AD30P06S

P-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	40mΩ@-10V	-30A
	50mΩ@-4.5V	

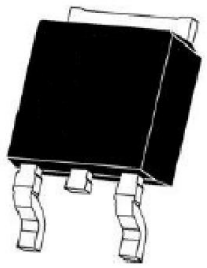
Feature

- High switching speed
- Low Gate Charge
- Low reverse transfer capacitance

Application

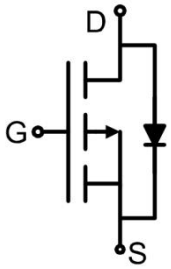
- Load Switches, Adaptor Switch
- Notebook PCs

Package

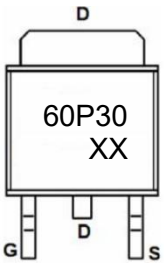


TO-252AB

Circuit diagram



Marking



Absolute maximum ratings (Ta=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	I_D	-30	A
Pulsed Drain Current	I_{DM}	-120	A
Power Dissipation	P_D	60	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	2.1	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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	-60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-60V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-5A		30	40	mΩ
		V_{DS} =-4.5V, I_D =-4A		38	50	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =-30V,V_{GS} =0V,f =1MHz		2417		pF
Output Capacitance	C_{oss}			179		
Reverse Transfer Capacitance	C_{rss}			120		
Total Gate Charge	Q_g	V_{DS} =-30V,V_{GS} =-10V, I_D =-6.2A		46.5		nC
Gate-Source Charge	Q_{gs}			9.1		
Gate-Drain Charge	Q_{gd}			9.2		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-30V,V_{GS} =-10V, R_L=4.7Ω,R_{GEN}=3Ω		9.8		nS
Turn-on rise time	t_r			6.1		
Turn-off delay time	$t_{d(off)}$			44		
Turn-off fall time	t_f			12.7		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=-1A			-1.2	V

Notes:

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

Typical Characteristics

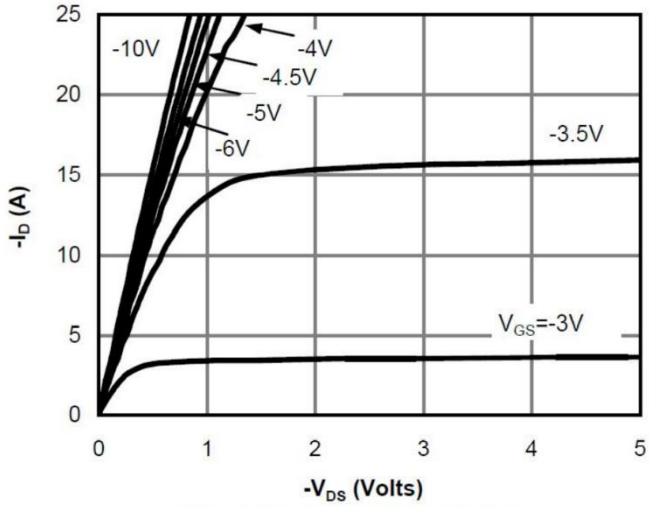


Fig 1: On-Region Characteristics

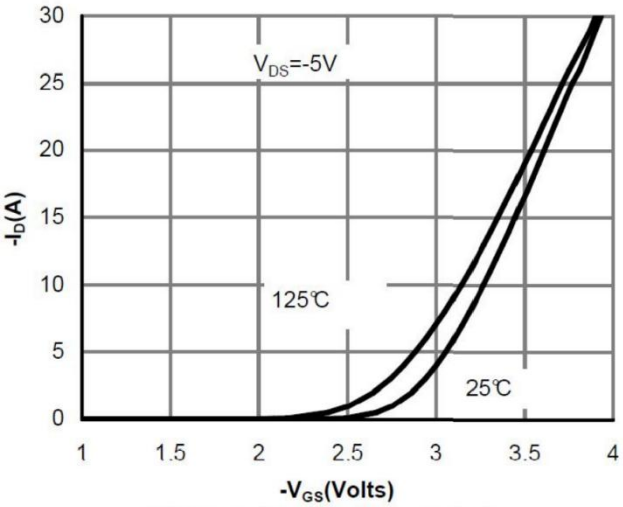


Figure 2: Transfer Characteristics

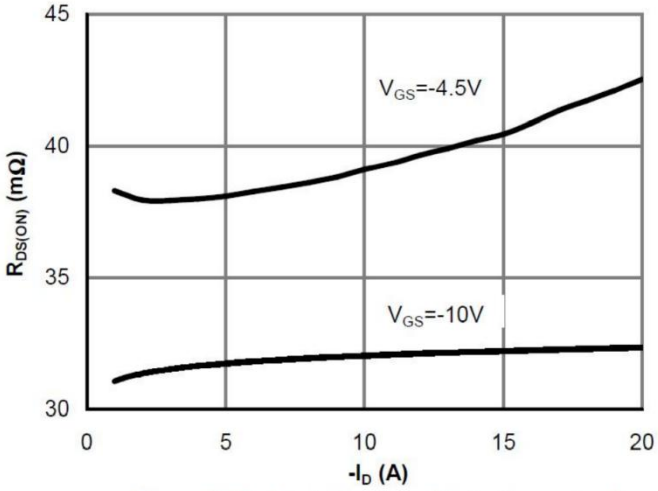


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

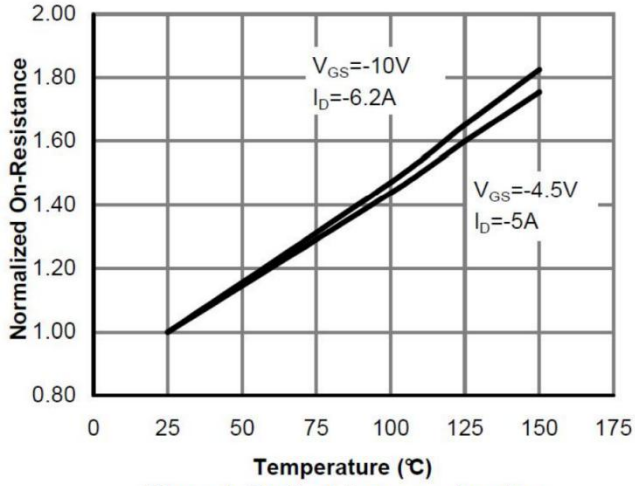


Figure 4: On-Resistance vs. Junction Temperature

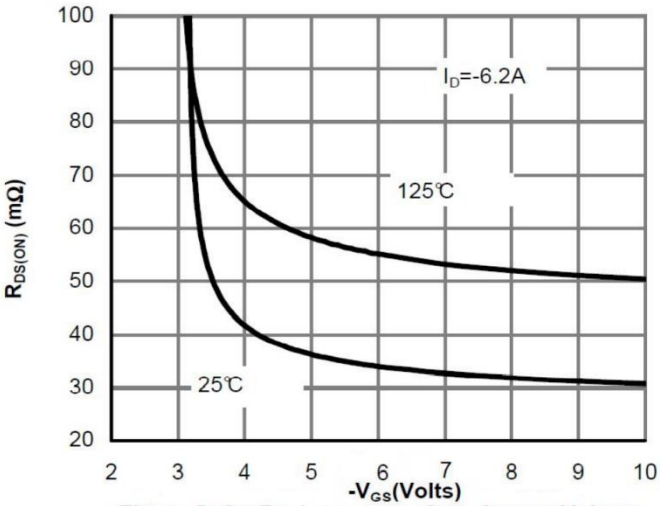


Figure 5: On-Resistance vs. Gate-Source Voltage

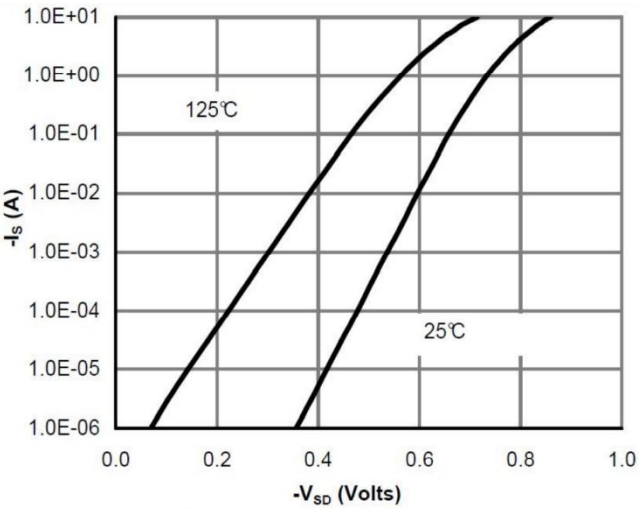


Figure 6: Body-Diode Characteristics

Typical Characteristic

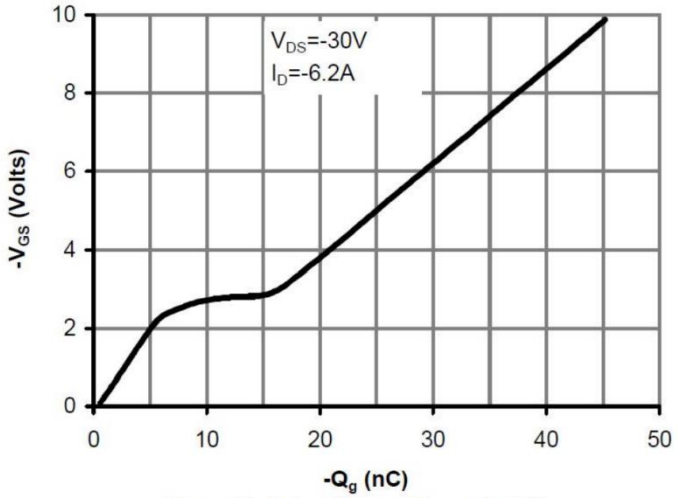


Figure 7: Gate-Charge Characteristics

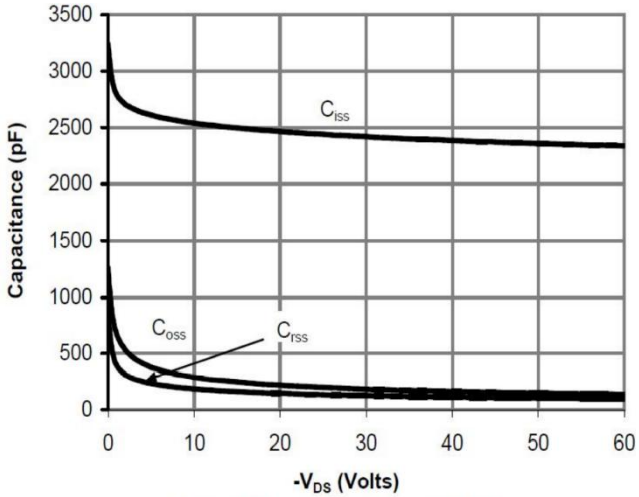


Figure 8: Capacitance Characteristics

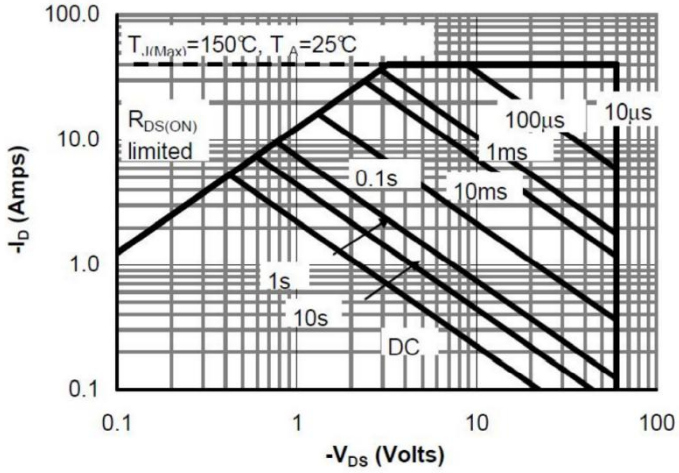


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

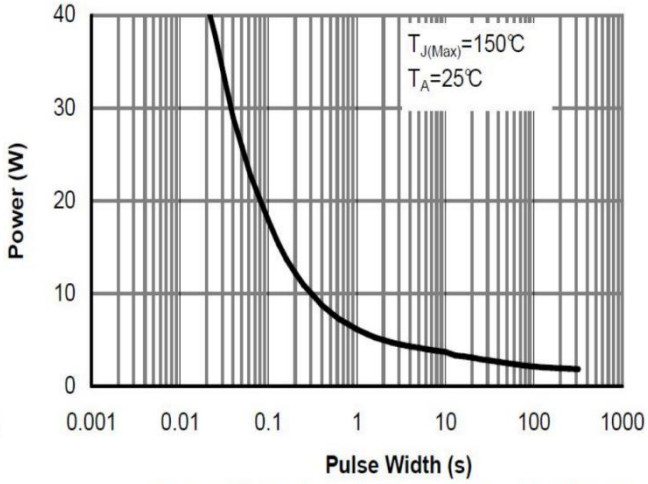


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

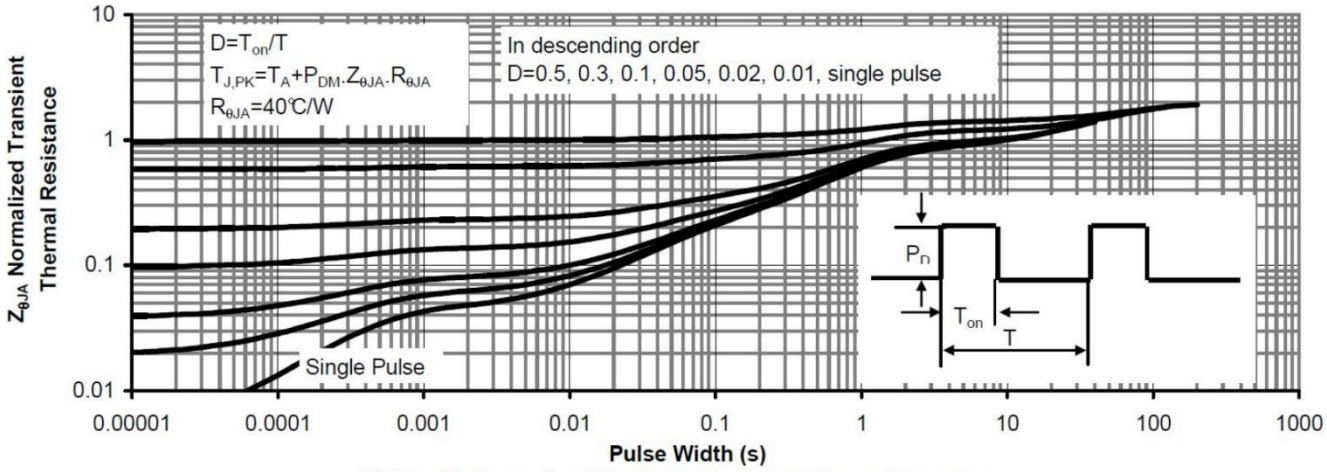
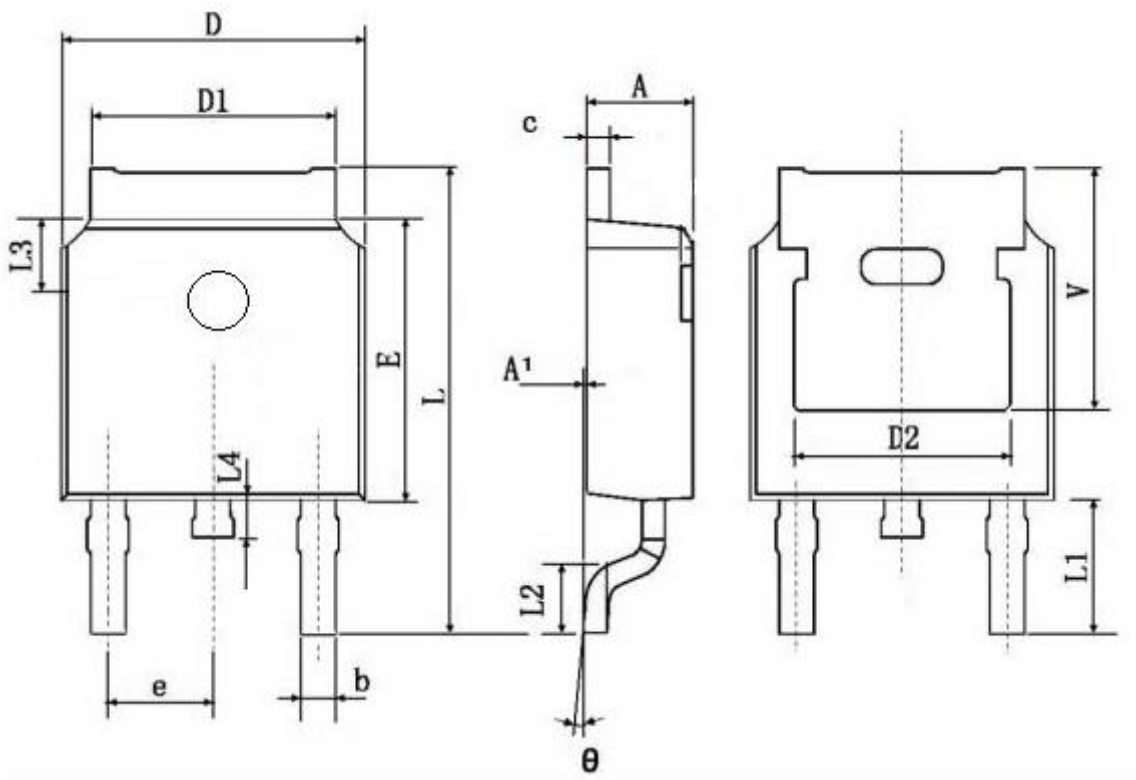


Figure 11: Normalized Maximum Transient Thermal Impedance

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	0.200	0.000	0.008
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	2.386	0.086	0.094
L	9.800	10.500	0.386	0.413
L1	2.900 REF.		0.114 REF.	
L2	1.250	1.750	0.049	0.069
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.023	0.039
V	5.350 REF.		0.211 REF.	
θ	0°	8°	0°	8°