AJ1K2SN090MTF

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
900V	1.2Ω@10V	8A

Feature

- Fast switching
- Low gate charge and $R_{DS(ON)}$

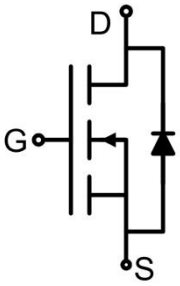
Application

- DC-DC converter
- Ideal for high-frequency switching and synchronous rectification

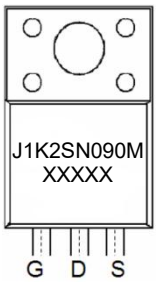
Package

ITO-220AB

Circuit diagram



Marking



Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	900	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current (T_C =25℃)	I_D	8	A
Continuous Drain Current (T_C =100℃)	I_D(100℃)	5.4	A
Pulsed Drain Current	I_{DM}	32	A
Singel Pulse Avalanche Energy[1)]	EAS	75	mJ
Power Dissipation (T_C =25℃)	P_D	34	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	3.7	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25 °C, unless otherwise noted)

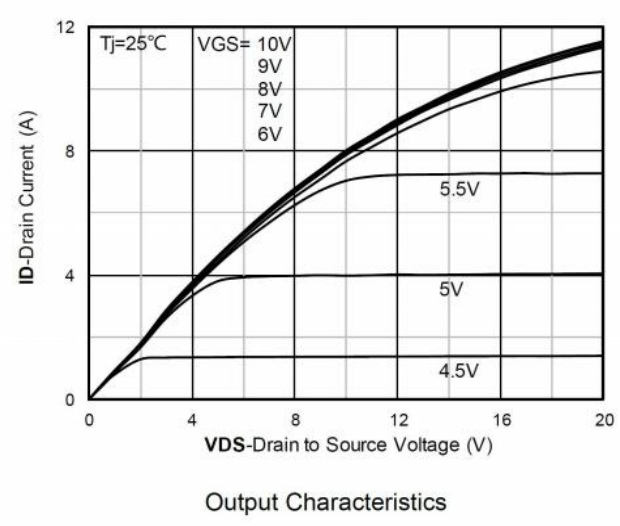
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	900			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =720V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =4A		0.95	1.2	Ω
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =100V, V_{GS} =0V, f =1MHz		703		pF
Output Capacitance	C_{oss}			26		
Reverse Transfer Capacitance	C_{rss}			1.4		
Total Gate Charge	Q_g	V_{DS} =400V, V_{GS} =10V, I_D =20A		16		nC
Gate-Source Charge	Q_{gs}			3.6		
Gate-Drain Charge	Q_{gd}			7.1		
Turn-on delay time	$t_{d(on)}$	V_{DS} =400V, V_{GS} =10V, I_D =20A R_G =10Ω		38		nS
Turn-on rise time	t_r			52		
Turn-off delay time	$t_{d(off)}$			28		
Turn-off fall time	t_f			10		
Source-Drain Diode characteristics						
Source-drain current	I_S				8	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =1A			1.2	V
Reverse Recovery Time	T_{rr}	I_S =10A, di/dt =100A/us T_J =25℃		194		nS
Reverse Recovery Charge	Q_{rr}			2.5		nC

Notes:

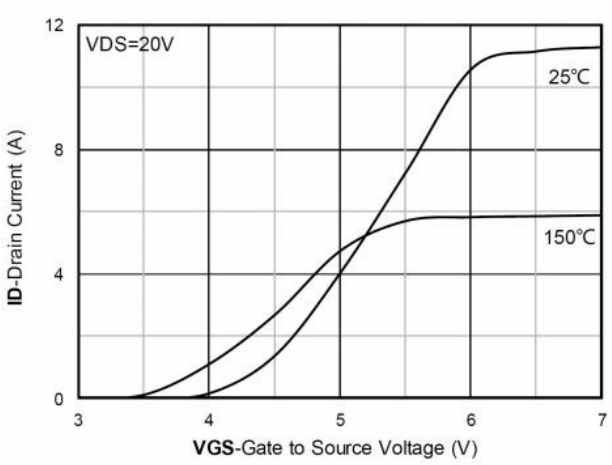
1) The test condition is V_{DD}=70V, V_{GS}=10V, L=10mH, R_G=30Ω.

2) Guaranteed by design, not subject to production testing.

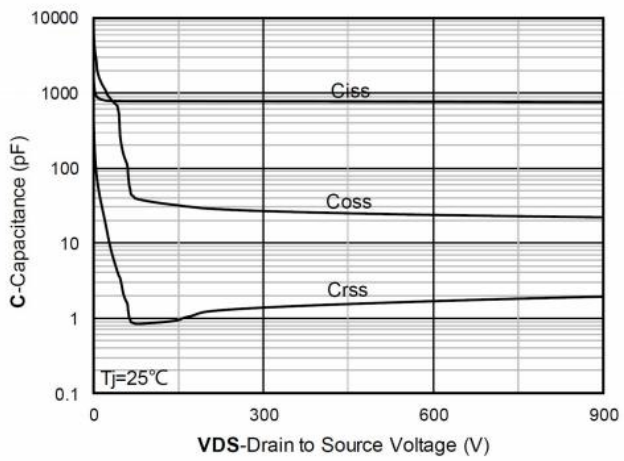
Typical Characteristics



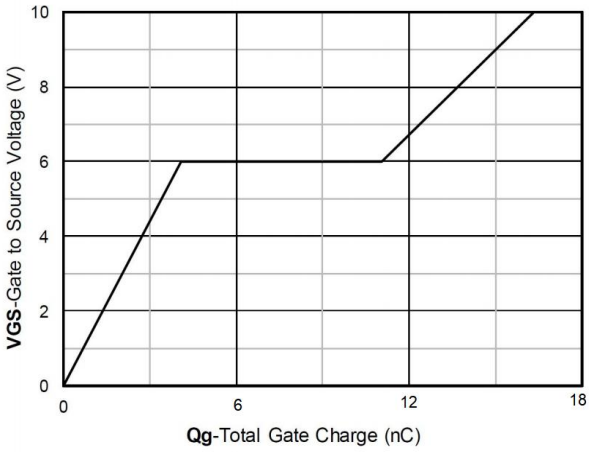
Output Characteristics



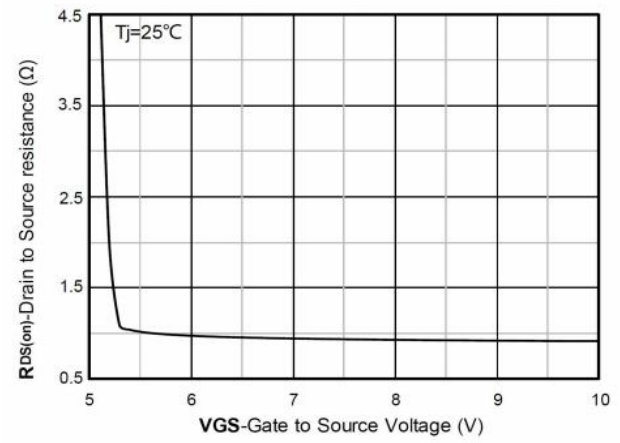
Transfer Characteristics



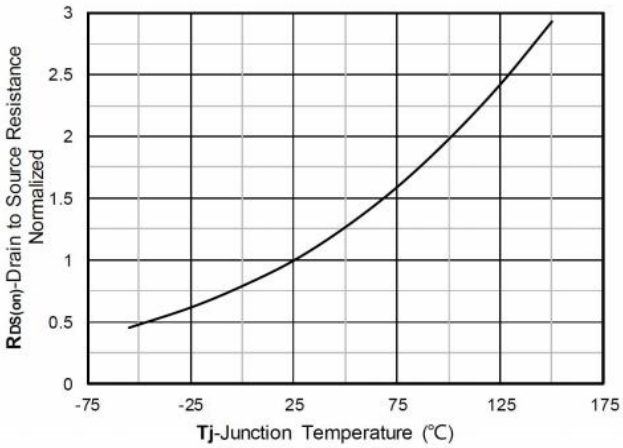
Capacitance Characteristics



Gate Charge

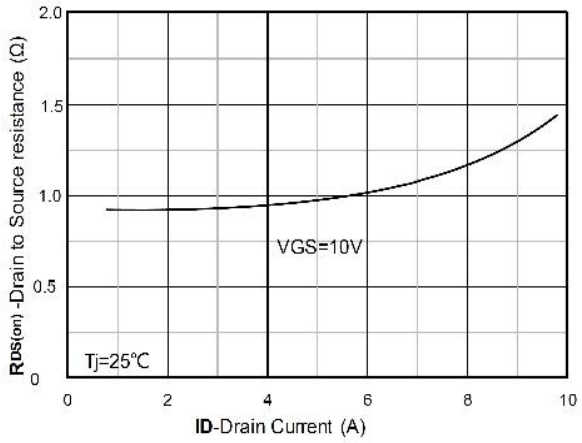


On-Resistance vs Gate to Source Voltage

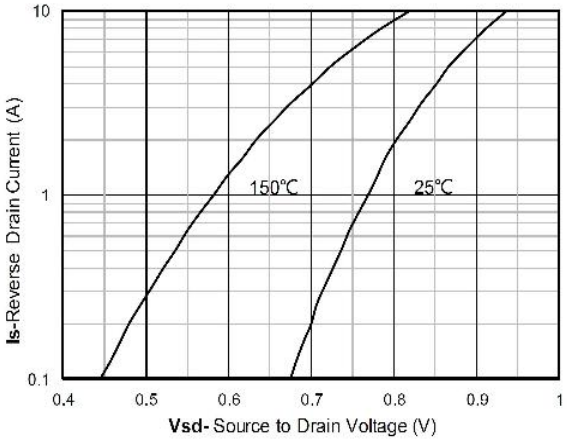


Normalized On-Resistance

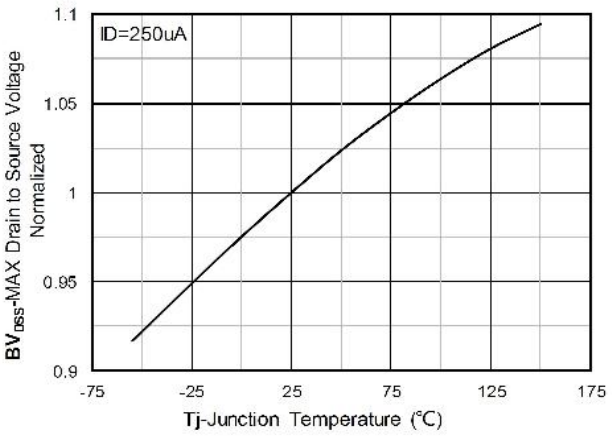
Typical Characteristics



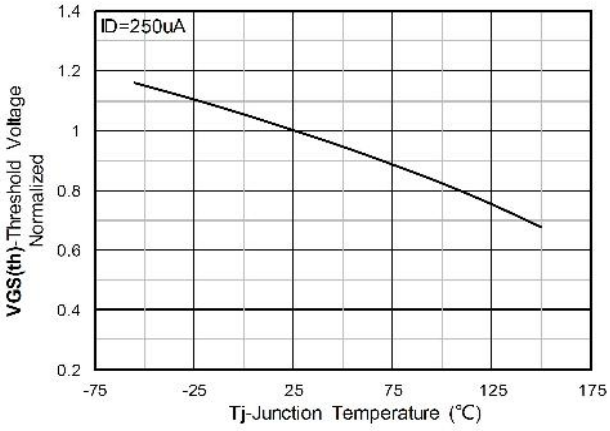
RDS(on) VS Drain Current



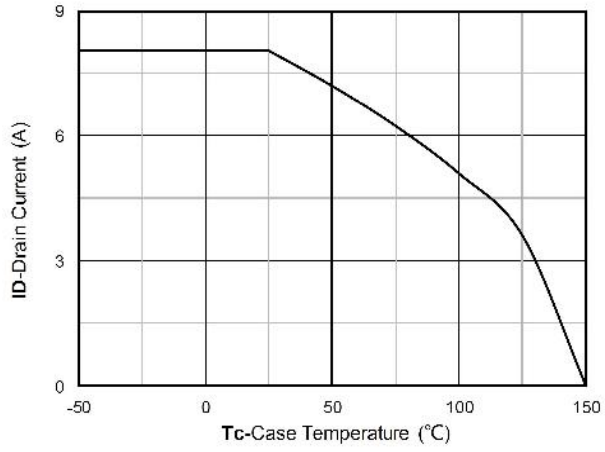
Forward characteristics of reverse diode



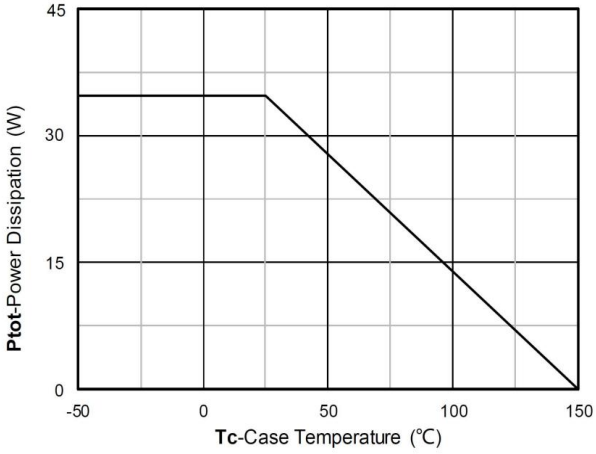
Normalized breakdown voltage



Normalized Threshold voltage

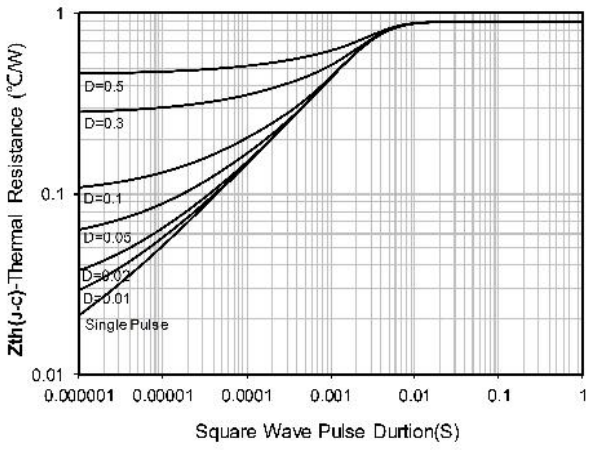


Current dissipation

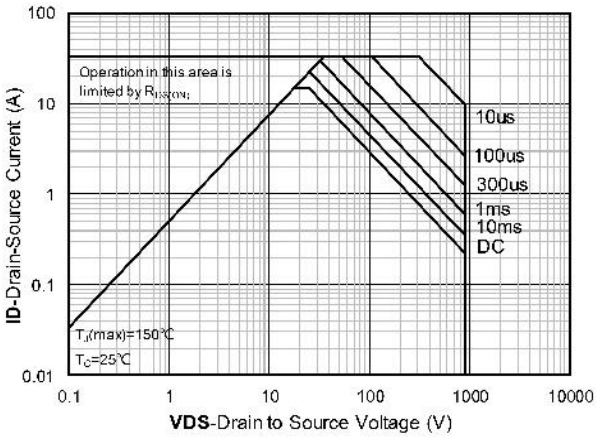


Power dissipation

Typical Characteristics

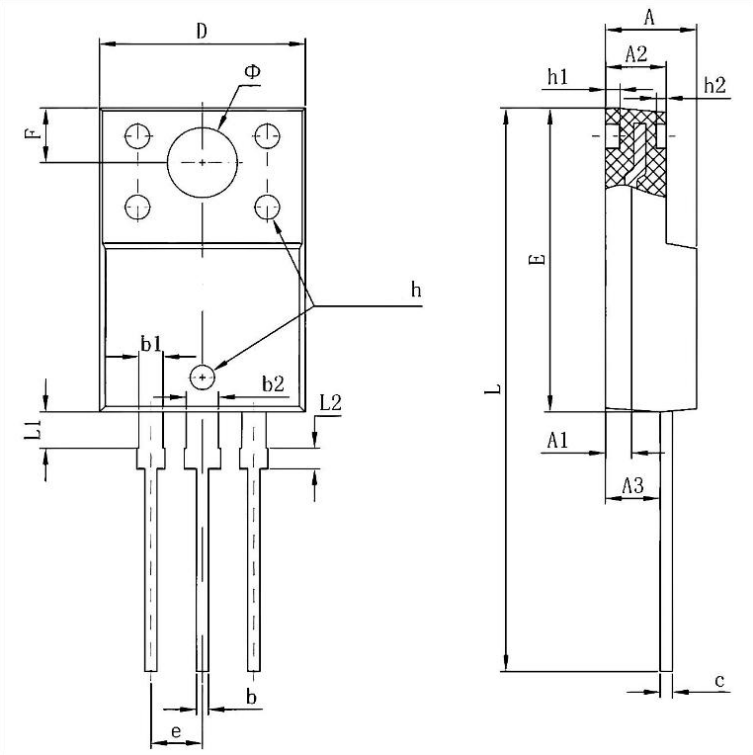


Maximum Transient Thermal Impedance



Safe Operation Area

ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 BSC.		0.100 BSC.	
F	2.700 REF.		0.106 REF.	
ϕ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	0.900	1.100	0.035	0.043