



Micro Commercial Components



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# MCU80N06

## N-Channel Enhancement Mode Field Effect Transistor

### Features

- Fast switching
- Improved dv/dt capability
- Halogen free available upon request by adding suffix "-HF"
- Excellent package for good heat dissipation
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

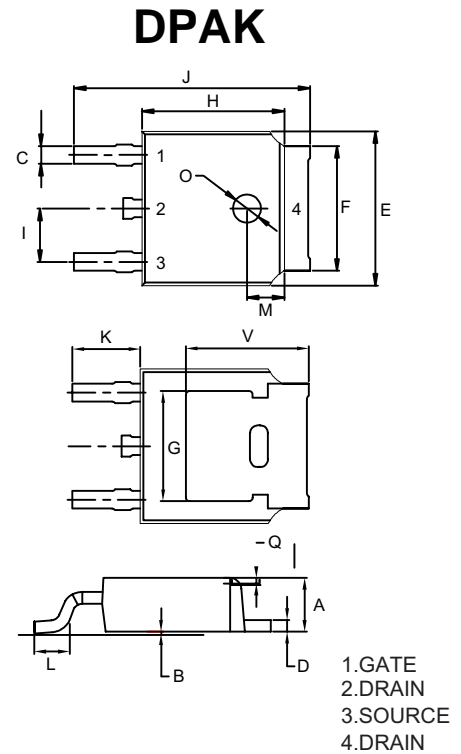
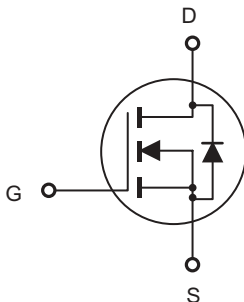
### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	60	V
$I_D$	Drain Current-Continuous	$T_c=25^\circ\text{C}$	80
		$T_c=100^\circ\text{C}$	56
$E_{AS}$	Single Pulsed Avalanche Energy(note1)	290	mJ
$V_{GS}$	Gate-source Voltage	$\pm 20$	V
$I_{DM}$	Pulsed Drain Current	200	A
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.76	$^\circ\text{C/W}$
$P_D$	Power Dissipation	85	W
$T_J$	Operating Junction Temperature	-55 to +175	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to +175	$^\circ\text{C}$

Note:

1.  $E_{AS}$  condition:  $T_J=25^\circ\text{C}, V_{DD}=30\text{V}, V_G=10\text{V}, L=0.5\text{mH}, R_g=25\Omega$

### Internal Block Diagram

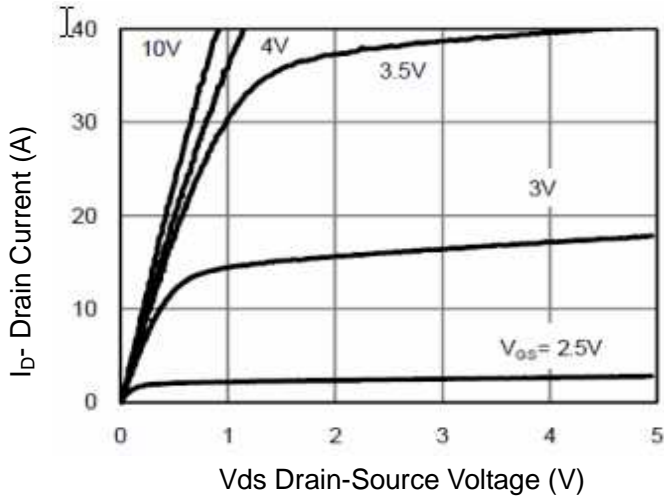


DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
	0.211		5.35		

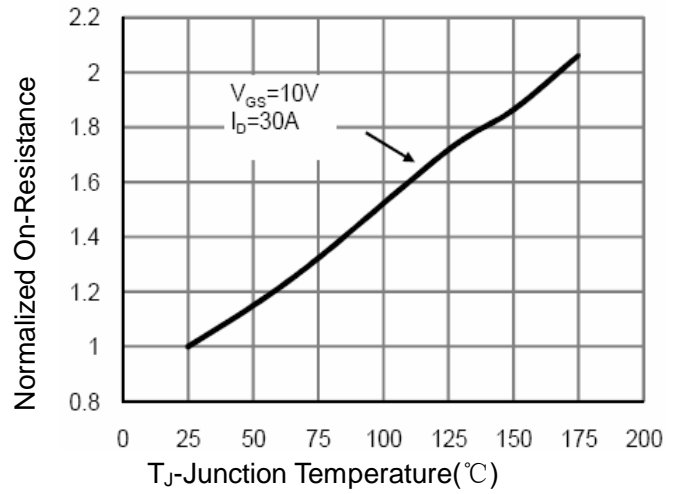
## Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.9	1.1	1.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=30A$	-	8.8	12	m $\Omega$
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=30A$	-	9.5	13	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=30A$	30	-	-	S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V,$ $F=1.0MHz$	-	4200	-	PF
Output Capacitance	$C_{oss}$		-	320	-	PF
Reverse Transfer Capacitance	$C_{rss}$		-	130	-	PF
<b>Switching Characteristics</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=2A, R_L=1\Omega$ $V_{GS}=10V, R_{GEN}=3\Omega$	-	16	-	nS
Turn-on Rise Time	$t_r$		-	8	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	45	-	nS
Turn-Off Fall Time	$t_f$		-	33	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=30V, I_D=30A,$ $V_{GS}=10V$	-	45	-	nC
Gate-Source Charge	$Q_{gs}$		-	10	-	nC
Gate-Drain Charge	$Q_{gd}$		-	11	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=30A$	-	-	1.2	V
Diode Forward Current	$I_S$		-	-	80	A
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ\text{C}, I_F = 30A$ $di/dt = 100A/\mu s$	-	35		nS
Reverse Recovery Charge	$Q_{rr}$		-	47		nC
Forward Turn-On Time	$t_{on}$	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

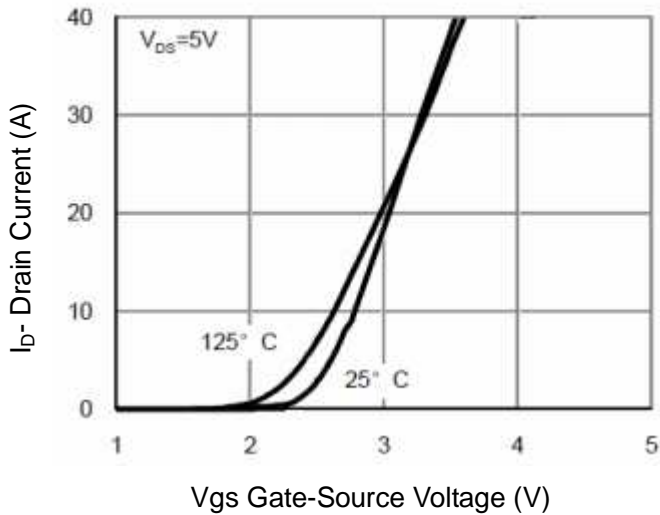
## Typical Characteristics



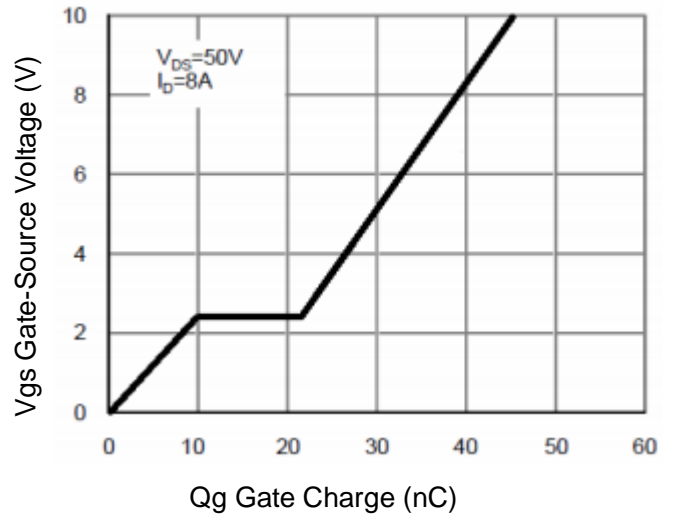
**Figure 1 Output Characteristics**



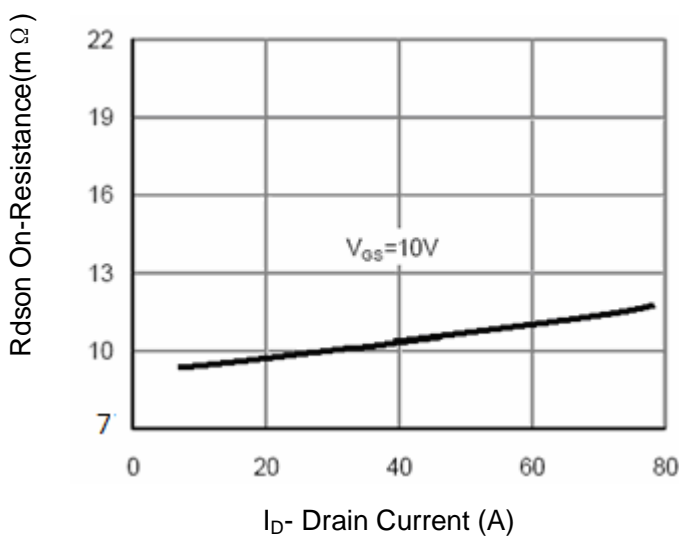
**Figure 4 Rdson-Junction Temperature**



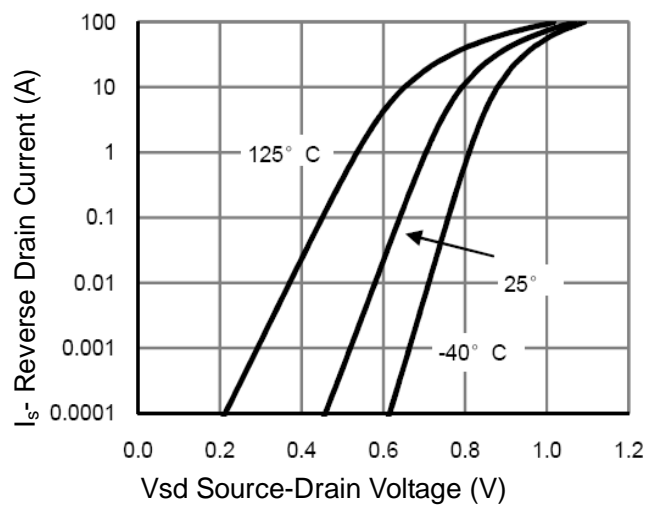
**Figure 2 Transfer Characteristics**



**Figure 5 Gate Charge**



**Figure 3 Rdson- Drain Current**



**Figure 6 Source- Drain Diode Forward**



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
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#### Как с нами связаться

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