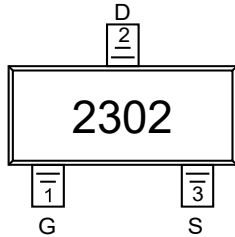
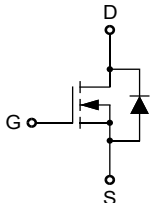


N-Channel Enhancement Mode MOSFET

Product Information

V_{DS}	I_D	$R_{DS(ON)}$, TYP.	Package	Packaging	Quantity (pcs)
20 V	4.1 A	50 mΩ@ $V_{GS}=4.5V$	SOT-23	Tape & Reel	3000
Features ● Surface-mounted package ● Advanced Trench Technology ● Low on-resistance Applications ● Load Switch ● PWM Application ● Power Management			  1st Line: Part number <i>RoHS & Halogen Free</i>		

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

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	$T_A=25^\circ\text{C}$	20	V
Gate-Source Voltage	V_{GS}	$T_A=25^\circ\text{C}$	±12	V
Continuous Drain Current (DC)	I_D	$T_A=25^\circ\text{C}$, $V_{GS}=4.5V$	4.1	A
		$T_A=100^\circ\text{C}$, $V_{GS}=4.5V$	2.6	A
Pulsed Drain Current	I_{DM}	$T_A=25^\circ\text{C}$, $V_{GS}=4.5V$	10	A
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	1.5	W

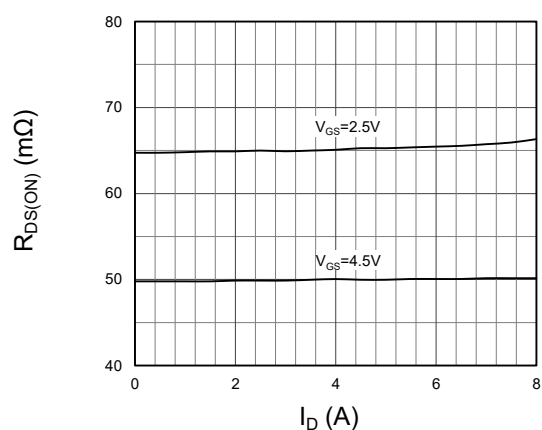
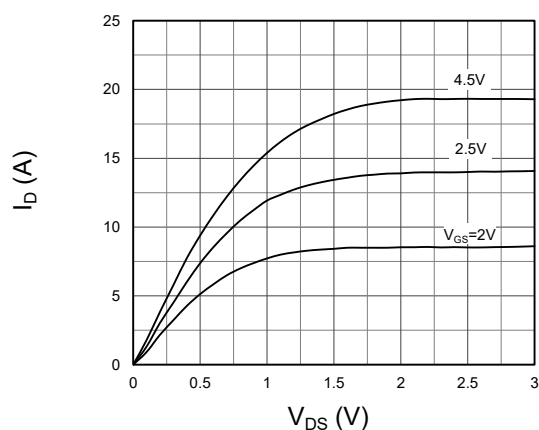
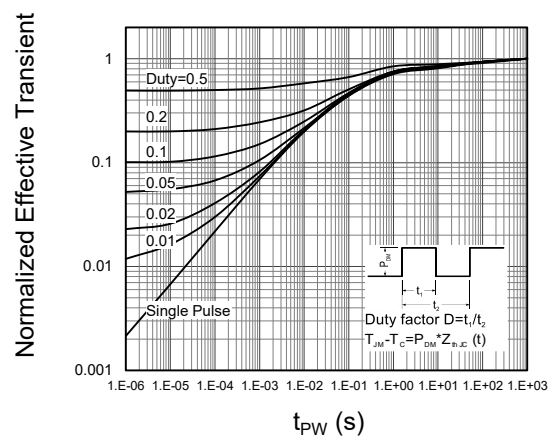
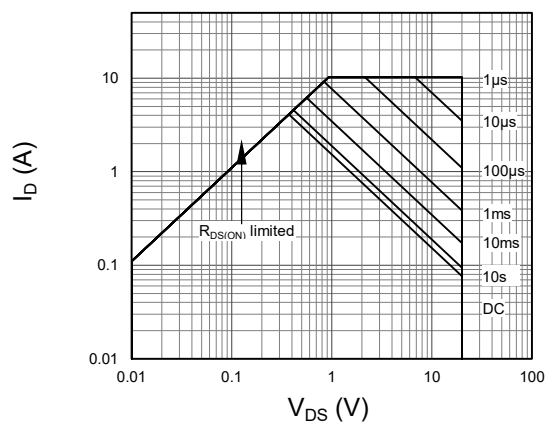
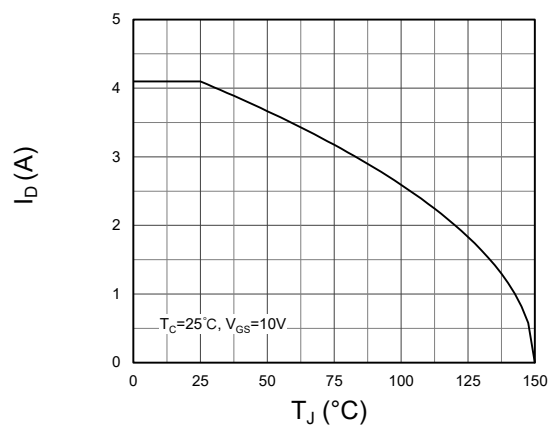
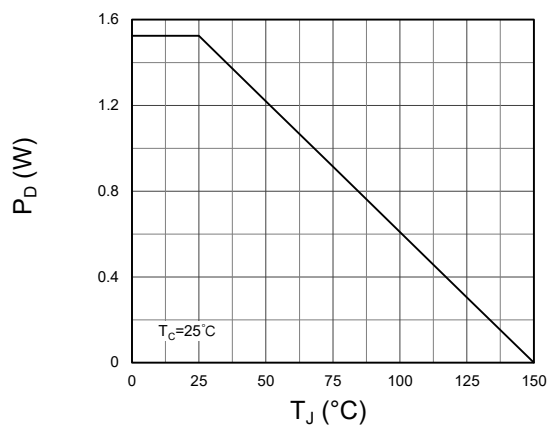
Package Values

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}	175	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	R_{thJC}	82	$^\circ\text{C/W}$
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}	$V_{GS}=0V, I_{DS}=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5	0.7	1.2	V
Drain-Source Leakage Current	I_{DSS}	$V_{GS}=0V, V_{DS}=100V$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=2.5A$		50	55	m Ω
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=2.5V, I_D=1A$		65	75	m Ω
Dynamic Characteristic						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		180		pF
Output Capacitance	C_{oss}			38		pF
Reverse Transfer Capacitance	C_{rss}			20		pF
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_{DS}=2.5A$		3.6		nC
Gate to Source Charge	Q_{gs}			0.65		nC
Gate to Drain Charge	Q_{gd}			0.5		nC
Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=2.5A$		0.8	1.2	V

Typical Characteristics



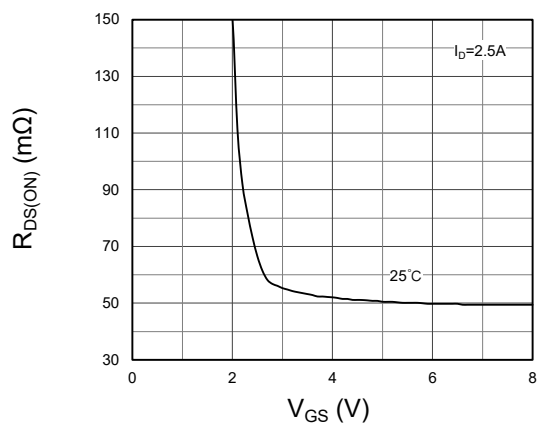


Fig 7. On-resistance vs V_{GS}

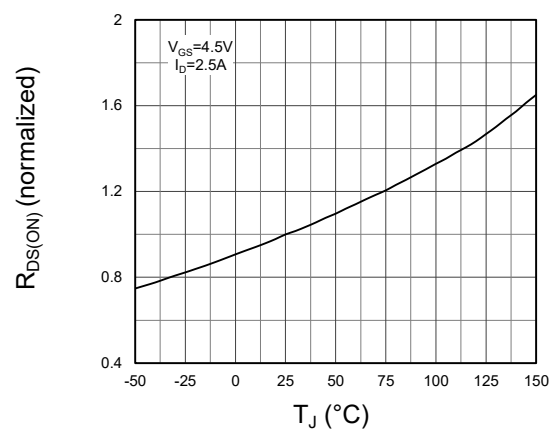


Fig 8. On-resistance vs T_J

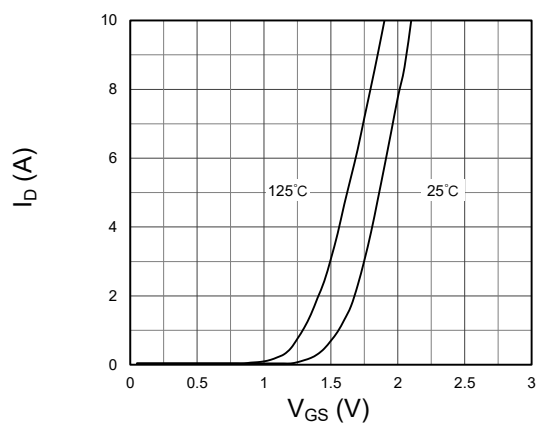


Fig 9. Typical Transfer Characteristics

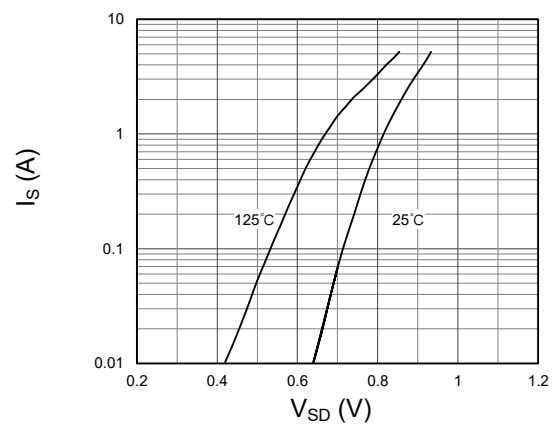


Fig 10. Forward Characteristics of Body Diode

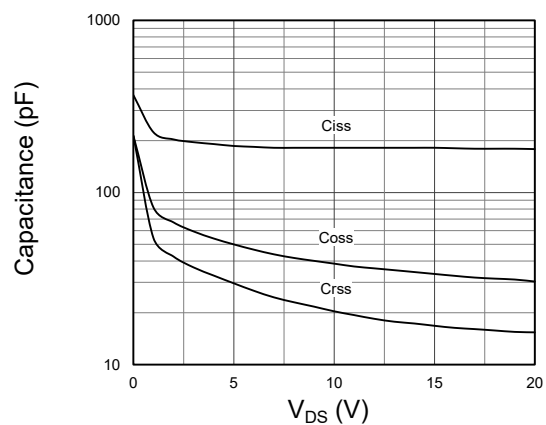


Fig 11. Capacitance

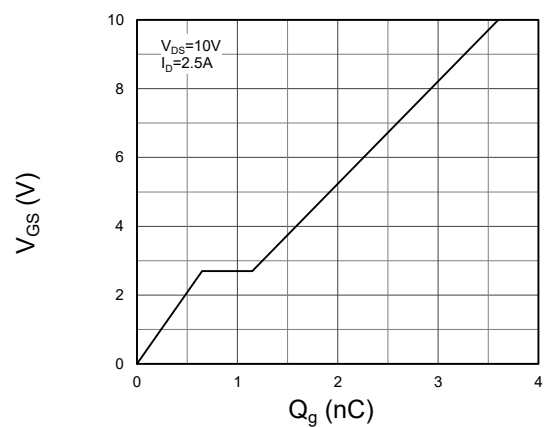
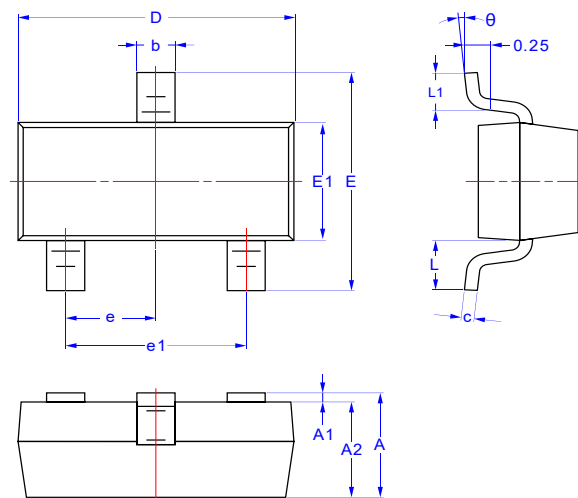


Fig 12. Gate charge

Package Dimensions

SOT-23 package



Symbol	Dimensions in Millimeters	
	MIN	MAX
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	2.25	2.55
E1	1.20	1.40
e	0.95 TYP.	
e1	1.80	2.00
L	0.30	0.50
L1	0.55 REF.	
θ	0°	8°

Revision History

Date	Revision	Major change
2021.10.28	V0.1	Formal version released.
2026.06.22	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.