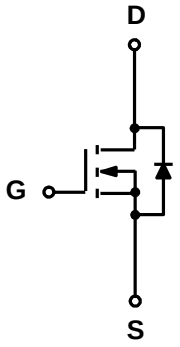
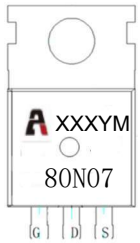
Features

- 70V,80A
  $R_{DS(ON)}$ <9mΩ @V_{GS}=10V TYP:7.3mΩ
- Good stability and uniformity
- 100% avalanche tested
- Excellent package for good heat dissipation





Marking and pin assignment

Applications

- Primary Side Switching
- Synchronous Rectification
- DC/AC Inverters
- LED Backlighting

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
80N07	AP80N07	TO-220	-	-	1000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	70	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)(1)	I_D	80	A
Continuous Drain Current (Tc=100℃)(1)	I_D	52	A
Pulsed Drain Current (2,3)	I_{DM}	320	A
Drain Power Dissipation(1)	P_D	120	W
Single Pulsed Avalanche Energy	E_{AS}	170	mJ
Thermal Resistance from Junction to Case(1)	$R_{\theta JC}$	0.9	℃/W
Thermal Resistance- Junction to Ambient(1)	$R_{\theta JA}$	62	℃/W
Junction Temperature	T_J	-55~ +175	℃
Storage Temperature	T_{STG}	-55~ +175	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_j=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	70	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =70V, 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	2.0	3.0	4.0	V
Drain-source on-resistance(4)	$R_{DS(on)}$	V_{GS} =10V, I_D =30A	-	7.3	9	mΩ
Dynamic characteristics(5)						
Input Capacitance	C_{iss}	V_{DS} =30V, VGS=0V, f=1MHz	-	3900	-	pF
Output Capacitance	C_{oss}		-	230	-	
Reverse Transfer Capacitance	C_{rss}		-	220	-	
Switching characteristics(5)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V, I_D=20A, R_G=6Ω, V_{GS}=10V	-	19	-	nS
Turn-on rise time	t_r		-	50	-	
Turn-off delay time	$t_{d(off)}$		-	60	-	
Turn-off fall time	t_f		-	40	-	
Total Gate Charge	Qg	V_{DS}=30V, I_D=20A, V_{GS}=10V	-	80	-	nC
Gate-Source Charge	Qgs		-	18	-	
Gate-Drain Charge	Qgd		-	20	-	
Source-Drain Diode characteristics						
Diode Forward voltage(4)	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=20A	-	-	1.3	V
Diode Forward current	I_S	T_C=25℃	-	70	-	A
Body Diode Reverse Recovery Time	trr	T_J=25℃, IF=20A,di/dt=100A/us	-	89	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	315	-	nC

Notes:

1) Surface Mounted on 1 in² pad area, t ≤ 10 sec
2) Pulse width ≤ 10μs, duty cycle ≤ 1 %
3) Limited by bonding wire
4) Pulse width ≤ 300 μs, duty cycle ≤ 2%
5) Guaranteed by design, not subject to production testing

Typical Characteristics

Fig.1 Power Dissipation Derating Curve

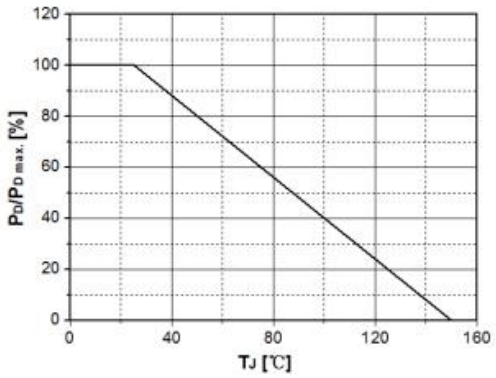


Fig.2 Avalanche Energy Derating Curve vs. Junction Temperature

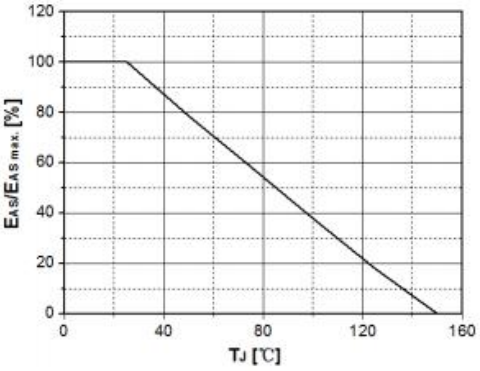


Fig.3 Typical Output Characteristics

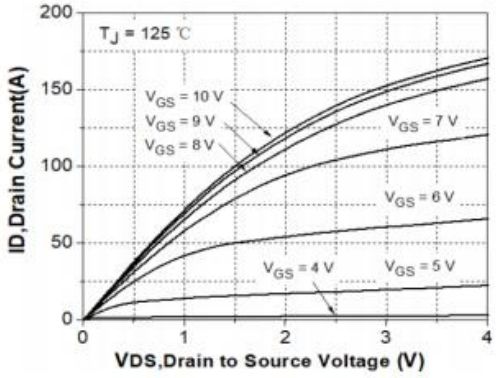


Fig. 4 Transconductance vs. Drain Current

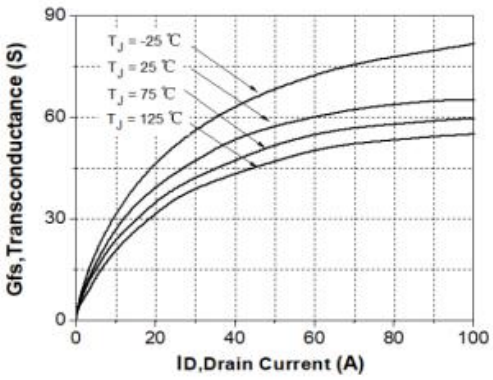


Fig.5 Typical Transfer Characteristics

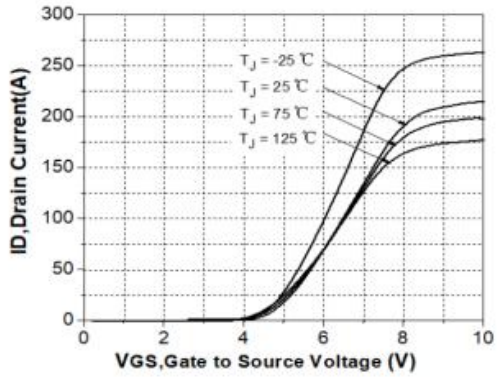
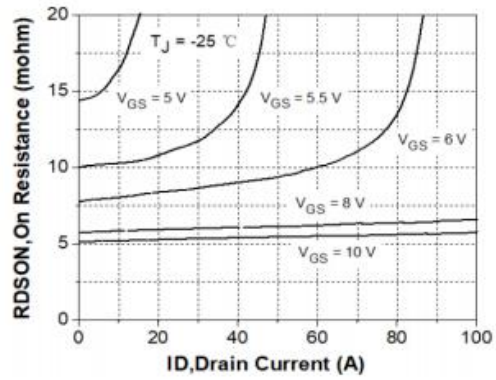


Fig. 6 State Resistance vs. Drain Current @-25℃



Typical Characteristics (cont.)

Fig.7 State Resistance vs. Drain Current @25℃

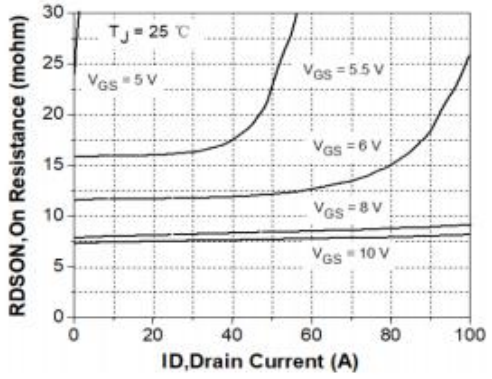


Fig. 8 State Resistance vs. Drain Current @125℃

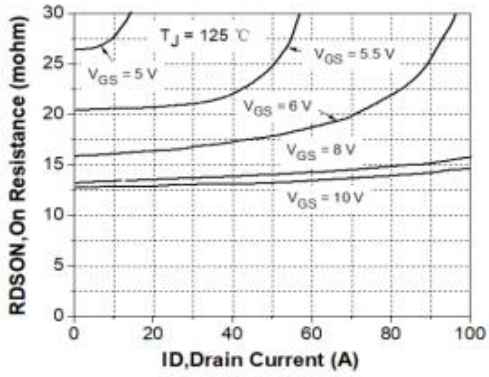


Fig.9 Typical Capacitance vs. Drain Source Voltage

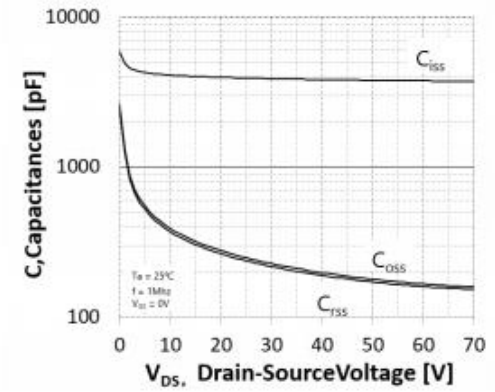


Fig.10 Dynamic Input Characteristics

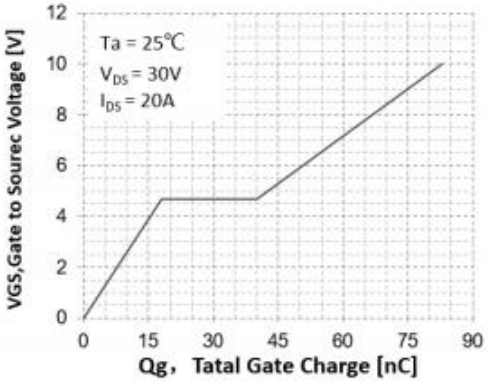


Fig.11 Breakdown Voltage vs. Junction Temperature

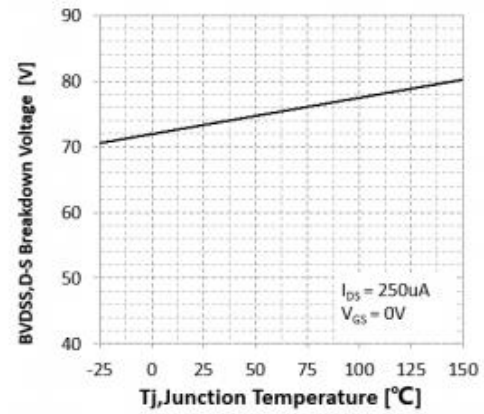
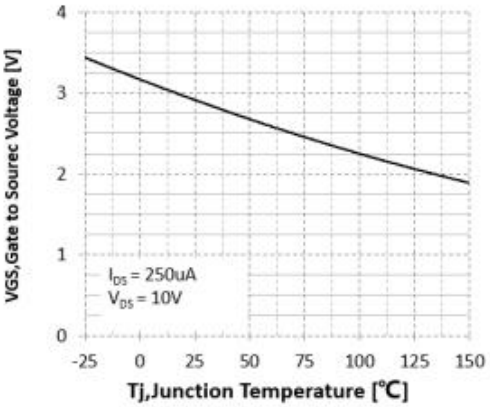


Fig. 12 Gate Threshold Voltage vs. Junction Temperature



Typical Characteristics (cont.)

Fig.13 On-Resistance Variation vs. Junction Temperature

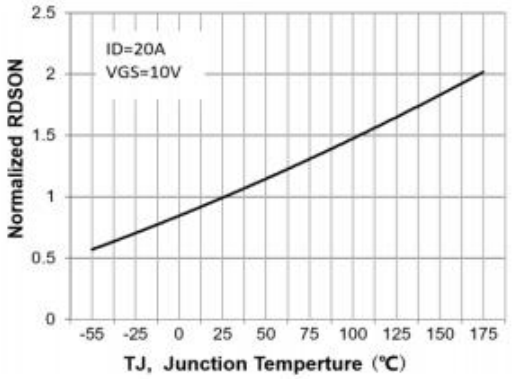


Fig.14 Maximum Drain Current vs. Case Temperature

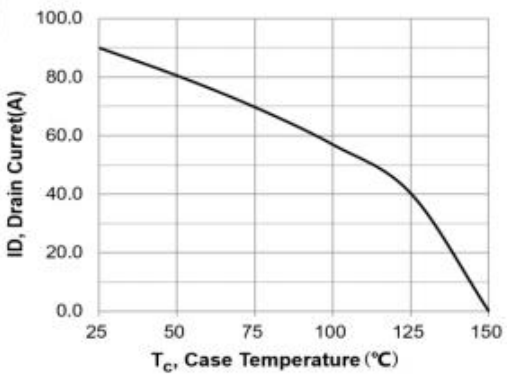


Fig.15 Body Diode Forward Voltage Vs Reverse Drain Current

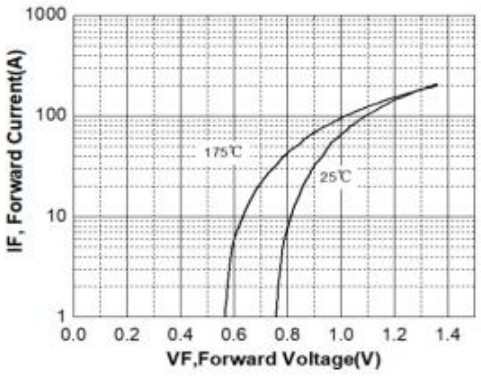


Fig.16 Safe Operating Area

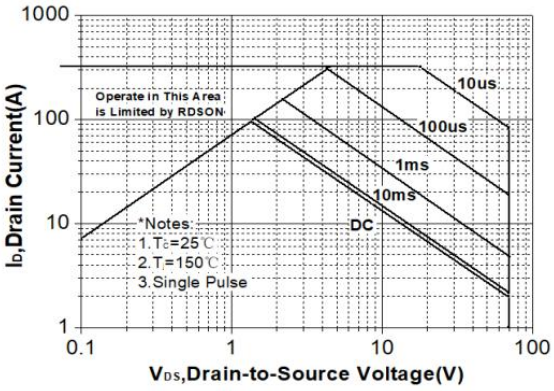
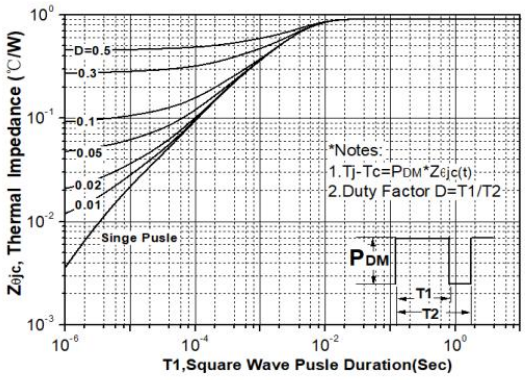
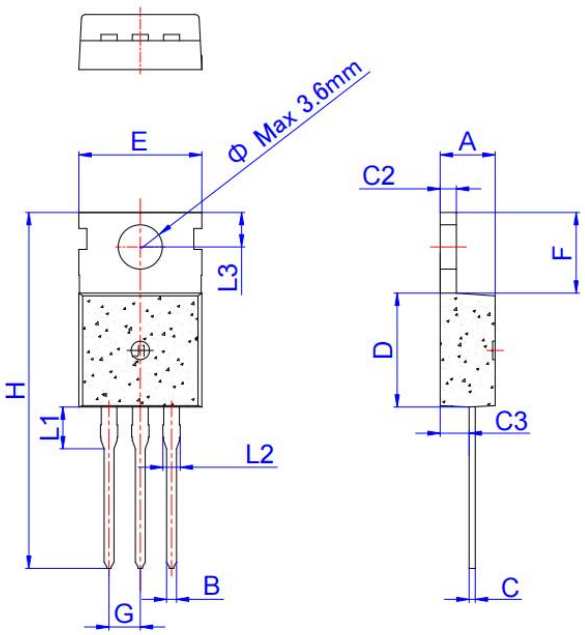


Fig. 17 Transient Thermal Response Curve



TO-220 Package Information



TO-220

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

Revision History

Revision	Release	Remark
V1.0	2023/08/01	Initial Release

Disclaimer

The information given in this document describes the independent performance of the product,but similar performance is not guaranteed under other working conditions,and cannot be guaranteed when installed with other products or equipment.To achieve the required performance of the product in actual scenarios,the customer should conduct a complete application test to assess the functionality of the product.

Allpower assumes no responsibility for equipment failures result from using products at values that exceed the ratings,operating conditions,or other parameters listed in the product specifications.

The product described in this specification is not applicable for aerospace or other applications which
requires high reliability.Customers using or selling these products for use in medical,life-saving,or life-sustaining applications do so at their own risk and agree to fully indemnify.

Due to product or technical improvements,the information described or contained herein may be changed without prior notice.