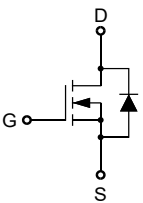


N-Channel Enhancement Mode MOSFET

Product Information

V_{DS}	I_D	$R_{DS(ON)}$, TYP.	Package	Packaging	Quantity (pcs)
100 V	184 A	2.5 m Ω @ $V_{GS}=10V$	PDFN 5x6-8L	Tape & Reel	5000

Features ● Surface-mounted package ● Advanced SGT technology ● Low on-resistance Applications ● Battery Management System (BMS) ● Load Switch ● Motor Control and Drive ● DC/DC	 1 st Line: LOGO 2 nd Line: Part number 3 rd Line: LOT code  G: Gate D: Drain S: Source <i>100% Avalanche Test RoHS & Halogen Free</i>
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Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	$T_C=25^\circ\text{C}$	100	V
Gate-Source Voltage	V_{GS}	$T_C=25^\circ\text{C}$	± 20	V
Continuous Drain Current (DC)	I_D	$T_C=25^\circ\text{C}$, $V_{GS}=10V$	184	A
		$T_C=100^\circ\text{C}$, $V_{GS}=10V$	116	A
Pulsed Drain Current	I_{DM}	$T_C=25^\circ\text{C}$, $V_{GS}=10V$	736	A
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	179	W
Single Pulsed Avalanche Energy	E_{AS}	$L=0.3\text{mH}$, $V_{DS}=50V$	375	mJ

Package Values

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	T_J , T_{stg}	-55 — +150	$^\circ\text{C}$
Thermal Resistance, Junction to Ambient	R_{thJA}	65	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	R_{thJC}	0.7	$^\circ\text{C/W}$
Soldering temperature, wave and reflow soldering are allowed	T_{sld}	260	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristic						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Drain-Source Leakage Current	I_{DSS}	$V_{GS}=0V, V_{DS}=100V$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$		2.5	2.8	m Ω
Dynamic Characteristic						
Gate Resistance	R_G	f=1MHz		1.2		Ω
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V,$ f=1MHz, Crss@100kHz		4390		pF
Output Capacitance	C_{oss}			1920		pF
Reverse Transfer Capacitance	C_{rss}			53		pF
Total Gate Charge	Q_g	$V_{GS}=0 \text{ to } 10V,$ $V_{DS}=50V, I_D=20A$		69		nC
Gate to Source Charge	Q_{gs}			22		nC
Gate to Drain Charge	Q_{gd}			22		nC
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=50V,$ $R_L=2.7\Omega, R_{GEN}=6\Omega$		15		ns
Turn-on Rise Time	t_r			23		ns
Turn-off Delay Time	$t_{d(off)}$			66		ns
Turn-off Fall Time	t_f			51		ns
Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$		0.8	1.2	V
Reverse Recovery Time	t_{rr}	$I_S=20A, dI/dt=100A/\mu s$		67		ns
Reverse Recovery Charge	Q_{rr}			76		nC

Typical Characteristics

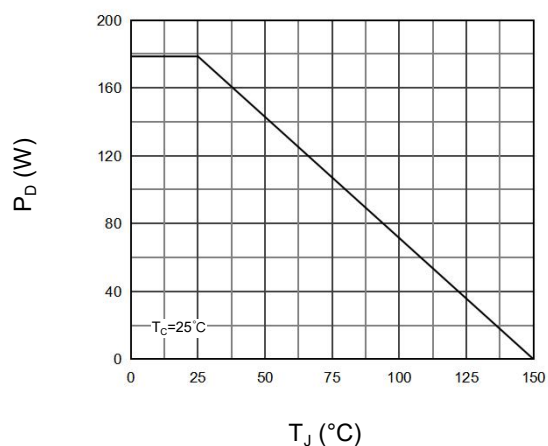


Fig 1. Power capability

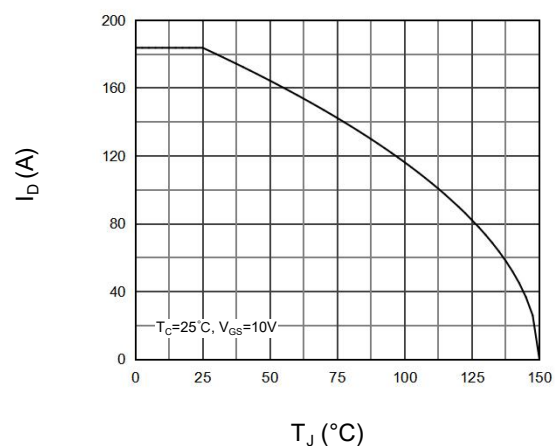


Fig 2. Current capability

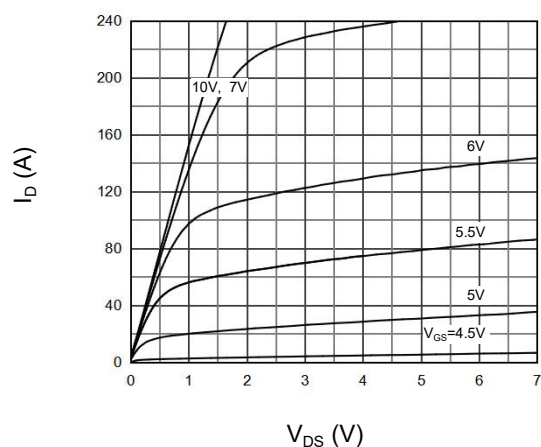


Fig 3. Output characteristics

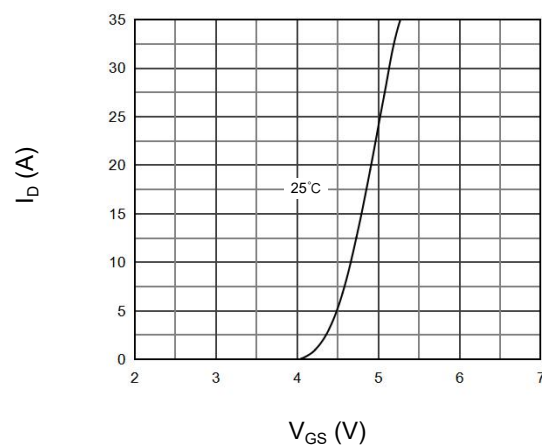


Fig 4. Typical Transfer Characteristics

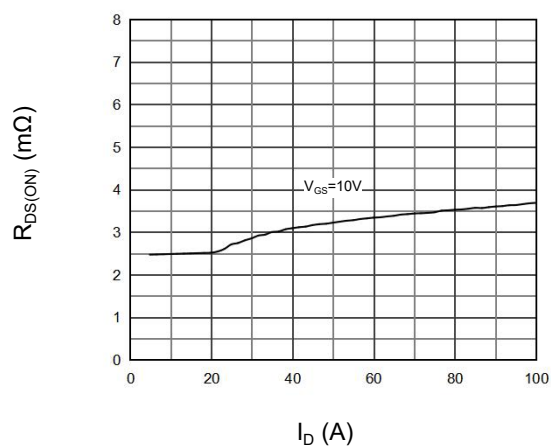


Fig 5. On-resistance vs. Drain current

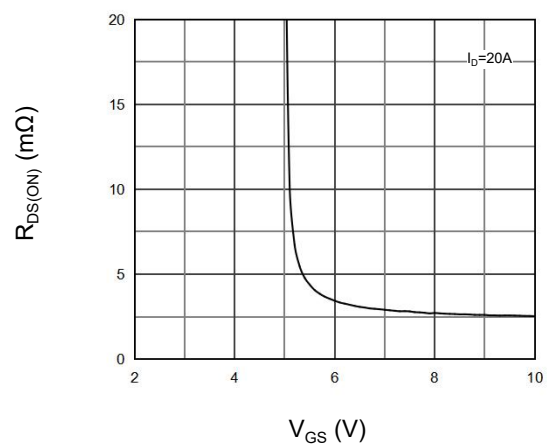


Fig 6. On-resistance vs. V_{GS}

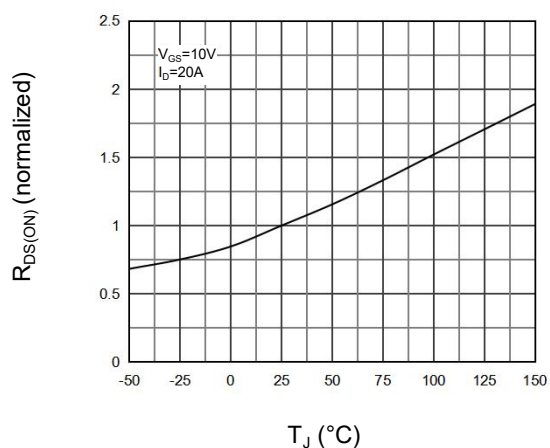


Fig 7. Normalized On-resistance vs. T_J

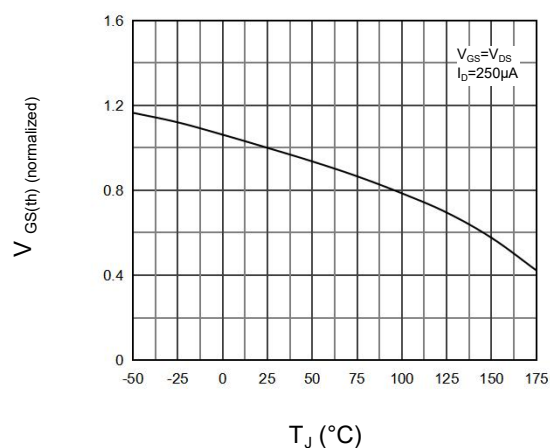


Fig 8. Normalized Threshold Voltage vs. T_J

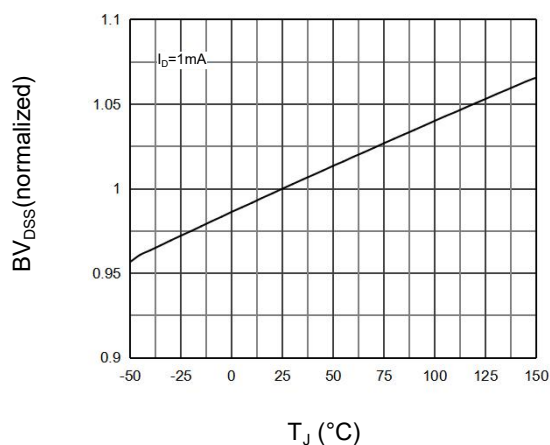


Fig 9. Normalized Breakdown Voltage vs. T_J

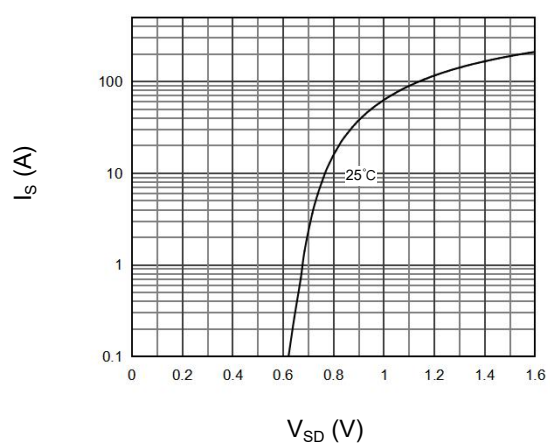


Fig 10. Forward Characteristics of Body Diode

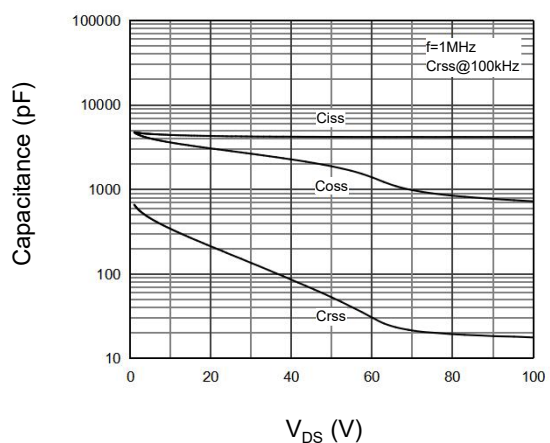


Fig 11. Capacitance

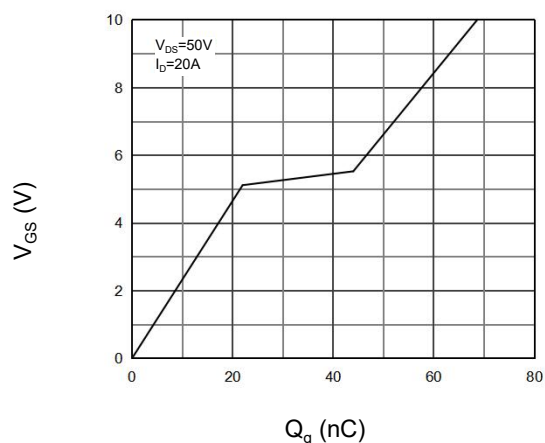


Fig 12. Gate charge

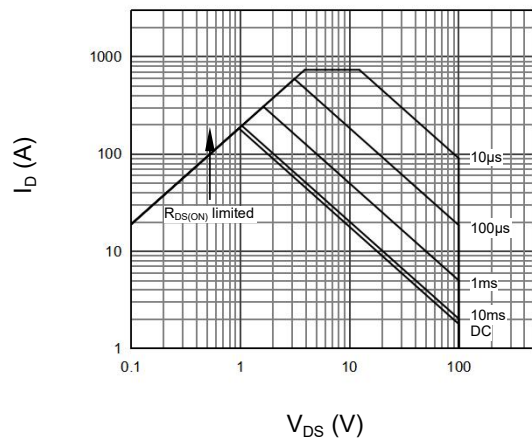


Fig 13. Safe operating area

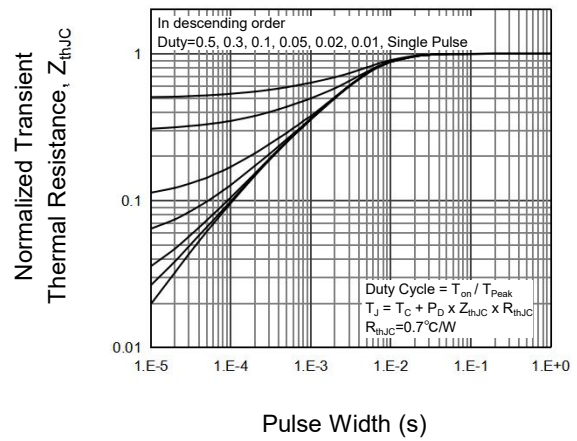
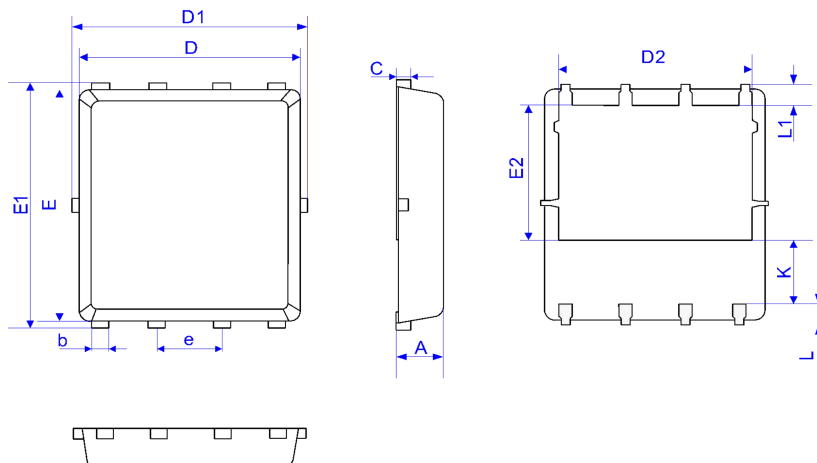


Fig 14. Transient Thermal Impedance

Package Dimensions

PDFN 5x6-8L package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	0.900	1.000	1.150
b	0.250	0.350	0.500
C	0.100	0.200	0.300
D	4.800	4.900	5.000
D1	5.000	5.100	5.200
D2	3.900	4.050	4.200
E	5.650	5.750	5.850
E1	5.900	6.050	6.200
E2	3.325	3.525	3.775
e	1.270 TYP		
K	1.300 REF		
L	0.400	0.550	0.730
L1	0.650 REF		

Revision History

Date	Revision	Major change
2025.03.12	V0.1	Formal version released.
2026.08.18	V1.0	Modified the style of the datasheet, updated data and figures.

Disclaimer

- Unless otherwise specified in the datasheet, the product is designed and qualified as a standard commercial product and is not intended for use in applications that require extraordinary levels of quality and reliability, such as automotive, aviation/aerospace and life-support devices or systems.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- KJX Semi reserves the right to improve product design, function and reliability without notice.