AJ110SN060MTF

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
600V	110mΩ@10V	29A

Feature

- New technology for high voltage device
- Ultra low on-resistance and ultra low conduction losses
- Ultra low gate charge cause lower driving requirements
- Diode reverse recovery speed is super fast

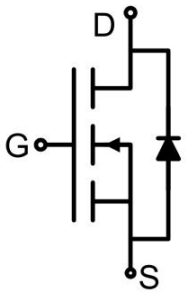
Application

- Power factor correction (PFC)
- Switched mode power supplies (SMPS)
- Uninterruptible power supply (UPS)
- On-board charger (OBC)

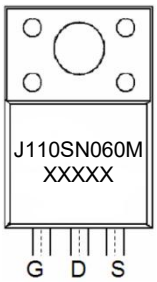
Package

ITO-220AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	600	V
Gate-Source Voltage (V_{DS}=0V) AC (f>1 Hz)	V_{GS}	±30	V
Gate-Source Voltage (V_{DS}=0V) DC	V_{GS}	±20	V
Continuous Drain Current (T_C =25℃)	I_D	29	A
Continuous Drain Current (T_C =100℃)	I_D(100℃)	20.3	A
Pulsed Drain Current[1)]	I_{DM}	87	A
Power Dissipation (T_C =25℃)	P_D	34.7	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	4.32	℃/W
Operating Junction Temperature	T_J	-55 ~ +175	℃
Storage Temperature	T_{STG}	-55 ~ +175	℃

Electrical characteristics (T_J=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	600			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =600V, V_{GS} =0V, T_C =25℃			10	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	3.5	4.2	5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =14A		95	110	mΩ
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		2099		pF
Output Capacitance	C_{oss}			83		
Reverse Transfer Capacitance	C_{rss}			6.7		
Total Gate Charge	Q_g	V_{DS} =480V, V_{GS} =10V, I_D =14A		41.2		nC
Gate-Source Charge	Q_{gs}			16.3		
Gate-Drain Charge	Q_{gd}			12.8		
Turn-on delay time	$t_{d(on)}$	V_{DS} =380V, V_{GS} =10V, I_D =14A R_G =1.7Ω		32		nS
Turn-on rise time	t_r			15		
Turn-off delay time	$t_{d(off)}$			90		
Turn-off fall time	t_f			8		
Source-Drain Diode characteristics						
Source-drain current	I_S	T_C=25℃			29	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =29A, T_J =25℃			1.2	V
Reverse Recovery Time	T_{rr}	I_F =14A, di/dt =100A/us T_J =25℃		115		nS
Reverse Recovery Charge	Q_{rr}			0.47		μC
Peak Reverse Recovery Current	I_{rrm}			8		A

Notes:

1) Repetitive Rating: Pulse width limited by maximum junction temperature.

2) Guaranteed by design, not subject to production.

Typical Characteristics

Figure1. Safe operating area

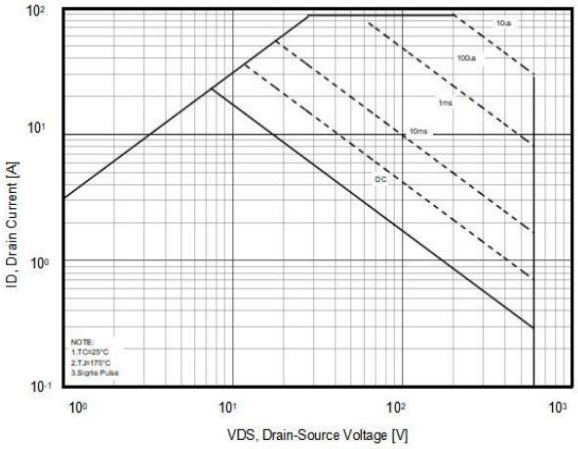


Figure2. Capacitance

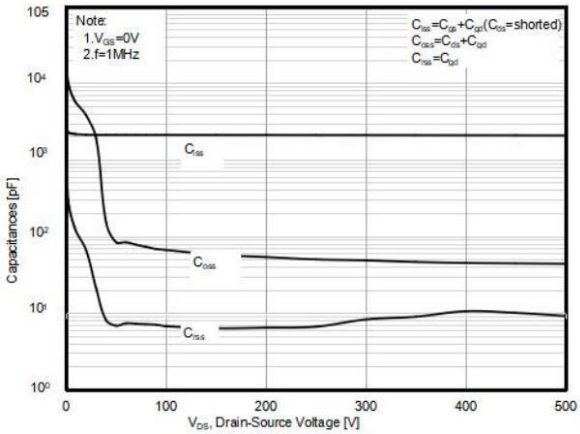


Figure3. Source-Drain Diode Forward Voltage

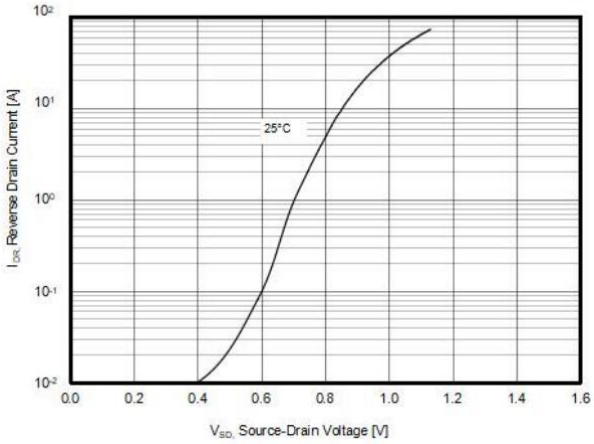


Figure4. Maximum I_D vs Junction Temperature

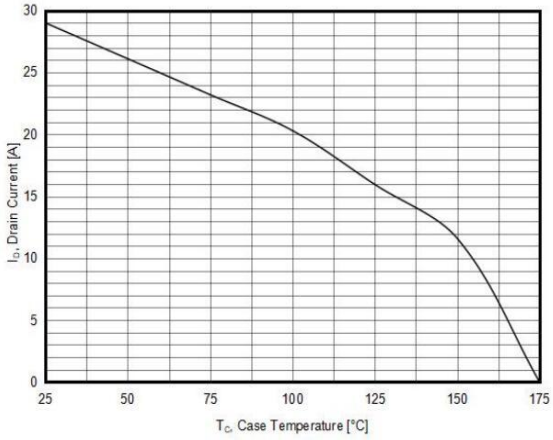


Figure5. Static drain-source on resistance

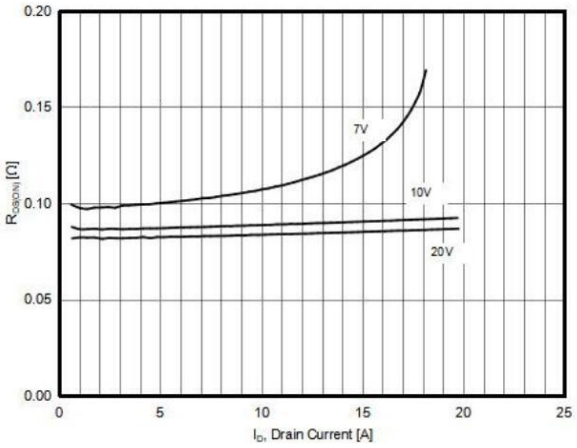
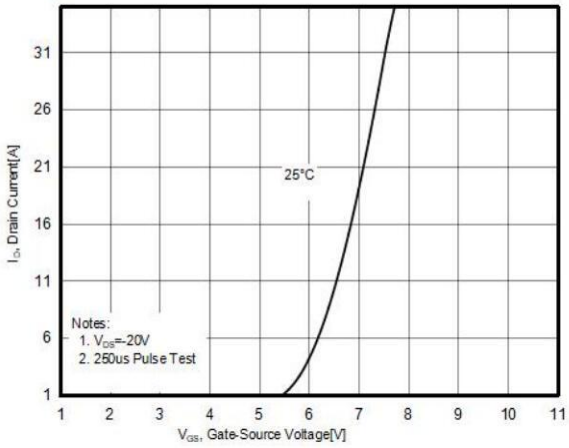


Figure6. Transfer characteristics



Typical Characteristics

Figure7. $R_{DS(ON)}$ vs Junction Temperature

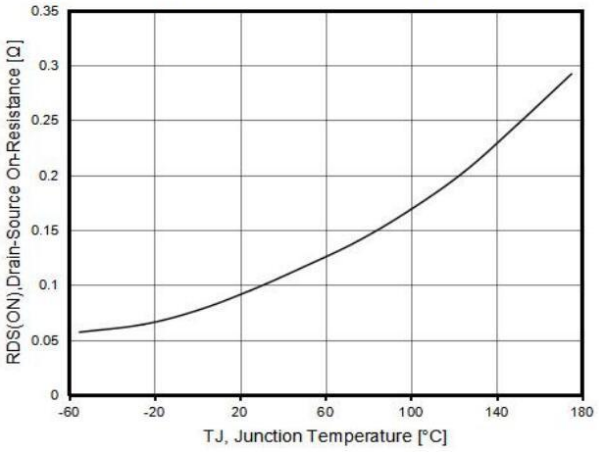


Figure8. BV_{DSS} vs Junction Temperature

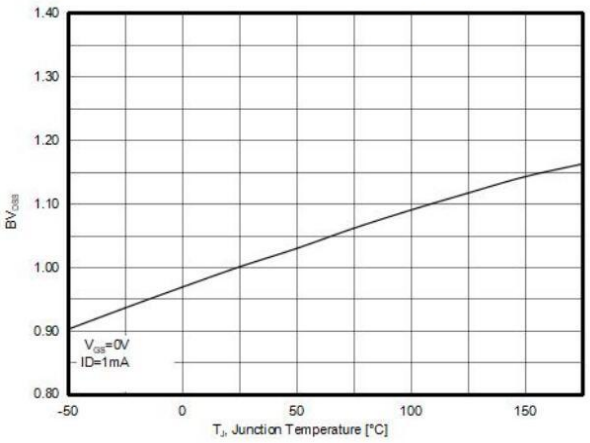


Figure9. Output characteristics

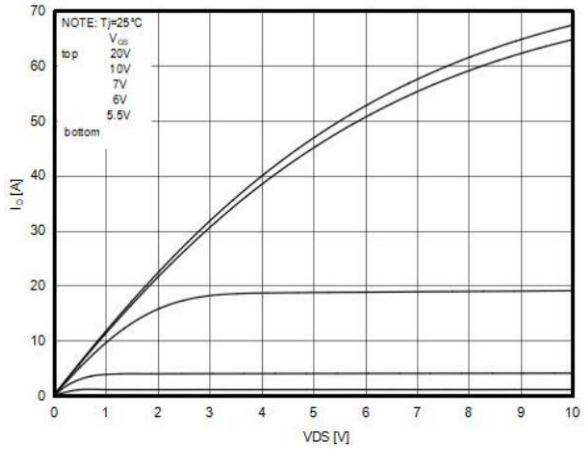


Figure10. Gate charge waveforms

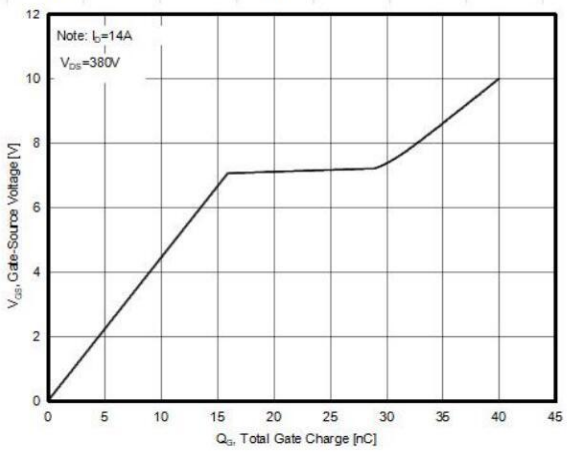
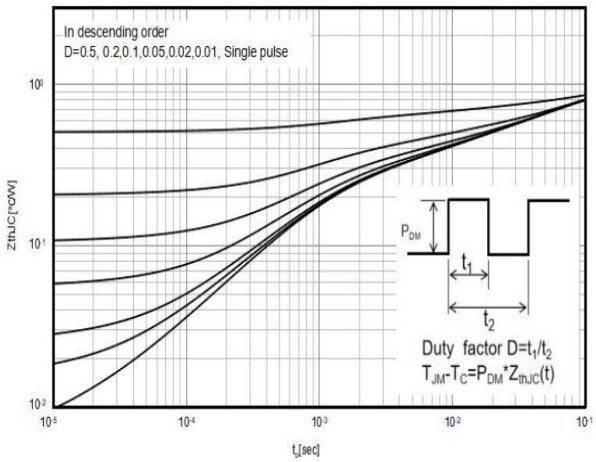
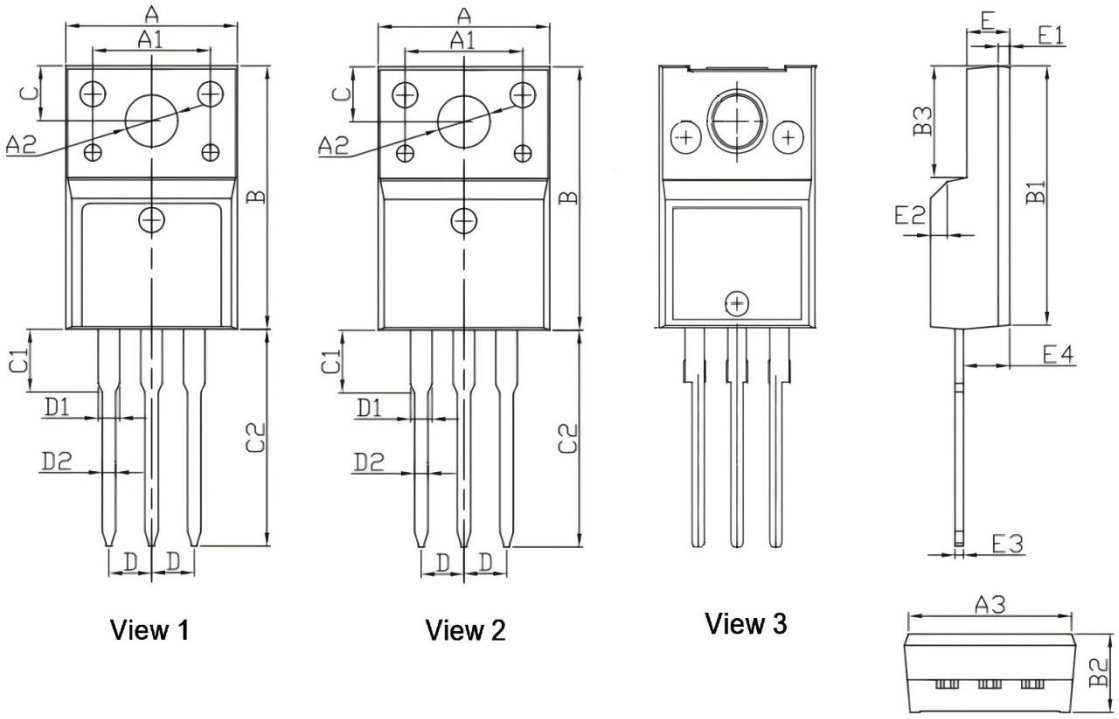


Figure11. transientthermalimpedance



ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.960	10.360	0.391	0.410
A1	6.850	7.150	0.269	0.281
A2	2.970	3.270	0.117	0.128
A3	9.500	9.900	0.373	0.389
B	15.700	16.100	0.617	0.633
B1	15.400	15.800	0.605	0.621
B2	4.500	4.900	0.177	0.193
B3	6.500	6.900	0.255	0.271
C	3.100	3.500	0.122	0.138
C1	3.050	3.450	0.120	0.136
C2	12.800	13.200	0.503	0.519
D	2.540 BSC		0.100 BSC	
D1	1.130	1.430	0.044	0.056
D2	0.650	0.950	0.026	0.037
E	2.350	2.750	0.092	0.108
E1	0.550	0.850	0.022	0.033
E2	45°		45°	
E3	0.350	0.650	0.014	0.026
E4	2.550	2.950	0.100	0.116