AJ260SN065ETA

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	260mΩ@10V	14.5A

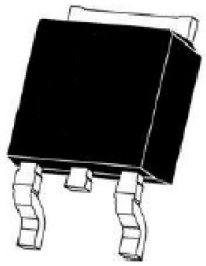
Feature

- Optimized body diode reverse recovery performance
- Low on-resistance and low conduction losses
- Ultra Low Gate Charge cause lower driving requirements

Application

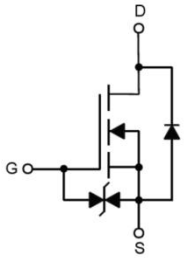
- Power factor correction (PFC)
- Switched mode power supplies (SMPS)
- Uninterruptible Power Supply (UPS)
- LLC Half-bridge

Package



TO-252AB

Circuit diagram



Marking

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	650	V
Gate-Source Voltage (V_{GS}=0V) AC (f > 1Hz)	V_{GS}	±30	V
Gate-Source Voltage (V_{GS}=0V) DC	V_{GS}	±20	V
Continuous Drain Current	I_D	14.5	A
Continuous Drain Current (T_C=100℃)	I_D(100℃)	10.15	A
Pulsed Drain Current [1]	I_{DM}	43.5	A
Power Dissipation	P_D	142	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.05	℃/W
Junction Temperature	T_J	175	℃
Storage Temperature	T_{STG}	-55 ~ +175	℃

Electrical characteristics (T_A=25℃ 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	650			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =650V,V_{GS} =0V,T_C=25℃			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±200	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	3	3.5	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =7A		230	260	mΩ
Dynamic characteristics[2]						
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V,f =1MHz		1104		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			3		
Total Gate Charge	Q_g	V_{DS} =480V,V_{GS} =10V, I_D=7A		22		nC
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			5.5		
Turn-on delay time	$t_{d(on)}$	V_{DD}=480V,V_{GS}=10V, I_D=7A, R_G=1.7Ω		11		nS
Turn-on rise time	t_r			9		
Turn-off delay time	$t_{d(off)}$			57		
Turn-off fall time	t_f			10		
Source-Drain Diode characteristics						
Diode Forward Current	I_S	T_C=25℃			14.5	A
Pulsed Source-drain current	I_{SM}				43.5	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_{SD}=14.5A,T_J=25℃			1.2	V
Reverse recovery time	t_{rr}	I_F=7A,di/dt=100 A/μs, T_J=25℃		240		nS
Reverse recovery charge	Q_{rr}			2		μC
Peak Reverse Recovery Current	I_{rrm}			17		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

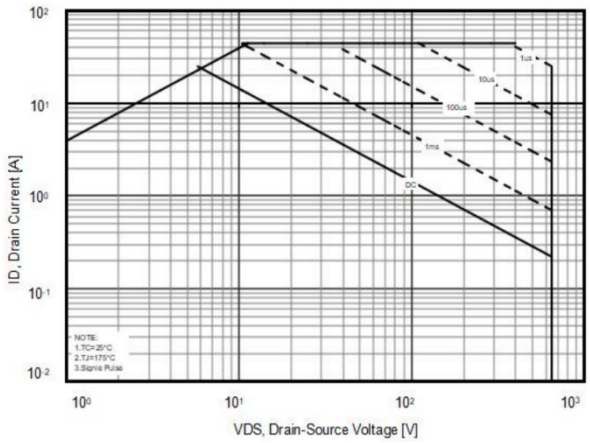


Figure2. Capacitance

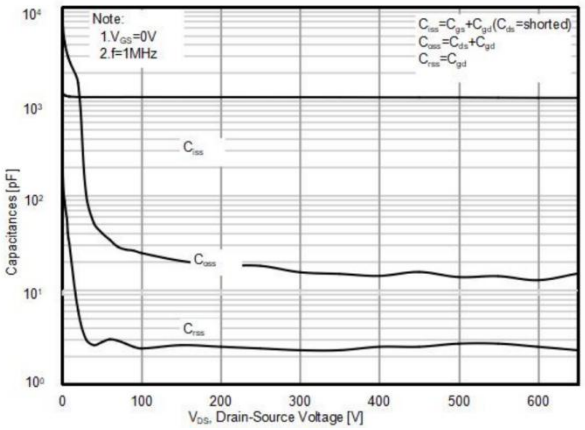


Figure3. Transfer characteristics

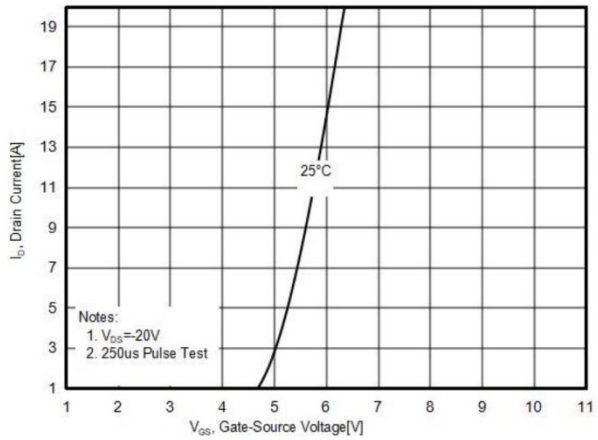


Figure4. Output characteristics

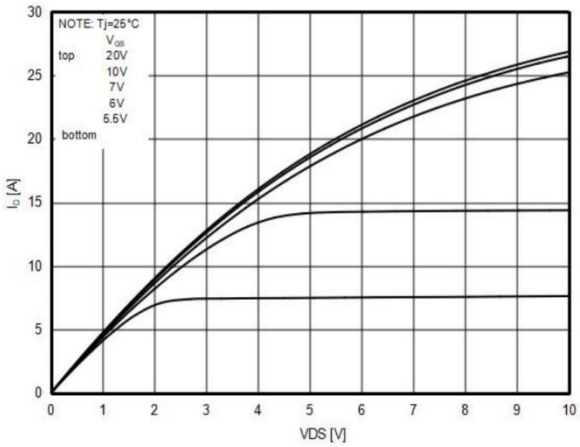


Figure5. $R_{DS(ON)}$ vs Junction Temperature

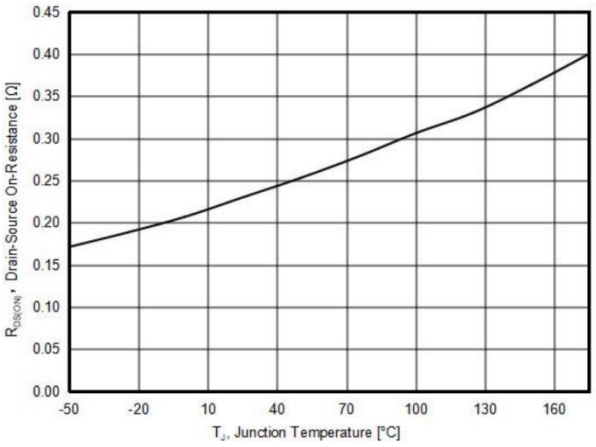
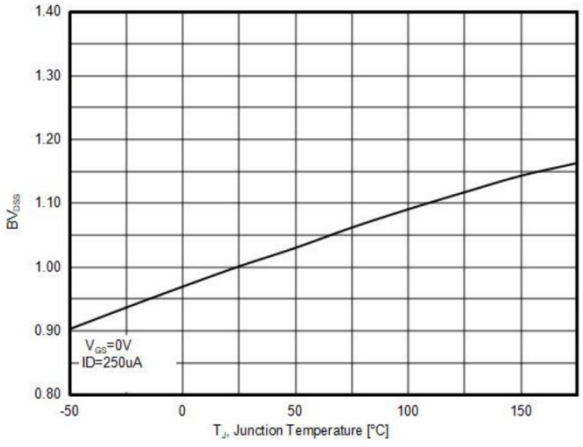


Figure6. BV_{DSS} vs Junction Temperature



Typical Characteristics

Figure7. Maximum I_D vs Junction Temperature

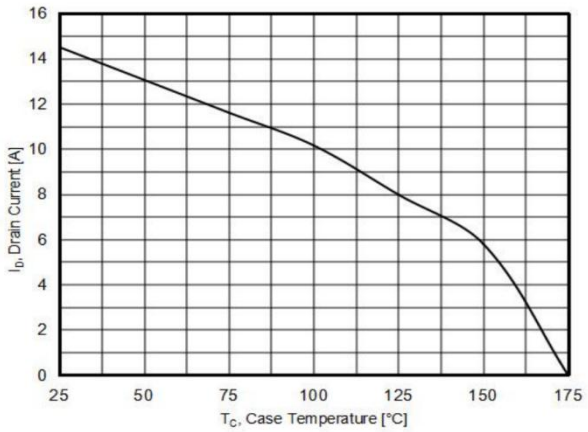


Figure8. Gate charge waveforms

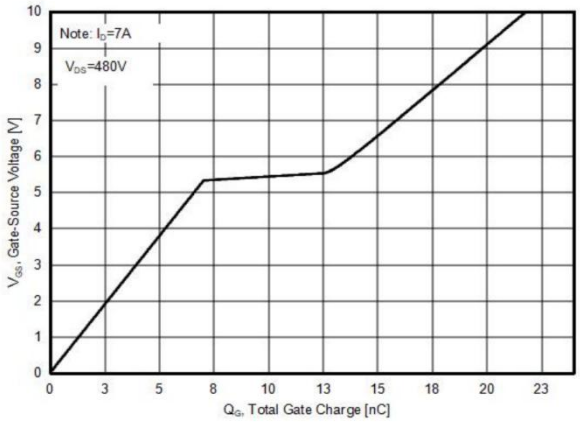


Figure9. Static drain-source on resistance

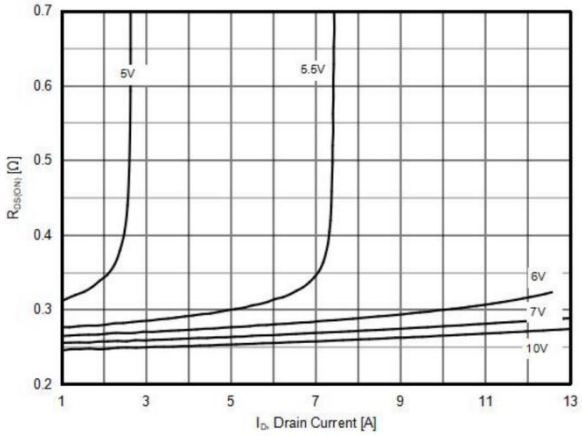
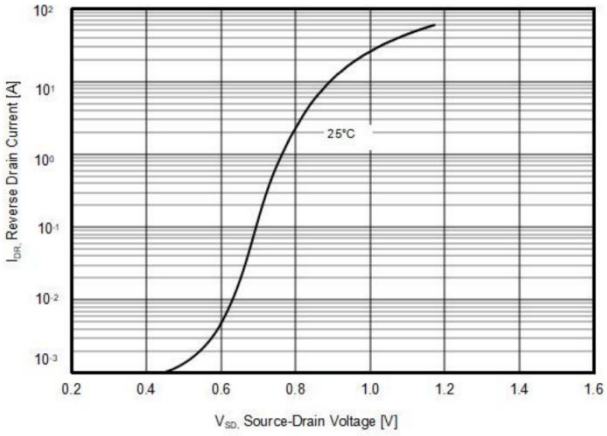
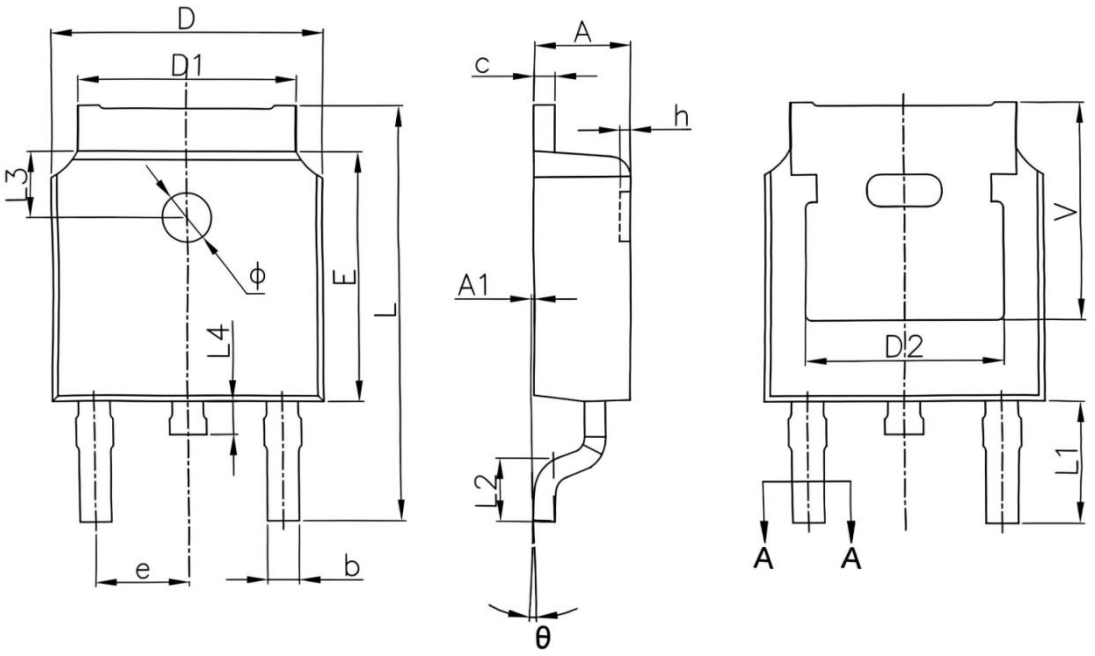


Figure10. Source-Drain Diode Forward Voltag



TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.130	0.000	0.005
b	0.660	0.860	0.026	0.034
b1	0.730	0.790	0.029	0.031
c	0.460	0.580	0.018	0.023
c1	0.500	0.520	0.020	0.020
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.190	2.390	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.067	0.055
L3	1.600 BSC.		0.063 BSC.	
L4	0.600	1.000	0.024	0.039
ϕ	1.100	1.300	0.043	0.051
h	0.000	0.300	0.000	0.012
θ	0°	8°	0°	8°