AJ850SN070MTF

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
700V	850mΩ@10V	6.5A

Feature

- Low on-resistance
- Low gate charge

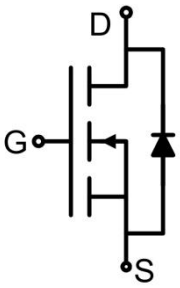
Application

- Power factor correction (PFC)
- Uninterruptible power supply (UPS)

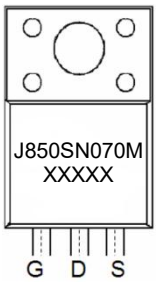
Package

ITO-220AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	700	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	6.5	A
Pulsed Drain Current[1)]	I_{DM}	12	A
Single Pulse Avalanche Energy[2)]	E_{AS}	125	mJ
Power Dissipation[3)]	P_D	25.5	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	4.9	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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	700			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =650V, 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	2.8	3.3	3.8	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =2.5A		750	850	mΩ
Dynamic characteristics[4)]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		339		pF
Output Capacitance	C_{oss}			25		
Reverse Transfer Capacitance	C_{rss}			1.36		
Total Gate Charge	Q_g	V_{DS} =325V, V_{GS} =10V, I_D =5A		8.1		nC
Gate-Source Charge	Q_{gs}			1.8		
Gate-Drain Charge	Q_{gd}			3.2		
Turn-on delay time	$t_{d(on)}$	V_{DS} =325V, V_{GS} =10V, I_D =5A R_G =25Ω		31		nS
Turn-on rise time	t_r			15		
Turn-off delay time	$t_{d(off)}$			56.5		
Turn-off fall time	t_f			12.5		
Source-Drain Diode characteristics						
Source-drain current	I_S				6.5	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =5A			1.3	V
Reverse Recovery Time	T_{rr}	V_{GS} =0V, I_S =5A di/dt =100A/us		162		nS
Reverse Recovery Charge	Q_{rr}			1.093		μC
Peak Reverse Recovery Current	I_{rrm}			13.5		A

Notes:

1) The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

2) The EAS data shows Max. rating . L=0.5mH, I_{AS} =2.3A, V_{DD} =50V, R_G=25Ω.

3) The power dissipation is limited by 150℃ junction temperature.

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

Typical Characteristics

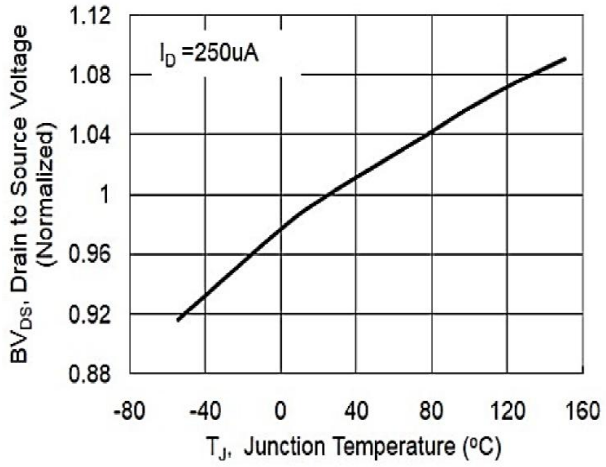


Figure 1. BV DSS vs Junction Temperature

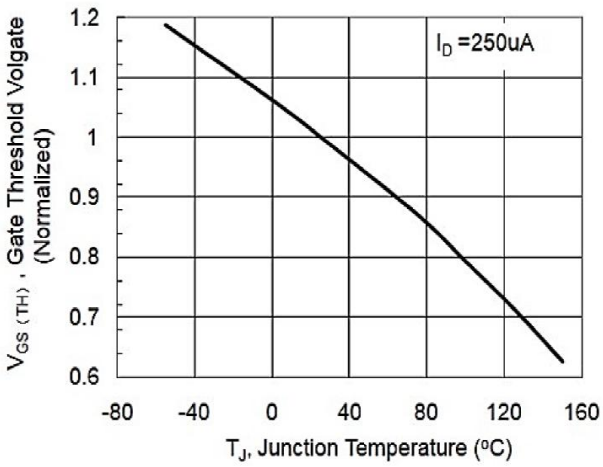


Figure 2.VGS(TH) vs Junction Temperature

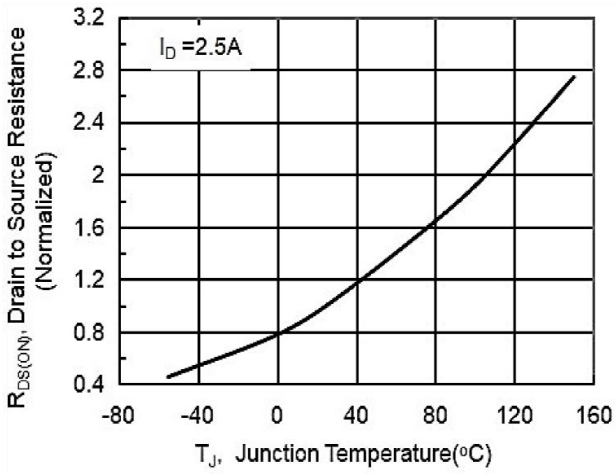


Figure 3 RDS(ON) vs Junction Temperature

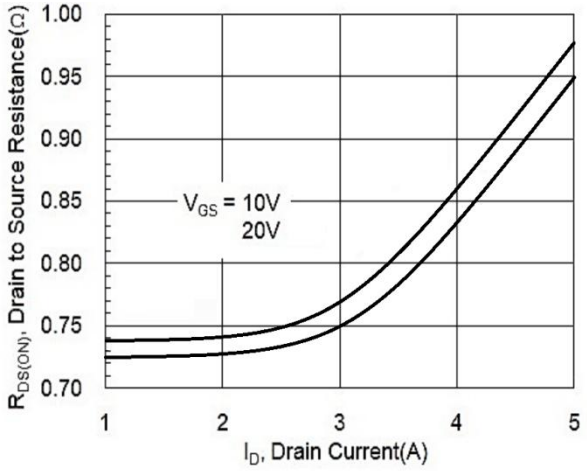


Figure 4. Drain-source on-state

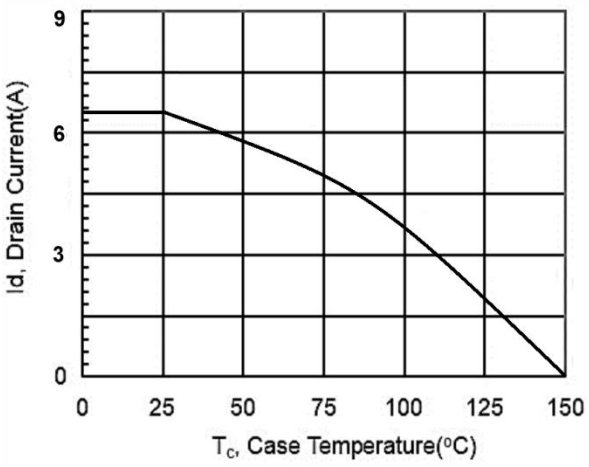


Figure 5. Drain current

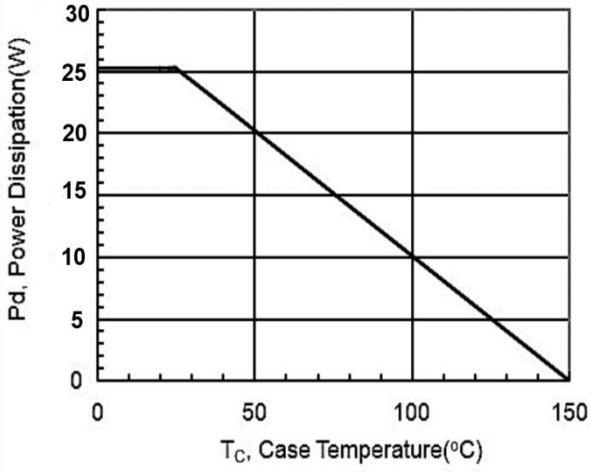


Figure 6. Power dissipation

Typical Characteristics

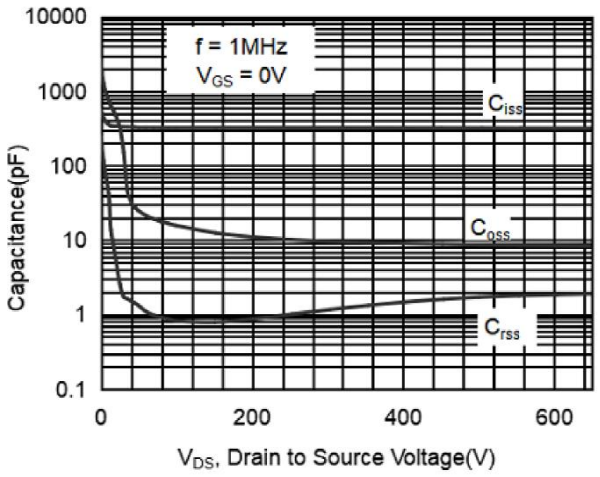


Figure7. Capacitance Characteristics

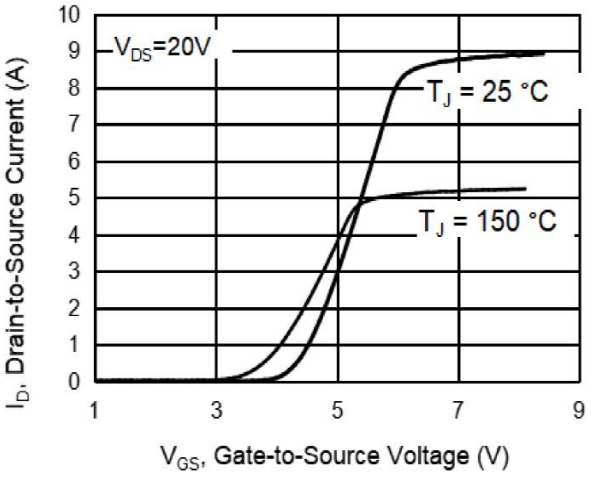


Figure8 . Transfer characteristics

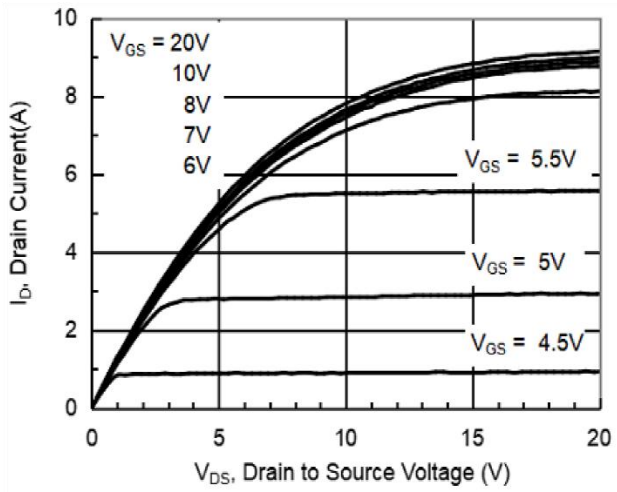


Figure 9. QOSS vs Drain-source voltage

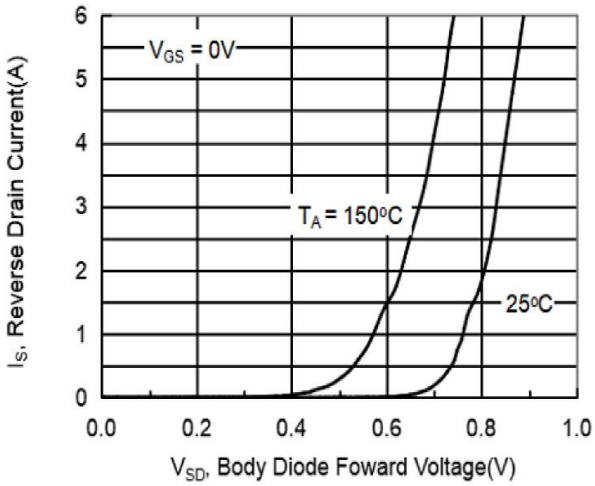


Figure 10. EOSS vs Drain-source voltage

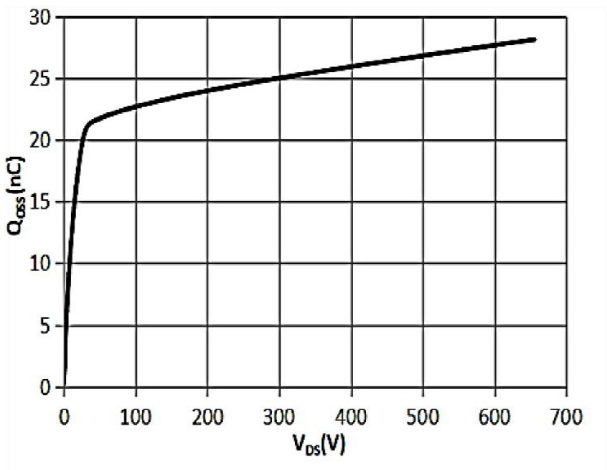


Figure 11. QOSS vs Drain-source voltage

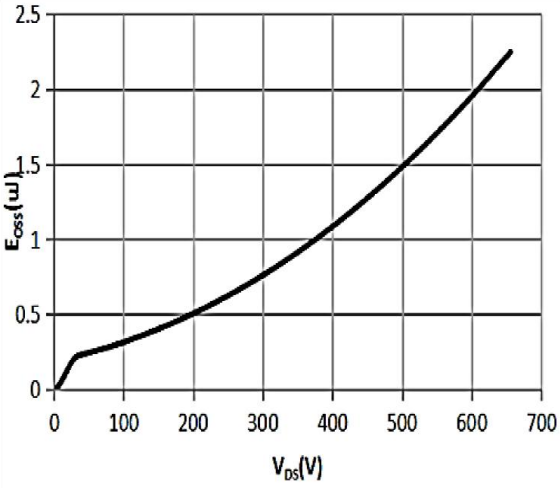


Figure 12. EOSS vs Drain-source voltage

Typical Characteristics

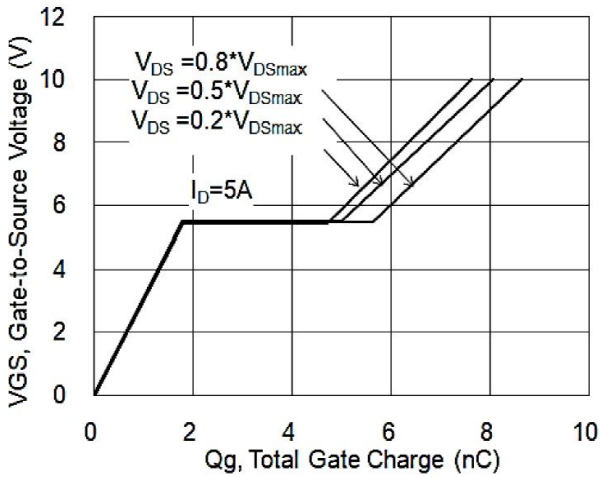
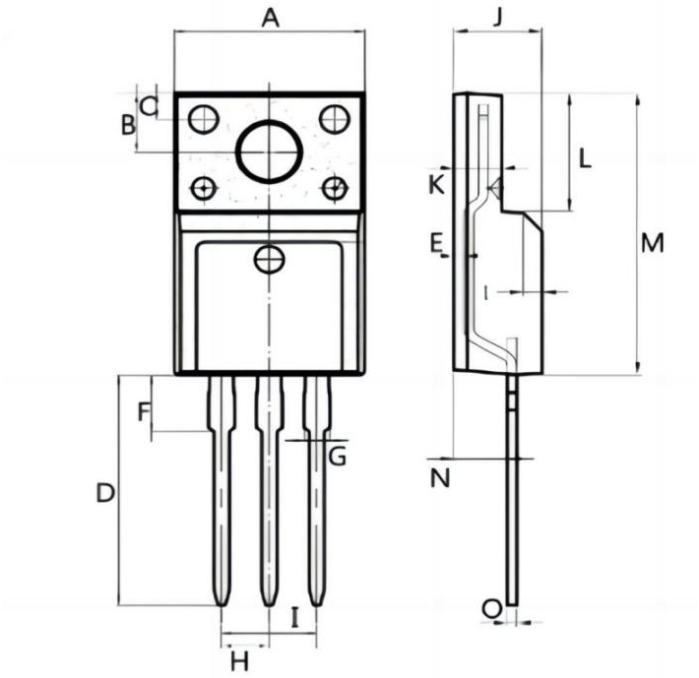


Figure 13. Gate charge characteristics

ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.900	10.300	0.390	0.406
B	2.900	3.500	0.114	0.138
C	1.150	1.450	0.045	0.057
D	12.750	13.250	0.502	0.522
E	0.550	0.750	0.022	0.030
F	3.100	3.500	0.122	0.138
G	1.250	1.450	0.049	0.057
H	2.540 BSC.		0.100 BSC.	
I	5.080 BSC.		0.200 BSC.	
J	4.550	4.750	0.179	0.187
K	2.400	2.700	0.094	0.106
L	6.350	6.750	0.250	0.266
M	15.000	16.000	0.591	0.630
N	2.750	3.150	0.108	0.124
O	0.450	0.600	0.018	0.024