



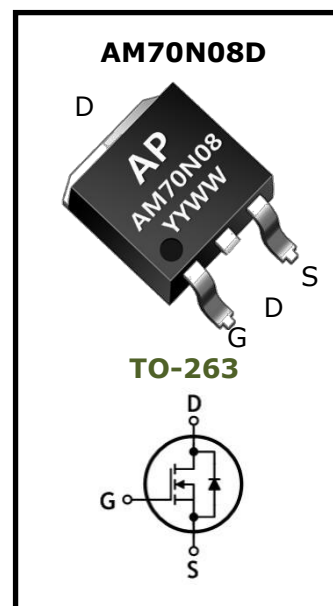
80V 70A N-Channel Enhancement-Mode MOSFET

General Features

BV_{DSS} = 80V
Max. R_{DS(ON)}, V_{GS}@10V, I_{DS}@20A = 12mΩ
High Power and current handling capability
Improved dv/dt capability
Fast switching
100% EAS Guaranteed
Green Device Available

Application

Motor drive control unit of Network system switch.
Load Switch
LED applications
Robot system or Drone system



Ordering Information

Device	Package	Packing	Finish	Halogen	Packing Unit
AM70N08D	TO-263	Reel&Tape	Sn	Free	750 ea

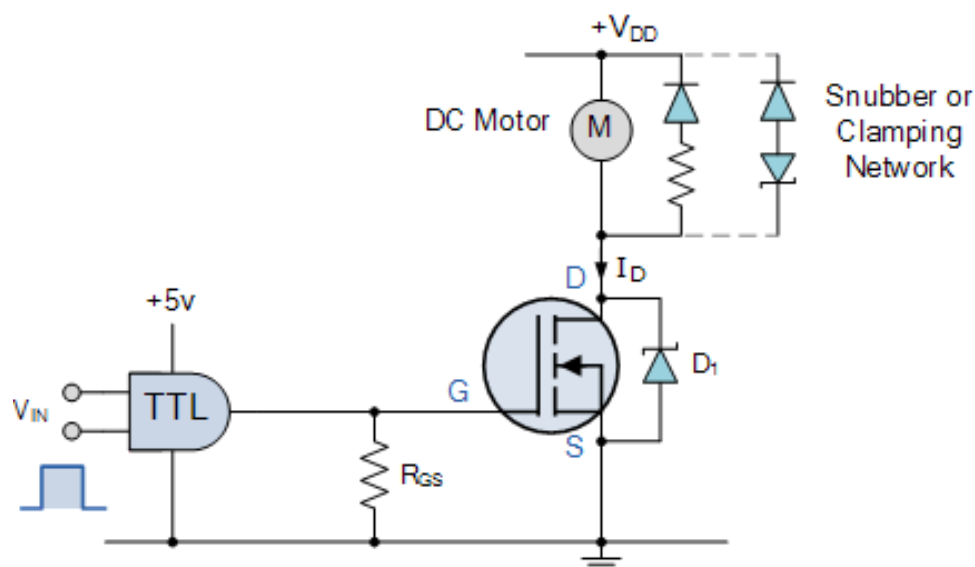
Package Outline

- ST
1 Line : Company Information
- nd
2 Line : Device name : AM70N08D
- D : TO-263 PKG code
- rd
3 Line : Date Code
- YY : Last two digit of calendar year
- WW : Work week code





Application Circuit



<Figure 1. Motor drive control with AM70N08D>

Maximum Ratings and Thermal Characteristics (T_A=25 °C, unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	80	V
Gate-Source Voltage	V _{GSS}	±25	
Drain Current	I _D (25°C)	70	A
	I _D (100°C)	44	
Pulsed Drain Current ¹	I _{DM}	280	
Maximum Power Dissipation	P _D (25°C)	113	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-50 to 150	°C
Single Avalanche Current	I _{AR}	60	A
Avalanche Energy with Single Pulse ²	E _{AS}	180	mJ
Repetitive Avalanche Energy ²	E _{AR}	60	

Thermal Characteristics

Rating	Symbol	Max.	Unit
Thermal Resistance Junction to ambient	R _{θJA}	62	°C/W
Thermal Resistance Junction to Case	R _{θJC}	1.1	



Electrical Characteristic ($T_c=25\text{ }^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250 μ A	80			V
BV _{DSS} Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D = 1mA		0.05		V/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V, T _J = 25 °C			1	μA
		V _{DS} = 64V, V _{GS} = 0, T _J = 125 °C			10	
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±25V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A		9.8	12	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = 250uA	2	3	4	V
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)}			-5		mV/°C
Forward Transconductance	g _{fs}	V _{DS} = 10V, I _D = 3A		10		S
DYNAMIC CHARACTERISTICS						
Total Gate Charge ^{3,4}	Q _g	V _{DS} = 40V, V _{GS} = 10V, I _D = 10A		31.2	48	nC
Gate-Source Charge ^{3,4}	Q _{gs}			9	18	nC
Gate-Drain Charge ^{3,4}	Q _{gd}			9.2	18	nC
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1.0MHz		1810	2700	pF
Output Capacitance	C _{oss}			252	380	pF
Reverse Transfer Capacitance	C _{rss}			100	150	pF
Turn-On Delay Time ^{3,4}	t _{d(on)}	V _{DD} =40V, V _{GS} = 10V, R _G = 6Ω I _D = 1A		22	44	nS
Turn-On Rise Time ^{3,4}	t _r			16	32	nS
Turn-Off Delay Time ^{3,4}	t _{d(off)}			40	80	nS
Turn-Off Fall Time ^{3,4}	t _f			31	62	nS
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =40A			1	V
Pulse Source Current	I _{SM}	V _G =V _D =0V, Force Current			140	A
Continuous Source Current	I _S				70	A

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. $V_{DD} = 25V, V_{GS} = 10V, L = 0.1\text{mH}, I_{AS} = 60A, \text{Starting } T_J = 25^{\circ}\text{C}$
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
4. Essentially independent of operating temperature



Characteristic Curve

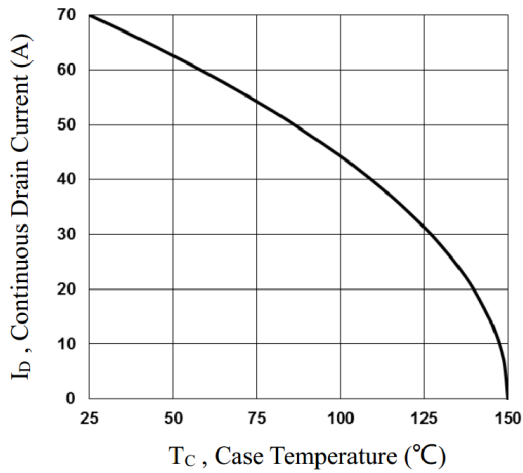


Fig.2 Continuous Drain Current vs. T_C

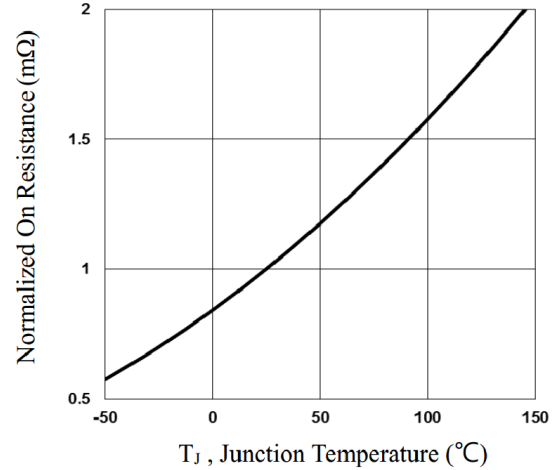


Fig.3 Normalized $R_{DS(ON)}$ vs. T_J

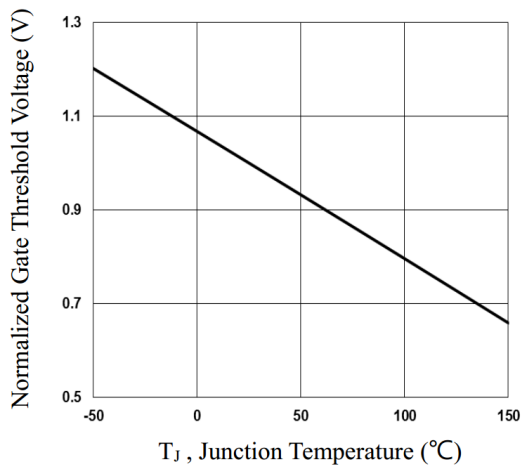


Fig.4 Normalized V_{th} vs. T_J

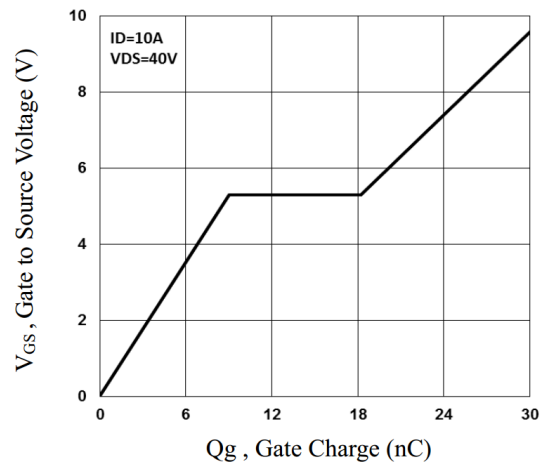


Fig.5 Gate Charge Characteristics

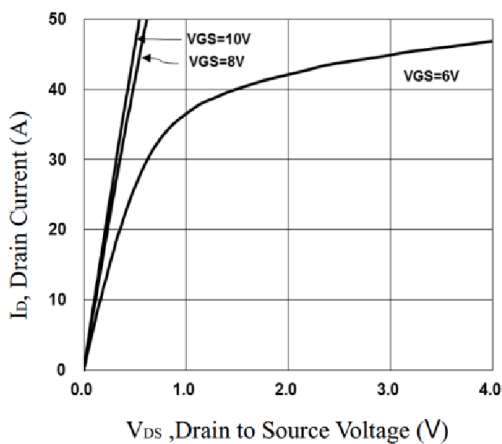


Fig.6 Typical Output Characteristics

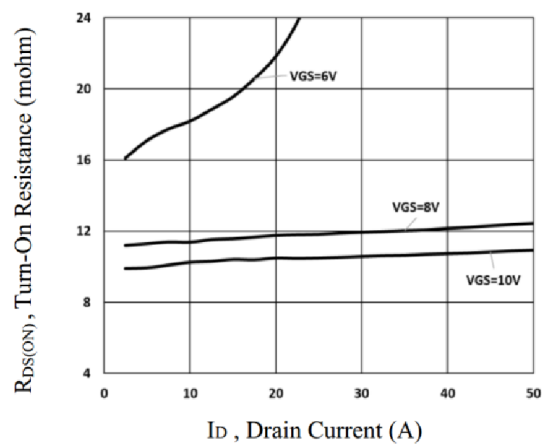


Fig.7 Turn-On Resistance vs. I_D

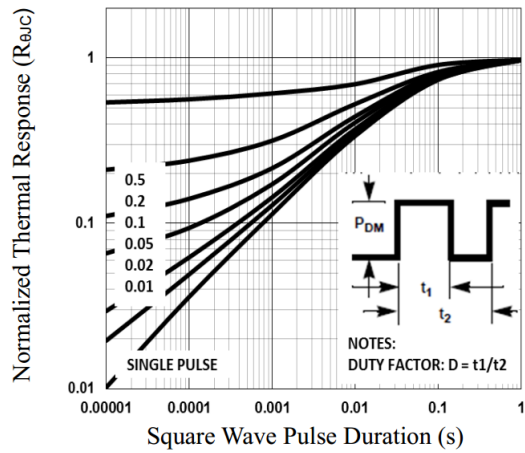


Fig.7 Normalized Transient Impedance

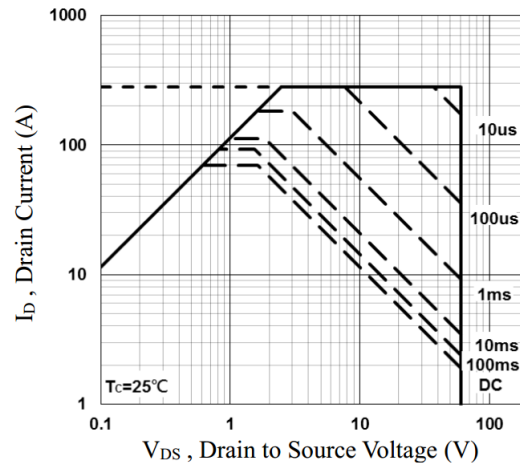


Fig.8 Maximum Safe Operation Area

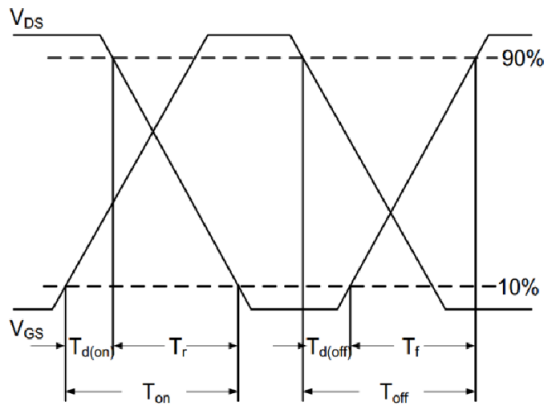


Fig.9 Switching Time Waveform

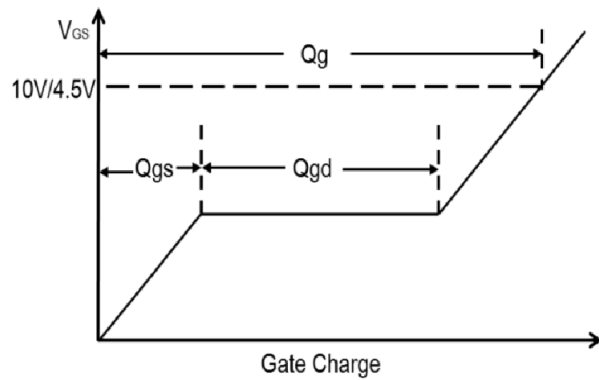


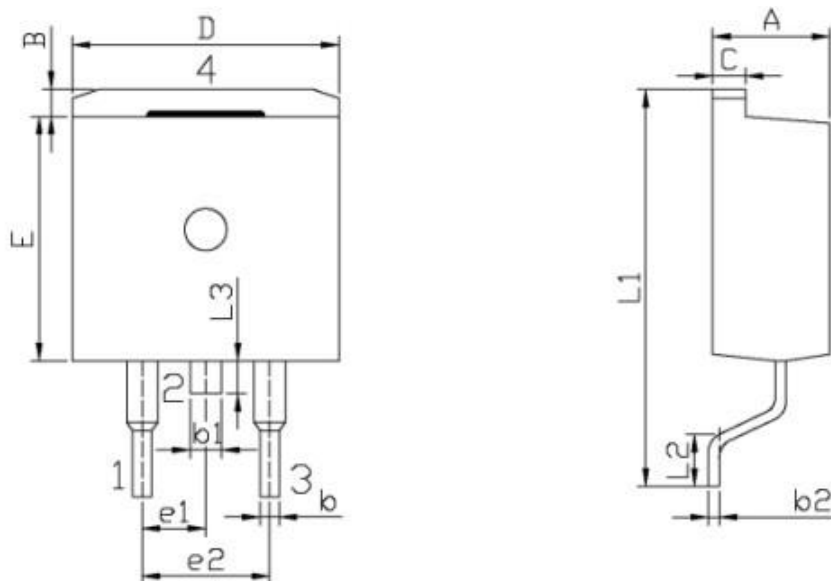
Fig.10 Gate Charge Waveform



Package Dimensions

TO-263

Unit : mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			



Revision History

No	Date	Contents
0	2017-09-21	Initial Brief Datasheet Release

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