



Description

The HXY80P06NF uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = -60V$ $I_D = -80A$

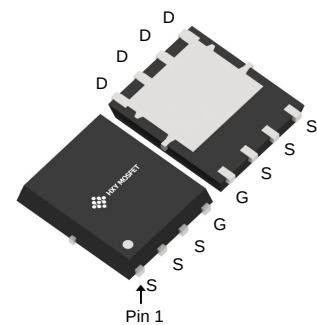
$R_{DS(ON)} < 3 m\Omega$ $V_{GS} = -10V$

Application

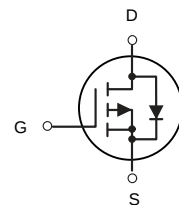
Battery protection

Load switch

Uninterruptible power supply



DFN5X6-8L



P-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY80P06NF	DFN5X6-8L	HXY MOSFET	5000

Absolute Maximum Ratings ($T_c=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	-80	A
I_{DM}	Pulsed Drain Current ²	-280	A
$P_D @ T_c=25^{\circ}C$	Total Power Dissipation ⁴	130	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	62	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	0.7	$^{\circ}C/W$



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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-60			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-60V$, $V_{GS}=0V$			-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$, $I_D=-250\mu A$	-1	-2.0	-3.0	V
g_{FS}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-15A$		35		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=-10V$, $I_D=-15A$		12	25	m Ω
		$V_{GS}=-4.5V$, $I_D=-10A$		30	40	m Ω
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1.0MHz$		5604		pF
C_{oss}	Output Capacitance			356		pF
C_{rss}	Reverse Transfer Capacitance			265		pF
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V$, $V_{DS}=-30V$, $R_L=1.5\Omega$, $R_{GEN}=3\Omega$		18		nS
t_r	Turn-on Rise Time			20		nS
$t_{d(off)}$	Turn-Off Delay Time			55		nS
t_f	Turn-Off Fall Time			35		nS
Q_g	Total Gate Charge	$V_{GS}=-10V$, $V_{DS}=-30V$, $I_D=-20A$		62		nC
Q_{gs}	Gate-Source Charge			9.3		nC
Q_{gd}	Gate-Drain Charge			16.8		nC
I_{SD}	Source-Drain Current (Body Diode)				80	A
V_{SD}	Forward on Voltage (Note 3)	$V_{GS}=0V$, $I_S=-20A$			-1.2	V
t_{rr}	Reverse Recovery Time	$I_F=-20A$, $di/dt=100A/\mu s$		49		ns
Q_{rr}	Reverse Recovery Charge	$I_F=-20A$, $di/dt=100A/\mu s$		69		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2. E_{AS} condition: $T_J=25^{\circ}\text{C}$, $V_{DD}=40V$, $V_G=-10V$, $R_g=25\Omega$, $L=0.5mH$.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.



Typical Performance Characteristics

Figure 1. Output Characteristics

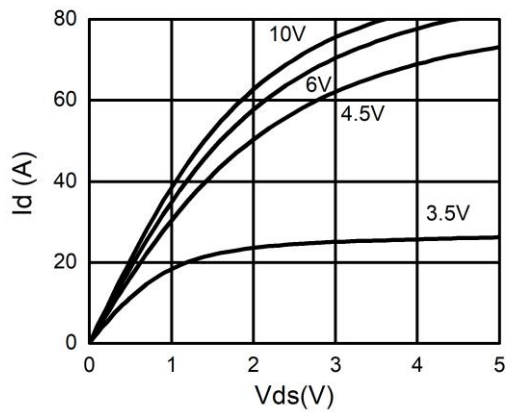


Figure 2. Transfer Characteristics

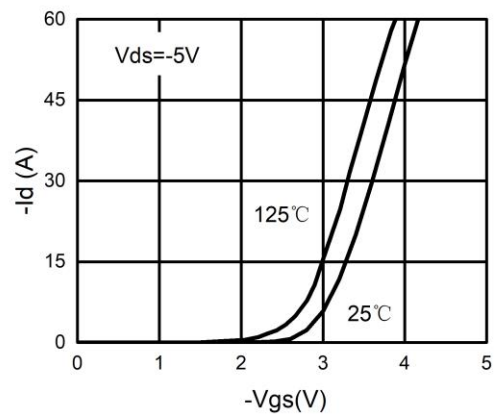


Figure 3. Power Dissipation

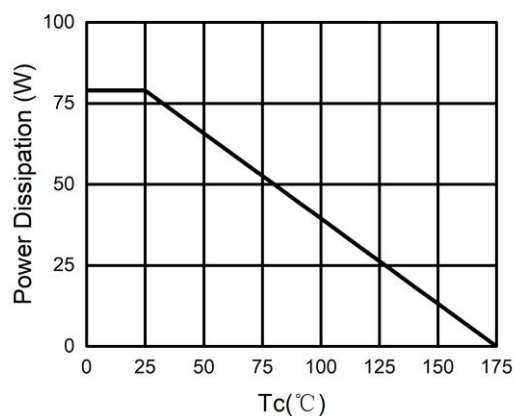


Figure 4. Drain Current

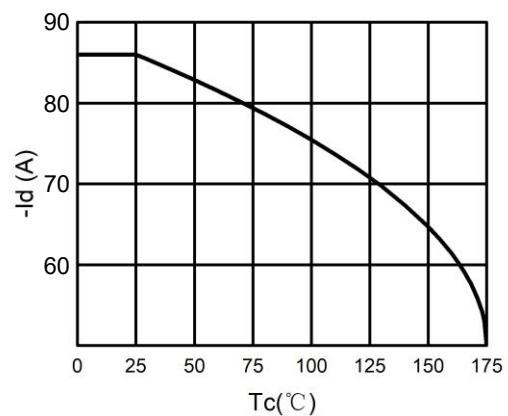


Figure 5. BV_{DSS} vs Junction Temperature

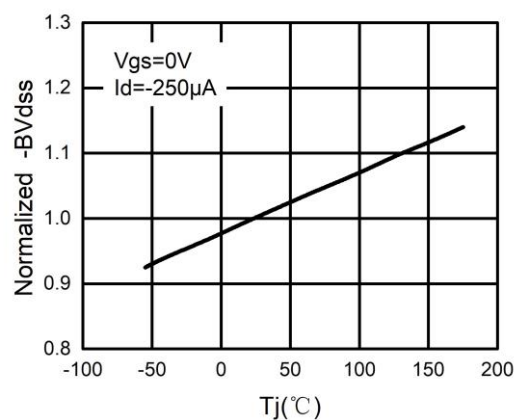


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

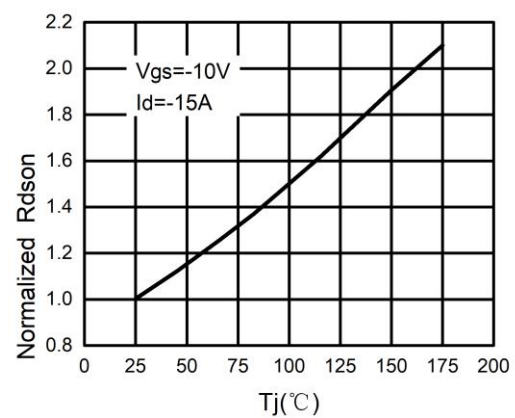




Figure 7. Gate Charge Waveforms

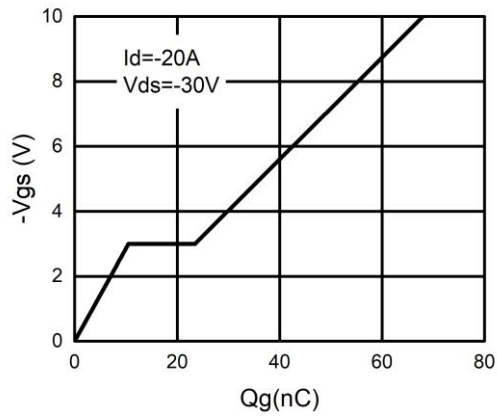


Figure 8. Capacitance

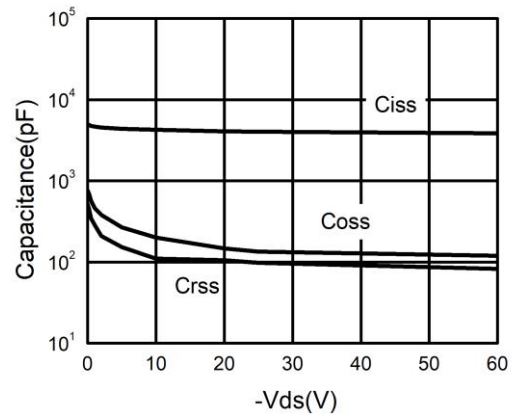


Figure 9. Body-Diode Characteristics

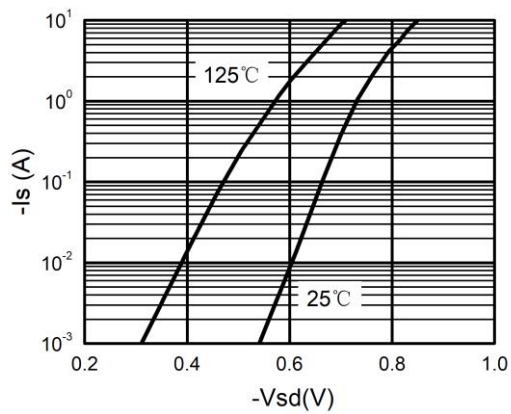
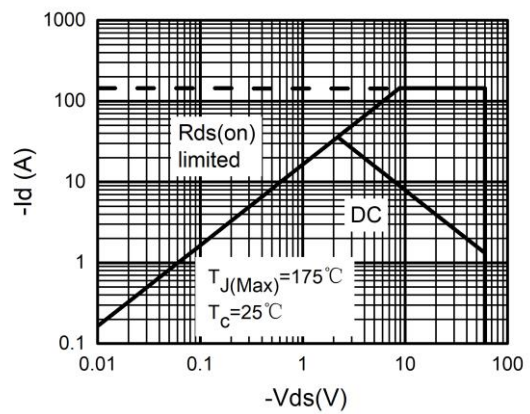


Figure 10. Maximum Safe Operating Area





DFN5X6-8L Package Information



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.95	5	5.05	0.195	0.197	0.199
A1	4.82	4.9	4.98	0.190	0.193	0.196
D	5.98	6	6.02	0.235	0.236	0.237
D1	5.67	5.75	5.83	0.223	0.226	0.230
B	0.9	0.95	1	0.035	0.037	0.039
B1	0.254REF			0.010REF		
C	3.95	4	4.05	0.156	0.157	0.159
C1	0.35	0.4	0.45	0.014	0.016	0.018
C2	1.27TYP			0.5TYP		
θ1	8°	10°	12°	8°	10°	12°
L1	0.63	0.64	0.65	0.025	0.025	0.026
L2	1.2	1.3	1.4	0.047	0.051	0.055
L3	3.415	3.42	3.425	0.134	0.135	0.135
H	0.24	0.25	0.26	0.009	0.010	0.010



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