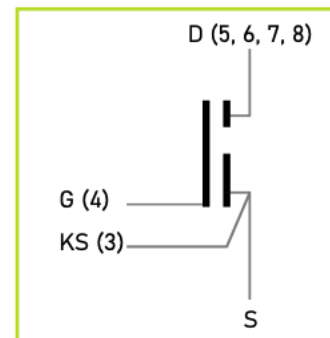


DESCRIPTION

The WI71195A 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.

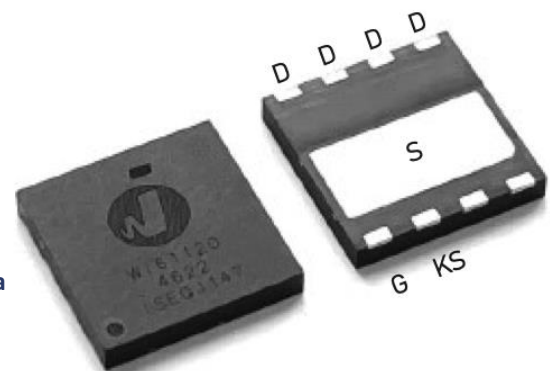
APPLICATIONS

- 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
- RDS(on) = 195 mΩ
- IDS(max) = 8 A



- Low inductance PDFN package
- Easy gate drive requirements (0 V to 6 V)
- Transient tolerant gate drive up to 7 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 ¹	VDS	750	V
GATE-TO-SOURCE TRANSIENT VOLTAGE ²	VGS	-2 to +7	V
OPERATING JUNCTION TEMPERATURE	T _J	-40 to +150	°C
OPERATING STORAGE TEMPERATURE	T _{stg}	-55 to +150	°C

¹ maximum duration is < 1 ms

² maximum duration is < 1 μs

2. OPERATING CONDITIONS

Parameter	Symbol	Value	Units
CONTINUOUS DRAIN-TO-SOURCE VOLTAGE	VDS (max)	700	V
GATE-TO-SOURCE VOLTAGE	VGS	-1 to +6	V
CONTINUOUS DRAIN CURRENT (T _J = 25 °C)	IDS	8	A

3. THERMAL CHARACTERISTICS

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

4. ESD RATINGS

Parameter	Symbol	Value	Units
HUMAN BODY MODEL	HBM	1500	V
CHARGED DEVICE MODEL	CDM	1500	V

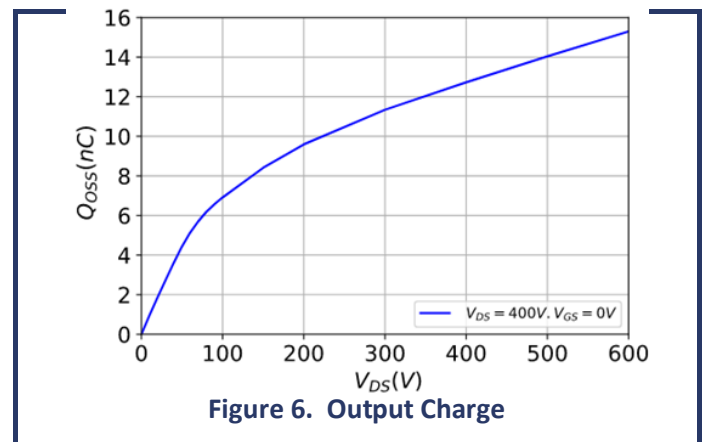
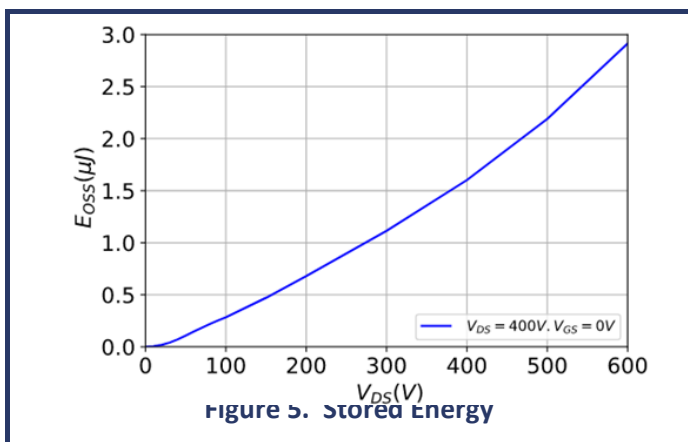
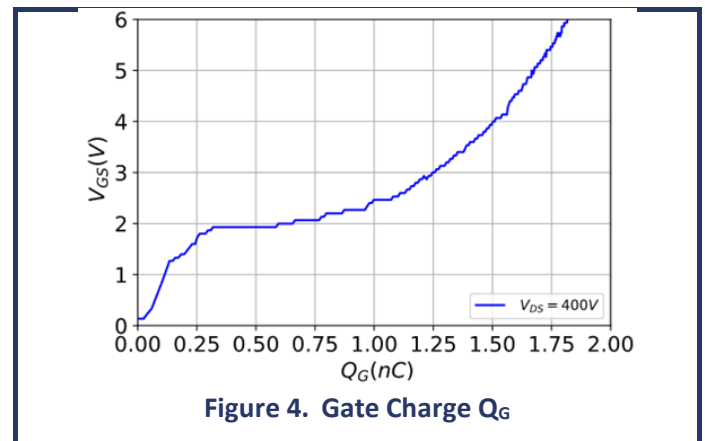
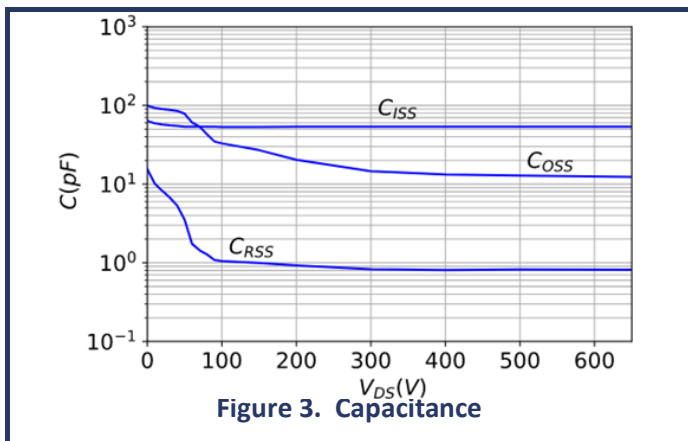
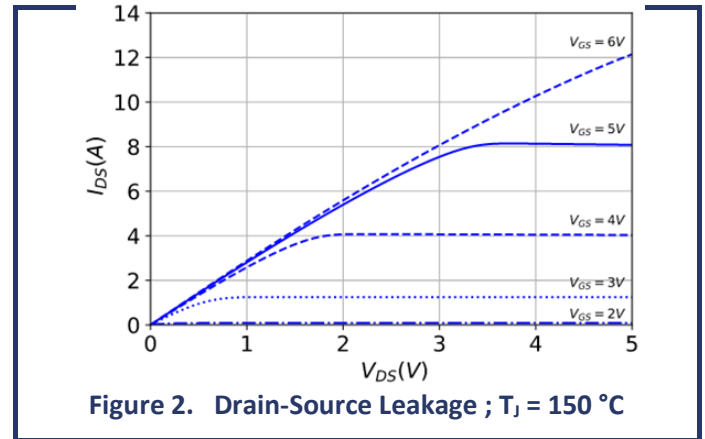
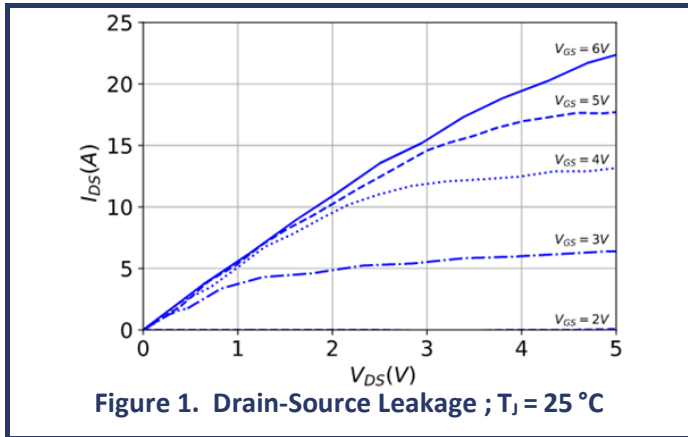
5. STATIC ELECTRICAL CHARACTERISTICS

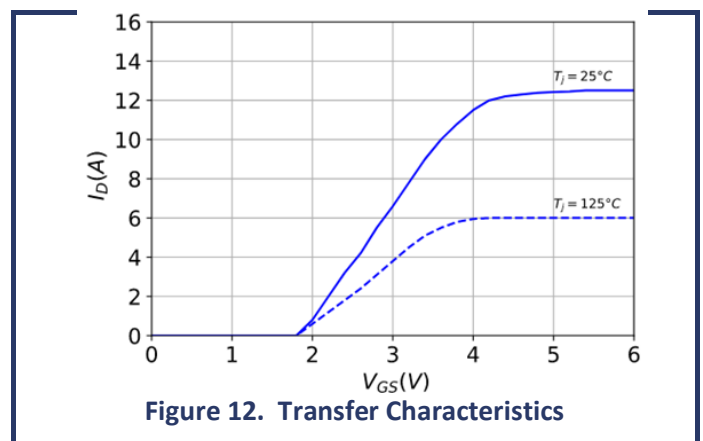
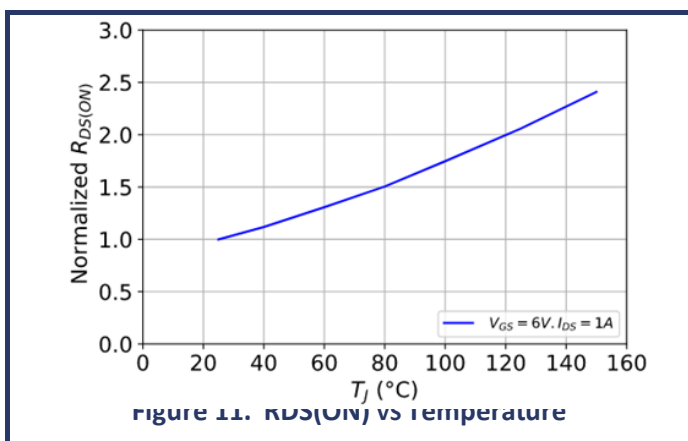
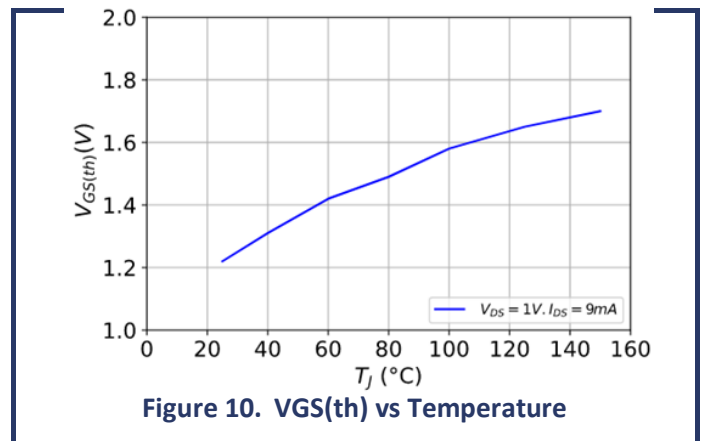
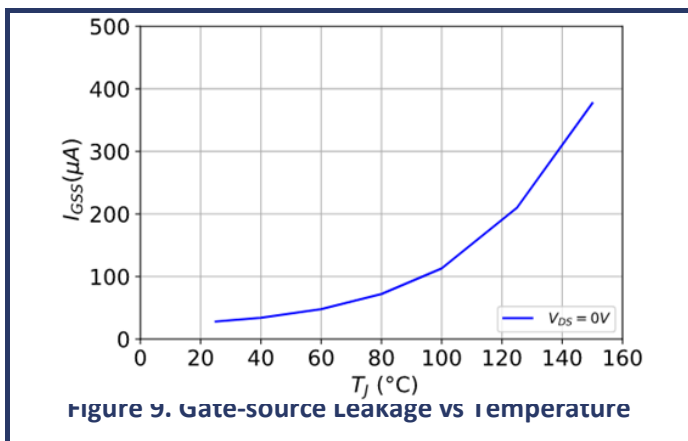
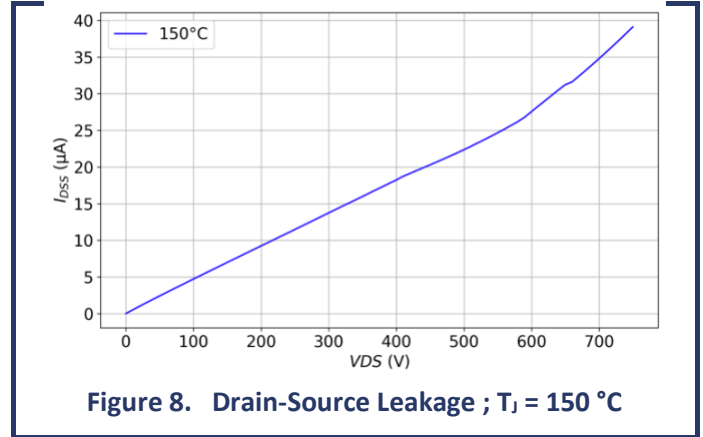
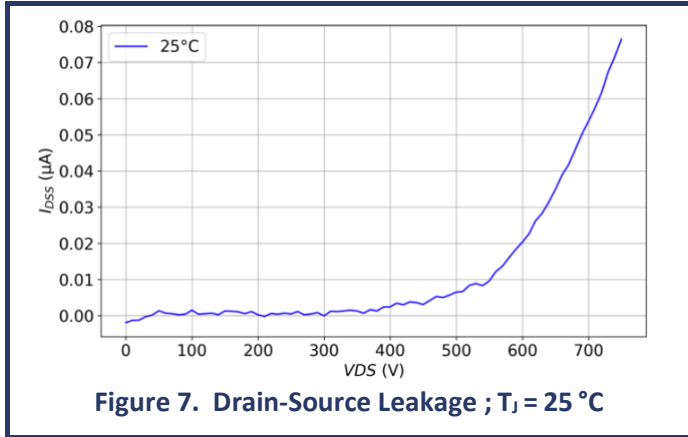
Characteristics	Symbol	Conditions	Min	Typ	Max	Units
DRAIN-SOURCE ON-RESISTANCE	RDS(ON)	VGS = 6 V, T _J = 25 °C, IDS = 2 A		195	225	mΩ
		VGS = 6 V, T _J = 150 °C, IDS = 2 A		380		mΩ
GATE THRESHOLD VOLTAGE	VGS(th)	VDS = VGS, T _J = 25 °C, IDS = 10 mA	0.9	1.3	1.75	V
		VDS = VGS, T _J = 150 °C, IDS = 10 mA		1.8		V
INTERNAL GATE RESISTANCE	Rg	Open drain (T _J = 25 °C)		0.6		Ω
DRAIN-TO-SOURCE LEAKAGE CURRENT	IDSS	VDS = 650 V, VGS = 0 V, T _J = 25 °C		0.2	0.42	μA
		VDS = 650 V, VGS = 0 V, T _J = 150 °C		6		μA
GATE-TO-SOURCE LEAKAGE CURRENT	IGSS	VGS = 6 V, VDS = 0 V, T _J = 25 °C		22	50	μA
		VGS = 6 V, VDS = 0 V, T _J = 150 °C		200		μA
SOURCE-TO-DRAIN REVERSE VOLTAGE	VSD	VGS = 0 V, ISD = 5 A		3.25		V
		VGS = 0 V, ISD = 6 A		3.55		V

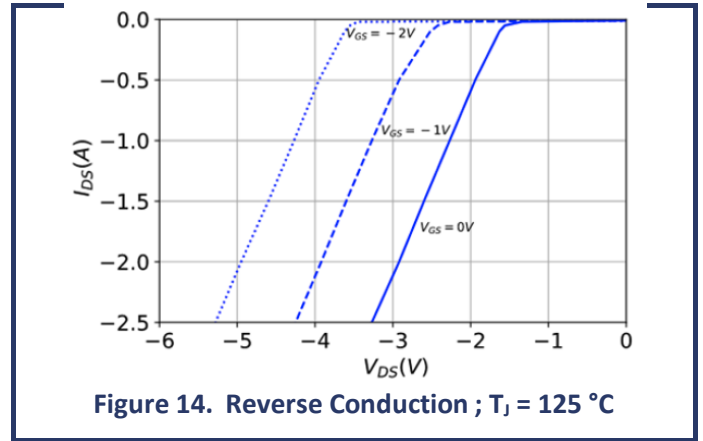
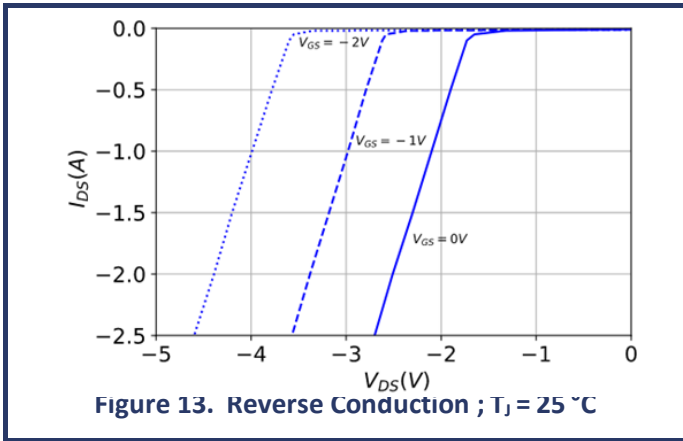
6. DYNAMIC ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Conditions	Min	Typ	Max	Units
INPUT CAPACITANCE	CISS	VDS = 400 V, VGS = 0 V, F = 100 kHz		97		pF
REVERSE TRANSFER CAPACITANCE	CRSS	VDS = 400 V, VGS = 0 V, F = 100 kHz		0.5		pF
OUTPUT CAPACITANCE	COSS	VDS = 400 V, VGS = 0 V, F = 100 kHz		22		pF
TOTAL GATE CHARGE	QG	VDS = 400 V, VGS = 0 V to 6 V		2.8		nC
TOTAL GATE CHARGE	QGS	VDS = 400 V, VGS = 0 V to 6 V		0.2		nC
TOTAL GATE CHARGE	QGD	VDS = 400 V, VGS = 0 V to 6 V		1.2		nC
OUTPUT CHARGE	QOSS	VDS = 400 V, VGS = 0 V		24		nC
OUTPUT CAPACITANCE	EOSS	VDS = 400 V, VGS = 0 V		3		μJ
STORED ENERGY	CO(ER)	VDS = 0 V to 400 V, VGS = 0 V		39		pF
EFFECTIVE OUTPUT CAPACITANCE	CO(TR)	VDS = 0 V to 400 V, VGS = 0 V		61		pF

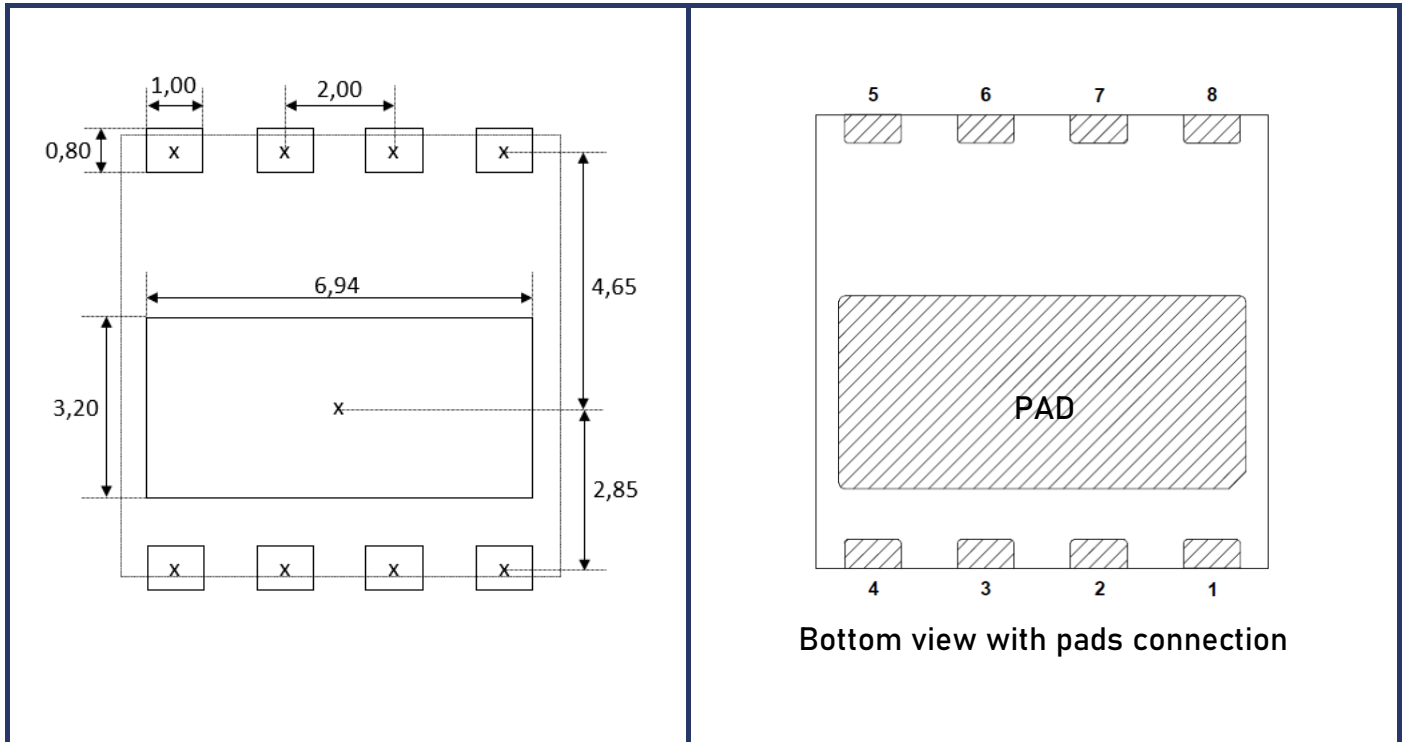
7. STATIC MAIN CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$ UNLESS OTHERWISE NOTED)



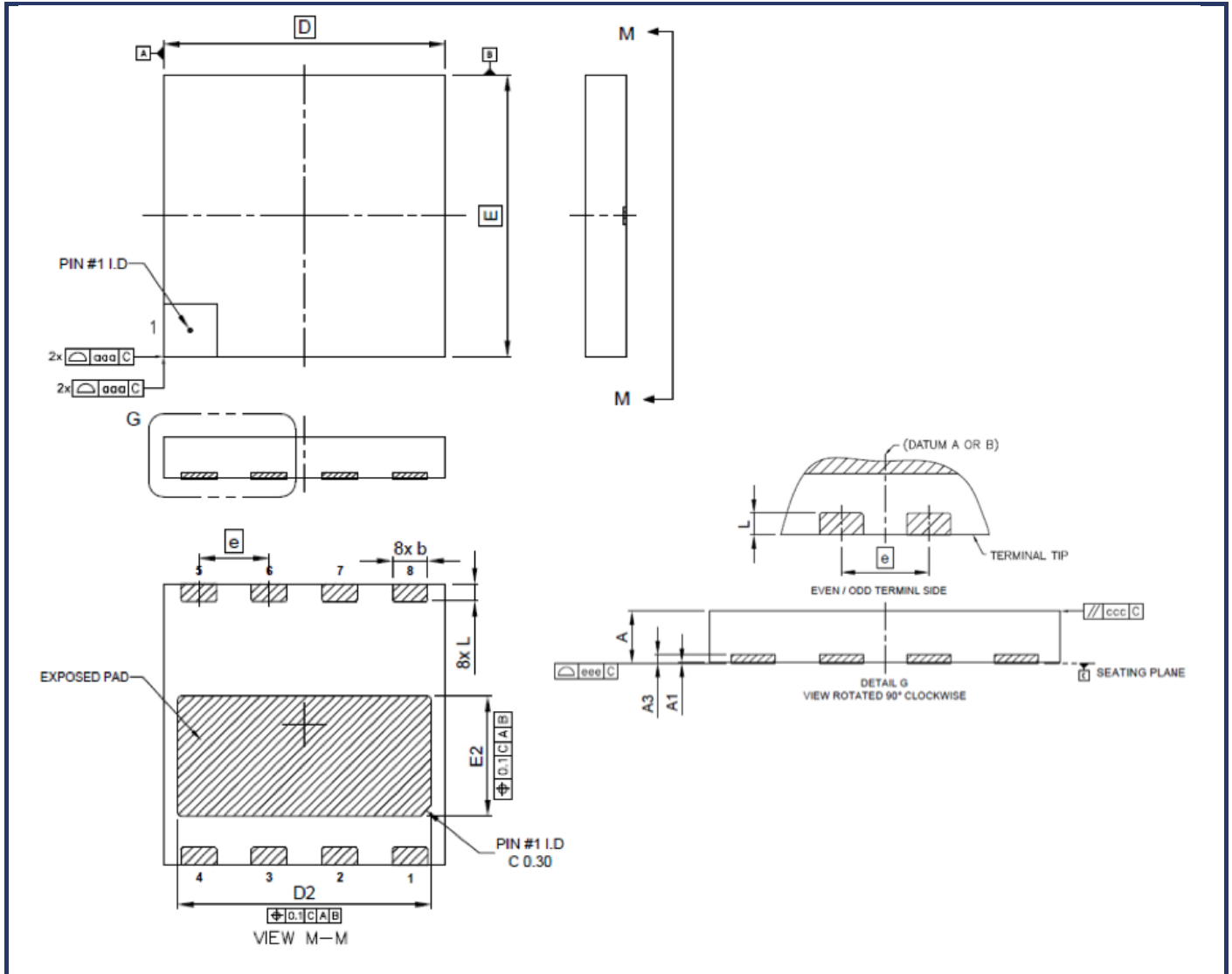




8. PACKAGE AND PACKING INFORMATION

Land Pattern
Pinout


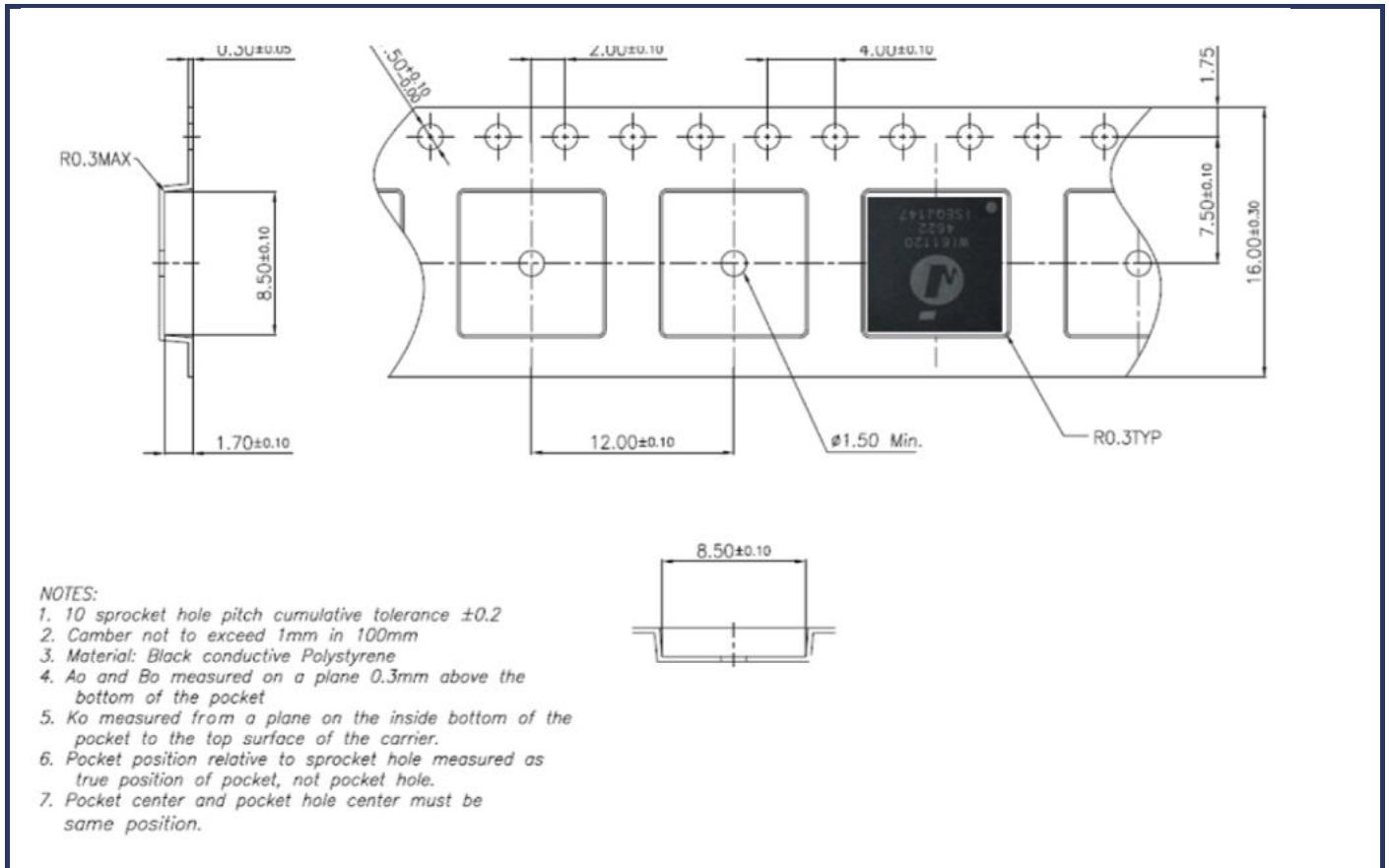
Number	Name	Function	Description
1		NC	Not connected internally, may be connected to the Source
2		NC	Not connected internally, may be connected to the Source
3	KS	Signal	Kelvin source of the GaN transistor
4	G	Signal	Gate of low side GaN transistor
5	D	Power	Drain of high side GaN transistor
6	D	Power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

Ordering code	Package	Packing method	Qty
WI71195ATR	8 x 8 mm DFN	Tape and Reel	2500

10. REVISIONS HISTORY

Revision	Date	Comments
1.0	2024-12-20	Initial release

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