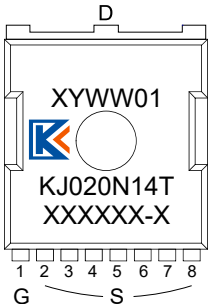
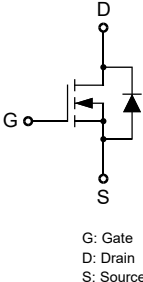


N-Channel Enhancement Mode MOSFET

Product Information

V_{DS}	I_D	$R_{DS(ON)}$, TYP.	Package	Packaging	Quantity (pcs)
140 V	292 A	2.1 m Ω @ $V_{GS}=10V$	TOLL-8L	Tape & Reel	2000
Features ● Surface-mounted package ● Advanced SGT technology ● Low on-resistance Applications ● Battery Management System (BMS) ● Uninterruptible Power Supply (UPS) ● Motor Control and Drive ● Solar/UPS-Micro Inverter System			  G: Gate D: Drain S: Source 1st Line: Date code 2nd Line: LOGO 3rd Line: Part number 4th Line: LOT code & $V_{GS(th)}$ level 100% Avalanche Test RoHS & Halogen Free		

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	$T_C=25^\circ\text{C}$	140	V
Gate-Source Voltage	V_{GS}	$T_C=25^\circ\text{C}$	± 20	V
Continuous Drain Current (DC)	I_D	$T_C=25^\circ\text{C}$, $V_{GS}=10V$	292	A
		$T_C=100^\circ\text{C}$, $V_{GS}=10V$	207	A
Pulsed Drain Current	I_{DM}	$T_C=25^\circ\text{C}$, $V_{GS}=10V$	1168	A
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	522	W
Single Pulsed Avalanche Energy	E_{AS}	$L=0.3mH$, $V_{DS}=50V$	1728	mJ

Package Values

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	T_J , T_{stg}	-55 — +175	$^\circ\text{C}$
Thermal Resistance, Junction to Ambient	R_{thJA}	33	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	R_{thJC}	0.29	$^\circ\text{C/W}$
Soldering temperature, wave and reflow soldering are allowed	T_{sld}	260	$^\circ\text{C}$

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristic						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	140			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Drain-Source Leakage Current	I _{DSS}	V _{GS} =0V, V _{DS} =140V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =40A		2.1	2.4	mΩ
Dynamic Characteristic						
Gate Resistance	R _G	f=1MHz		2		Ω
Input Capacitance	C _{iss}	V _{DS} =70V, V _{GS} =0V, f=1MHz, Crss@200kHz		14465		pF
Output Capacitance	C _{oss}			1150		pF
Reverse Transfer Capacitance	C _{rss}			31		pF
Total Gate Charge	Q _g	V _{DS} =70V, V _{GS} =10V, I _D =40A		181		nC
Gate to Source Charge	Q _{gs}			63		nC
Gate to Drain Charge	Q _{gd}			34		nC
Turn-on Delay Time	t _{d(on)}	V _{DD} =70V, V _{GS} =10V, R _G =2.7Ω, I _D =40A		41		ns
Turn-on Rise Time	t _r			89		ns
Turn-off Delay Time	t _{d(off)}			86		ns
Turn-off Fall Time	t _f			40		ns
Body Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =40A		0.8	1.2	V
Reverse Recovery Time	t _{rr}	I _S =40A, dI/dt=100A/μs		96		ns
Reverse Recovery Charge	Q _{rr}			376		nC

Typical Characteristics

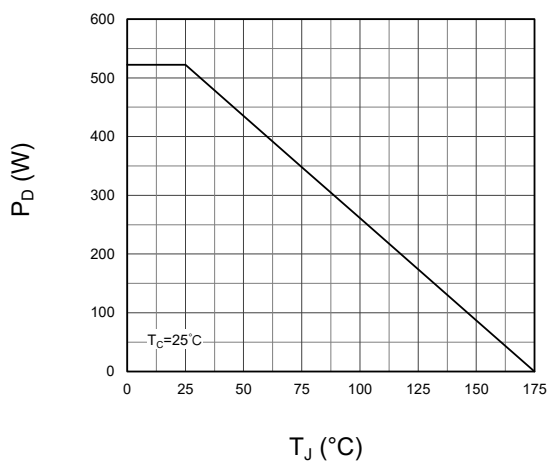


Fig 1. Power capability

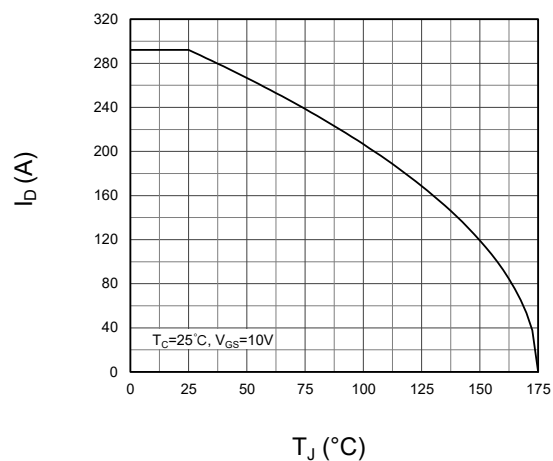


Fig 2. Current capability

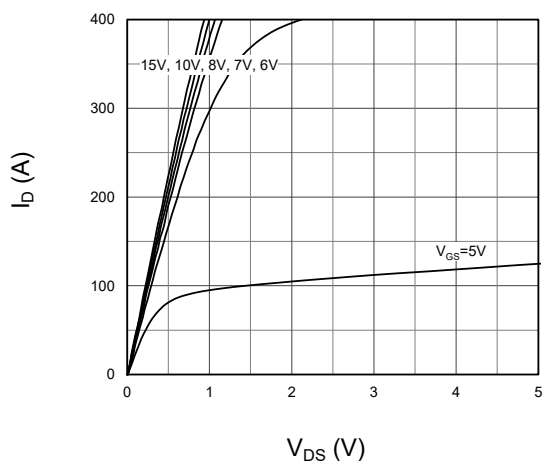


Fig 3. Output characteristics

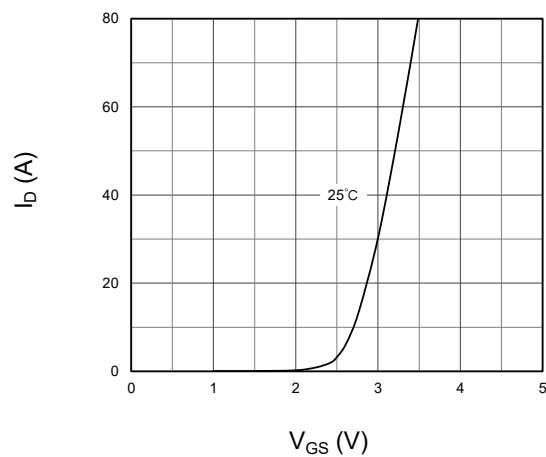


Fig 4. Typical Transfer Characteristics

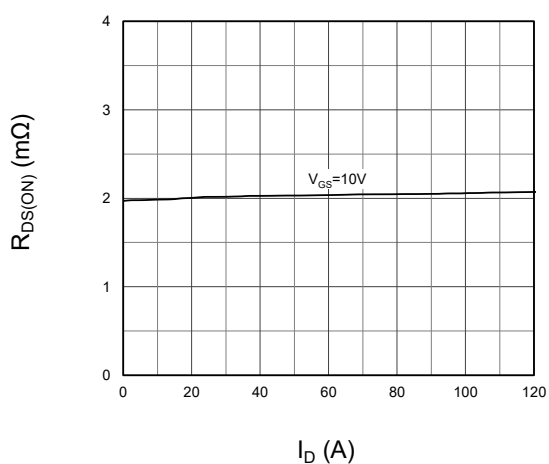


Fig 5. On-resistance vs. Drain current

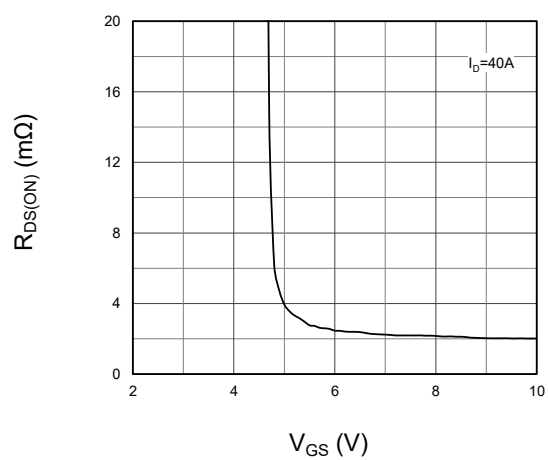


Fig 6. On-resistance vs. V_{GS}

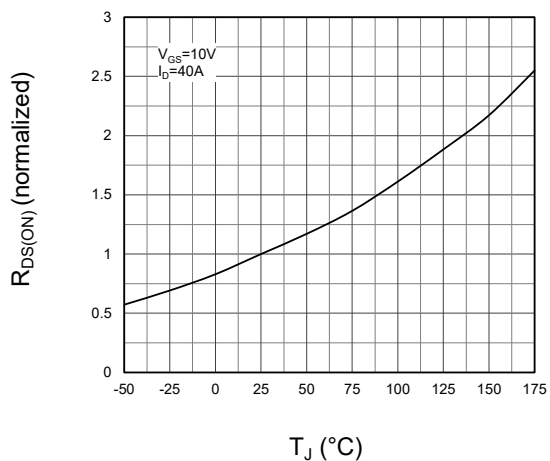


Fig 7. Normalized On-resistance vs. T_J

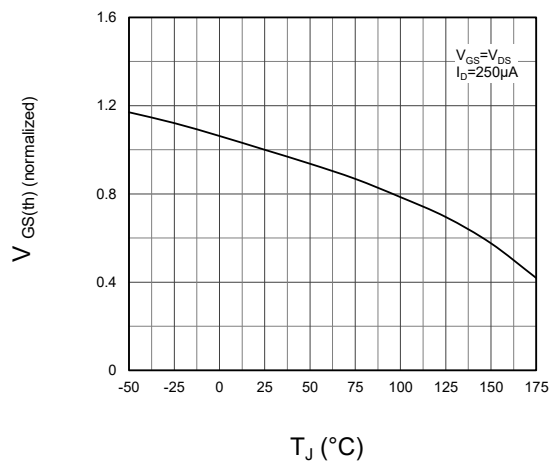


Fig 8. Normalized Threshold Voltage vs. T_J

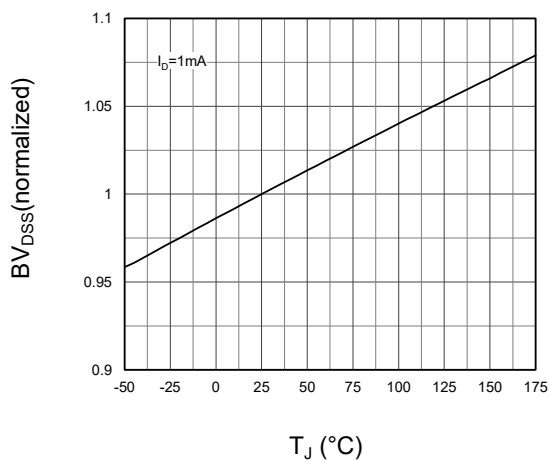


Fig 9. Normalized Breakdown Voltage vs. T_J

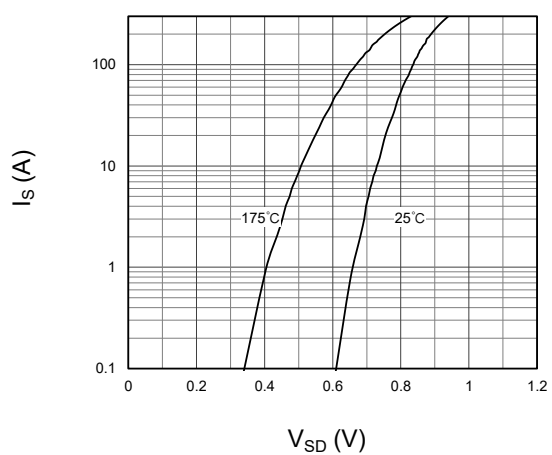


Fig 10. Forward Characteristics of Body Diode

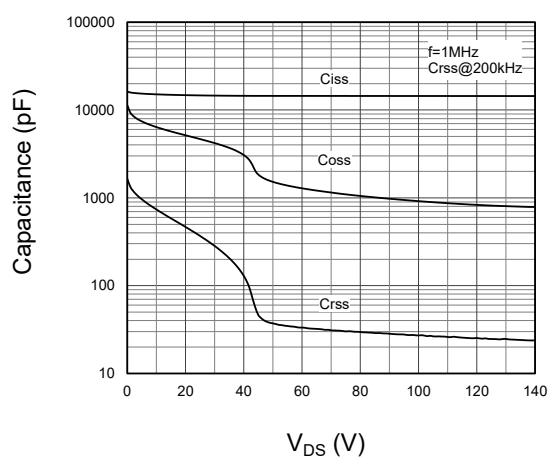


Fig 11. Capacitance

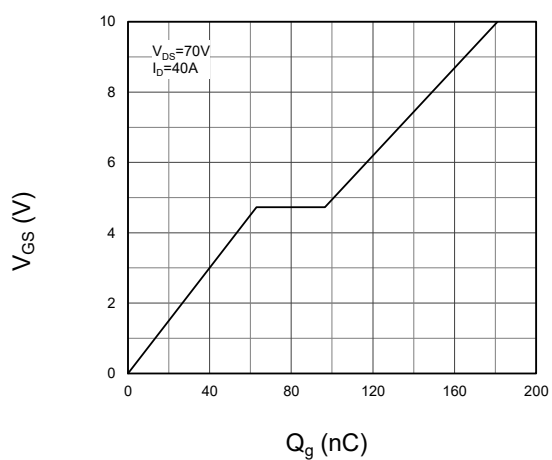


Fig 12. Gate charge

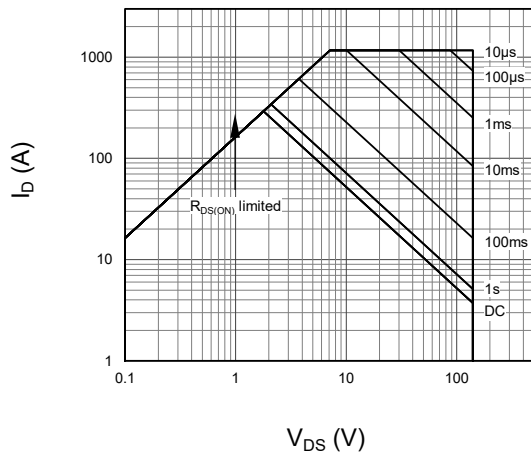


Fig 13. Safe operating area

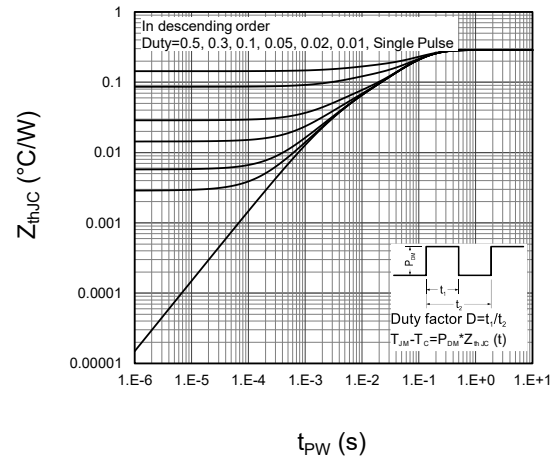
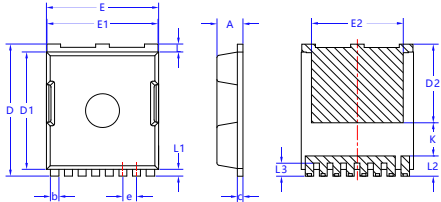
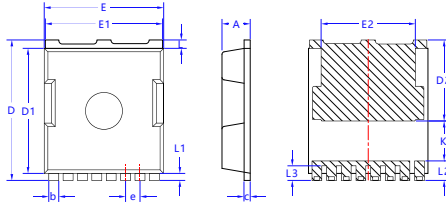
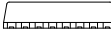
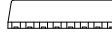


Fig 14. Transient Thermal Impedance

Package Dimensions

TOLL-8L package

Outline A / 外形A				Outline B / 外形B			
							
							
Symbol	Dimensions in Millimeters			Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX		MIN	NOM	MAX
A	2.20	2.30	2.40	A	2.20	2.30	2.40
b	0.60	0.70	0.90	b	0.70	0.80	0.90
c	0.40	0.50	0.60	c	0.40	0.50	0.60
D	11.48	11.68	11.88	D	11.48	11.68	11.88
D1	10.28	10.38	10.55	D1	10.28	10.38	10.55
D2	6.85	6.95	7.05	D2	6.50	6.70	6.90
E	9.80	9.90	10.0	E	9.80	9.90	10.0
E1	9.70	9.80	9.90	E1	9.70	9.80	9.90
E2	8.00	8.10	8.20	E2	7.60	7.80	8.00
e	1.20 BSC			e	1.20 BSC		
L	0.60 TYPE			L	0.60 TYPE		
L1	0.60 TYPE			L1	0.60 TYPE		
L2	1.50	1.65	2.00	L2	1.60	1.85	2.10
L3	1.00	1.15	1.30	L3	1.00	1.15	1.30
K	2.90 TYPE			K	4.18 TYPE		

Revision History

Date	Revision	Major change
2025.05.21	V0.1	Formal version released.
2026.07.23	V1.0	Modified the style of the datasheet, updated data and figures.

Disclaimer

1. 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.
2. 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.
3. KJX Semi reserves the right to improve product design, function and reliability without notice.