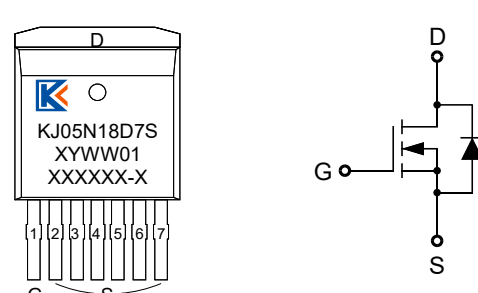


Product Information

V_{DS}	I_D	$R_{DS(ON)}$, TYP.	Package	Packaging	Quantity (pcs)
180 V	230 A	3.8 m Ω @ $V_{GS}=10$ V	TO-263-7L Plus	Tape & Reel	800
Features ◆ Surface-mounted package ◆ Advanced SGT technology ◆ Low on-resistance Applications ◆ Motor control and drive ◆ BMS ◆ UPS			 1st Line: LOGO 2nd Line: Part number 3rd Line: Date code 4th Line: LOT code & VTH level mark G: Gate D: Drain S: Source <i>100% Avalanche Test</i> <i>RoHS & Halogen Free</i>		

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	T _C =25°C	180	V
Gate-Source Voltage	V_{GS}	T _C =25°C	±20	V
Continuous Drain Current (DC)	I_D	T _C =25°C, $V_{GS}=10$ V	230	A
		T _C =100°C, $V_{GS}=10$ V	163	A
Pulsed Drain Current	I_{DM}	T _C =25°C, $V_{GS}=10$ V	920	A
Power Dissipation	P_D	T _C =25°C	500	W
Single Pulsed Avalanche Energy	E_{AS}	L=0.3 mH, $V_{DS}=90$ V	612	mJ

Package Values

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55—+175	°C
Thermal Resistance, Junction to Ambient	R _{thJA}	52	°C/W
Thermal Resistance, Junction to Case	R _{thJC}	0.3	°C/W
Soldering temperature, wave and reflow soldering are allowed	T _{sold}	260	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristic						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	180			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
Drain-Source Leakage Current	I _{DSS}	V _{GS} =0V, V _{DS} =180V, T _C =25°C			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, T _C =25°C		3.8	4.5	mΩ
Transconductance	g _{fs}	V _{DS} =5V, I _D =40A		135		S
Dynamic Characteristic						
Gate Resistance	R _G	Frequency=1MHz		1.2		Ω
Input Capacitance	C _{iss}	V _{DS} =90V, V _{GS} =0V, Frequency=1MHz		13888		pF
Output Capacitance	C _{oss}			720		
Reverse Transfer Capacitance	C _{rss}			104		
Total Gate Charge	Q _g	V _{DS} =90V, V _{GS} =10V, I _{DS} =40A		158		nC
Gate to Source Charge	Q _{gs}			65		
Gate to Drain Charge	Q _{gd}			33		
Turn-on Delay Time	t _{d(on)}	V _{DD} =90V, V _{GS} =10V, R _G =2.7Ω		32		ns
Turn-on Rise Time	t _r			94		
Turn-off Delay Time	t _{d(off)}			82		
Turn-off Fall Time	t _f			105		
Body Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{SD} =40A		0.8	1.2	V
Reverse Recovery Time	t _{rr}	I _F =60A, dI/dt=100A/μs		160		ns
Reverse Recovery Charge	Q _{rr}			872		nC

Typical Characteristics

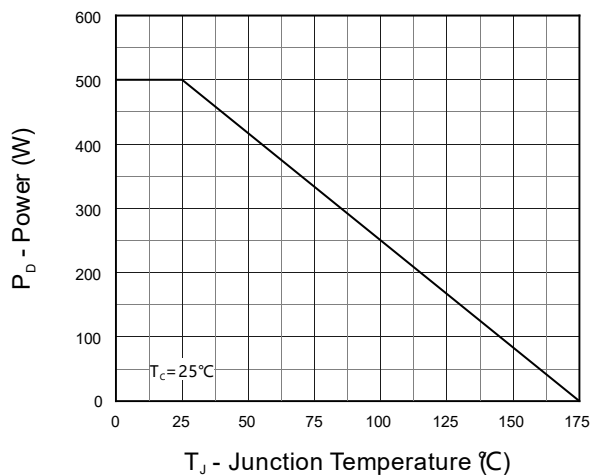


Fig 1. Power Capability

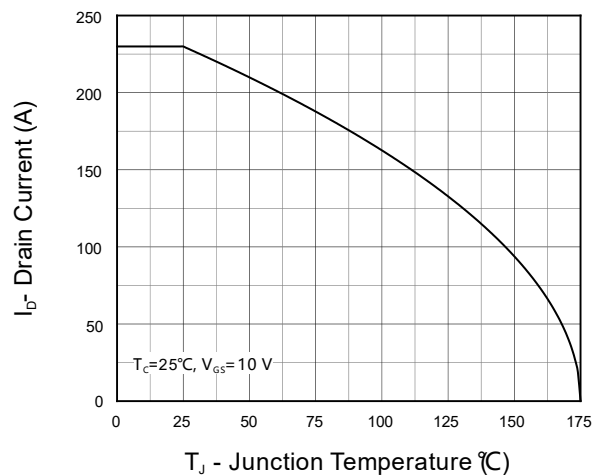


Fig 2. Current Capability

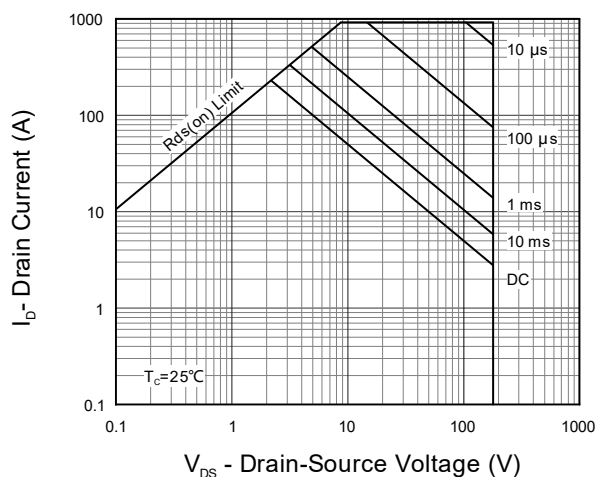


Fig 3. Safe Operation Area

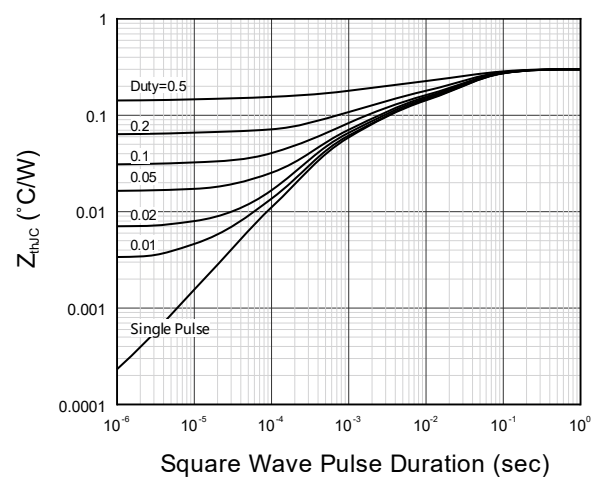


Fig 4. Transient Thermal Impedance

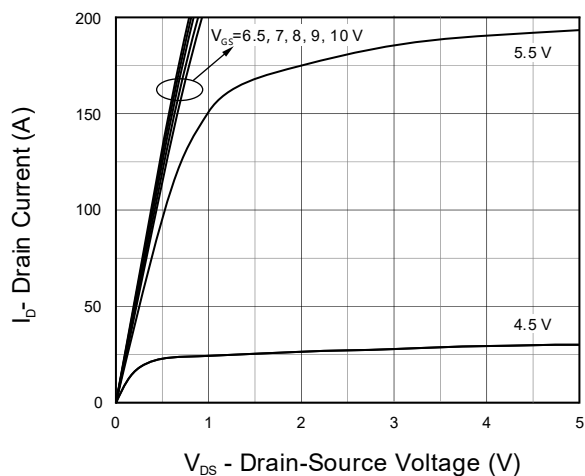


Fig 5. Output Characteristics

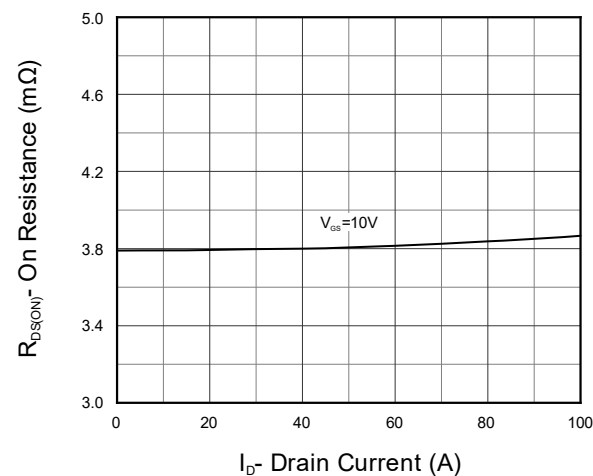


Figure 6. On Resistance

Typical Characteristics (cont.)

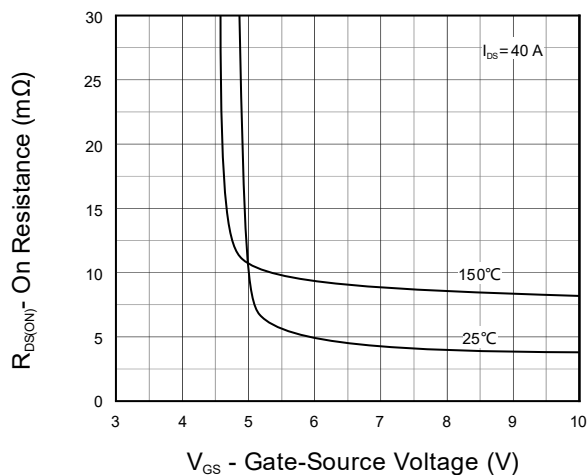


Fig 7. Transfer Characteristics

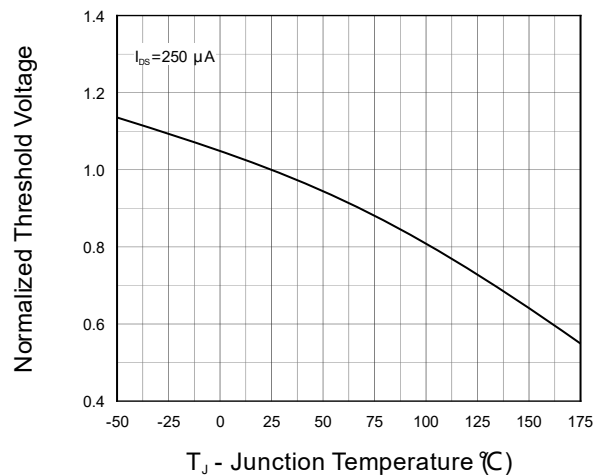


Fig 8. Normalized Threshold Voltage

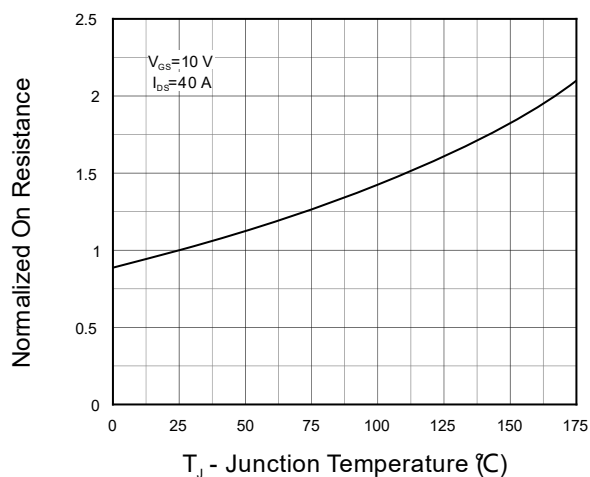


Fig 9. Normalized On Resistance

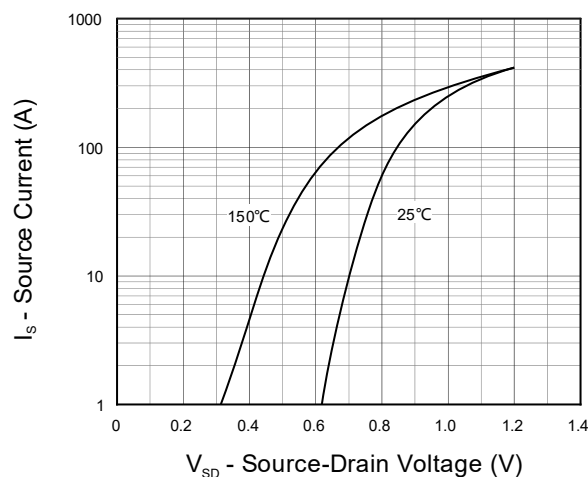


Fig 10. Diode Forward Current

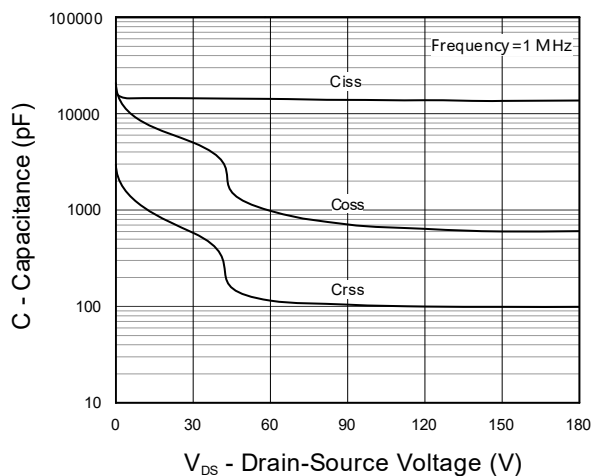


Fig 11. Capacitance

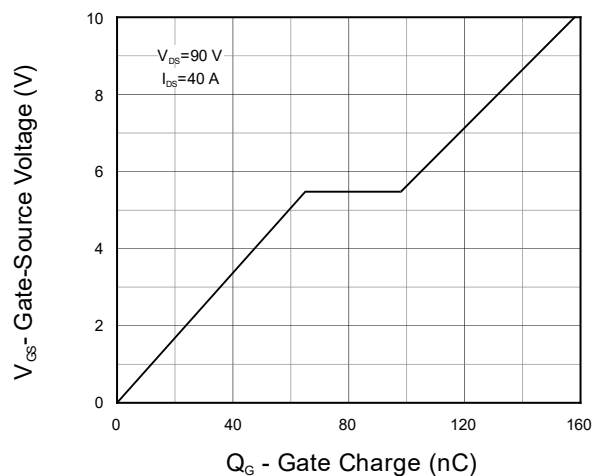
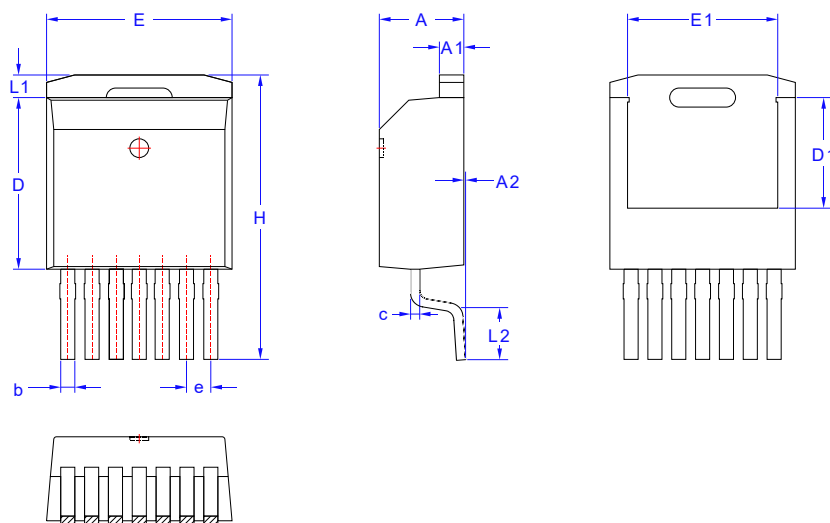


Fig 12. Gate Charge

Package Dimensions

TO-263-7L Plus Package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	4.30	4.43	4.56
A1	1.20	1.30	1.40
A2	0.00	0.075	0.15
b	0.50	0.61	0.72
c	0.45	0.51	0.62
D	8.90	9.08	9.28
D1	6.25	6.45	6.75
E	10.08	10.18	10.28
E1	8.20	8.30	8.40
e		1.27 BSC	
H	15.00	15.50	16.00
L1	0.85	1.05	1.25
L2	2.30	2.50	2.70

Revision History

Date	Revision	Major change
2025.03.11	V0.1	Release of formal version
2026.06.09	V1.0	Revised the spec template

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.