

MOSFET

OptiMOS™ 6 Power-Transistor, 60 V

Features

- Optimized for low voltage drives and battery powered applications
- Optimized for high performance SMPS
- N-channel, normal level
- Very low on-resistance $R_{DS(on)}$
- Superior thermal resistance
- 100% avalanche tested
- Pb-free lead plating; RoHS compliant
- Halogen-free according to IEC61249-2-21

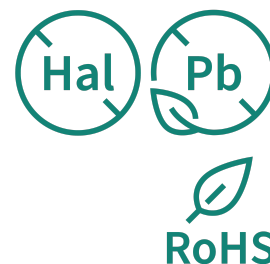
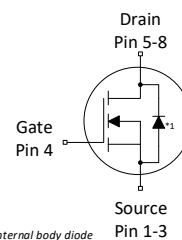
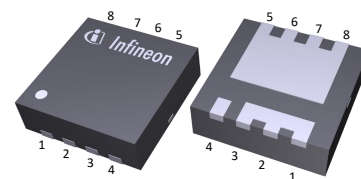
Product validation

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}	60	V
$R_{DS(on),max}$	7.2	mΩ
I_D	57	A
Q_{oss}	20	nC
Q_G	12.3	nC
Q_{rr} (1000A/μs)	45	nC

PG-TSDSON-8 FL



Part number	Package	Marking	Related links
ISZ072N06NM6	PG-TSDSON-8	072N6N6	-



Table of contents

Description 1

Maximum ratings 3

Thermal characteristics 4

Electrical characteristics 5

Electrical characteristics diagrams 7

Package outlines 11

Revision history 12

Trademarks 13

Disclaimer 13

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	-	-	57	A	$V_{GS}=10\text{ V}, T_C=25\text{ °C}$
				40		$V_{GS}=10\text{ V}, T_C=100\text{ °C}$
				37		$V_{GS}=8\text{ V}, T_C=100\text{ °C}$
				12.7		$V_{GS}=10\text{ V}, T_A=25\text{ °C}, R_{thJA}=60\text{ °C/W}^{2)}$
Pulsed drain current ³⁾	$I_{D,pulse}$	-	-	228	A	$T_C=25\text{ °C}$
Avalanche energy, single pulse ⁴⁾	E_{AS}	-	-	41	mJ	$I_D=10\text{ A}, R_{GS}=25\text{ }\Omega$
Gate source voltage	V_{GS}	-20	-	20	V	-
Power dissipation	P_{tot}	-	-	50	W	$T_C=25\text{ °C}$
				2.5		$T_A=25\text{ °C}, R_{thJA}=60\text{ °C/W}^{2)}$
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	R_{thJC}		1.5	3.0		
Thermal resistance, junction - ambient, 6 cm ² cooling area ⁵⁾	R_{thJA}	-	-	60	°C/W	-

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	$V_{(BR)DSS}$	60	-	-	V	$V_{GS}=0\text{ V}$, $I_D=1\text{ mA}$
Gate threshold voltage	$V_{GS(th)}$	2.1	2.7	3.3	V	$V_{DS}=V_{GS}$, $I_D=14\text{ }\mu\text{A}$
Zero gate voltage drain current	I_{DSS}	-	0.1	1.0	μA	$V_{DS}=48\text{ V}$, $V_{GS}=0\text{ V}$, $T_j=25\text{ °C}$
			10	100		$V_{DS}=48\text{ V}$, $V_{GS}=0\text{ V}$, $T_j=125\text{ °C}$
Gate-source leakage current	I_{GSS}	-	10	100	nA	$V_{GS}=20\text{ V}$, $V_{DS}=0\text{ V}$
Drain-source on-state resistance	$R_{DS(on)}$	-	5.4	7.2	m Ω	$V_{GS}=10\text{ V}$, $I_D=10\text{ A}$
Drain-source on-state resistance ⁶⁾	$R_{DS(on)}$	-	6.1	8.5	m Ω	$V_{GS}=8\text{ V}$, $I_D=5\text{ A}$
Gate resistance	R_G	-	0.7	-	Ω	-
Transconductance ⁶⁾	g_{fs}	18	36	-	S	$ V_{DS} \geq 2 I_D R_{DS(on)max}$, $I_D=10\text{ A}$

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}	-	790	1000	pF	$V_{GS}=0\text{ V}$, $V_{DS}=30\text{ V}$, $f=1\text{ MHz}$
Output capacitance ⁷⁾	C_{oss}		330	430		
Reverse transfer capacitance ⁷⁾	C_{rss}		18	32		
Turn-on delay time	$t_{d(on)}$	-	5.6	-	ns	$V_{DD}=30\text{ V}$, $V_{GS}=10\text{ V}$, $I_D=10\text{ A}$, $R_{G,ext}=1.6\text{ }\Omega$
Rise time	t_r		5.8			
Turn-off delay time	$t_{d(off)}$		7.5			
Fall time	t_f		2.3			

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	Q_{gs}	-	3.5	-	nC	$V_{DD}=30\text{ V}$, $I_D=10\text{ A}$, $V_{GS}=0\text{ to }10\text{ V}$
Gate charge at threshold	$Q_{g(th)}$		2.1	-	nC	
Gate to drain charge ⁹⁾	Q_{gd}		2.9	4.4	nC	
Switching charge	Q_{sw}		4.3	-	nC	
Gate charge total ⁹⁾	Q_g		12.3	15.4	nC	
Gate plateau voltage	$V_{plateau}$		4.5	-	V	
Output charge ⁹⁾	Q_{oss}	-	20	27	nC	$V_{DS}=30\text{ V}$, $V_{GS}=0\text{ V}$

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	-	-	45	A	$T_C=25\text{ °C}$
Diode pulse current	$I_{S,pulse}$			228		
Diode forward voltage	V_{SD}	-	0.81	1.0	V	$V_{GS}=0\text{ V}$, $I_F=10\text{ A}$, $T_J=25\text{ °C}$
Reverse recovery time ¹⁰⁾	t_{rr}	-	20	40	ns	$V_R=30\text{ V}$, $I_F=10\text{ A}$, $di_F/dt=100\text{ A}/\mu\text{s}$
Reverse recovery charge ¹⁰⁾	Q_{rr}		10	20	nC	
Reverse recovery time ¹⁰⁾	t_{rr}	-	13	26	ns	$V_R=30\text{ V}$, $I_F=10\text{ A}$, $di_F/dt=1000\text{ A}/\mu\text{s}$
Reverse recovery charge ¹⁰⁾	Q_{rr}		45	90	nC	

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

4 Electrical characteristics diagrams

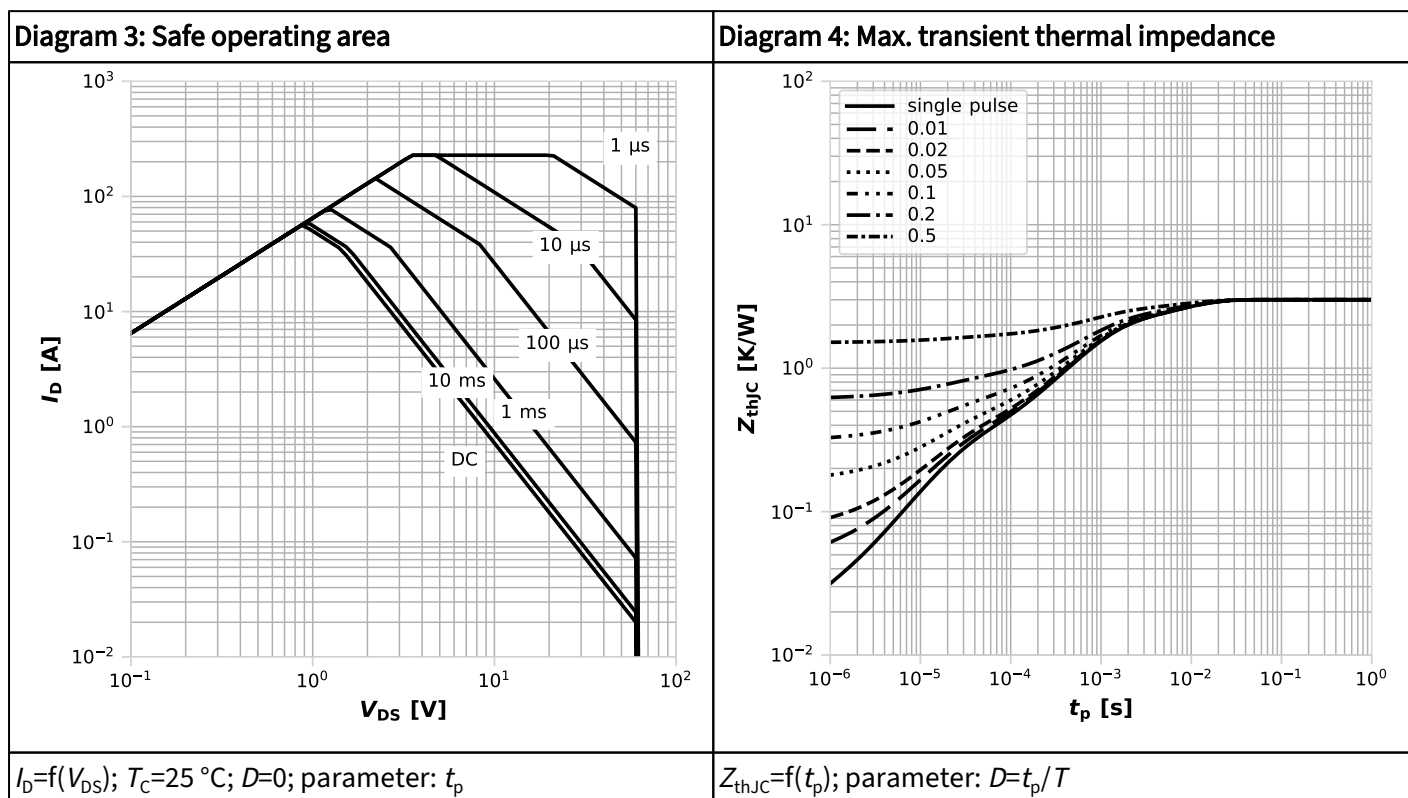
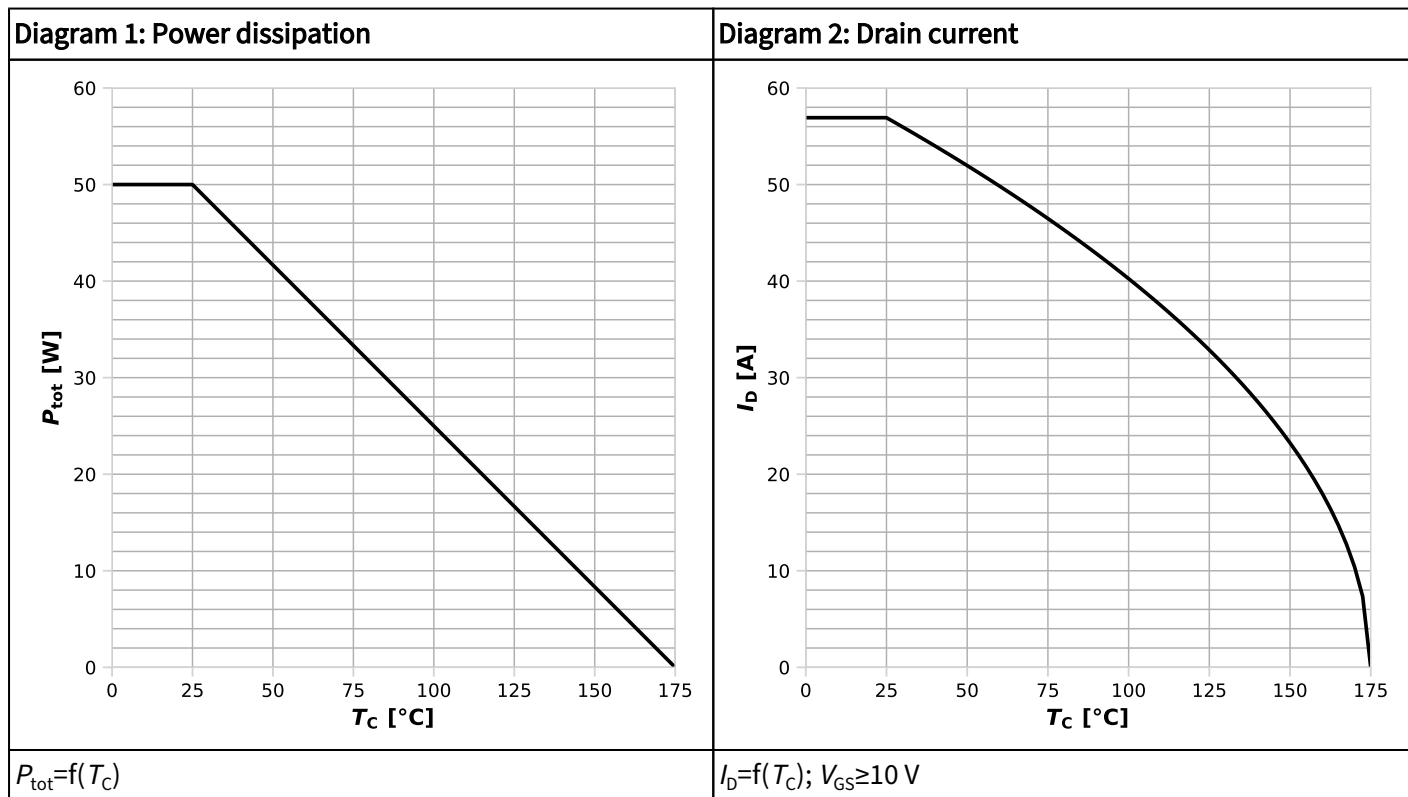
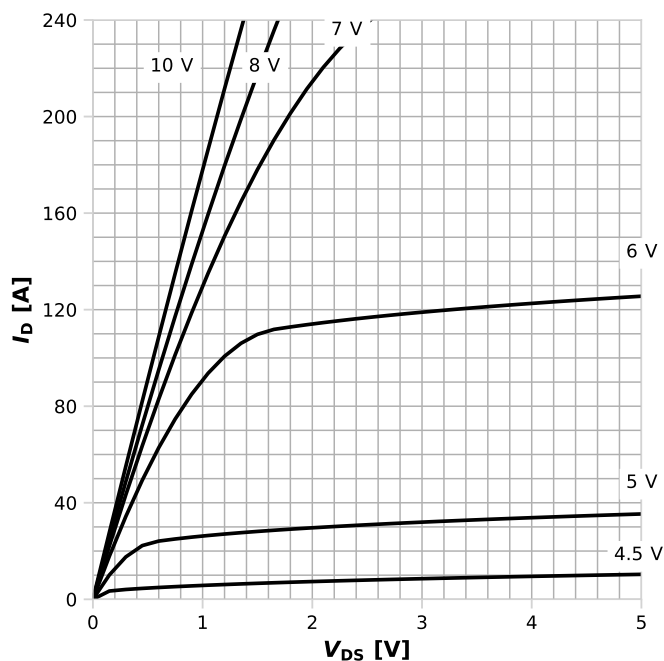
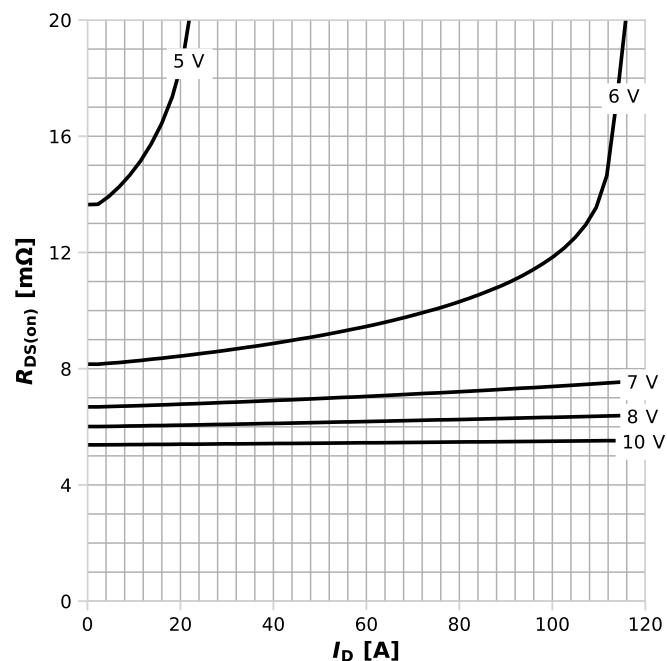


Diagram 5: Typ. output characteristics



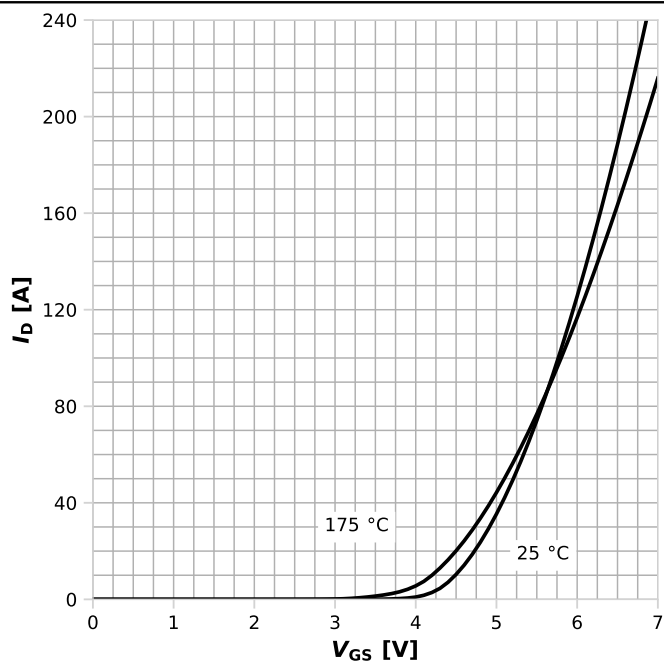
$I_D = f(V_{DS})$, $T_j = 25^\circ\text{C}$; parameter: V_{GS}

Diagram 6: Typ. drain-source on resistance



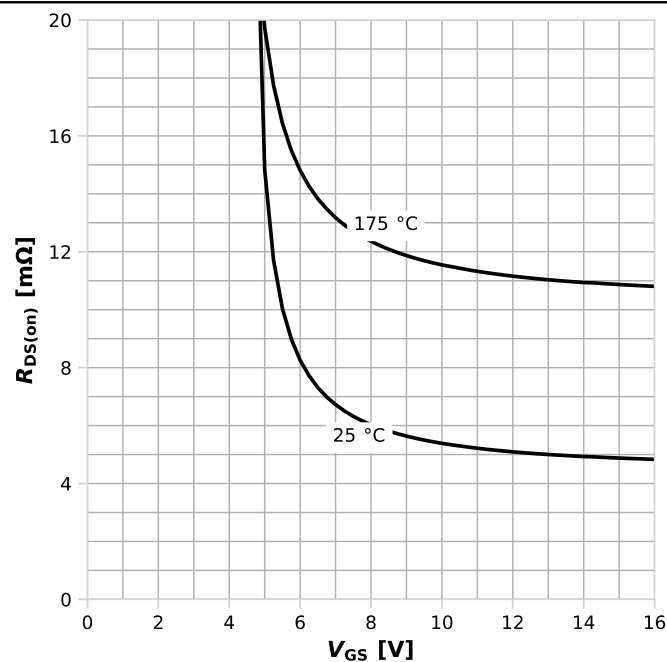
$R_{DS(on)} = f(I_D)$, $T_j = 25^\circ\text{C}$; parameter: V_{GS}

Diagram 7: Typ. transfer characteristics



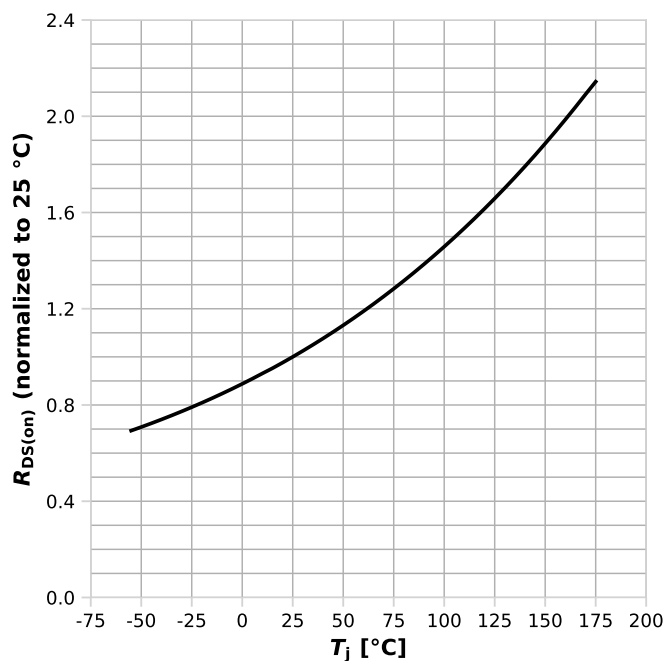
$I_D = f(V_{GS})$, $|V_{DS}| > 2|I_D|R_{DS(on)max}$; parameter: T_j

Diagram 8: Typ. drain-source on resistance



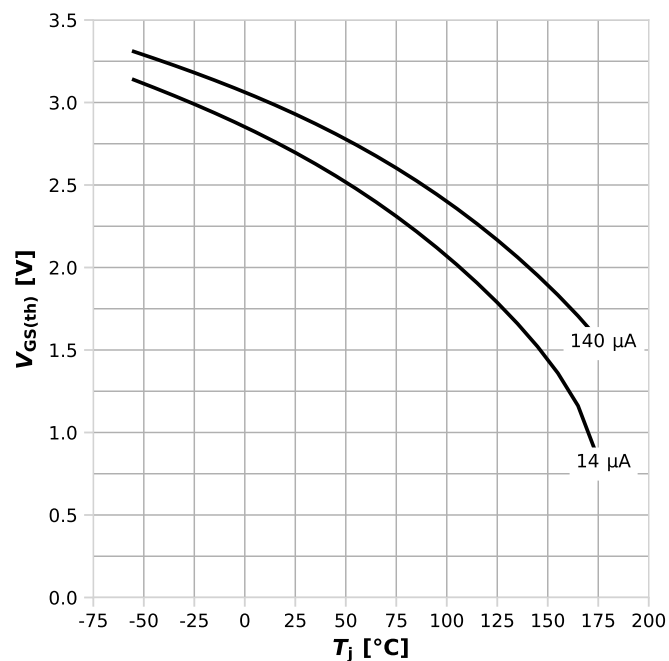
$R_{DS(on)} = f(V_{GS})$, $I_D = 10\text{ A}$; parameter: T_j

Diagram 9: Normalized drain-source on resistance



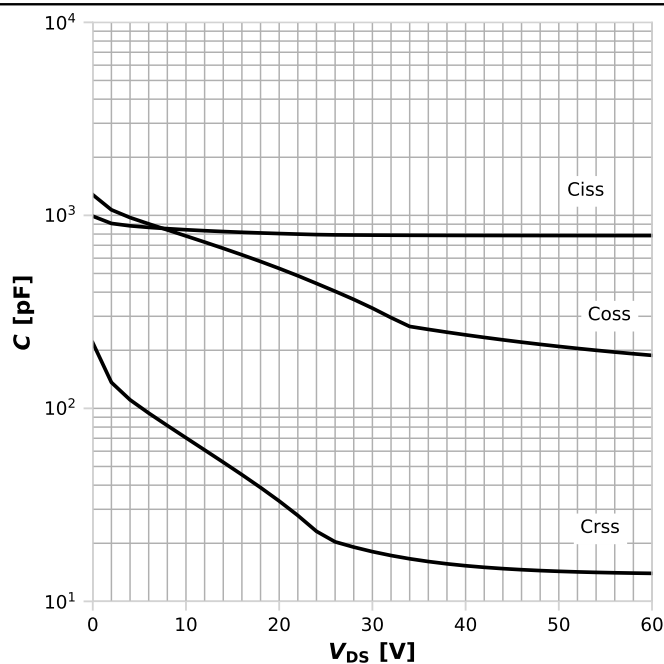
$$R_{DS(on)} = f(T_j), I_D = 10 \text{ A}, V_{GS} = 10 \text{ V}$$

Diagram 10: Typ. gate threshold voltage



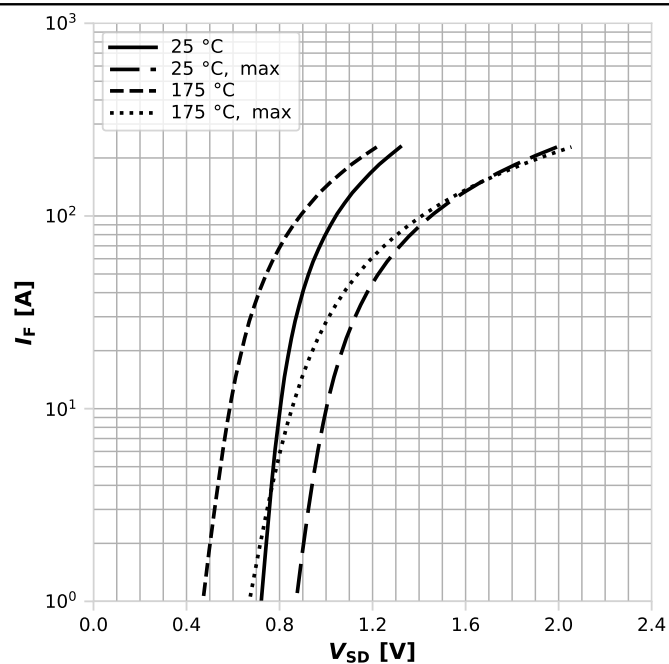
$$V_{GS(th)} = f(T_j), V_{GS} = V_{DS}; \text{ parameter: } I_D$$

Diagram 11: Typ. capacitances



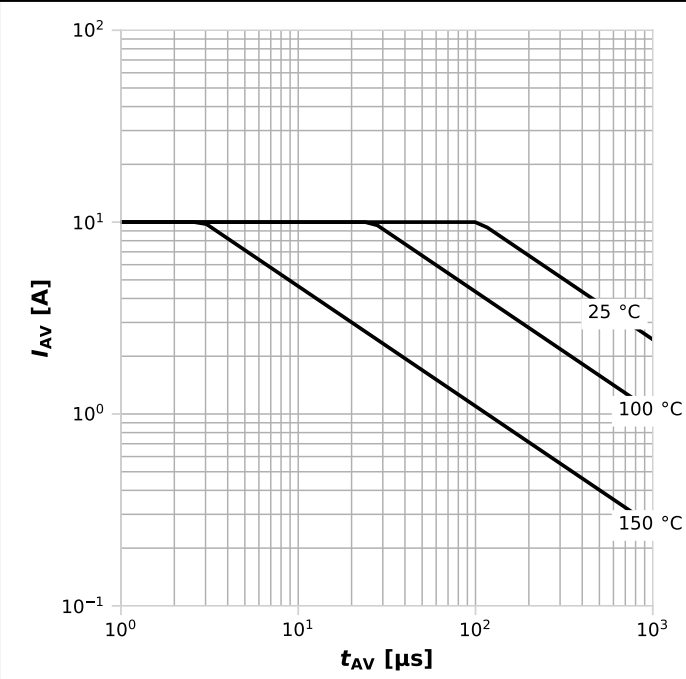
$$C = f(V_{DS}); V_{GS} = 0 \text{ V}; f = 1 \text{ MHz}$$

Diagram 12: Forward characteristics of reverse diode



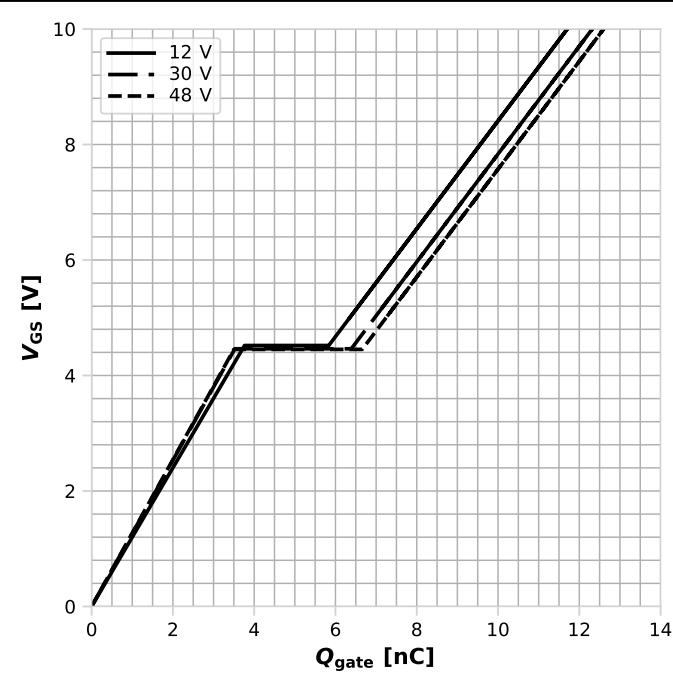
$$I_F = f(V_{SD}); \text{ parameter: } T_j$$

Diagram 13: Avalanche characteristics



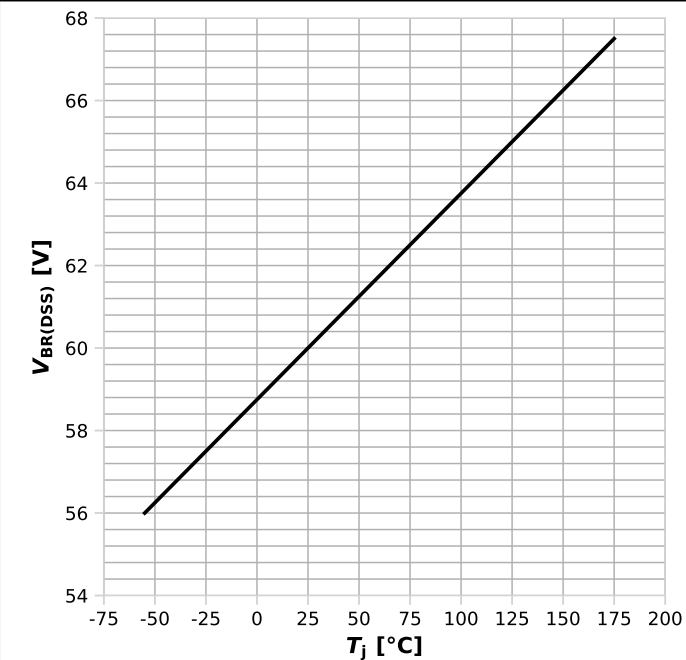
$I_{AS}=f(t_{AV})$; $R_{GS}=25\ \Omega$; parameter: $T_{j,start}$

Diagram 14: Typ. gate charge



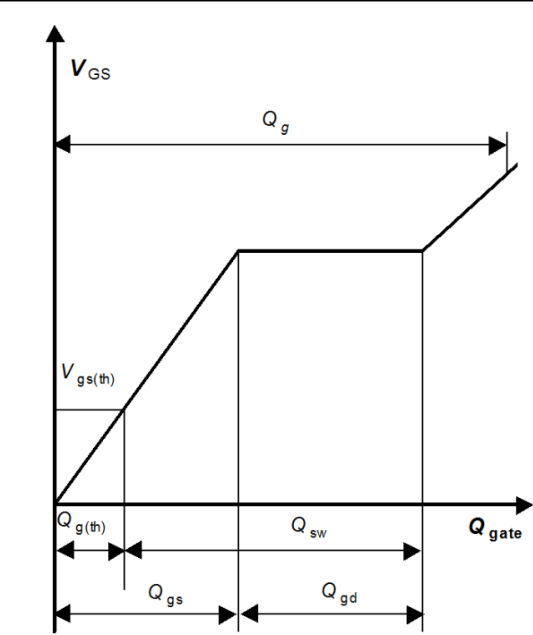
$V_{GS}=f(Q_{gate})$, $I_D=10\text{ A}$ pulsed, $T_j=25\text{ °C}$; parameter: V_{DD}

Diagram 15: Min. drain-source breakdown voltage

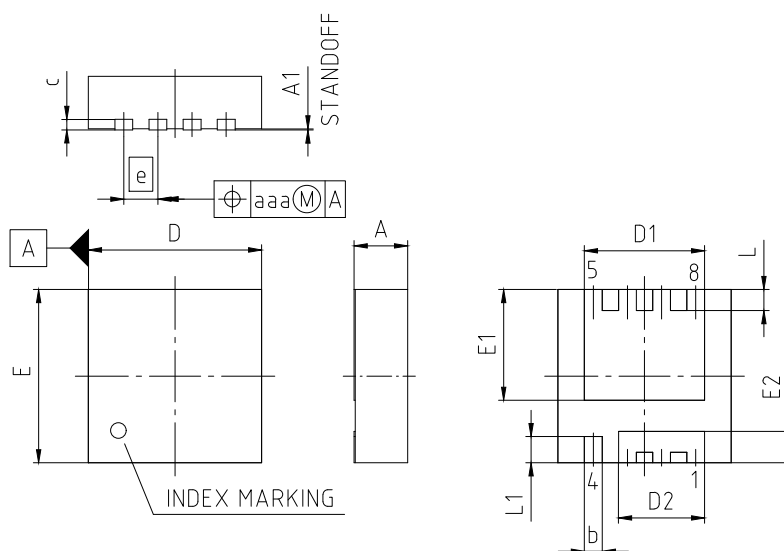


$V_{BR(DSS)}=f(T_j)$; $I_D=10\text{ mA}$

Gate charge waveforms



5 Package outlines



PACKAGE - GROUP NUMBER: PG-TSDSON-8-U03		
DIMENSIONS	MILLIMETERS	
	MIN.	MAX.
A	0.90	1.10
A1	0	0.05
b	0.24	0.44
c	0.10	0.30
D	3.20	3.40
D1	2.19	2.39
D2	1.54	1.74
E	3.20	3.40
E1	2.01	2.21
E2	0.50	0.70
e	0.65	
L	0.30	0.50
L1	0.40	0.60
aaa	0.06	
N	8	

NOTE:

DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSION OR GATE BURRS

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

Revision history

ISZ072N06NM6

Revision 2025-07-07, Rev. 2.1

Previous revisions

Revision	Date	Subjects (major changes since last revision)
2.0	2024-05-07	Release of final
2.1	2025-07-07	Revised Rdson at Vgs from 6V to 8V

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](#)