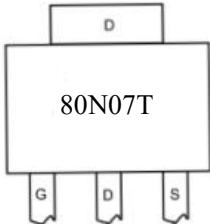
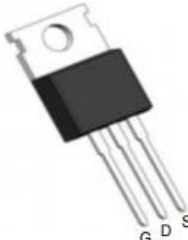
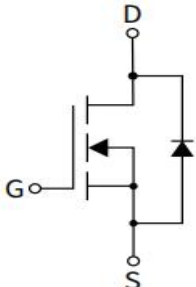


Features ➤ 100% EAS Guaranteed ➤ Green Device Available ➤ Super Low Gate Charge ➤ Excellent CdV/dt effect decline ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	70V	5mΩ	80A
	Application ➤ Power factor correction (PFC) ➤ Switching power supply (SMPS) ➤ LED driver		



Package
 Marking and pin assignment  TO-220 top view  Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
80N07	80N07T	TO220	50

Absolute Maximum Ratings (T_C=25°C 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	I _D @T _C = 25°C	I _D	80	A
	I _D @T _C = 100°C		60	A
Pulsed Drain Current ²		I _{DM}	364	A
Single Pulsed Avalanche Energy ³		EAS	400	mJ
Avalanche Current		I _{AS}	-	A
Total Power Dissipation ⁴	T _C = 25°C	P _D	136	W
Operating Junction Temperature Range		T _J	-55 ~ 150	°C
Storage Temperature Range		T _{STG}	-55 ~ 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Ambient ¹	R _{θJA}	--	°C/W
Thermal Resistance Junction-Case ¹	R _{θJC}	1.1	°C/W



Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL80N07T	TO220	1	2	3	Tube

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	70	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=70V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	1	μA
		$V_{DS}=70V, V_{GS}=0V, T_J=100^{\circ}\text{C}$	-	-	100	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2	3	4	V
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS}=10V, I_D=40A$	-	5	6.5	m Ω
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=20A$	-	33	-	S
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1\text{MHz}$	-	0.7	-	Ω
Total Gate Charge	Q_g	$V_{DS}=34V, V_{GS}=10V, I_D=20A$	-	76	-	nC
Gate Source Charge	Q_{gs}		-	16	-	
Gate Drain Charge	Q_{gd}		-	20	-	
Turn-On Delay Time	$T_{d(on)}$	$V_{GS}=10V, V_{DD}=34V, R_G=6\Omega$	-	14.8	-	ns
Rise Time	T_r		-	33.2	-	
Turn-Off Delay Time	$T_{d(off)}$		-	59.2	-	
Fall Time	T_f		-	12	-	
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=34V, f=1\text{MHz}$	-	4723	-	pF
Output Capacitance	C_{oss}		-	225	-	
Reverse Transfer Capacitance	C_{rss}		-	207	-	
Diode Continuous Current ^{1,4}	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	80	A
Diode Forward Voltage ²	V_{SD}	$I_S=1A, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	1.2	V
Reverse Recovery Time	t_{rr}	$I_F=20A, di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	-	29	-	ns
Reverse Recovery Charge	Q_{rr}		-	35	-	nC

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating. The test condition is $T_J = 25^{\circ}\text{C}, V_{DD}=40V, V_{GS}=10V, R_g=25\Omega, L=0.5\text{mH}$
4. The power dissipation is limited by 150°C junction temperature
5. The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

Typical Performance Characteristics

Figure 1. Output Characteristics

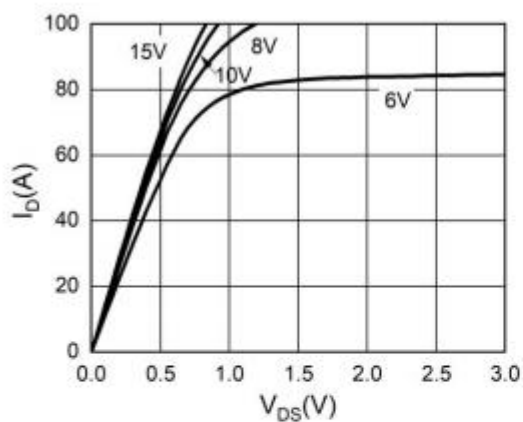


Figure 2. Transfer Characteristics

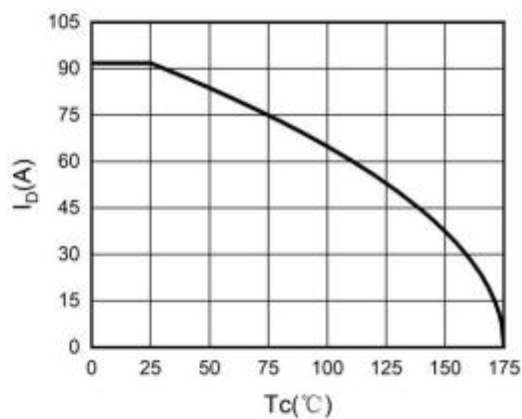
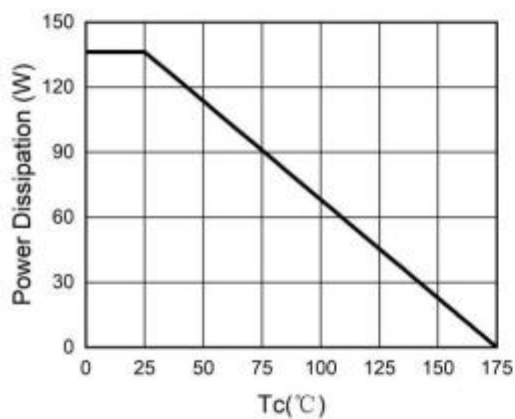
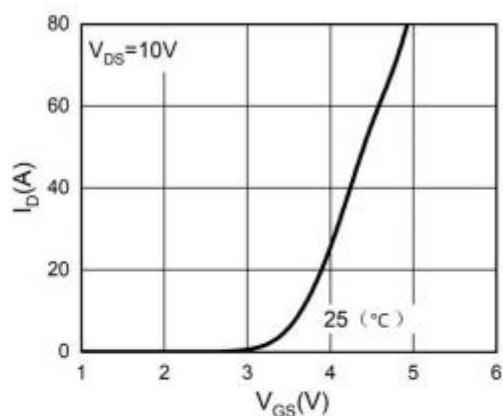


Figure 5. BV_{DSS} vs Junction Temperature

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

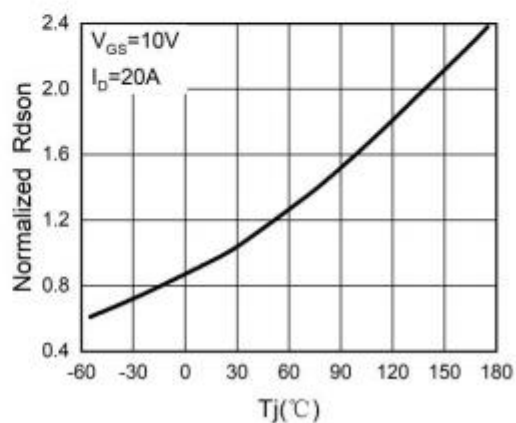
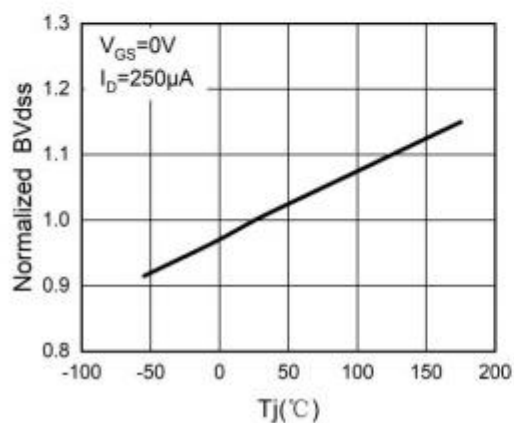


Figure 7. Gate Charge Waveforms

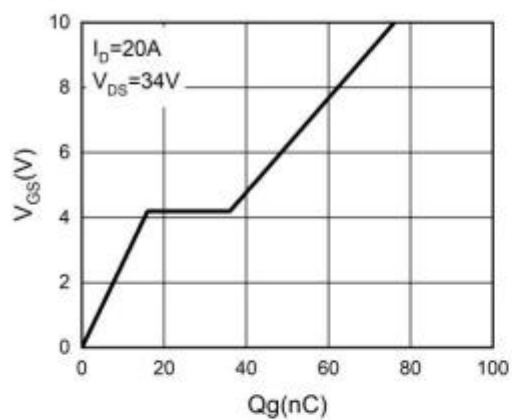


Figure 8. Capacitance

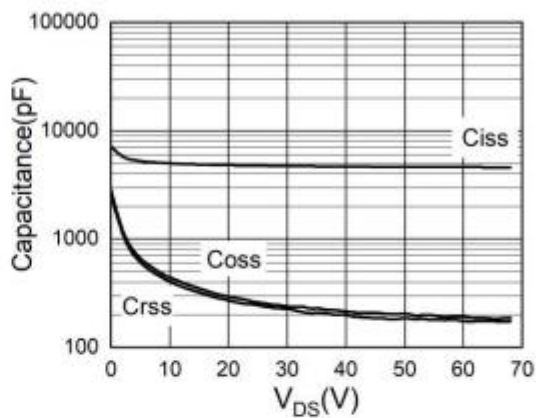


Figure 9. Body-Diode Characteristics

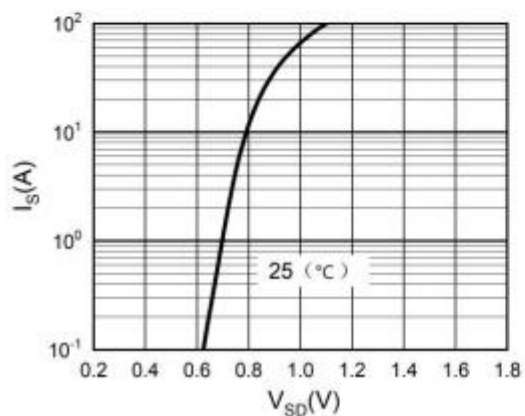
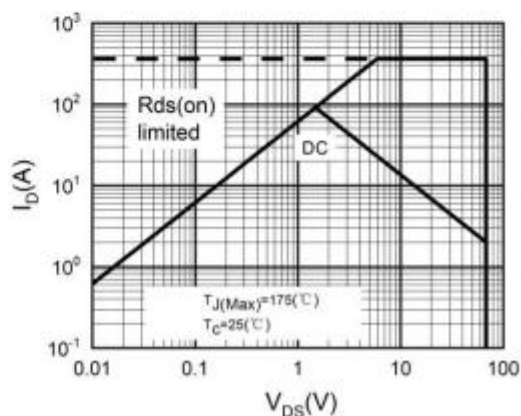
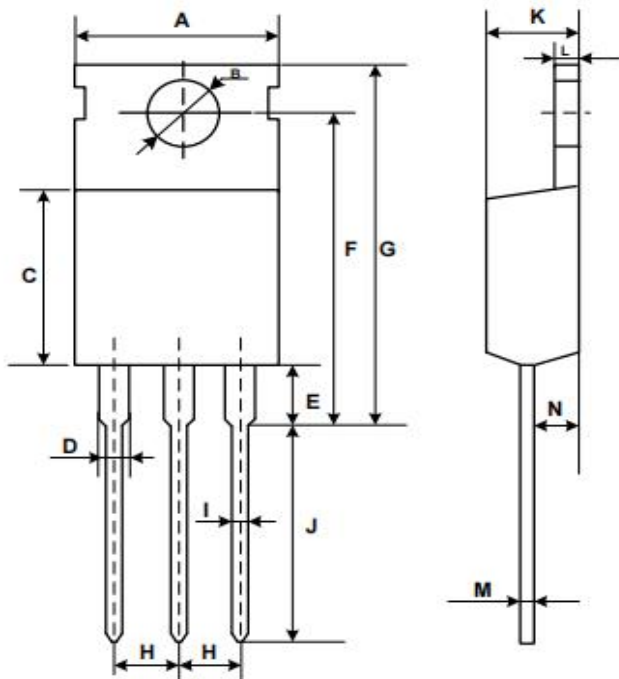


Figure 10. Maximum Safe Operating Area





Package Dimensions TO-220



SYMBOL	MM	
	MIN	MAX
A	9.70	10.30
B	3.40	3.80
C	8.80	9.40
D	1.17	1.47
E	2.60	3.50
F	15.10	16.70
G	19.55MAX	
H	2.54REF	
I	0.70	0.95
J	9.35	11.00
K	4.30	4.77
L	1.20	1.45
M	0.40	0.65
N	2.20	2.60



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