Features

- 100% EAS Guaranteed
- Super Low Gate Charge
- Green Device Available
- Excellent Cdv/dt effect decline
- Advanced high cell density Trench technology

Bvdss	Rdson	ID
70V	5.5mΩ	80A

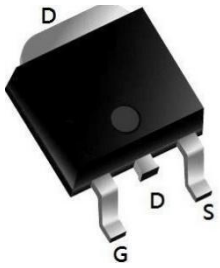
RoHS

Application

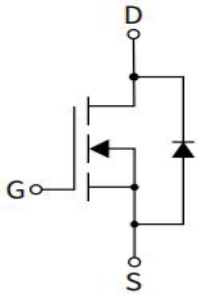
- PWM applications
- Load Switch
- Power management

Package

Marking and pin assignment



TO-252 top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
80N07	80N07	TO-252	2500

Absolute Maximum Ratings (T_C=25℃unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	70	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current,V_{GS}@10V[1]	T_C = 25℃	I_D	80	A
	T_C = 100℃		60	A
Pulsed Drain Current[2]		I_{DM}	364	A
Avalanche Current		I_{AS}	--	A
'Single Pulsed Avalanche Energy[3]		E_{AS}	400	mJ
Power Dissipation[4]	TC = 25℃	P_D	136	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	℃

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance,Junction to Ambient[1]	$R_{\theta JA}$	--	℃/W
Thermal Resistance, Junction to Case[1]	$R_{\theta JC}$	1.1	℃/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL80N07	TO-252	1	2	3	Tape Reel

Electrical Characteristics (Tj=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V, I_D = 250μA	70	-	-	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain Cut-off Current	I_{DSS}	V_{DS}=70V, V_{GS}=0V,T_J=25℃	-	-	1	μA
		V_{DS}=70V, V_{GS}=0V,T_J=100℃	-	-	100	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	2	3	4	V
Drain-Source On-State Resistance[2]	$R_{DS(on)}$	V_{GS}=10V, I_D=40A	-	5.5	7	mΩ
Forward Trans conductance	gfs	V_{DS}=10V,I_D=20A	-	33	-	S
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,F=1MHz	-	0.7	-	Ω
Input Capacitance	Ciss	V_{GS}=0V, V_{DS}=34V, f=1MHz	-	4723	-	pF
Output Capacitance	Coss		-	225	-	
Reverse Transfer Capacitance	Crss		-	207	-	
Total Gate Charge	Qg	V_{GS}=10V, V_{DS}=34V, I_D=20A	-	76	-	nC
Gate-Source Charge	Qgs		-	16	-	
Gate-Drain Charge	Qgd		-	20	-	
Turn-On Time	td(on)	V_{GS}=10V, V_{DD}=34V, R_G= 6Ω	-	14.8	-	ns
Rise Time	tr		-	33.2	-	
Turn-Off Time	td(off)		-	59.2	-	
Fall Time	tf		-	12	-	
Body Diode Voltage[2]	V_{SD}	V_{GS}=0V,I_S=1A,T_J=25℃	-	-	1.2	V

Continuous Source Current[1,4]	I_S	$V_G=V_D=0V$,Force Current	-	-	80	A
Body Diode Reverse Recovery Time	trr	$I_F=20A$,dI/dt=100A/us, $T_J=25℃$	-	29	-	ns
Body Diode Reverse Recovery Charge	Qrr		-	35	-	nC

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. The EAS data shows Max. rating . The test condition is T_J = 25°C ,V_{DD}=40V,V_G=10V, Rg=25Ω, L=0.5mH.
4. The power dissipation is limited by 150℃ junction temperature
5. The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

Figure 1. Output Characteristics

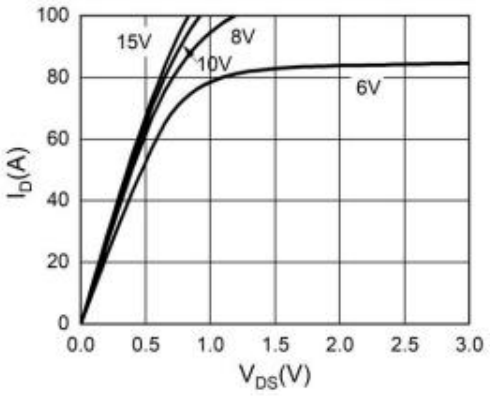
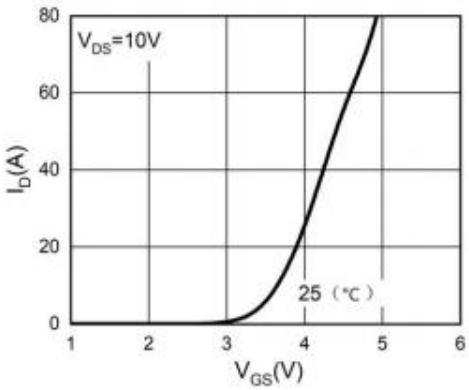
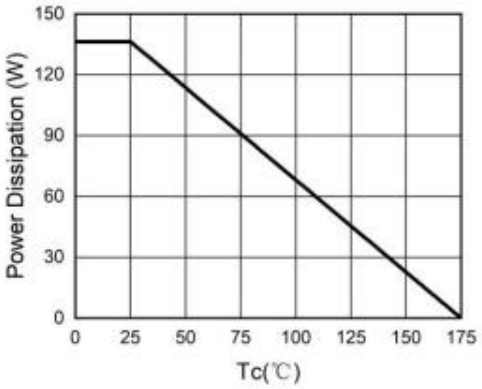


Figure 2. Transfer Characteristics





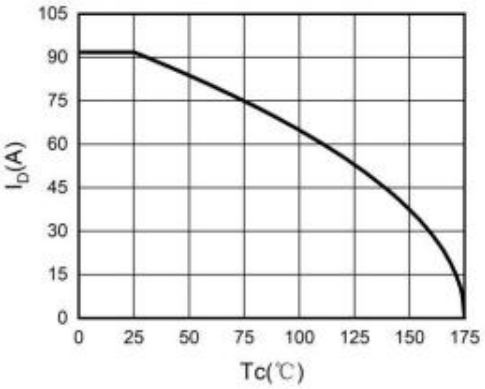


Figure 5. BV_{DSS} vs Junction Temperature

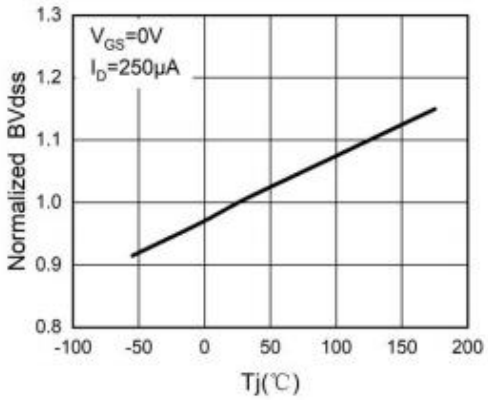


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

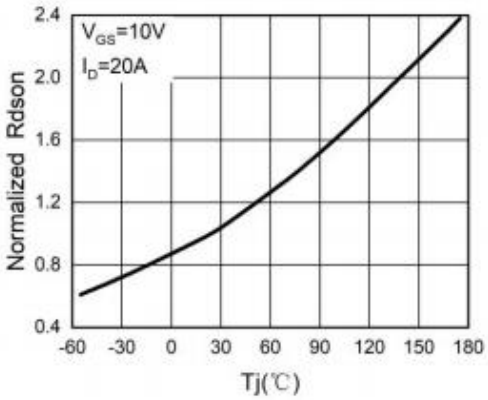


Figure 7. Gate Charge Waveforms

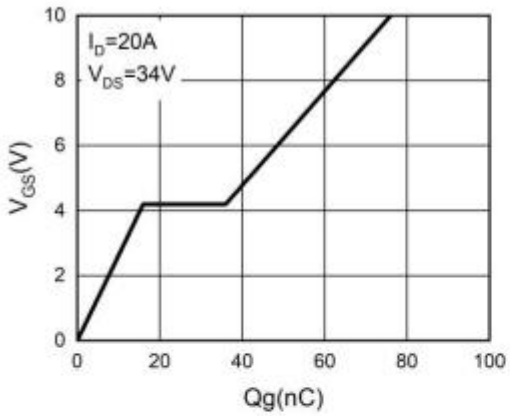


Figure 8. Capacitance

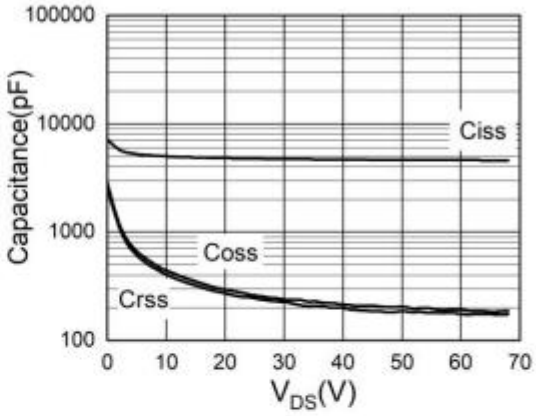


Figure 9. Body-Diode Characteristics

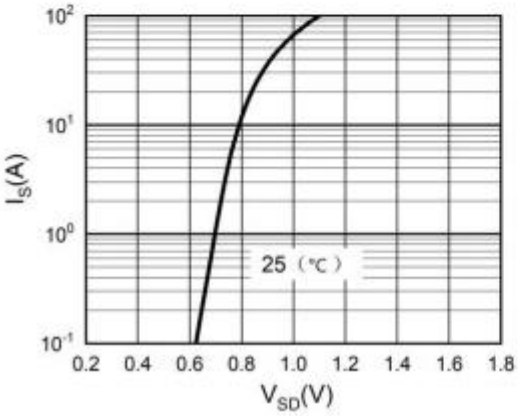
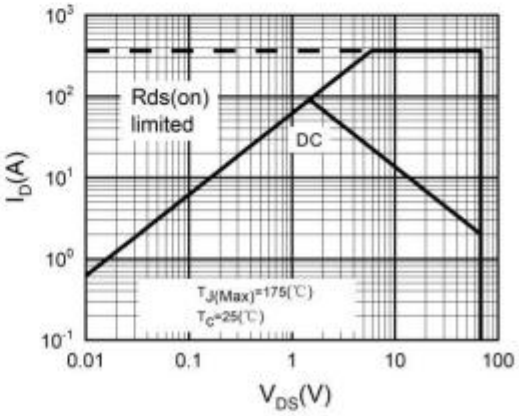
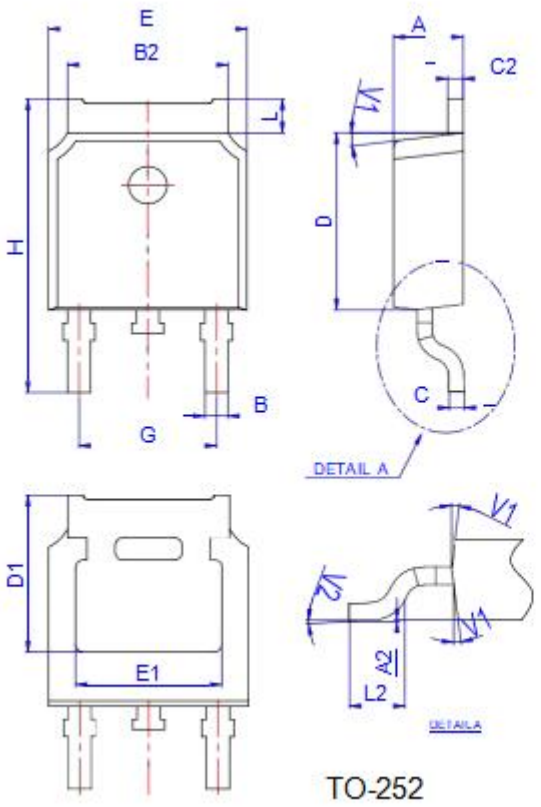


Figure 10. Maximum Safe Operating Area

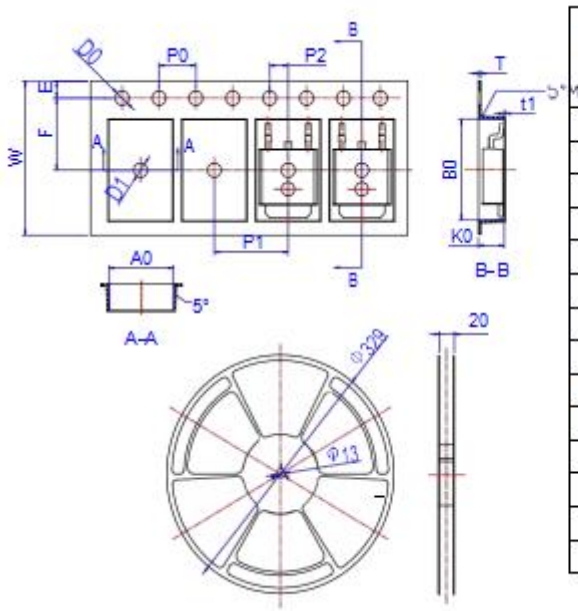


Package Dimensions TO-252



TO-252

Ref.	Dimensions					
	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°



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.270	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583

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