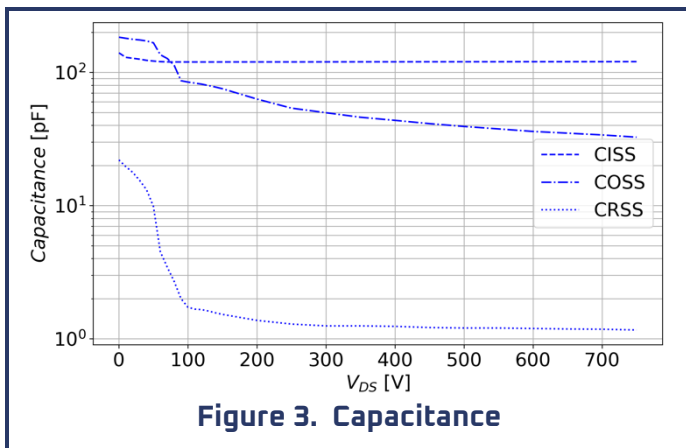
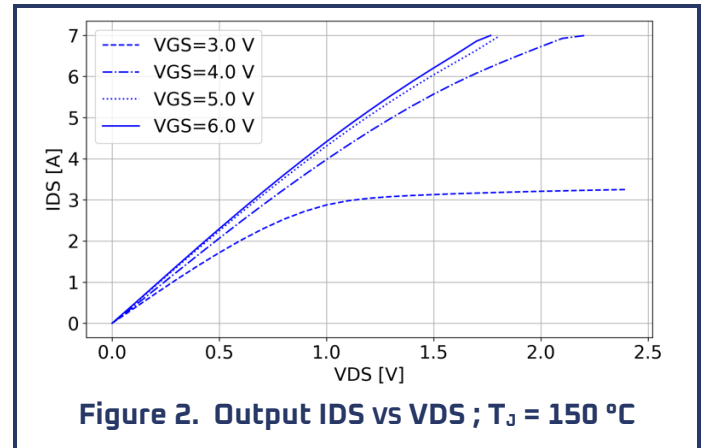
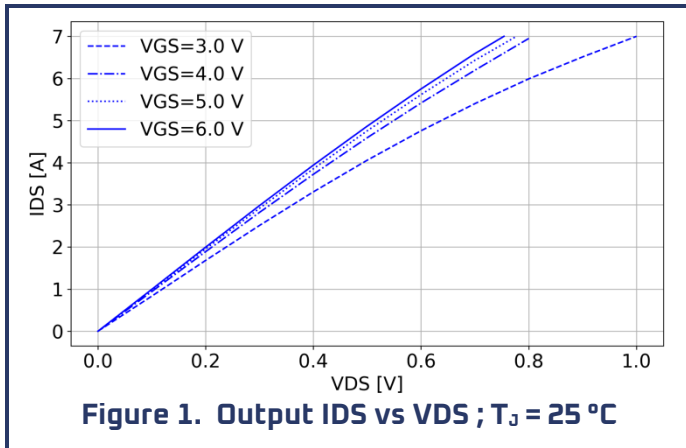
Characteristics	Symbol	Conditions	Min	Typ	Max	Units
DRAIN-SOURCE ON-RESISTANCE	RDS(ON)	VGS = 6 V, T <sub>J</sub> = 25 °C, IDS = 2 A	96	100	120	mΩ
		VGS = 6 V, T <sub>J</sub> = 150 °C, IDS = 2 A	150	220	290	mΩ
GATE THRESHOLD VOLTAGE	VGS(th)	VDS = VGS, T <sub>J</sub> = 25 °C, IDS = 10 mA	1	1.25	1.5	V
		VDS = VGS, T <sub>J</sub> = 150 °C, IDS = 10 mA	0.95	1.15	1.5	V
INTERNAL GATE RESISTANCE	Rg	Open drain (T <sub>J</sub> = 25 °C)		6.5		Ω
DRAIN-TO-SOURCE LEAKAGE CURRENT	IDSS	VDS = 650 V, VGS = 0 V, T <sub>J</sub> = 25 °C	0.5	1.3	4	μA
		VDS = 650 V, VGS = 0 V, T <sub>J</sub> = 150 °C		5		μA
GATE-TO-SOURCE LEAKAGE CURRENT	IGSS	VGS = 6 V, VDS = 0 V, T <sub>J</sub> = 25 °C	8	24	80	μA
		VGS = 6 V, VDS = 0 V, T <sub>J</sub> = 150 °C		171		μA
SOURCE-TO-DRAIN REVERSE VOLTAGE	VSD	VGS = 0 V, ISD = 6 A		2.95		V

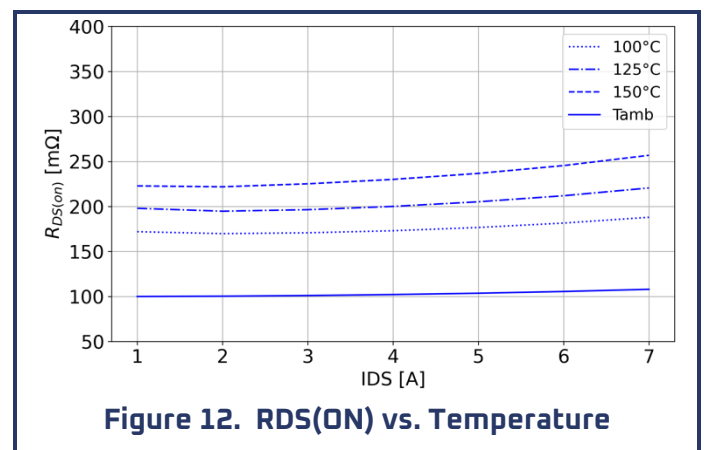
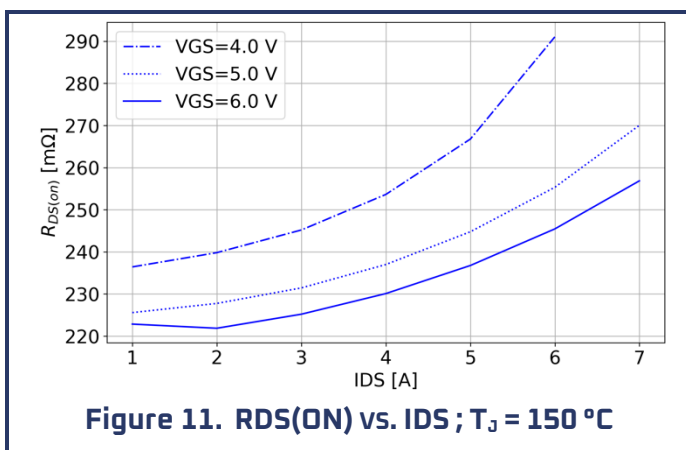
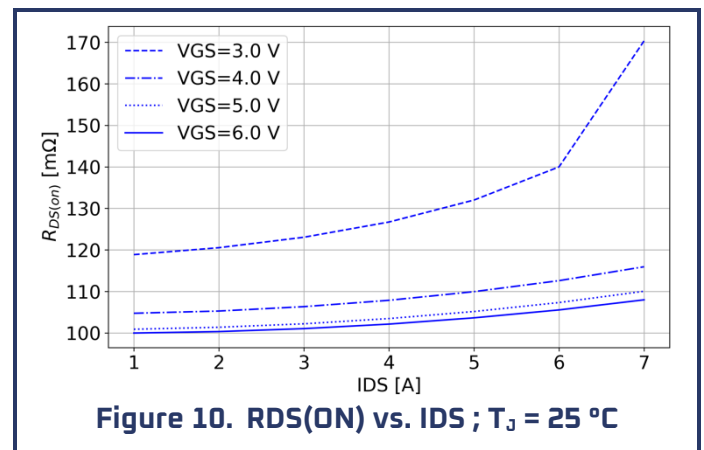
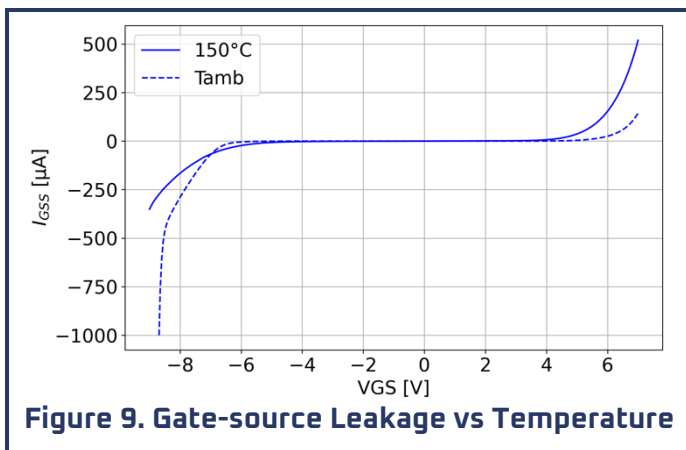
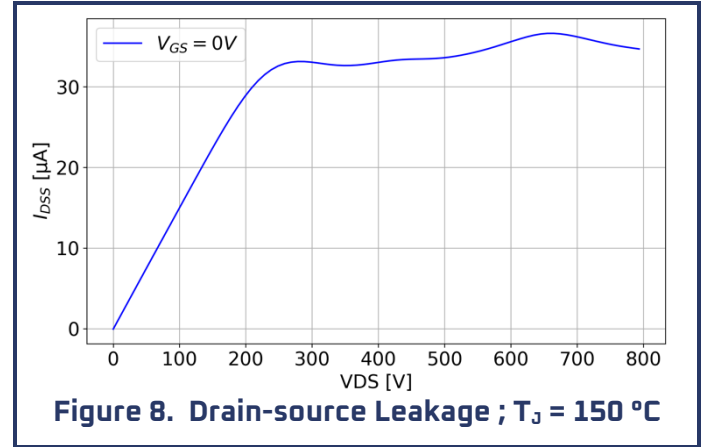
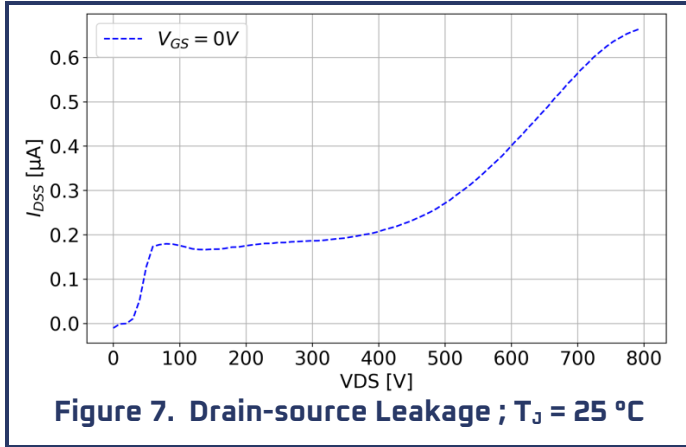
## 6. DYNAMIC ELECTRICAL CHARACTERISTICS

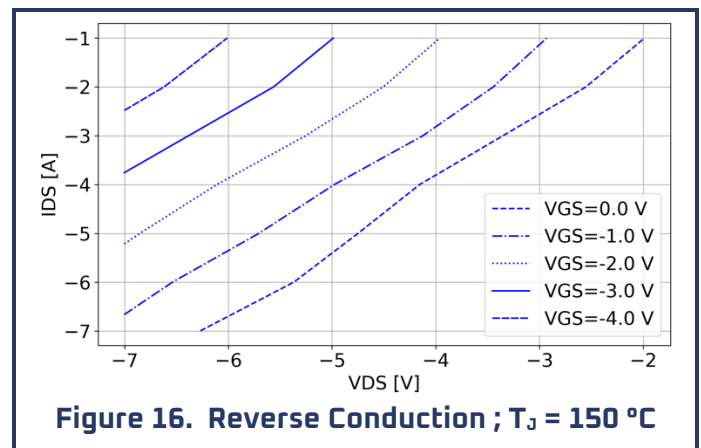
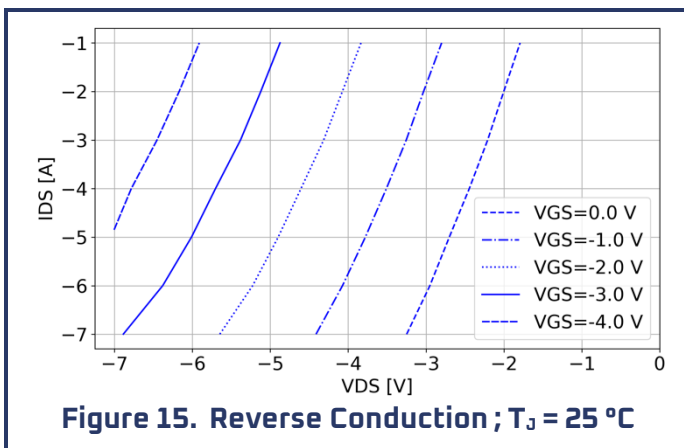
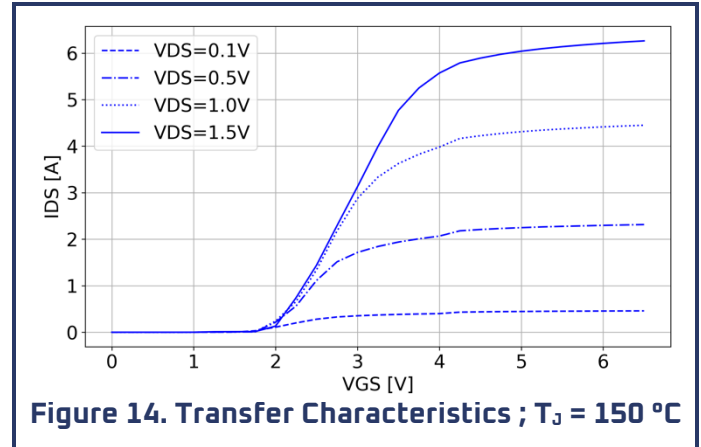
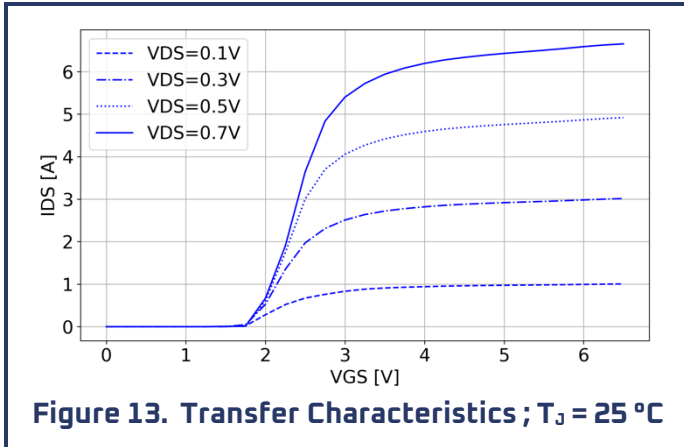
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Characteristics	Symbol	Conditions	Min	Typ	Max	Units
INPUT CAPACITANCE	CISS	VDS = 400 V, VGS = 0 V, F = 100 kHz		120		pF
REVERSE TRANSFER CAPACITANCE	CRSS	VDS = 400 V, VGS = 0 V, F = 100 kHz		1.4		pF
OUTPUT CAPACITANCE	COSS	VDS = 400 V, VGS = 0 V, F = 100 kHz		44		pF
TOTAL GATE CHARGE	QG	VDS = 400 V, VGS = 0 V to 6 V		4.8		nC
OUTPUT CHARGE	QOSS	VDS = 400 V, VGS = 0 V		32		nC
OUTPUT CAPACITANCE	EOSS	VDS = 400 V, VGS = 0 V		4.7		μJ
STORED ENERGY	CO(ER)	VDS = 0 V to 400 V, VGS = 0 V		64		pF
EFFECTIVE OUTPUT CAPACITANCE	CO(TR)	VDS = 0 V to 400 V, VGS = 0 V		83		pF

7. STATIC MAIN CHARACTERISTICS ( $T_J = 25\text{ }^\circ\text{C}$  UNLESS OTHERWISE NOTED)

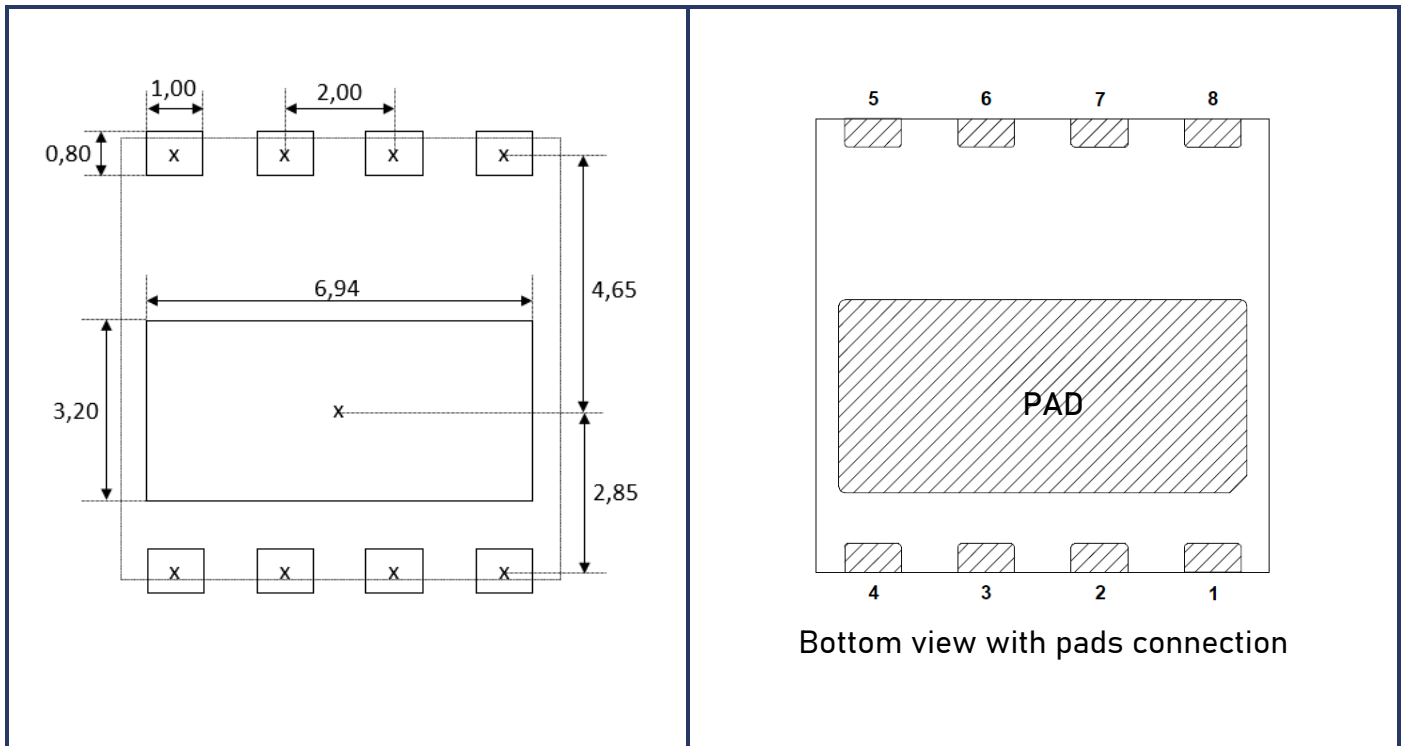






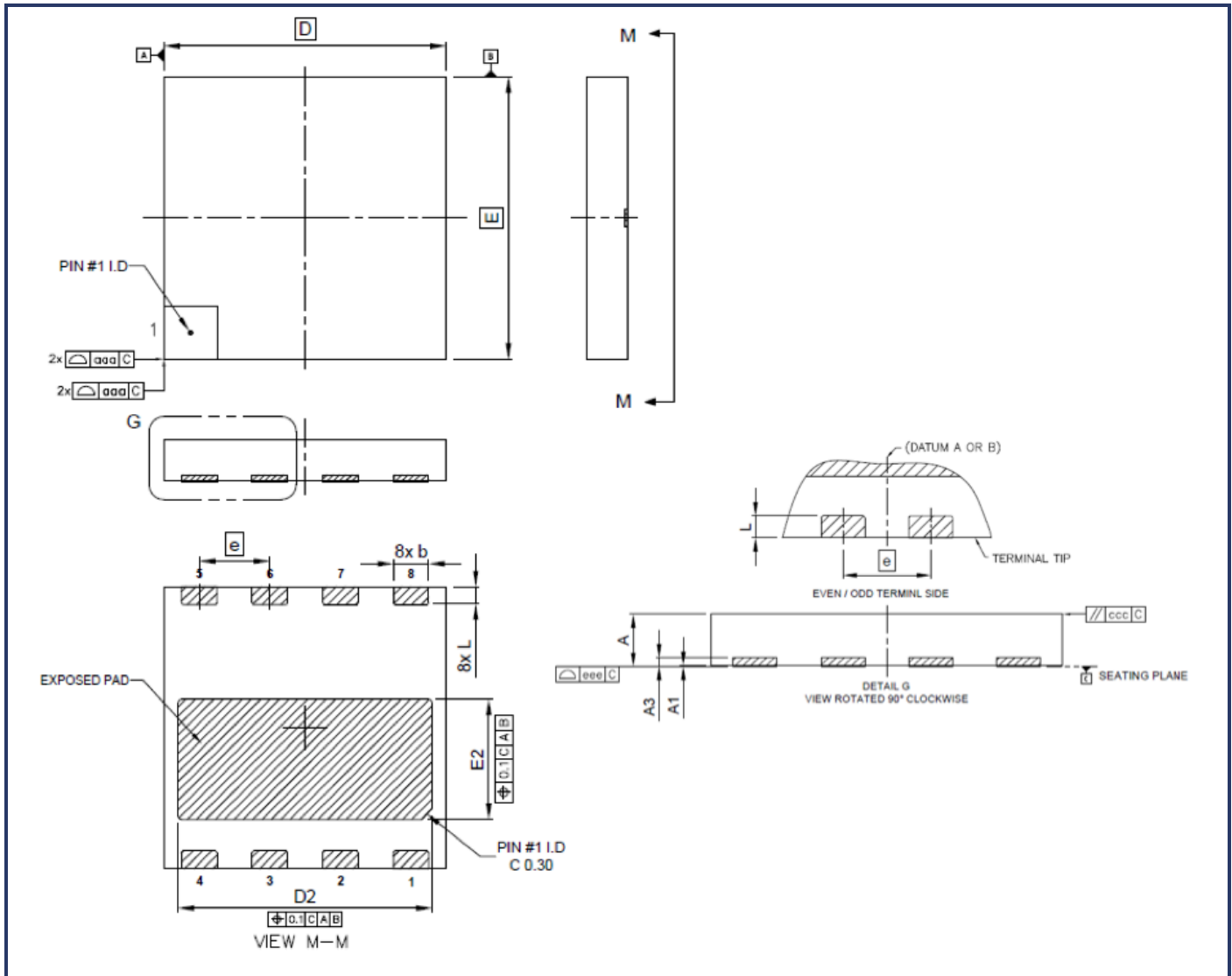


## 8. PACKAGE AND PACKING INFORMATION

**Land Pattern**
**Pinout**


Number	Name	Function	Description
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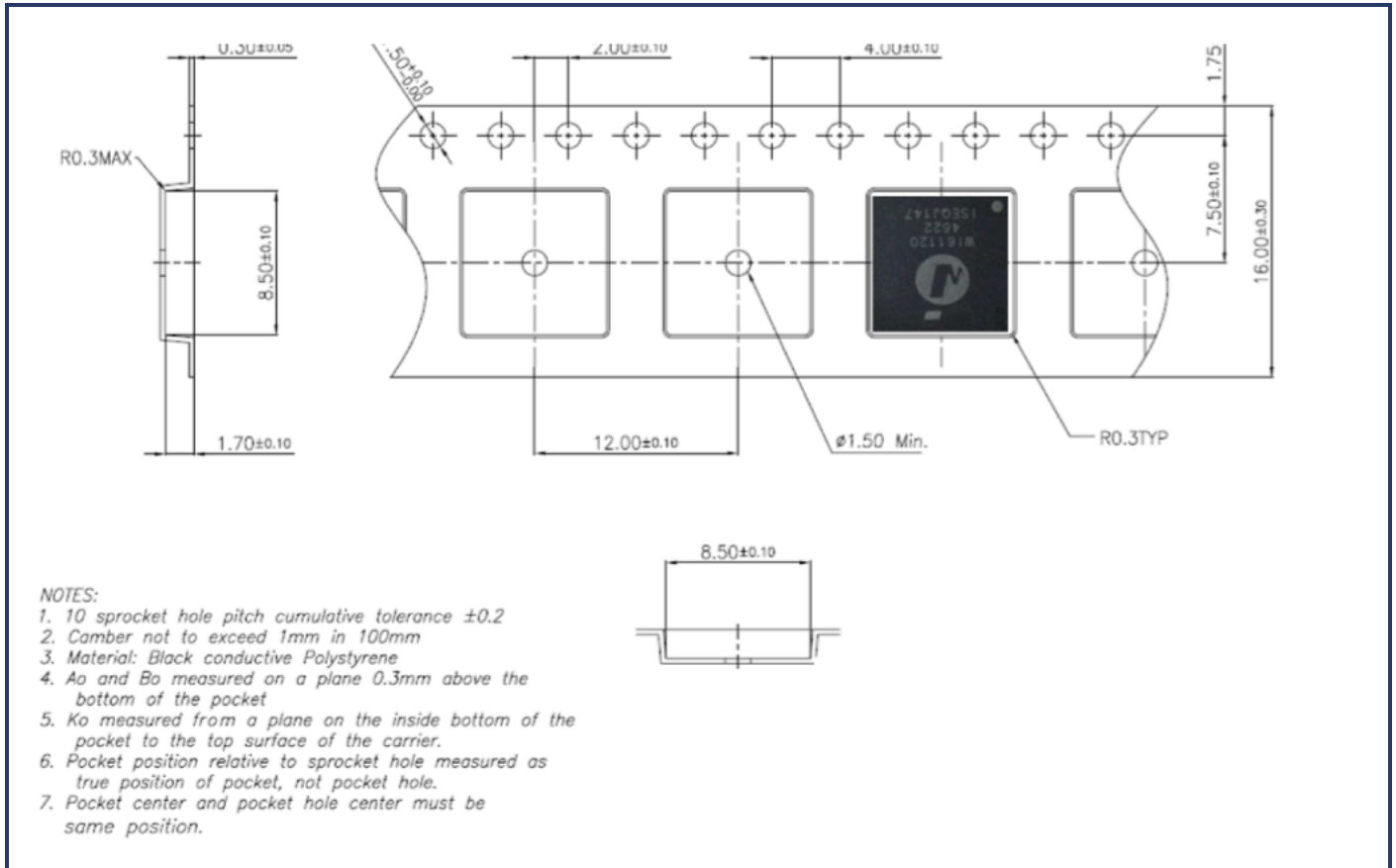
Number	Name	Function	Description
1		NC	Not connected internally, may be connected to the Source
2		NC	Not connected internally, may be connected to the Source
3	KS	Signal	Kelvin source of the GaN transistor
4	G	Signal	Gate of low side GaN transistor
5	D	Power	Drain of high side GaN transistor
6	D	Power	Drain of high side GaN transistor
7	D	Power	Drain of high side GaN transistor
8	D	Power	Drain of high side GaN transistor
PAD	S	Power	Source of the GaN transistor

**Package Outline Drawing**


Dim	Min	Nom	Max	Unit
A	1.15	1.20	1.25	mm
A1	0.00		0.05	mm
A3	0.203 REF			mm
b	0.95	1.00	1.05	mm
D	8.00BSC			mm
E	8.00 BSC			mm
D2	7.10	7.20	7.30	mm
E2	3.30	3.40	3.50	mm

Dim	Min	Nom	Max	Unit
e	2.00 BSC			mm
L	0.45	0.50	0.55	mm
aaa	0.10			mm
bbb	0.10			mm
ccc	0.10			mm
ddd	0.05			mm
eee	0.08			mm

**Tape and Reel Dimensions (in mm)**



## 9. ORDERING INFORMATION

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Ordering code	Package	Packing method	Qty
WI71100ATR	8 x 8 mm DFN	Tape and Reel	2500

## 10. REVISIONS HISTORY

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Revision	Date	Comments
1.0	2025-02-10	Initial version

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