



Micro Commercial Components



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MCU80N06

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

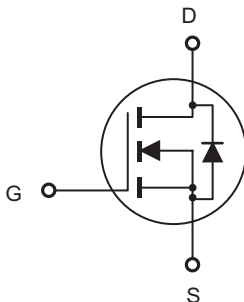
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	60	V
I_D	Drain Current-Continuous	$T_C=25^{\circ}\text{C}$	A
		$T_C=100^{\circ}\text{C}$	
E_{AS}	Single Pulsed Avalanche Energy(note1)	290	mJ
V_{GS}	Gate-source Voltage	± 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:

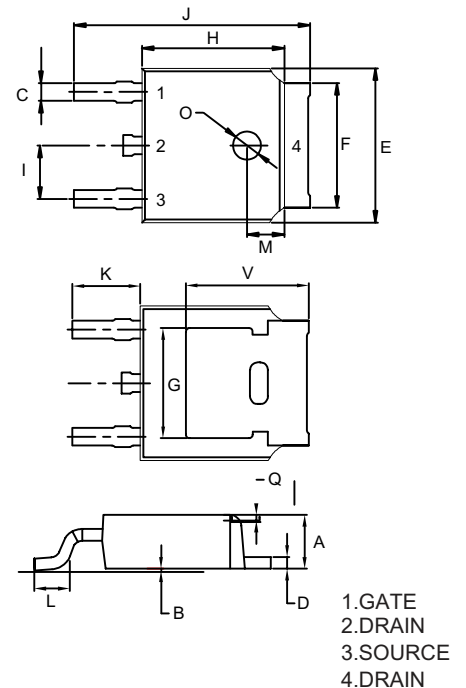
1. E_{AS} condition: $T_J=25^{\circ}\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$

Internal Block Diagram



N-Channel Enhancement Mode Field Effect Transistor

DPAK



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.9	1.1	1.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A	-	8.8	12	mΩ
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =30A	-	9.5	13	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =30A	30	-	-	S
Dynamic Characteristics						
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
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _D =2A, R _L =1Ω V _{GS} =10V, R _{GEN} =3Ω	-	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
Drain-Source Diode Characteristics						
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°C, I _F =30A di/dt = 100A/μs	-	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

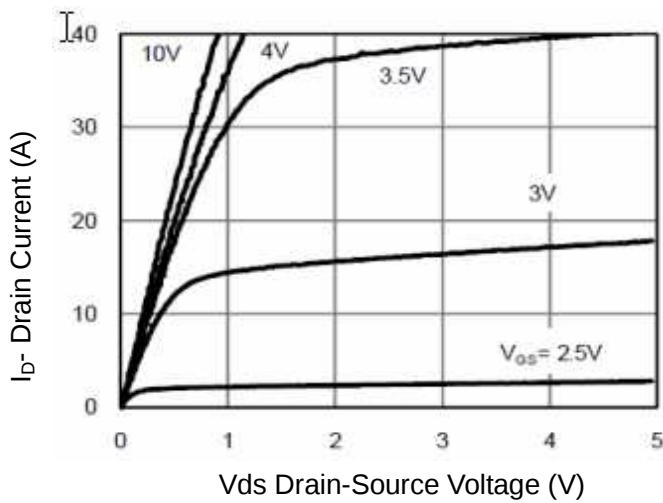


Figure 1 Output Characteristics

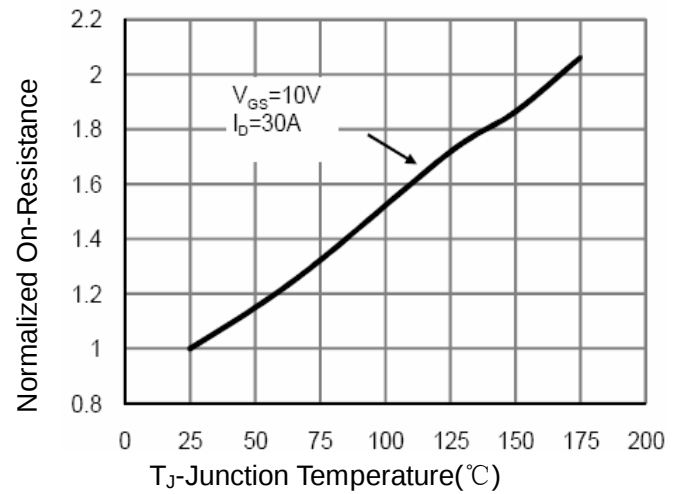


Figure 4 $R_{DS(on)}$ -Junction Temperature

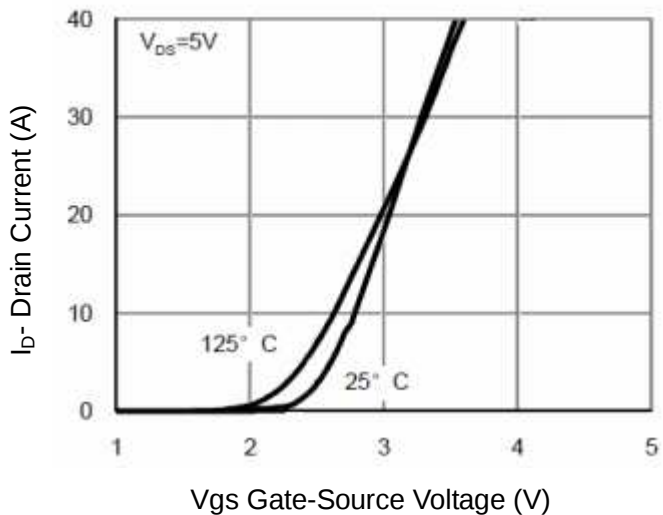


Figure 2 Transfer Characteristics

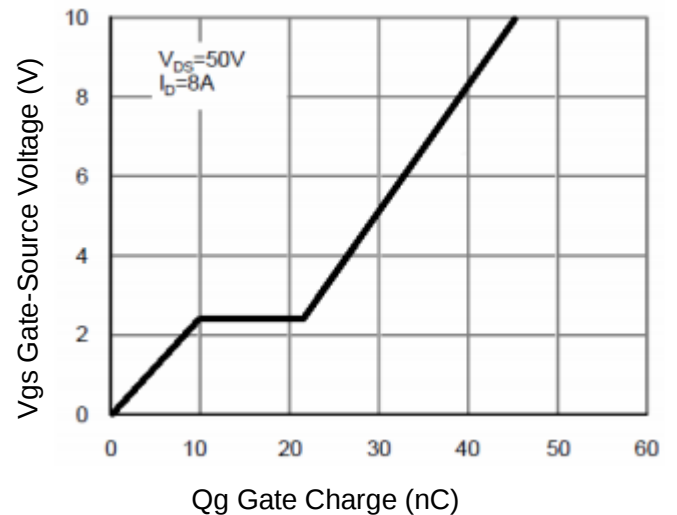


Figure 5 Gate Charge

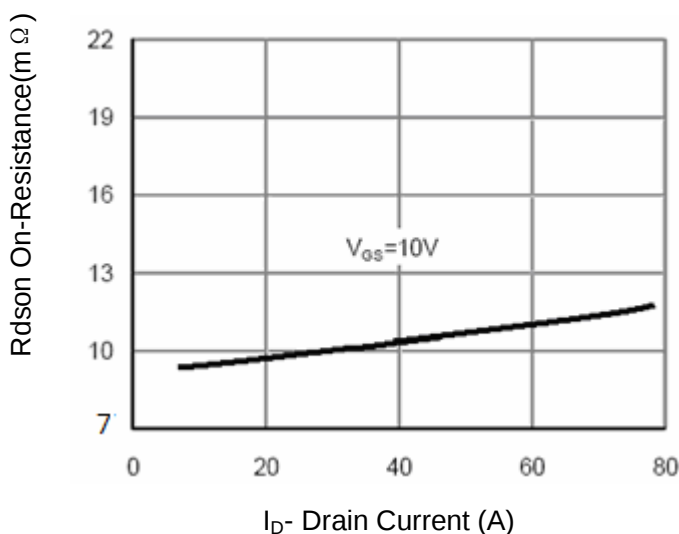


Figure 3 $R_{DS(on)}$ - Drain Current

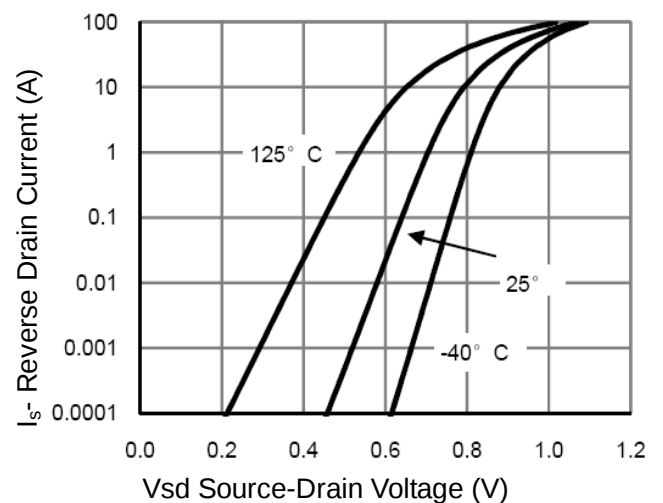


Figure 6 Source- Drain Diode Forward



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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