AG085SN060MTA

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	8.5mΩ@10V	85A
	10mΩ@4.5V	

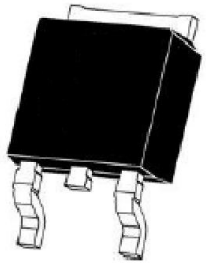
Feature

- Advanced SGT technology
- Excellent $R_{DS(ON)}$
- Low gate charge

Application

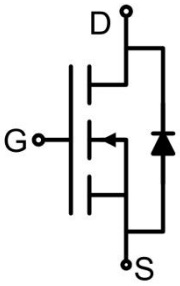
- Battery protection
- Load switch
- Uninterruptible power supply

Package



TO-252AB

Circuit diagram



Marking

AG085SN060MTA

N-Channel Enhancement Mode MOSFET

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1] (V_{GS} =10V, T_C=25℃)	I_D	85	A
Continuous Drain Current[1] (V_{GS} =10V, T_C=100℃)	I_D(100℃)	21	A
Pulsed Drain Current	I_{DM}	415	A
Single Pulse Avalanche Energy[2]	E_{AS}	121	mJ
Power Dissipation[3]	P_D	70	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.79	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=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	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V, V_{GS} =0V			1	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	1.2	1.8	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		7	8.5	mΩ
		V_{GS} =4.5V, I_D =20A		8.5	10	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1MHz		4605		pF
Output Capacitance	C_{oss}			215		
Reverse Transfer Capacitance	C_{rss}			191		
Total Gate Charge	Q_g	V_{DS} =30V, V_{GS} =10V, I_D =30A		77		nC
Gate-Source Charge	Q_{gs}			9		
Gate-Drain Charge	Q_{gd}			23		
Turn-on delay time	$t_{d(on)}$	V_{DS} =30V, V_{GS} =10V, I_D =30A R_G =1.8Ω		7.1		nS
Turn-on rise time	t_r			5.3		
Turn-off delay time	$t_{d(off)}$			27.2		
Turn-off fall time	t_f			6.2		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				85	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =30A			1.2	V
Reverse recovery time	T_{rr}	I_F =30A, di/dt =100A/μs		29		nS
Reverse recovery charge	Q_{rr}			45		nC

Notes:

1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2) The power dissipation is limited by 150℃ junction temperature.
3) The test condition: T_J=25℃, V_{DD}=48V, V_G=10V, R_G=25Ω, L=0.1mH, I_{AS}= 35A.
4) Guaranteed by design, not subject to production.

Typical Characteristics

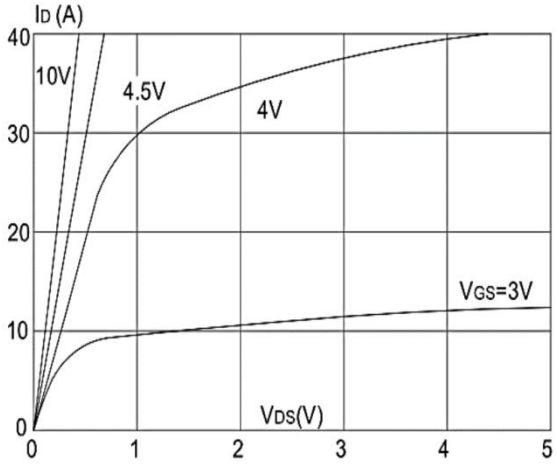


Figure1: Output Characteristics

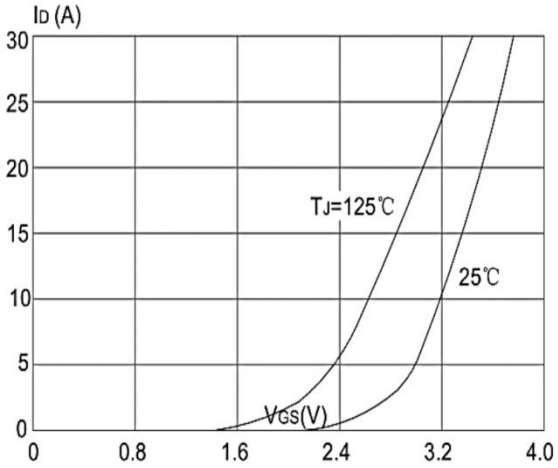


Figure 2: Typical Transfer Characteristics

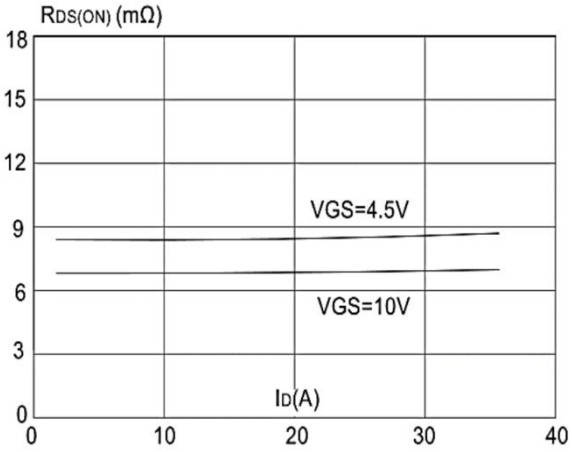


Figure 3:On-resistance vs. Drain Current

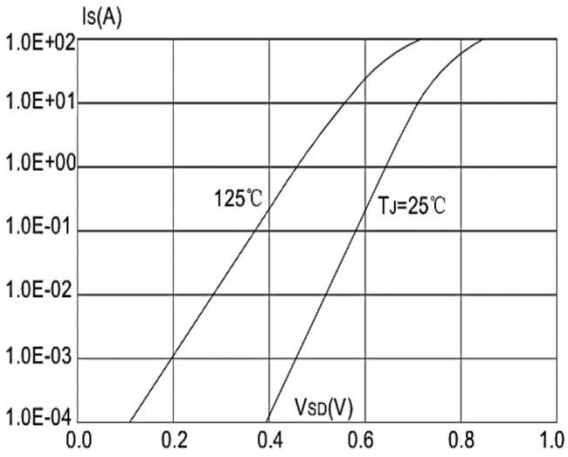


Figure 4: Body Diode Characteristics

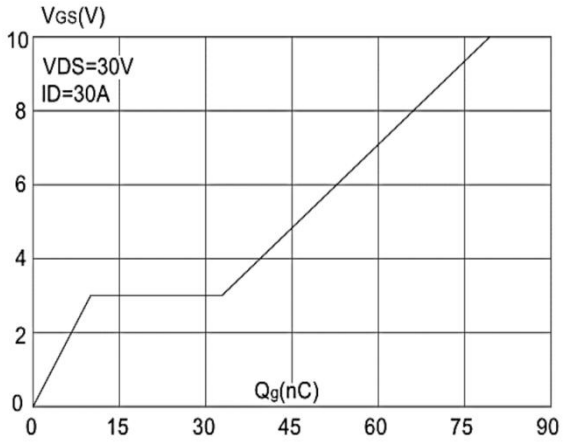


Figure 5: Gate Charge Characteristics

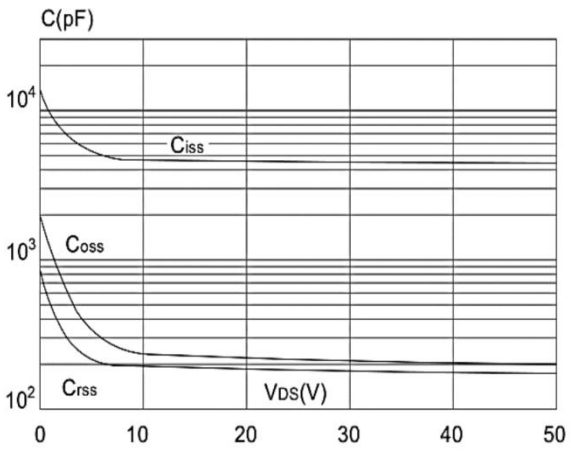


Figure 6: Capacitance Characteristics

Typical Characteristics

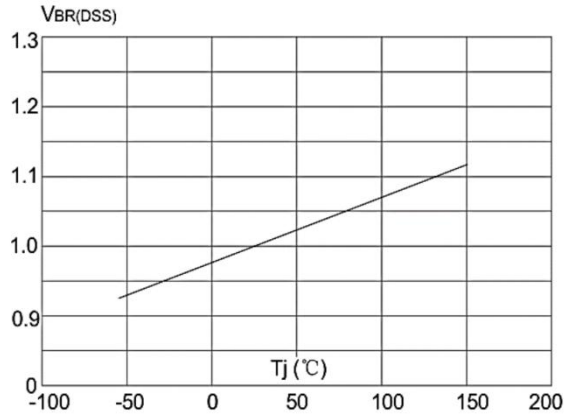


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

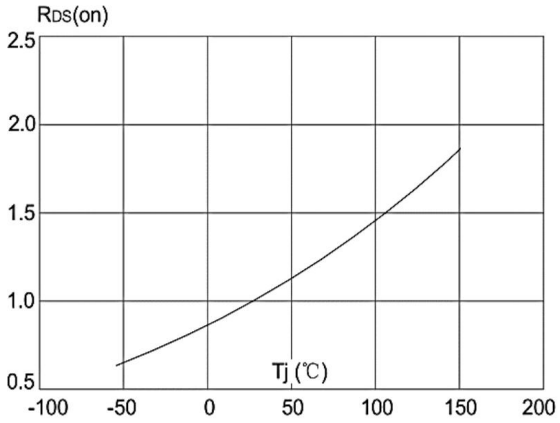


Figure 8: Normalized on Resistance vs. Junction Temperature

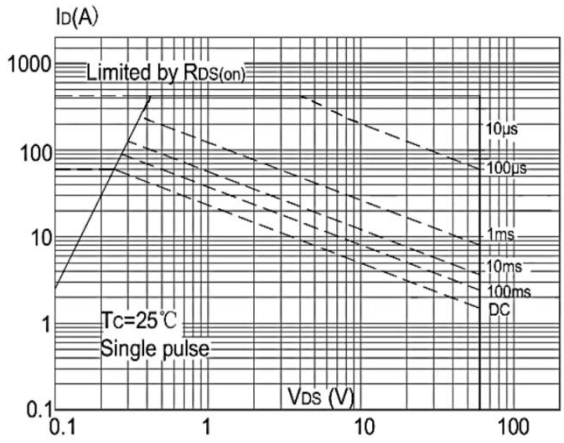


Figure 9: Maximum Safe Operating Area

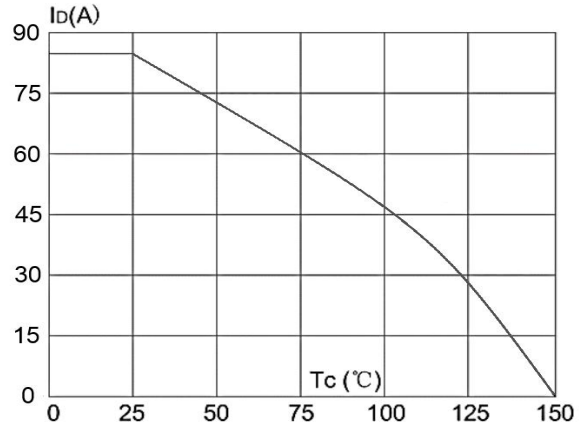


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

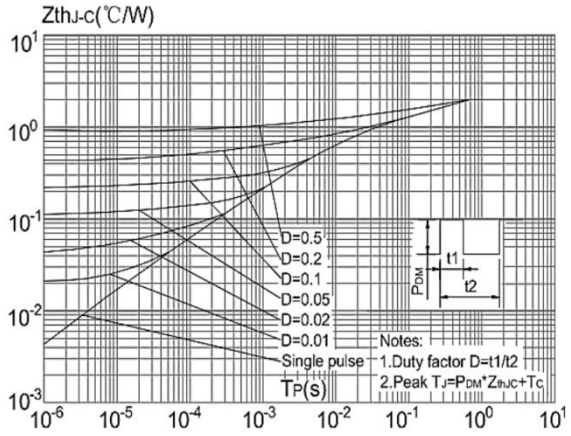
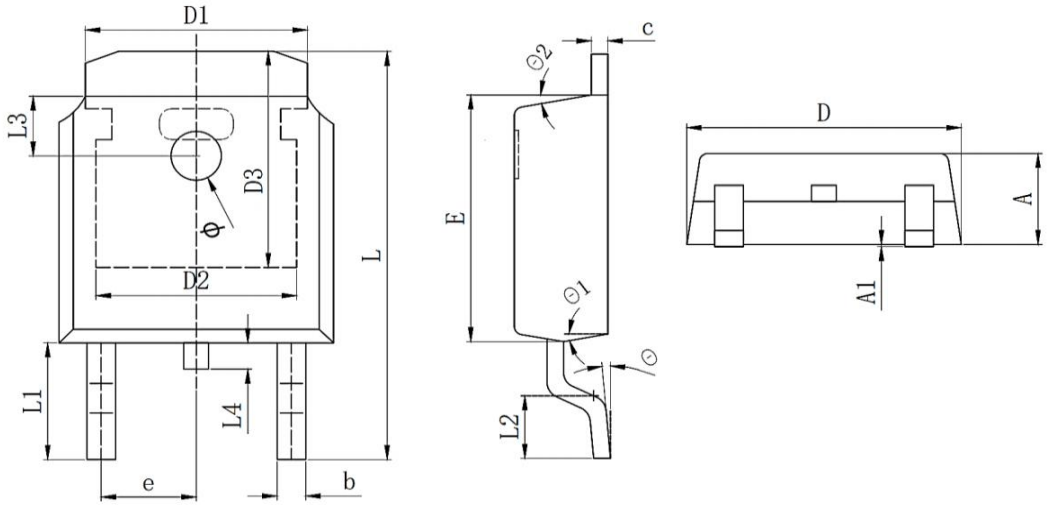


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.100	2.500	0.083	0.098
A1	0.000	0.128	0.000	0.005
b	0.640	0.860	0.025	0.034
c	0.450	0.600	0.018	0.024
D	6.400	6.800	0.252	0.268
D1	5.330 REF.		0.210 REF.	
D2	4.830 REF.		0.190 REF.	
D3	5.250 REF.		0.207 REF.	
E	5.900	6.300	0.232	0.248
e	2.286 BSC.		0.090 BSC.	
L	9.800	10.400	0.386	0.409
L1	2.888 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.650 REF.		0.065 REF.	
L4	0.600	1.000	0.024	0.039
ϕ	1.100	1.300	0.043	0.051
θ	0°	10°	0°	10°
θ1	5°	10°	5°	10°
θ2	5°	10°	5°	10°