AD18N20S

N-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
200V	0.2Ω@10V	18A

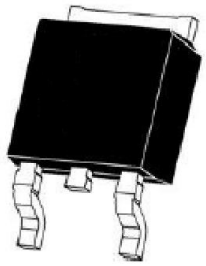
Feature

- Fast Switching
- Low Gate Charge and Rdson

Application

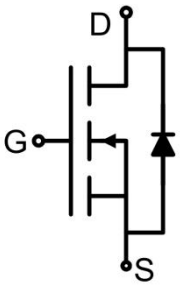
- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package



TO-252AB

Circuit diagram



Marking

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N-Channel Enhancement Mode Power MOSFET

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current (T_C=25℃)	I_D	18	A
Pulsed Drain Current[2]	I_{DM}	72	A
Power Dissipation (T_C=25℃)	P_D	145	W
Thermal Resistance,Junction-to-Case[1]	$R_{\theta JC}$	0.86	℃/W
Single pulse avalanche energy[3]	E_{AS}	197	mJ
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (Ta=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	200			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =160V,V_{GS} = 0V,T_J=25℃			25	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±30V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	3.0	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =6A		0.16	0.2	Ω
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		1133		pF
Output Capacitance	C_{oss}			183		
Reverse Transfer Capacitance	C_{rss}			52		
Total Gate Charge	Q_g	V_{DS} =160V,V_{GS} =10V, I_D=11A		64		nC
Gate-Source Charge	Q_{gs}			11		
Gate-Drain Charge	Q_{gd}			31		
Turn-on delay time	$t_{d(on)}$	V_{DD}=100V,V_{GS}=10V, I_D=11A,R_G=2.5Ω		11		nS
Turn-on rise time	t_r			18		
Turn-off delay time	$t_{d(off)}$			25		
Turn-off fall time	t_f			6		

Notes:

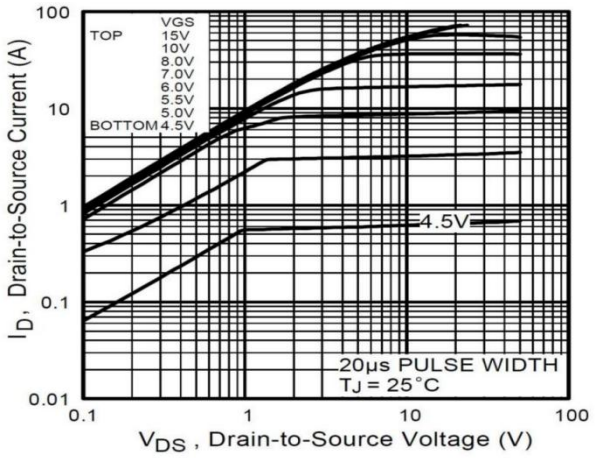
1) The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.

2) The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.

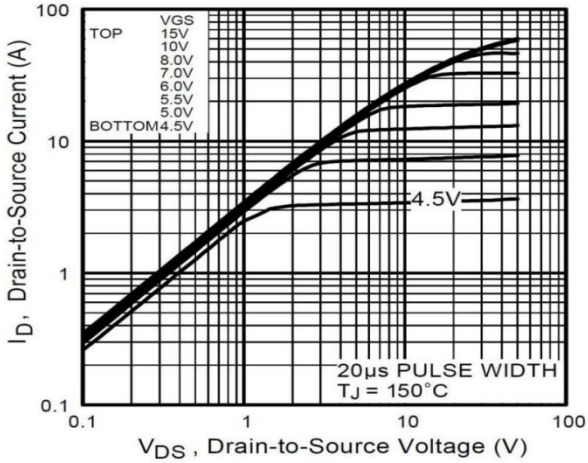
3) The EAS data shows Max. rating . The test condition is R_G=30Ω ,L=60mH.

4) Guaranteed by design, not subject to production.

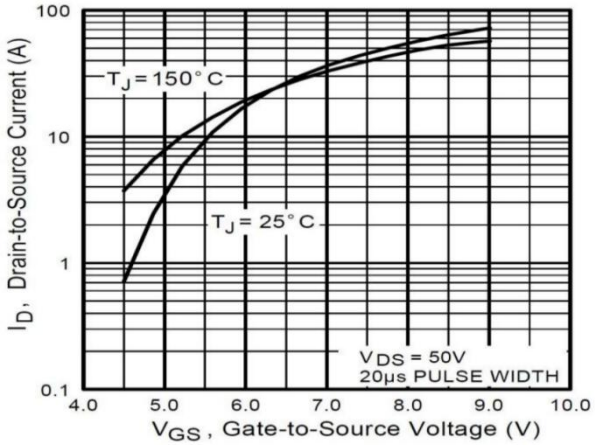
Typical Characteristics



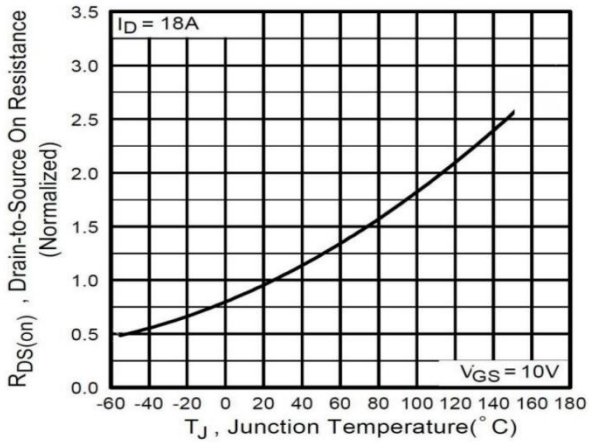
Typical Output Characteristics



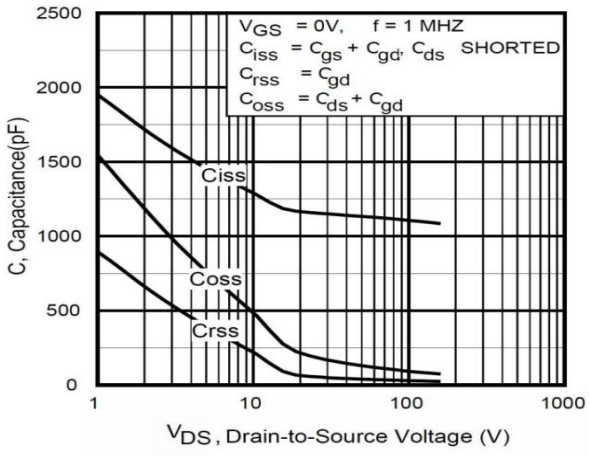
Typical Output Characteristics



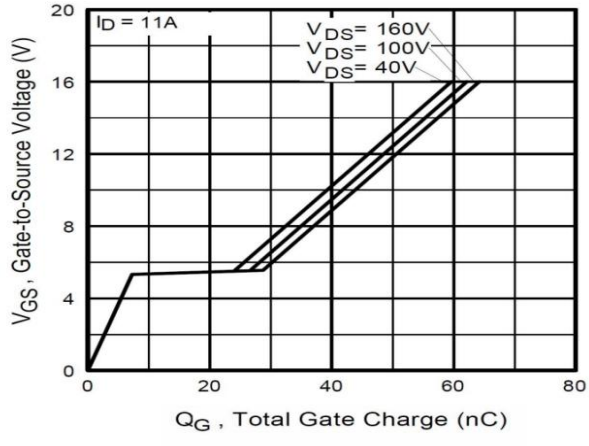
Typical Transfer Characteristics



Normalized On-Resistance Vs. Temperature

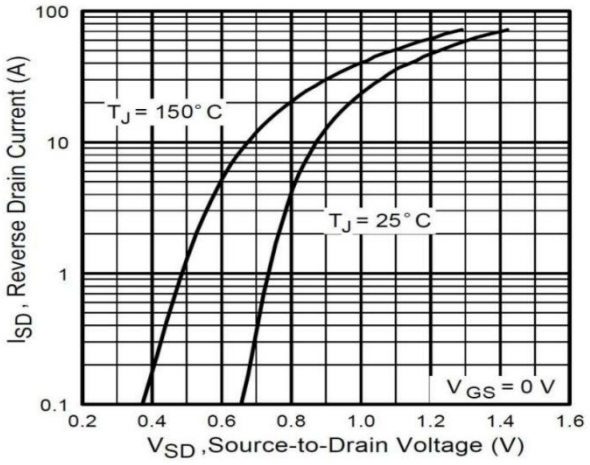


Typical Capacitance Vs. Drain-to-Source Voltage

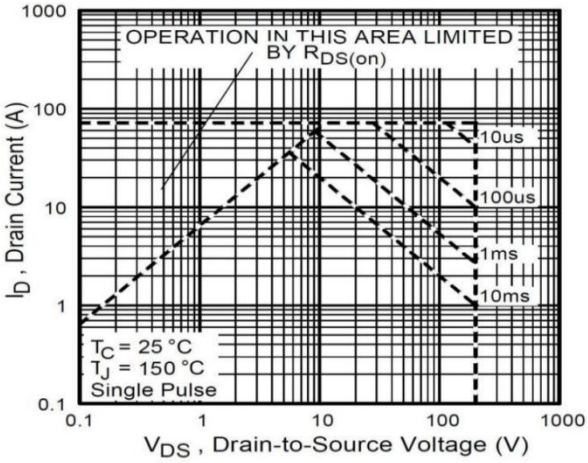


Typical Gate Charge Vs. Gate-to-Source Voltage

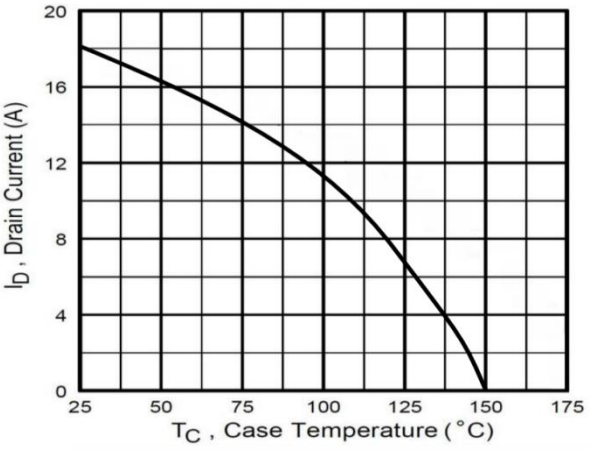
Typical Characteristics



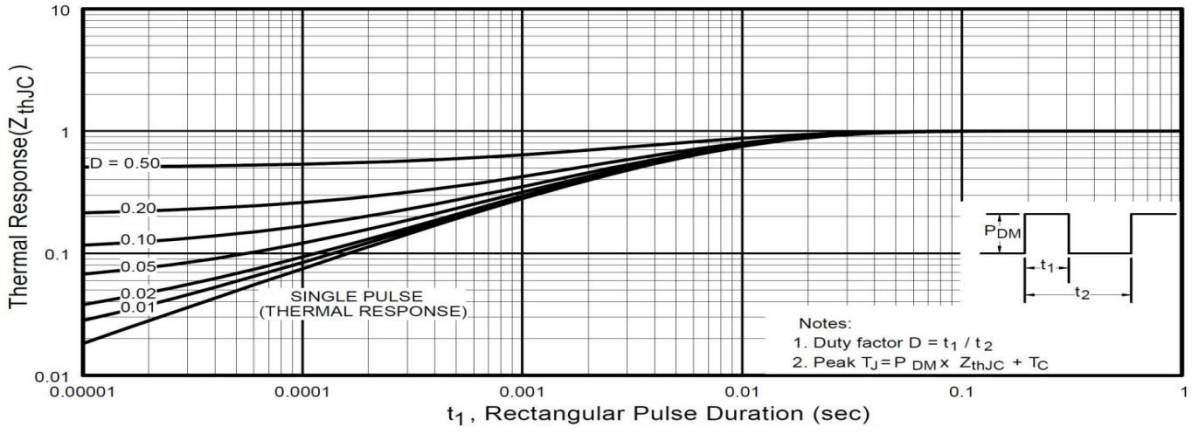
Typical Source-Drain Diode Forward



Maximum Safe Operating Area

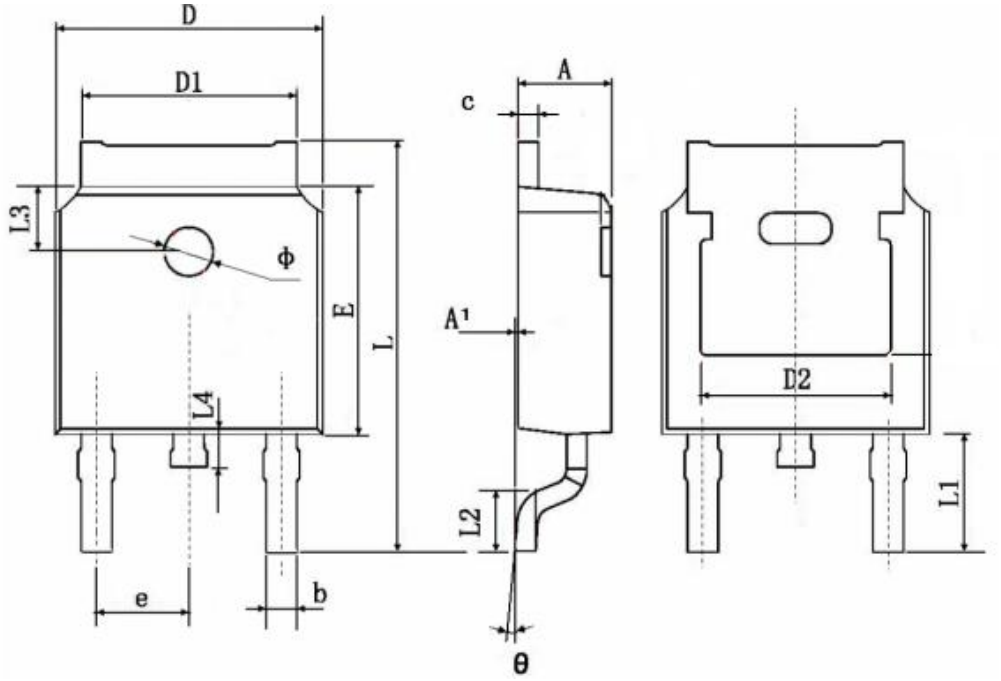


MaxMaximum Drain Current Vs. Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case

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
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.500	0.201	0.217
D2	4.830 REF		0.190 REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.390	0.086	0.094
L	9.800	10.500	0.386	0.413
L1	2.900 REF		0.114 REF	
L2	1.400	1.800	0.055	0.070
L3	1.600 REF		0.063 REF	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°