

Description

AGM N-channel MOSFET

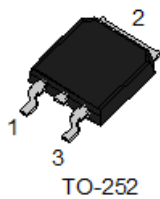
Features

- 100V, 42A
- $R_{DS(ON)} = 19m\Omega$ (Typ.) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 25m\Omega$ (Typ.) @ $V_{GS} = 4.5V$
- Excellent $Q_g \times R_{DS(on)}$ product(FOM)
- Qualified According to JEDEC criteria
- 100% Avalanche Tested

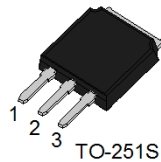
Application

- Motor Control and Drive
- Uninterruptible Power Supply (UPS)
- Battery Management

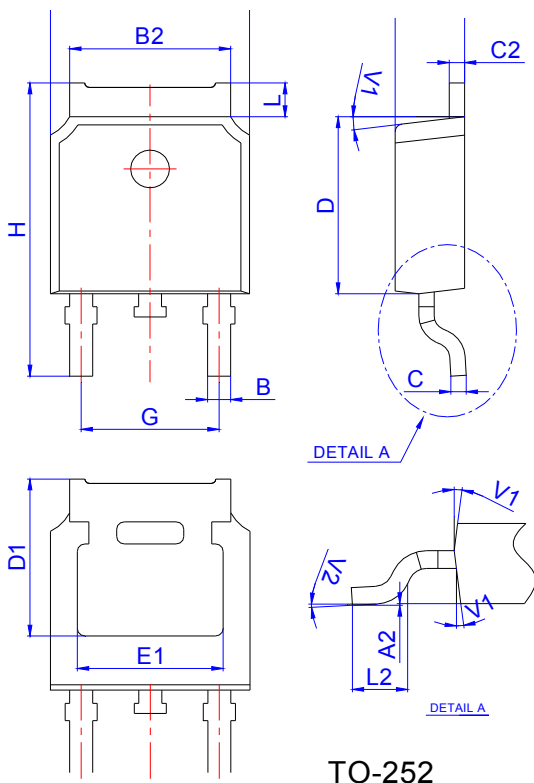
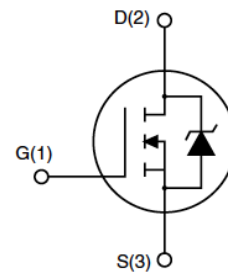
Package



AGM42N10D



AGM42N10I



Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Specifications $T_J = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit		
			Min.	Typ.	Max.			
Static								
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100	--	--	V		
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 95V, V_{GS} = 0V, T_J = 25^\circ\text{C}$	--	--	1	μA		
		$V_{DS} = 95V, V_{GS} = 0V, T_J = 150^\circ\text{C}$	--	--	100			
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 20V$	--	--	± 100	nA		
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.1	--	2.5	V		
Drain-Source On-Resistance (Note3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$	--	19	23	m Ω		
		$V_{GS} = 4.5V, I_D = 16A$	--	23	33			
Forward Transconductance (Note3)	g_{fs}	$V_{DS} = 5V, I_D = 20A$	--	40	--	S		
Dynamic								
Input Capacitance	C_{iss}	$V_{GS} = 0V,$ $V_{DS} = 50V,$ $f = 1.0MHz$	--	1134	--	pF		
Output Capacitance	C_{oss}		--	92	--			
Reverse Transfer Capacitance	C_{rss}		--	10.3	--			
Total Gate Charge	$Q_g(10V)$	$V_{DD} = 50V, I_D = 20A,$ $V_{GS} = 10V$	--	21	--	nC		
	$Q_g(4.5V)$		--	11	--			
Gate-Source Charge	Q_{gs}		--	3.1	--			
Gate-Drain Charge	Q_{gd}		--	5.1	--			
Turn-on Delay Time	$t_{d(on)}$		$V_{DD} = 50V, I_D = 20A,$ $R_G = 3\Omega$	--	7		--	ns
Turn-on Rise Time	t_r			--	3		--	
Turn-off Delay Time	$t_{d(off)}$	--		20	--			
Turn-off Fall Time	t_f	--		3	--			
Drain-Source Body Diode Characteristics								
Continuous Body Diode Current	I_S	$T_C = 25^\circ\text{C}$	--	--	37	A		
Pulsed Diode Forward Current	I_{SM}		--	--	148			
Body Diode Voltage	V_{SD}	$T_J = 25^\circ\text{C}, I_{SD} = 1A, V_{GS} = 0V$	--	0.72	1	V		
Reverse Recovery Time	t_{rr}	$I_F = 20A,$ $di_F/dt = 500A/\mu s$	--	25	--	ns		
Reverse Recovery Charge	Q_{rr}		--	120	--	nC		

Notes

1. Repetitive Rating: Pulse Width limited by maximum junction temperature
2. $I_{AS} = 14A, V_{DD} = 50V, R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$

Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

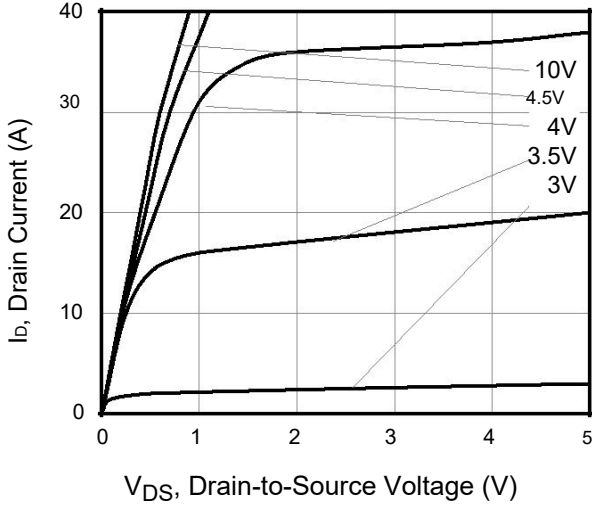


Figure 2. Transfer Characteristics

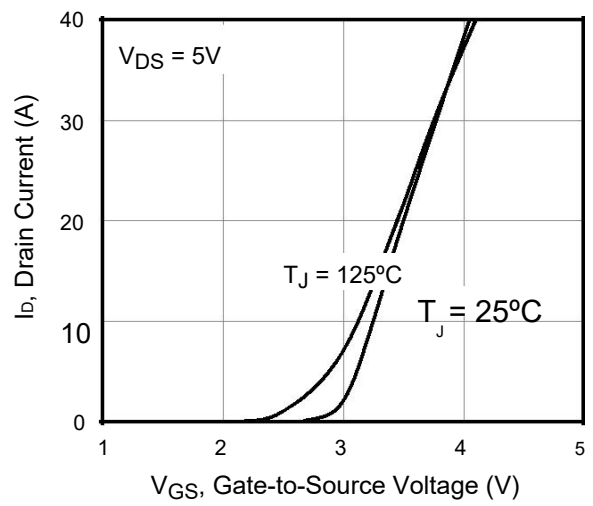


Figure 3. On-Resistance vs. Drain Current

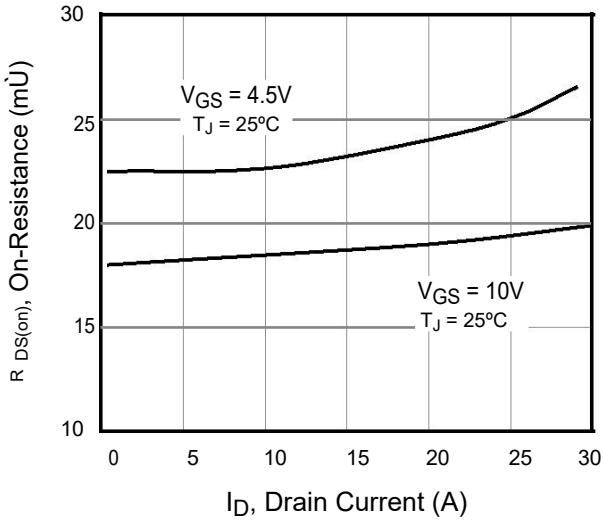


Figure 4. Capacitance

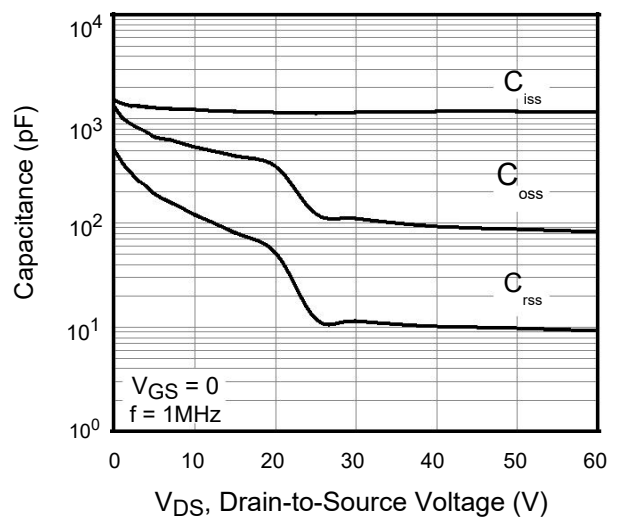


Figure 5. Gate Charge

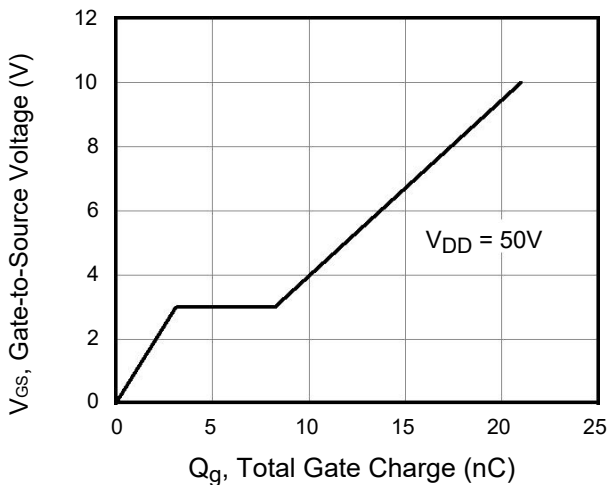
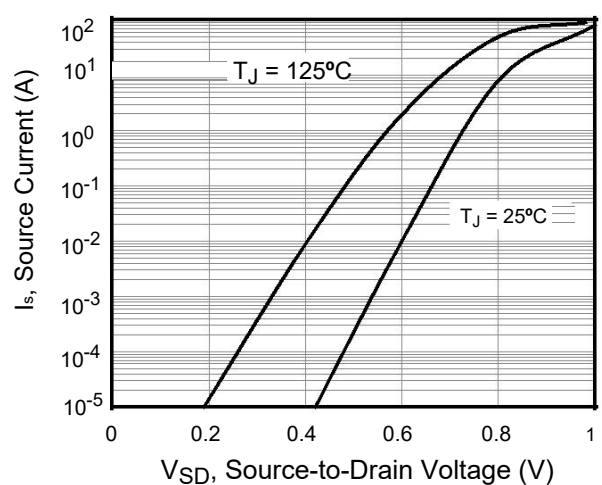
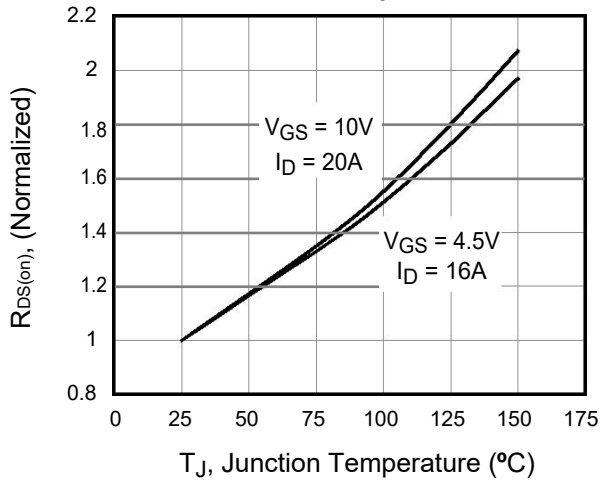
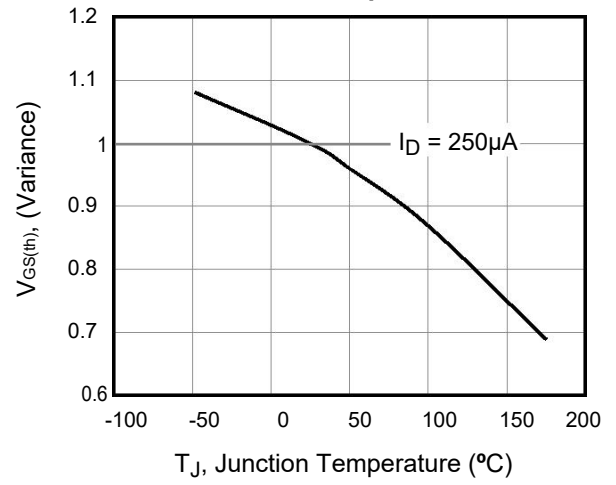
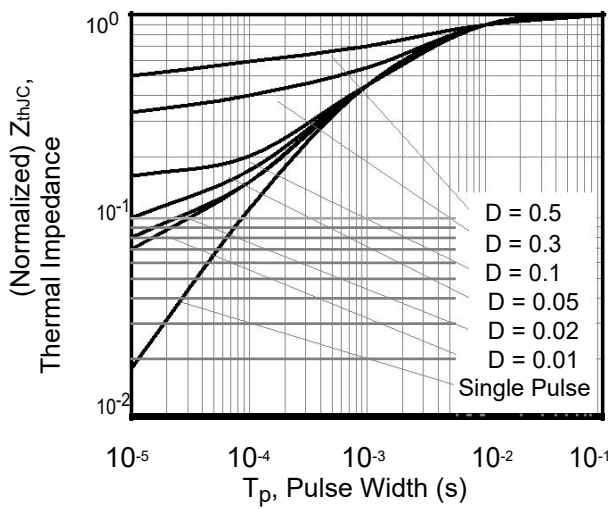


Figure 6. Body Diode Forward Voltage



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted
Figure 7. On-Resistance vs. Junction Temperature

Figure 8. Threshold Voltage vs. Junction Temperature

Figure 9. Transient Thermal Impedance


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