DESCRIPTION

The AM30N06 is available in TO-252 Package.

BVDSS	RDSON	ID
60V	24mΩ	30A

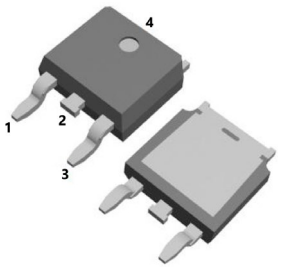
FEATURE

- Super Low Gate Charge
- Excellent C_{dV}/d_t effect decline

ORDERING INFORMATION

Package Type	Part Number	
TO-252 SPQ: 2,500pcs/Reel	D	AM30N06DVR
Note	R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products		

PIN DESCRIPTION



TO-252

Pin #	Symbol	Function
1	G	Gate
2,4	D	Drain
3	S	Source

ABSOLUTE MAXIMUM RATINGS

T_C = 25°C, unless otherwise specified.

V_{DSS}, Drain-Source Voltage		60V
V_{GSS}, Gate-Source Voltage		±30V
I_D, Continuous Drain Current	T_C = 25°C	30A
	T_C = 100°C	13A
I_{DM}, Pulsed Drain Current (1)		100A
E_{AS}, Single Pulse Avalanche Energy (2)		39mJ
P_D, Power Dissipation	T_C = 25°C	41.70W
$R_{\theta JC}$, Thermal Resistance, Junction to Case		50°C/W
T_{STG}, Storage Temperature Range		-55°C ~ +175°C
T_J, Operating Junction Temperature Range		-55°C ~ +175°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

(1) Repetitive Rating: pulse width limited by maximum junction temperature $T_{J(MAX)}$=150°C.

(2) The EAS data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.4mH, I_{AS}=14A

ELECTRICAL CHARACTERISTICS

T_J = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions		Min	Typ.	Max	Unit
Static Characteristics							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}= 0V, I_D = 250μA		60	-	-	V
Gate-Body Leakage Current	I_{GSS}	V_{DS}=±20V, V_{GS}=0V		-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=60V, V_{DS}=0V	T_J = 25°C	-	-	1	μA
			T_J = 100°C	-	-	100	
Gate-Threshold Voltage	$V_{GS(TH)}$	V_{DS}= V_{GS}, I_D = 250μA		1.2	1.7	2.5	V
Drain-Source On-Resistance (1)	$R_{DS(ON)}$	V_{GS} =10V, I_D = 10A		-	24	32	mΩ
		V_{GS} =4.5V, I_D = 5A		-	31.5	40	
Forward Transconductance (1)	g_{fs}	V_{DS}= 5V, I_D = 10A		-	15.5	-	S
Dynamic Characteristics (2)							
Input Capacitance	C_{iss}	V_{DS}=30V, V_{GS}=0V, f=1.0MHZ		-	1355	-	pF
Output Capacitance	C_{oss}			-	60	-	
Reverse Transfer Capacitance	C_{rss}			-	49	-	
Gate Resistance	R_G	f=1.0MHZ		-	1.2	-	Ω
Switching Characteristics (2)							
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V, R_G=3Ω, V_{GS}=10V, I_D = 10A		-	6.4	-	ns
Turn-On Rise Time	t_r			-	15.3	-	
Turn-Off Delay Time	$t_{d(off)}$			-	25	-	
Turn-Off Fall Time	t_f			-	7.6	-	
Total Gate Charge	Q_g	V_{DD} = 30V , I_D =10V V_{GS}=10V		-	22	-	nC
Gate-Source Charge	Q_{gs}			-	4.2	-	
Gate-Drain Charge	Q_{gd}			-	6.9	-	
Body Diode Reverse Recovery Time	t_{rr}	I_F=10A, d_{IF}/dt=100A/μs		-	26	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}			-	45	-	nC
Drain-Source Body Diode Characteristics							
Diode Forward Voltage	V_{SD}	I_S=20A, V_{GS}=0V		-	-	1.2	V
Continuous Source Current	I_S			-	-	30	A

(1) Pulse text: Pulse width ≤ 300μs, Duty Cycle ≤ 2%.

(2) This value is guaranteed by design hence it is not included in the production test.

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

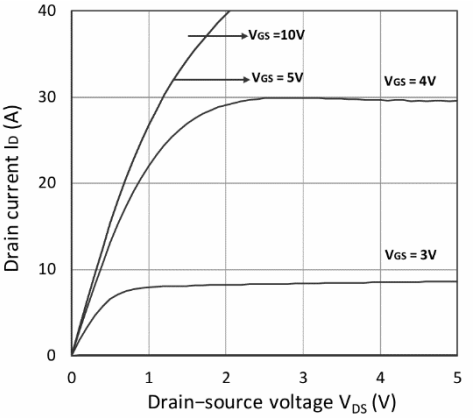


Fig 2. Transfer Characteristics

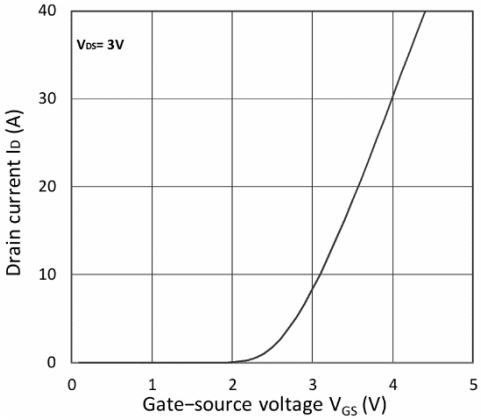


Fig 3. Forward Characteristics of Reverse

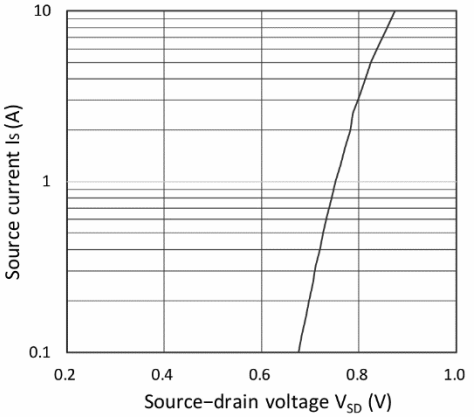


Fig 4. $R_{DS(ON)}$ vs. V_{GS}

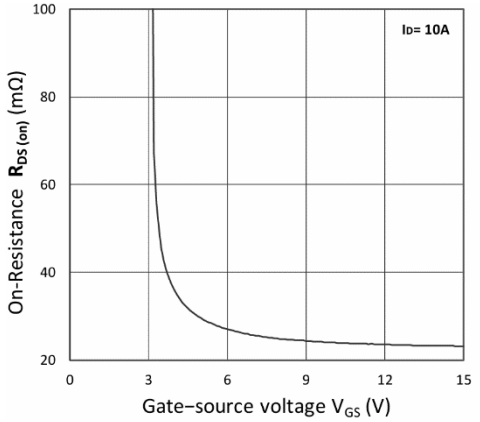


Fig 5. $R_{DS(ON)}$ vs. I_D

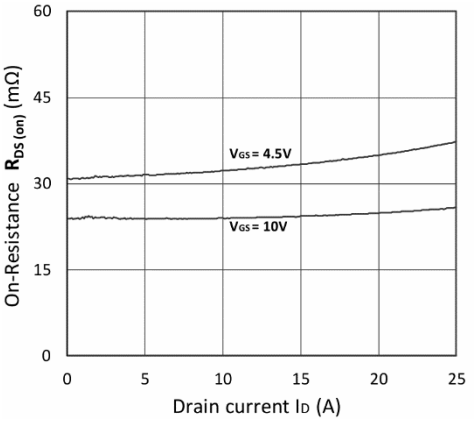


Fig 6. Normalized $R_{DS(on)}$ vs. Temperature

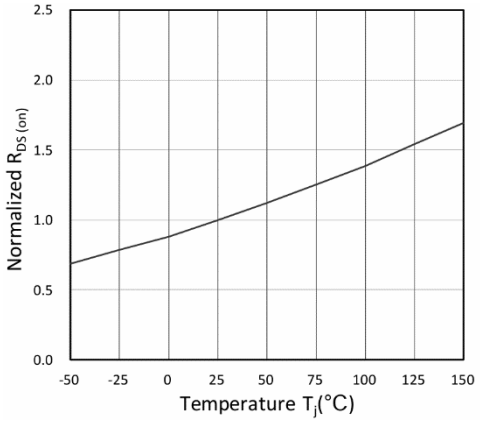


Fig 7. Capacitance Characteristics

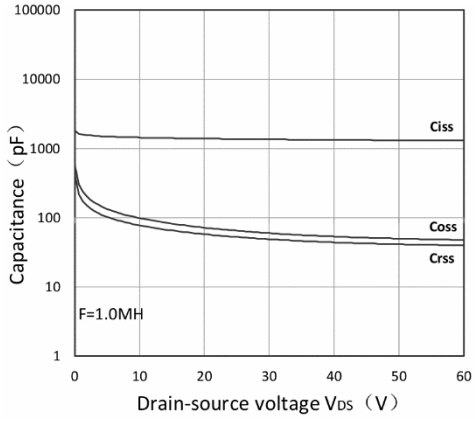


Fig 8. Gate Charge Characteristics

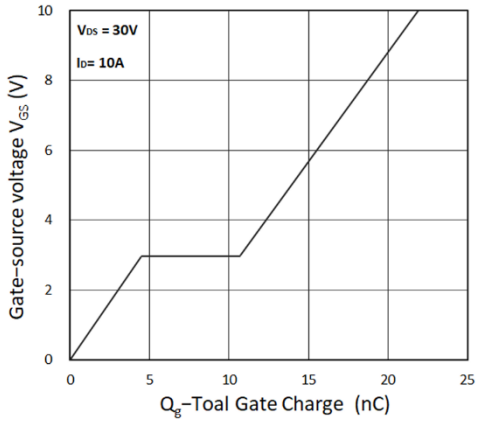


Fig 9. Power Dissipation

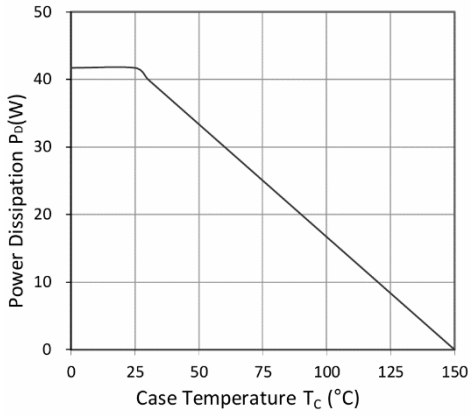


Fig 10. Safe Operating Area

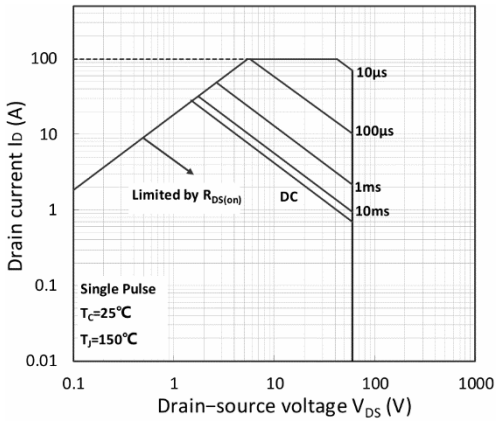
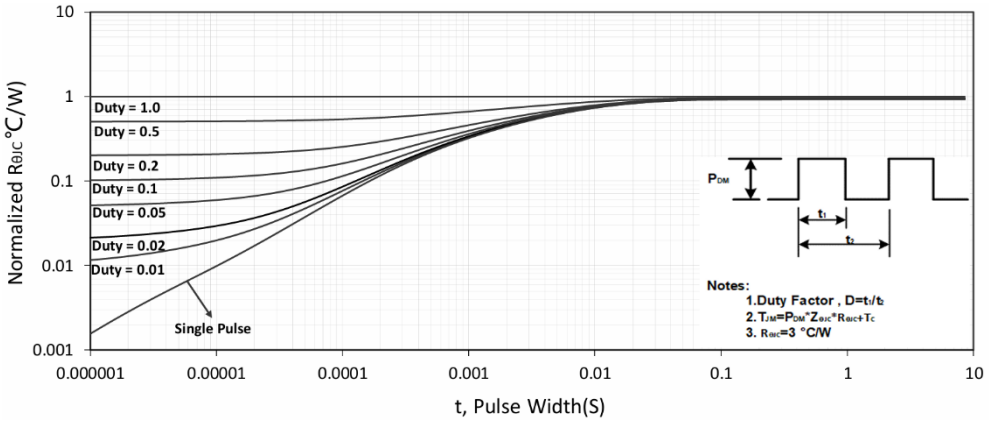
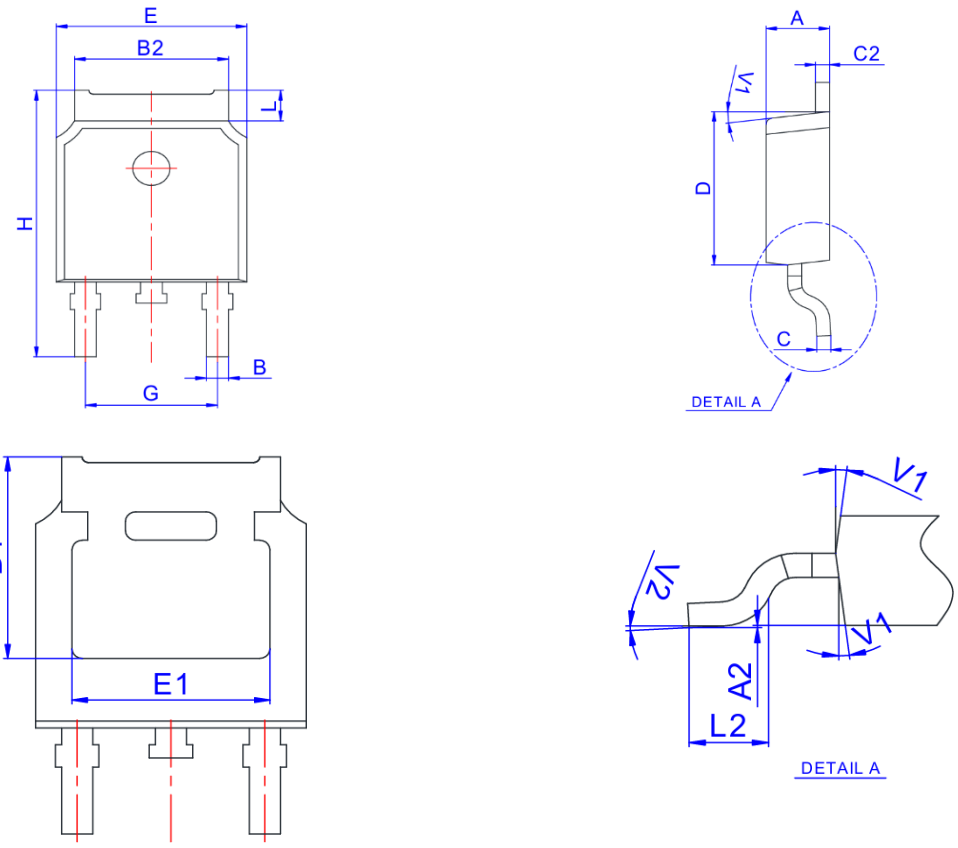


Fig 11. Normalized Maximum Transient Thermal Impedance



PACKAGE INFORMATION

Dimension in TO-252 (Unit: mm)



Symbol	Millimeters (mm)	
	Min.	Max.
A	2.100	2.500
A2	0.000	0.100
B	0.660	0.860
B2	5.180	5.480
C	0.400	0.600
C2	0.440	0.580
D	5.900	6.300
D1	5.300 REF.	
E	6.400	6.800
E1	4.630	-
G	4.470	4.670
H	9.500	10.700
L	1.090	1.210
L2	1.350	1.650
V1	7°	
V2	0°	6°

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