

MOSFET

OptiMOS™ 7 Power-Transistor, 80 V

Features

- N-channel, normal level
- Optimized for synchronous rectification and motor drives
- Soft recovery body diode
- 100% avalanche tested
- 175°C rated
- Pb-free lead plating; RoHS compliant
- Halogen-free according to IEC61249-2-21

Product validation

Qualified for industrial applications according to the relevant tests of JEDEC JESD47, JESD22 and J-STD-020.

Table 1 Key performance parameters

Parameter	Value	Unit
V_{DS}	80	V
$R_{DS(on),max}$	3.4	mΩ
I_D	122	A
Q_{OSS}	65	nC
$Q_G(0V..10V)$	34	nC
$Q_{rr}(100A/\mu s)$	16	nC

Part number	Package	Marking	Related links
ISC034N08NM7	PG-TDSON-8	034N08N7	-

PG-TDSON-8

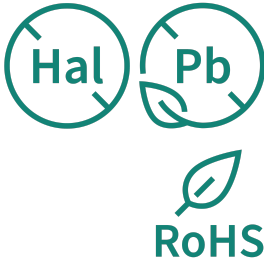
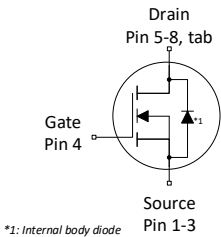
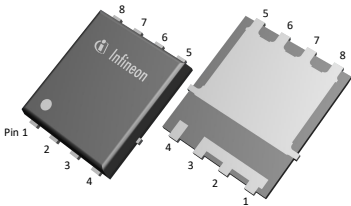


Table of contents

Description	1
Maximum ratings	3
Thermal characteristics	4
Electrical characteristics	5
Electrical characteristics diagrams	7
Package outlines	11
Revision history	14
Trademarks	15
Disclaimer	15

1 Maximum ratings

at $T_A=25\text{ °C}$, unless otherwise specified

Table 2 Maximum ratings

Parameter	Symbol	Values			Unit	Note / Test condition
		Min.	Typ.	Max.		
Continuous drain current ¹⁾	I_D	-	-	122	A	$V_{GS}=10\text{ V}$, $T_C=25\text{ °C}$
				86		$V_{GS}=10\text{ V}$, $T_C=100\text{ °C}$
				79		$V_{GS}=7\text{ V}$, $T_C=100\text{ °C}$
				20		$V_{GS}=10\text{ V}$, $T_A=25\text{ °C}$, $R_{THJA}=50\text{ °C/W}$ ²⁾
Pulsed drain current ³⁾	$I_{D,pulse}$	-	-	488	A	$T_C=25\text{ °C}$
Avalanche energy, single pulse ⁴⁾	E_{AS}	-	-	51	mJ	$I_D=50\text{ A}$, $R_{GS}=25\text{ }\Omega$
Gate source voltage	V_{GS}	-20	-	20	V	-
Power dissipation	P_{tot}	-	-	115	W	$T_C=25\text{ °C}$
				3.0		$T_A=25\text{ °C}$, $R_{THJA}=50\text{ °C/W}$ ²⁾
Operating and storage temperature	T_j, T_{stg}	-55	-	175	°C	-

¹⁾ Rating refers to the product only with datasheet specified absolute maximum values, maintaining case temperature as specified. For other case temperatures please refer to Diagram 2. De-rating will be required based on the actual environmental conditions.

²⁾ Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm² (one layer, 70 µm thick) copper area for drain connection. PCB is vertical in still air.

³⁾ See Diagram 3 for more detailed information

⁴⁾ See Diagram 13 for more detailed information

2 Thermal characteristics

Table 3 Thermal characteristics

Parameter	Symbol	Values			Unit	Note / Test condition
		Min.	Typ.	Max.		
Thermal resistance, junction - case, bottom	R_{thJC}	-	-	1.3	°C/W	-
Thermal resistance, junction - case, top	R_{thJC}			20		
Thermal resistance, junction - ambient, 6 cm ² cooling area ⁵⁾	R_{thJA}			50		

⁵⁾ Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm² (one layer, 70 µm thick) copper area for drain connection. PCB is vertical in still air.

3 Electrical characteristics

at $T_j=25\text{ °C}$, unless otherwise specified

Table 4 Static characteristics

Parameter	Symbol	Values			Unit	Note / Test condition
		Min.	Typ.	Max.		
Drain-source breakdown voltage	$V_{(BR)DSS}$	80	-	-	V	$V_{GS}=0\text{ V}$, $I_D=1\text{ mA}$
Gate threshold voltage	$V_{GS(th)}$	2.3	2.8	3.2	V	$V_{DS}=V_{GS}$, $I_D=48\text{ }\mu\text{A}$
Zero gate voltage drain current	I_{DSS}	-	-	1	μA	$V_{DS}=80\text{ V}$, $V_{GS}=0\text{ V}$, $T_j=25\text{ °C}$
Zero gate voltage drain current ⁶⁾	I_{DSS}	-	-	100	μA	$V_{DS}=80\text{ V}$, $V_{GS}=0\text{ V}$, $T_j=125\text{ °C}$
Gate-source leakage current	I_{GSS}	-	-	100	nA	$V_{GS}=20\text{ V}$, $V_{DS}=0\text{ V}$
Drain-source on-state resistance	$R_{DS(on)}$	-	3.0	3.4	m Ω	$V_{GS}=10\text{ V}$, $I_D=50\text{ A}$
			3.5	4.1		$V_{GS}=7\text{ V}$, $I_D=25\text{ A}$
Gate resistance	R_G	-	1.1	-	Ω	-
Transconductance ⁶⁾	g_{fs}	50	100	-	S	$ V_{DS} \geq 2 I_D R_{DS(on)max}$, $I_D=50\text{ A}$

⁶⁾ Defined by design. Not subject to production test.

Table 5 Dynamic characteristics

Parameter	Symbol	Values			Unit	Note / Test condition
		Min.	Typ.	Max.		
Input capacitance ⁷⁾	C_{iss}	-	2400	3100	pF	$V_{GS}=0\text{ V}$, $V_{DS}=40\text{ V}$, $f=1\text{ MHz}$
Output capacitance ⁷⁾	C_{oss}		990	1290		
Reverse transfer capacitance ⁷⁾	C_{rss}		16	28		
Turn-on delay time	$t_{d(on)}$	-	8.6	-	ns	$V_{DD}=40\text{ V}$, $V_{GS}=10\text{ V}$, $I_D=50\text{ A}$, $R_{G,ext}=1.6\text{ }\Omega$
Rise time	t_r		2.5			
Turn-off delay time	$t_{d(off)}$		13.8			
Fall time	t_f		3.4			

⁷⁾ Defined by design. Not subject to production test.

Table 6 Gate charge characteristics ⁸⁾

Parameter	Symbol	Values			Unit	Note / Test condition
		Min.	Typ.	Max.		
Gate to source charge ⁹⁾	Q_{gs}	-	11	15	nC	$V_{DS}=40\text{ V}$, $I_D=50\text{ A}$, $V_{GS}=0\text{ to }10\text{ V}$
Gate charge at threshold	$Q_{g(th)}$		6.7	-	nC	
Gate to drain charge ⁹⁾	Q_{gd}		6.3	9.5	nC	
Switching charge	Q_{sw}		11	-	nC	
Gate charge total ⁹⁾	Q_g		34	44	nC	
Gate plateau voltage	$V_{plateau}$		4.8	-	V	
Gate charge total, sync. FET	$Q_{g(sync)}$	-	30	-	nC	$V_{DS}=0.1\text{ V}$, $V_{GS}=0\text{ to }10\text{ V}$
Output charge ⁹⁾	Q_{oss}	-	65	85	nC	$V_{DS}=40\text{ V}$, $V_{GS}=0\text{ V}$

⁸⁾ See "Gate charge waveforms" for parameter definition

⁹⁾ Defined by design. Not subject to production test.

Table 7 Reverse diode

Parameter	Symbol	Values			Unit	Note / Test condition
		Min.	Typ.	Max.		
Diode continuous forward current	I_S	-	-	114	A	$T_C=25\text{ °C}$
Diode pulse current	$I_{S,pulse}$			488		
Diode forward voltage	V_{SD}	-	0.88	1.0	V	$V_{GS}=0\text{ V}$, $I_F=50\text{ A}$, $T_J=25\text{ °C}$
Reverse recovery time ¹⁰⁾	t_{rr}	-	29	44	ns	$V_R=40\text{ V}$, $I_F=50\text{ A}$, $di_F/dt=100\text{ A}/\mu\text{s}$
Reverse recovery charge ¹⁰⁾	Q_{rr}		16	32	nC	

¹⁰⁾ Defined by design. Not subject to production test.

4 Electrical characteristics diagrams

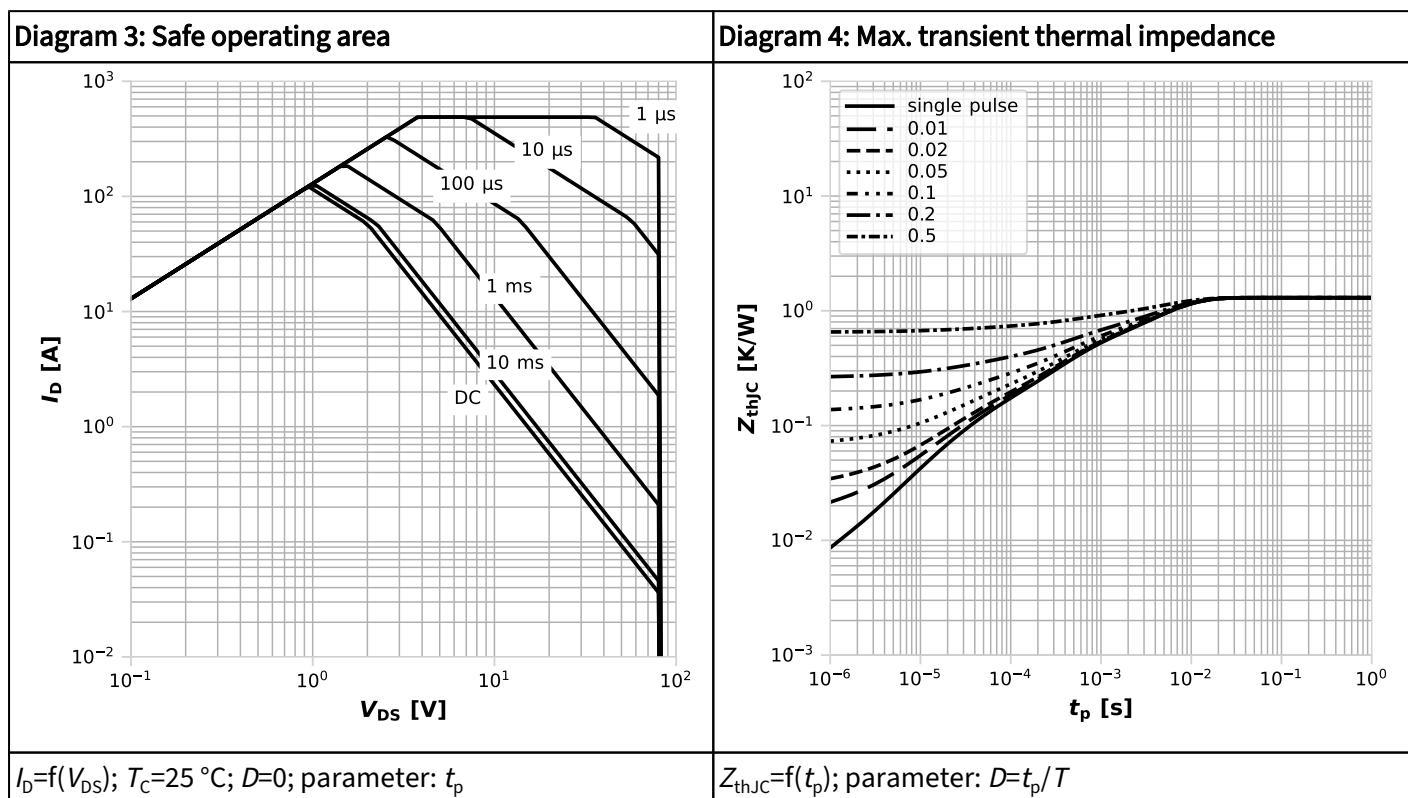
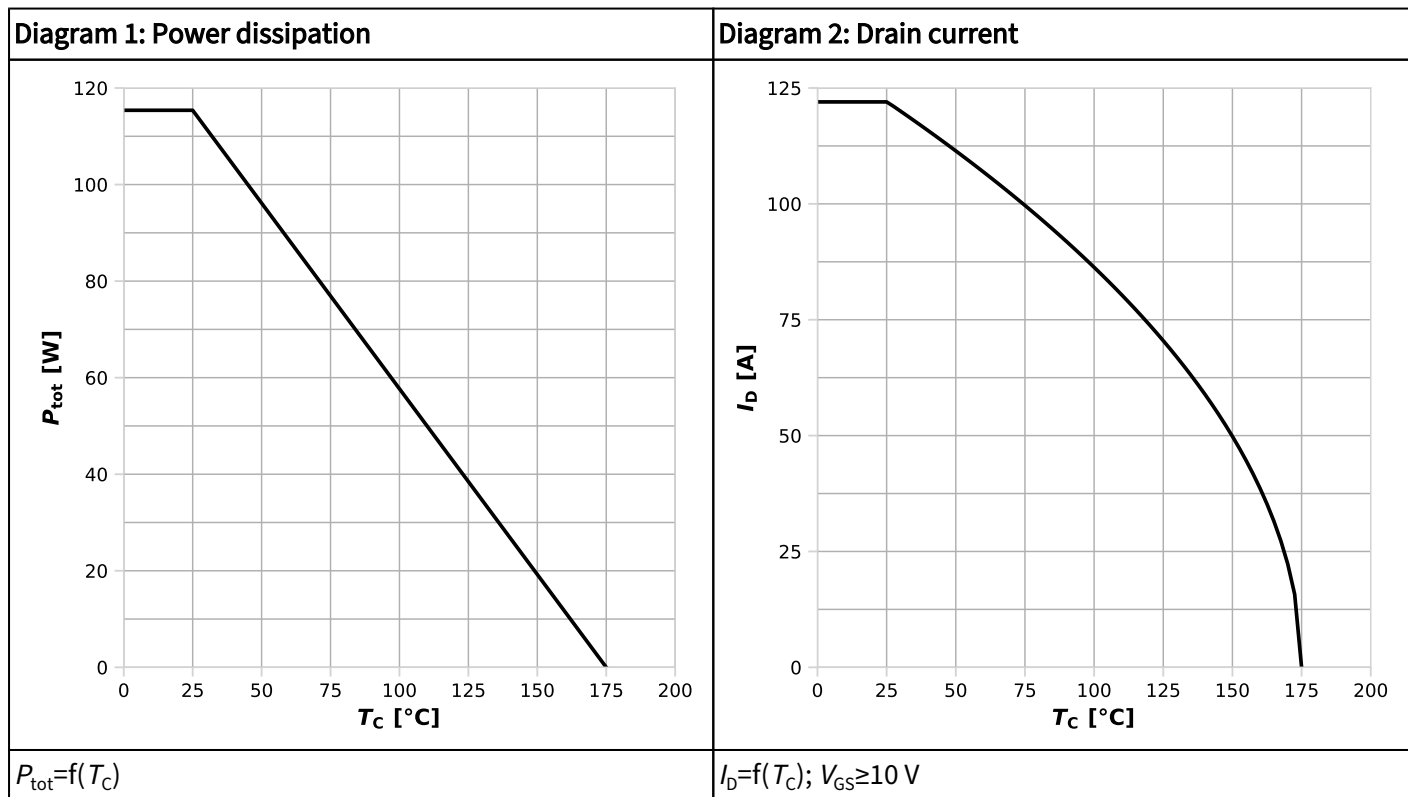
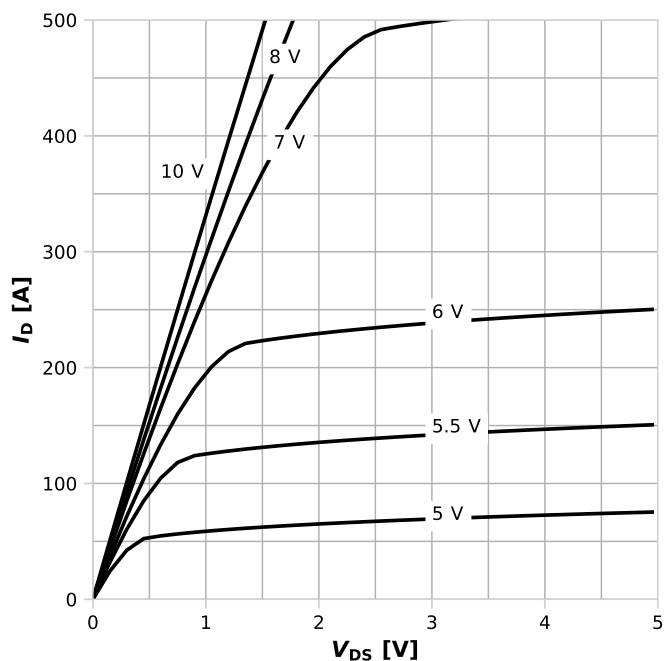
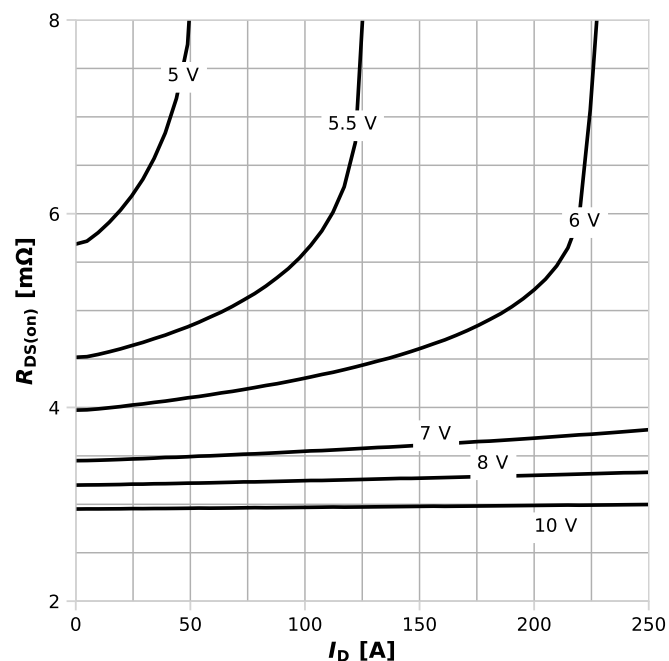


Diagram 5: Typ. output characteristics



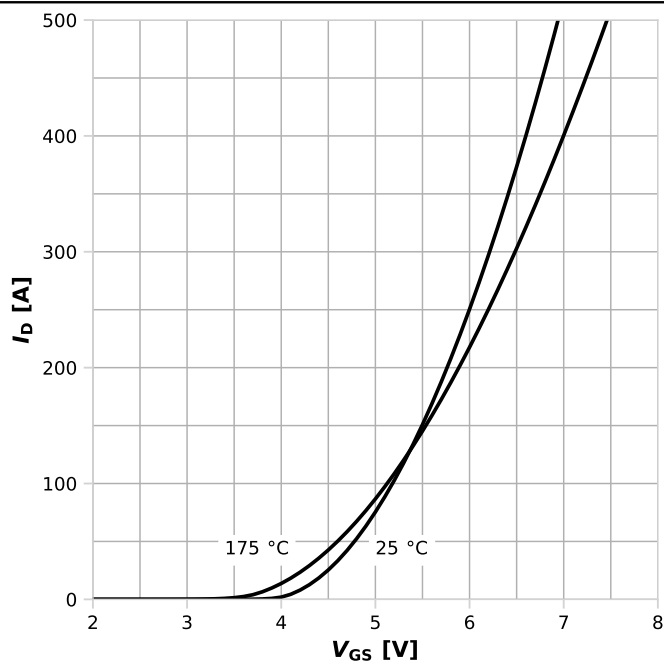
$I_D = f(V_{DS})$, $T_j = 25^\circ\text{C}$; parameter: V_{GS}

Diagram 6: Typ. drain-source on resistance



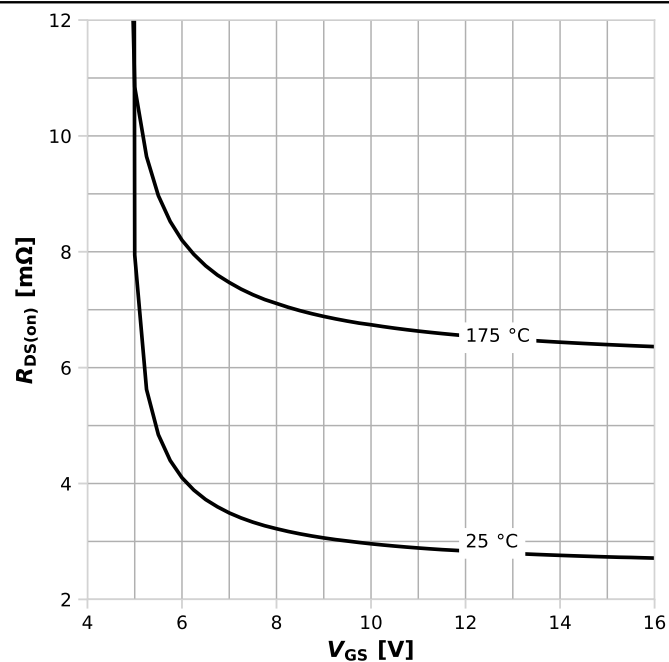
$R_{DS(on)} = f(I_D)$, $T_j = 25^\circ\text{C}$; parameter: V_{GS}

Diagram 7: Typ. transfer characteristics



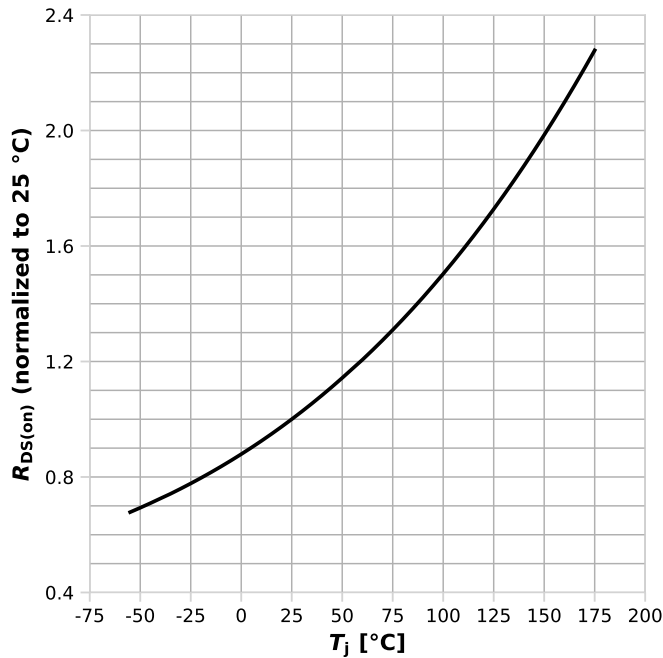
$I_D = f(V_{GS})$, $|V_{DS}| > 2|I_D|R_{DS(on)max}$; parameter: T_j

Diagram 8: Typ. drain-source on resistance



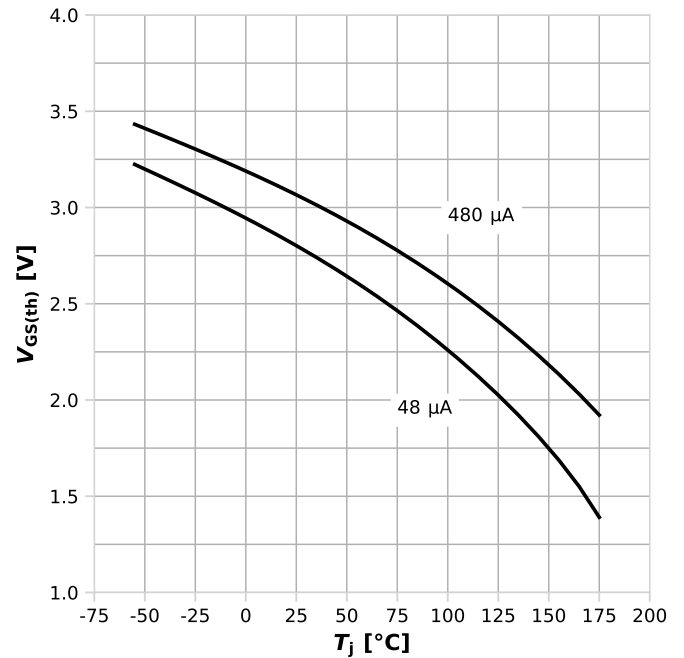
$R_{DS(on)} = f(V_{GS})$, $I_D = 50\text{ A}$; parameter: T_j

Diagram 9: Normalized drain-source on resistance



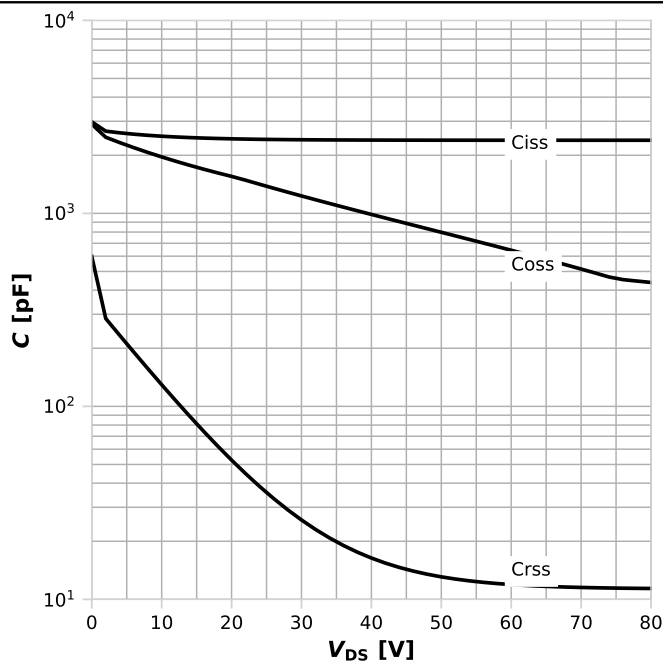
$$R_{DS(on)} = f(T_j), I_D = 50 \text{ A}, V_{GS} = 10 \text{ V}$$

Diagram 10: Typ. gate threshold voltage



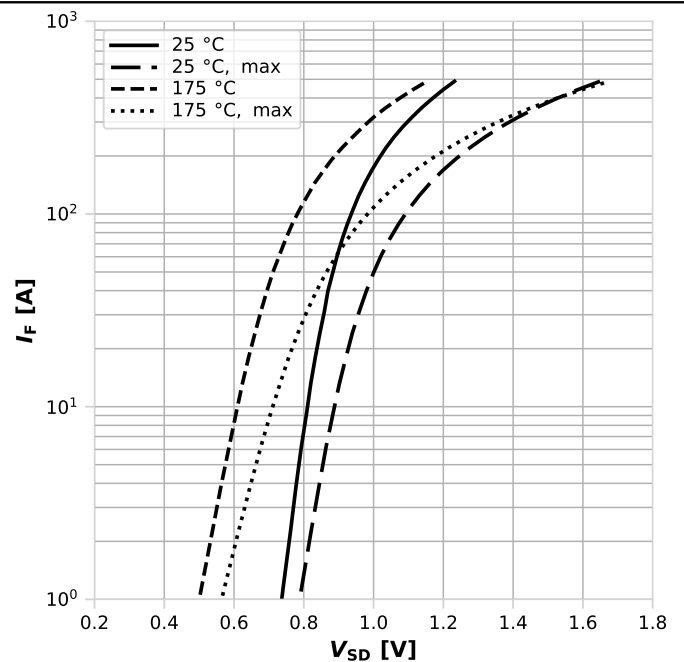
$$V_{GS(th)} = f(T_j), V_{GS} = V_{DS}; \text{ parameter: } I_D$$

Diagram 11: Typ. capacitances



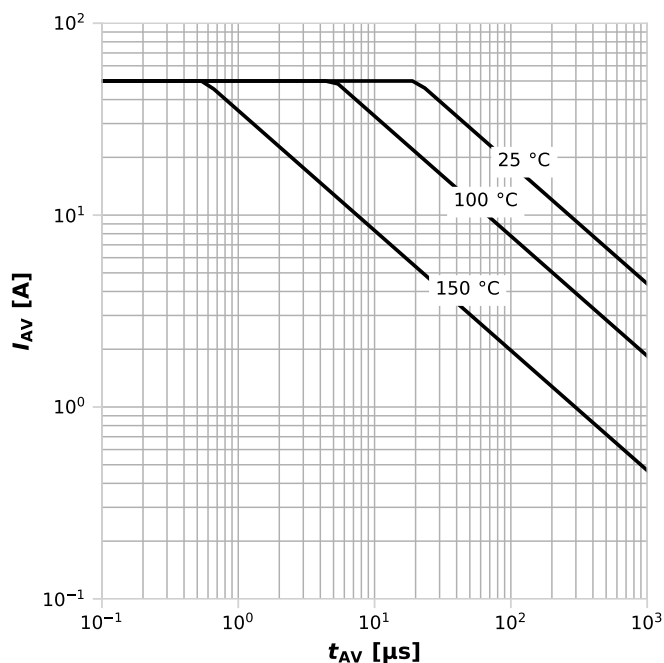
$$C = f(V_{DS}); V_{GS} = 0 \text{ V}; f = 1 \text{ MHz}$$

Diagram 12: Forward characteristics of reverse diode



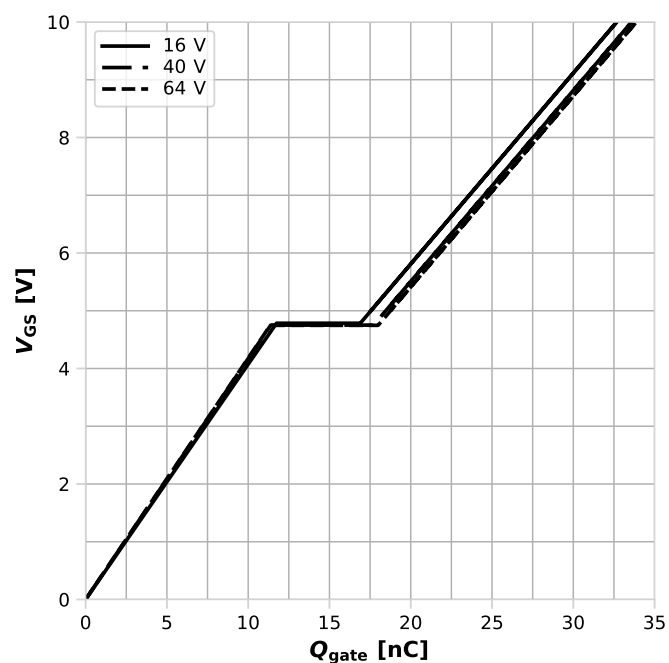
$$I_F = f(V_{DS}); \text{ parameter: } T_j$$

Diagram 13: Avalanche characteristics



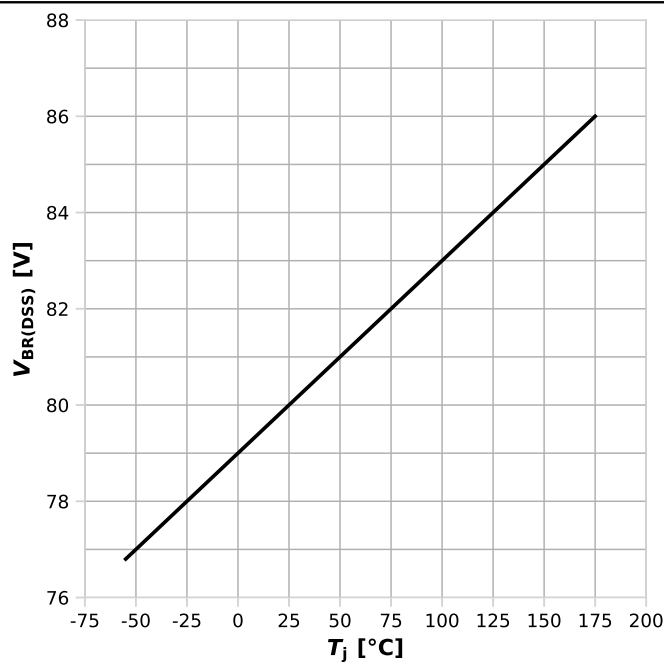
$I_{AS}=f(t_{AV})$; $R_{GS}=25\ \Omega$; parameter: $T_{j,start}$

Diagram 14: Typ. gate charge



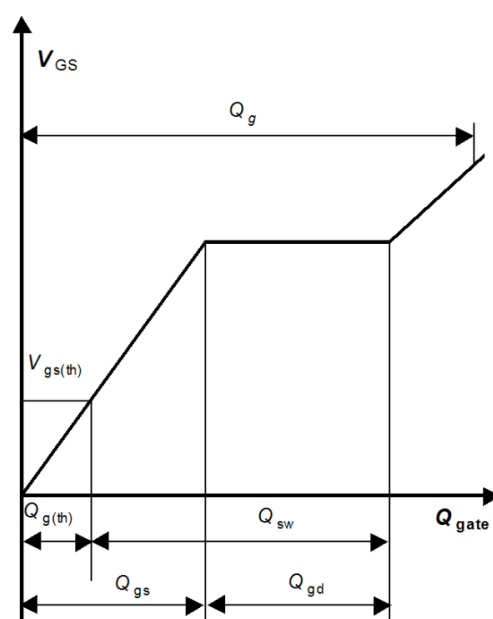
$V_{GS}=f(Q_{gate})$, $I_D=50\text{ A}$ pulsed, $T_j=25\text{ °C}$; parameter: V_{DD}

Diagram 15: Drain-source breakdown voltage



$V_{BR(DSS)}=f(T_j)$; $I_D=1\text{ mA}$

Gate charge waveforms



-

5 Package outlines

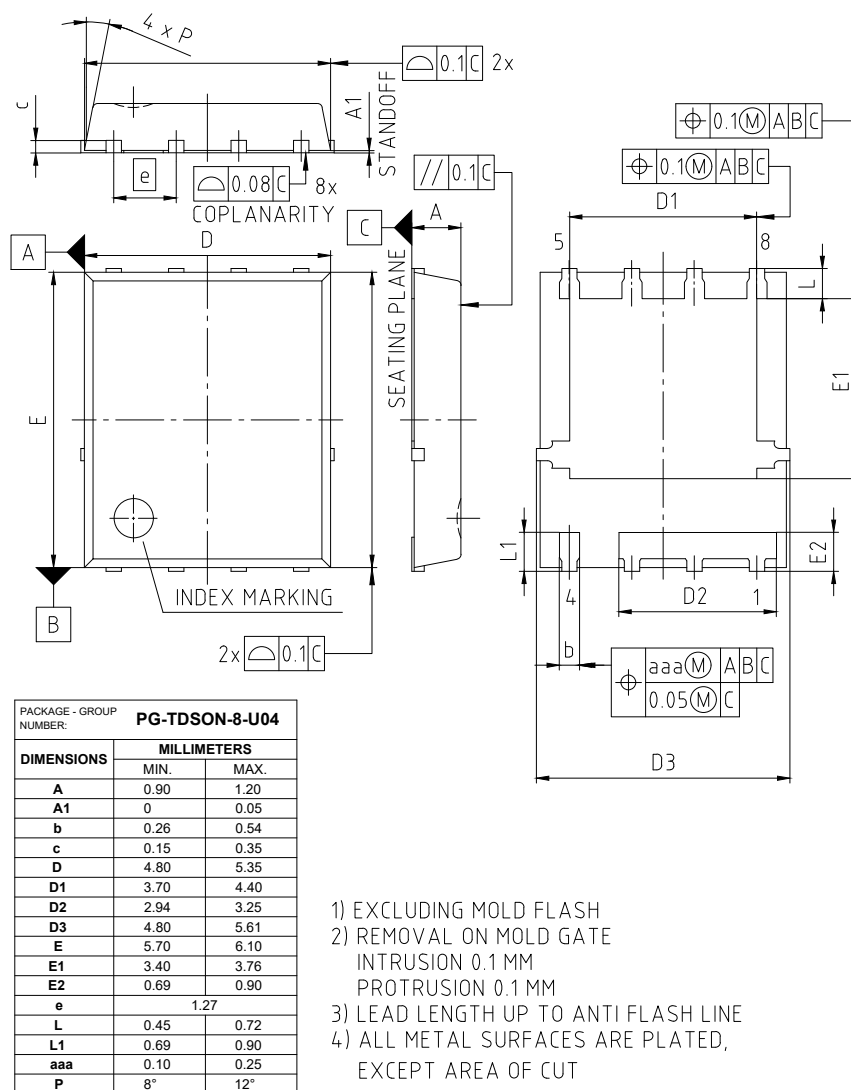


Figure 1 Outline PG-TDSON-8, dimensions in mm

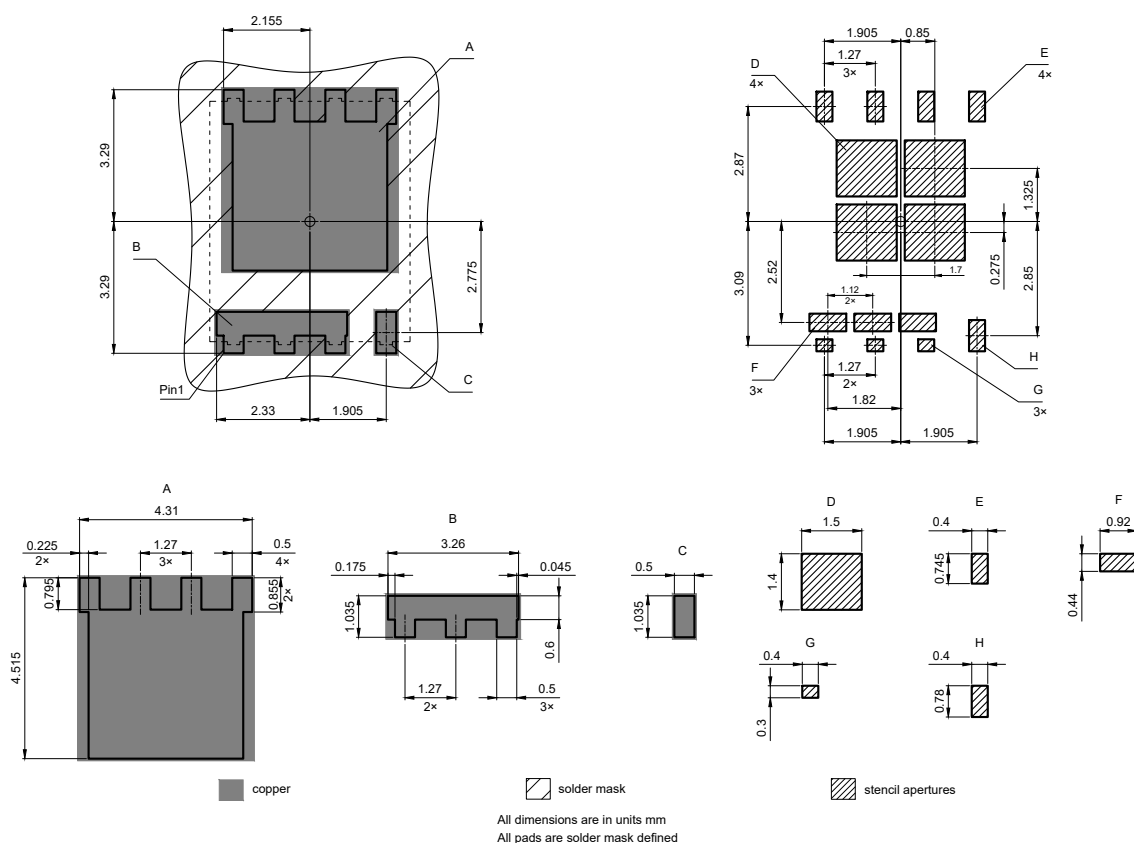


Figure 2 Footprint drawing PG-TDSON-8, dimensions in mm

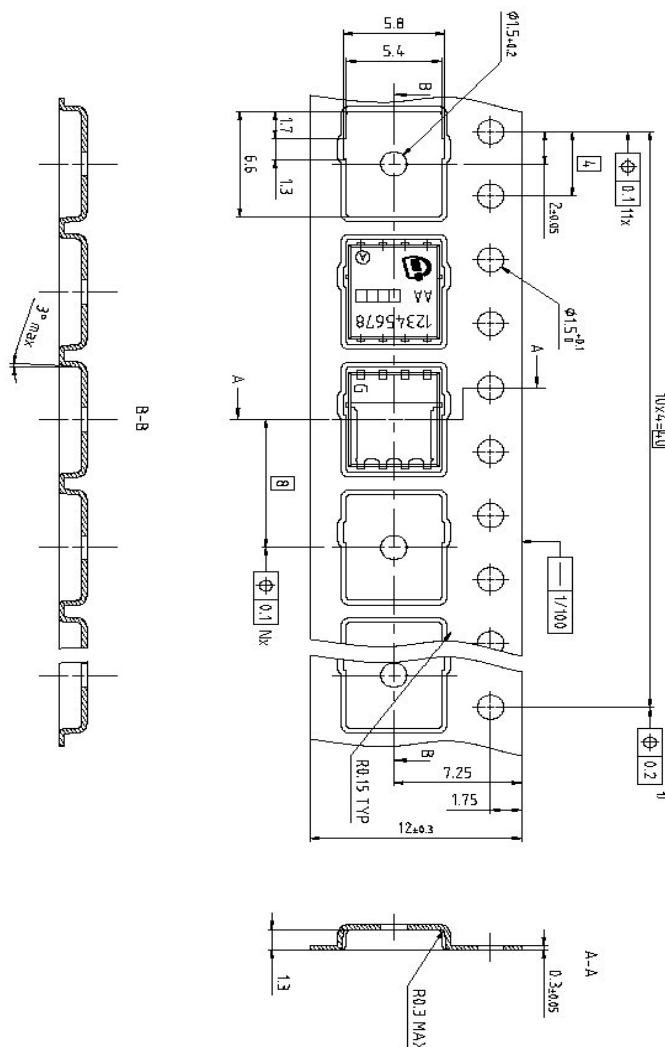


Figure 3 Packaging variant PG-TDSON-8, dimensions in mm

Revision history

ISC034N08NM7

Revision 2025-11-05, Rev. 1.0

Previous revisions

Revision	Date	Subjects (major changes since last revision)
1.0	2025-11-05	Release of final version

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFETs](#) category:

Click to view products by [Infineon](#) manufacturer:

Other Similar products are found below :

[MCH3443-TL-E](#) [MCH6422-TL-E](#) [PMV32UP215](#) [NTNS3A92PZT5G](#) [2SK2464-TL-E](#) [2SK3818-DL-E](#) [2SJ277-DL-E](#) [2SK2267\(Q\)](#)
[AON6932A](#) [TS19452CS RL](#) [EFC2J004NUZTDG](#) [743-9](#) [US6M2GTR](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN13M9UCA6-7](#)
[STU7N60DM2](#) [2N7002W-G](#) [NTMFS006N08MC](#) [NTTFS5C680NLTAG](#) [IPB45P03P4L11ATMA2](#) [NVTFS6H880NLWFTAG](#)
[NTMC083NP10M5L](#) [NTTFS022N15MC](#) [NVMFS5C420NLWFT1G](#) [BXP4N65F](#) [BXP2N20L](#) [BXP2N65D](#) [NTD5C632NLT4G](#)
[NTMYS2D1N04CLTWG](#) [NVD360N65S3T4G](#) [NVMTS1D1N04CTXG](#) [CJAC130SN06L](#) [HSBA6054](#) [HSBB6054](#) [HSBB0210](#) [HSBB0056](#)
[HSBA6901](#) [BSC004NE2LS5](#) [BSZ075N08NS5](#) [LBSS138DW1T1G](#) [AP0903G](#) [SSM10N954L,EFF\(S](#) [2SK3878\(STA1,E,S\)](#)
[TPN6R303NC,LQ\(S](#) [AP3N5R0MT](#) [AP6NA3R2MT](#) [AP3C023AMT](#) [AP6242](#) [HSBB3909](#)