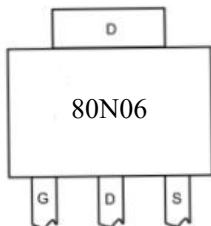
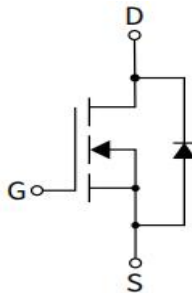


Features ➤ Green Device Available ➤ Super Low Gate Charge ➤ 100% EAS Guaranteed ➤ Excellent CdV/dt effect decline ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	60V	5.3mΩ	80A
	Application ➤ PWM applications ➤ Power management functions ➤ Synchronous-rectification applications		

RoHS

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

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
80N06	80N06T	TO220	50

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±25	V
Continuous Drain Current V _{GS} @10V	I _D @T _C = 25°C	I _D	80	A
	I _D @T _C = 100°C	I _D	52	A
Pulsed Drain Current ¹		I _{DM}	320	A
Single Pulsed Avalanche Energy ²		EAS	169	mJ
Avalanche Current		I _{AS}	-	A
Power Dissipation	T _C = 25°C	P _D	108	W
Junction Temperature		T _J	-55~+175	°C
Storage Temperature		T _{STG}	-55~+175	°C

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Ambient ¹	R _{θJA}	-	°C/W
Thermal Resistance Junction-Case ¹	R _{θJC}	1.4	°C/W



Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL80N06T	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}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$	-	-	1	μA
Gate to Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2	3	4	V
Static Drain-Source On-Resistance ³	$R_{DS(on)}$	$V_{GS}=10\text{V}$, $I_D=30\text{A}$	-	5.3	7	m Ω
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	-	4136	-	pF
Output Capacitance	C_{oss}		-	286	-	
Reverse Transfer Capacitance	C_{rss}		-	257	-	
Total Gate Charge	Q_g	$V_{DS}=30\text{V}$, $V_{GS}=10\text{V}$, $I_D=30\text{A}$	-	90	-	nC
Gate Source Charge	Q_{gs}		-	9	-	
Gate Drain("Miller")Charge	Q_{gd}		-	18	-	
Turn-on Delay Time	$T_{d(on)}$	$V_{DS}=30\text{V}$, $V_{GS}=10\text{V}$ $I_D=30\text{A}$, $R_G=1.8\Omega$	-	9	-	ns
Turn-on Rise Time	T_r		-	7	-	
Turn-off Delay Time	$T_{d(off)}$		-	40	-	
Turn-off Fall Time	T_f		-	15	-	
Maximum Continuous Drain to Source Diode Forward Current	I_S	-	-	-	80	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}	-	-	-	320	A
Drain to Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$, $I_S=30\text{A}$	-	-	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F=30\text{A}$, $di/dt=100\text{A}/\mu\text{s}$	-	33	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	46	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : $T_J=25^{\circ}\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$, $I_{AS}=26\text{A}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

Typical Characteristics

Figure 1: Output Characteristics

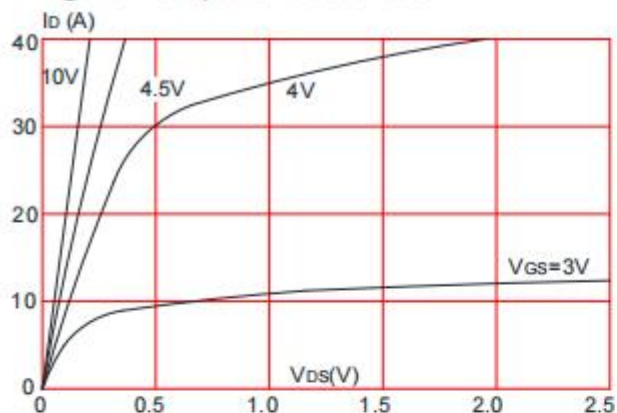


Figure 2: Typical Transfer Characteristics

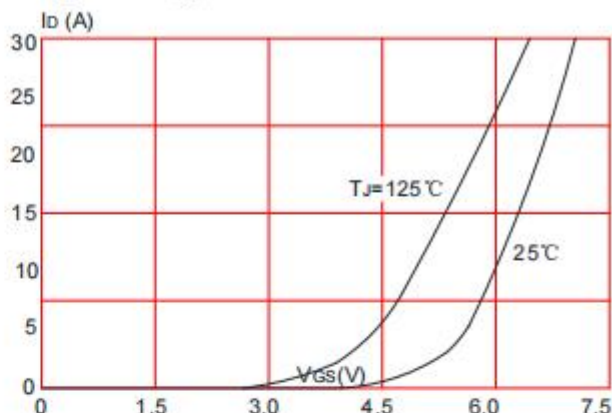


Figure 3: On-resistance vs. Drain Current

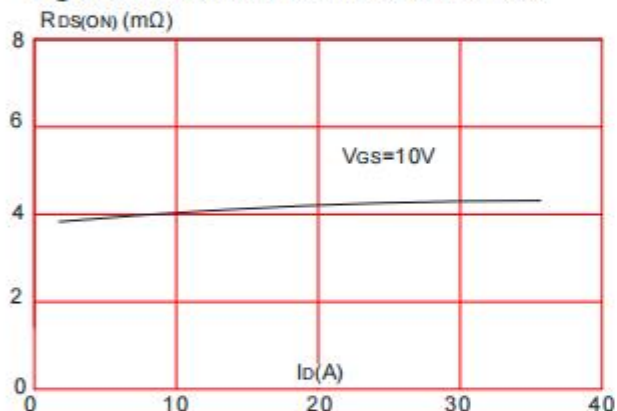


Figure 4: Body Diode Characteristics

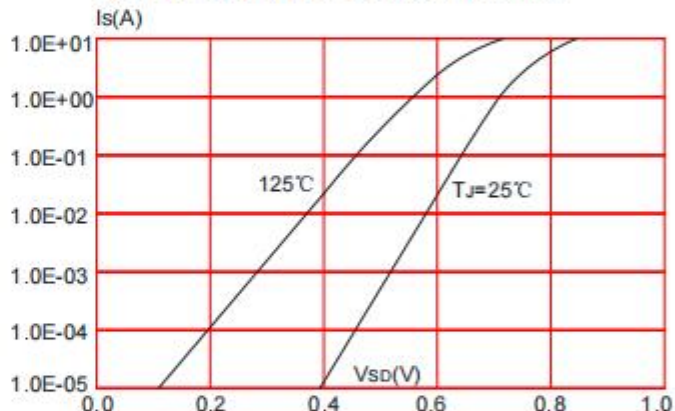


Figure 5: Gate Charge Characteristics

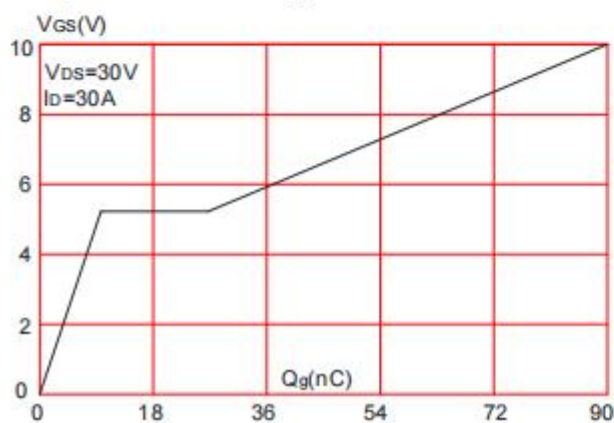


Figure 6: Capacitance Characteristics

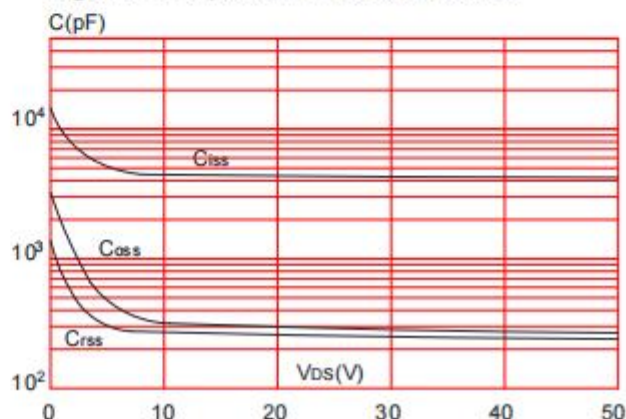


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

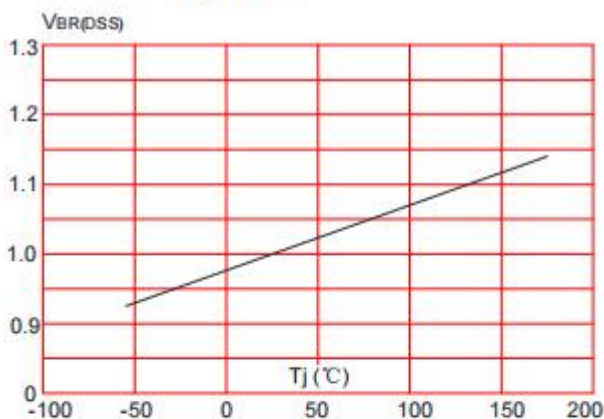


Figure 8: Normalized on Resistance vs. Junction Temperature

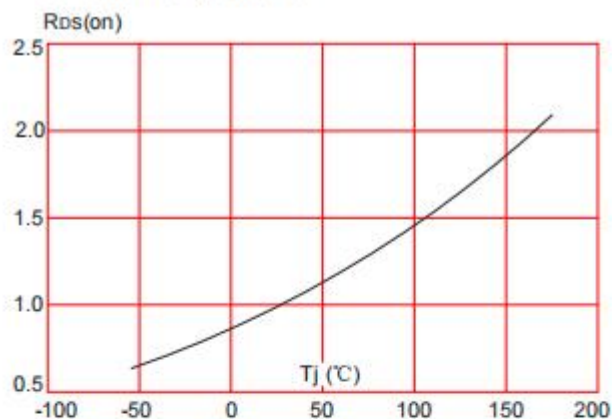


Figure 9: Maximum Safe Operating Area

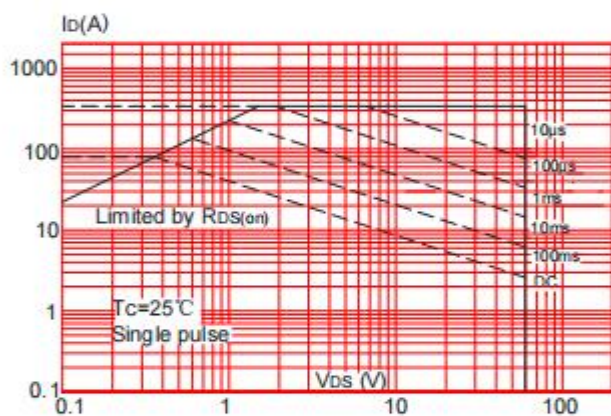


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

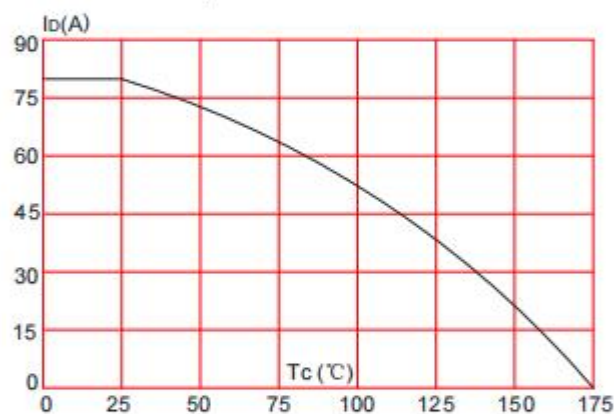
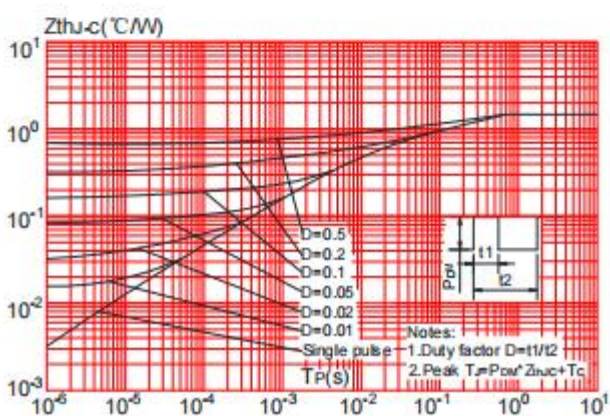
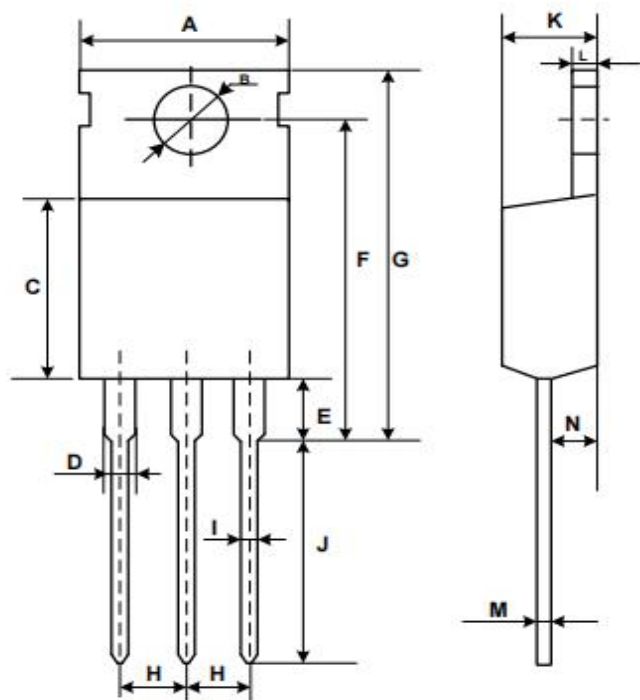


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case





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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