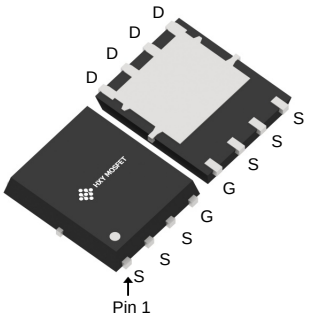
Description

The HXY30P06NF 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.

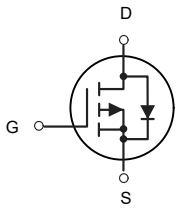


DFN5X6-8L

General Features

V_{DS} = -600V I_D= -30A

$R_{DS(ON)}$ < 30mΩ V_{GS}=-10V



P-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY30P06NF	DFN5X6-8L	HXY MOSFET	5000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-50	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25°C	Continuous Drain Current, V_{GS} @ 10V	-30	A
I_D@T_C=100°C	Continuous Drain Current, V_{GS} @ 10V	-25.5	A
I_{DM}	Pulsed Drain Current	-144	A
EAS	Single Pulse Avalanche Energy	196	mJ
P_D@T_C=25°C	Total Power Dissipation	79	W
T_{STG}	Storage Temperature Range	-150 to 175	°C
T_J	Operating Junction Temperature Range	-150 to 175	°C
$R_{\theta Jc}$	Thermal Resistance,Junction-to-Case	1.9	°C/W

Electrical Characteristics (T_J = 25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=-250μA	-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}=±20V, V_{DS}=0V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1	-1.8	-2.5	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		24	30	mΩ
		V_{GS}=-4.5V, I_D=-10A		30	40	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V, f=1.0MHz		4026		pF
C_{oss}	Output Capacitance			134		pF
C_{rss}	Reverse Transfer Capacitance			98		pF
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=-10V, V_{DS}=-30V, R_L=1.5Ω, R_{GEN}=3Ω		12.2		nS
t_r	Turn-on Rise Time			10		nS
$t_{d(off)}$	Turn-Off Delay Time			64		nS
t_f	Turn-Off Fall Time			14		nS
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-30V, I_D=-20A		68		nC
Q_{gs}	Gate-Source Charge			10.5		nC
Q_{gd}	Gate-Drain Charge			13		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				30	A
V_{SD}	Forward on Voltage (Note 3)	V_{GS}=0V, I_S=-15A			-1.2	V
t_{rr}	Reverse Recovery Time	I_F=-20A, di/dt=100A/μs		26		ns
Q_{rr}	Reverse Recovery Charge	I_F=-20A, di/dt=100A/μs		29		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
Notes 2.E_{AS} condition: T_J=25°C,V_{DD}=40V,V_G=-10V, Rg=25Ω, L=0.5mH.
Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

Typical Performance Characteristics

Figure 1. Output Characteristics

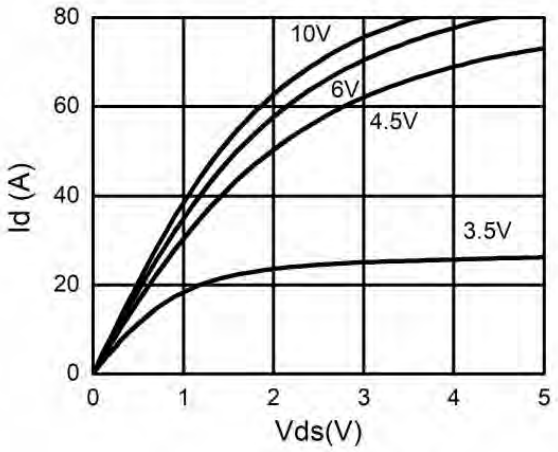


Figure 2. Transfer Characteristics

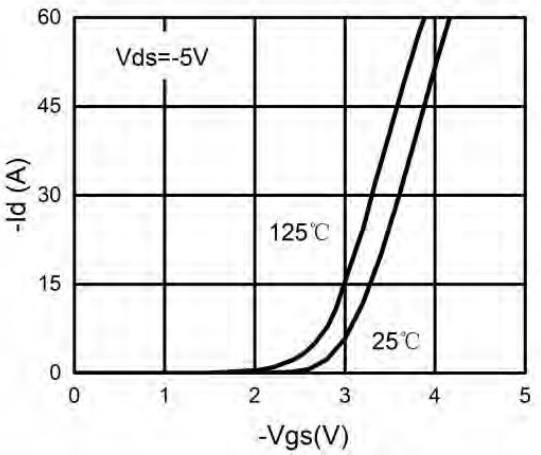


Figure 3. Power Dissipation

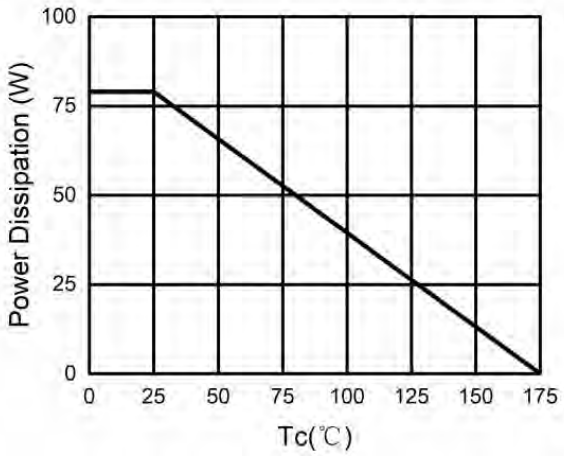


Figure 4. Drain Current

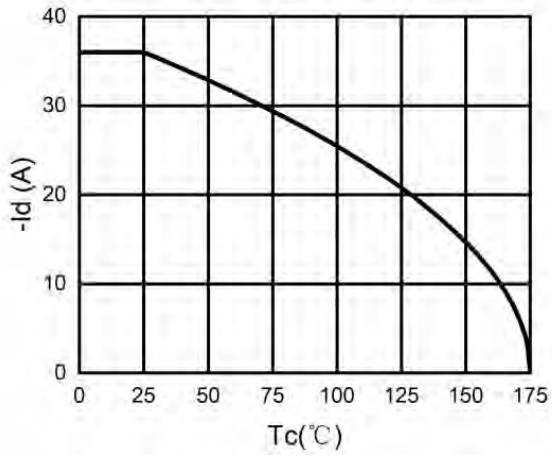


Figure 5. BV_{DSS} vs Junction Temperature

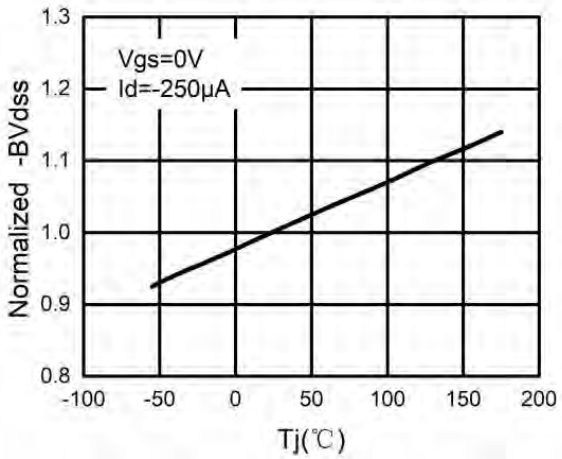


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

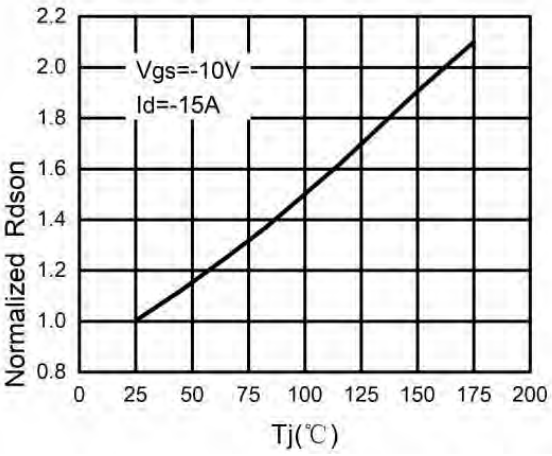


Figure 7. Gate Charge Waveforms

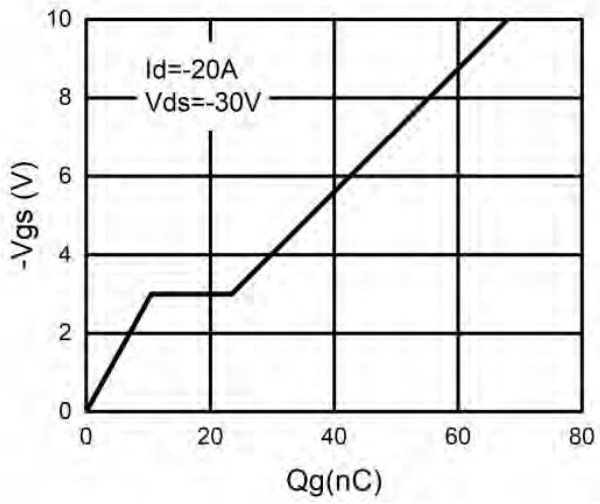


Figure 8. Capacitance

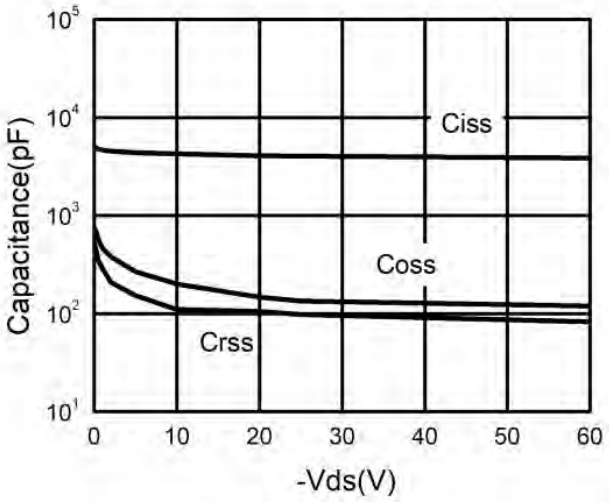


Figure 9. Body-Diode Characteristics

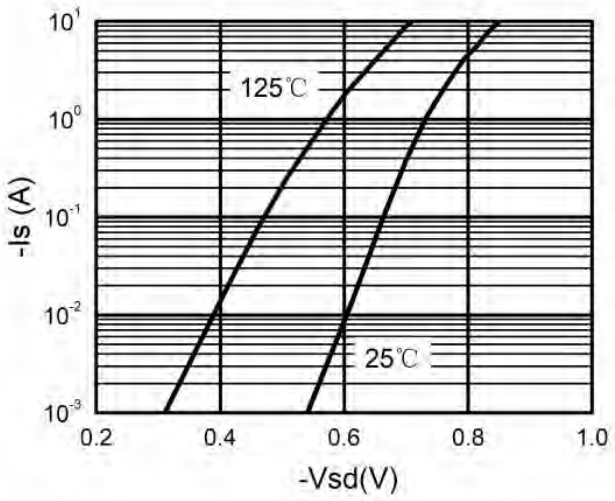
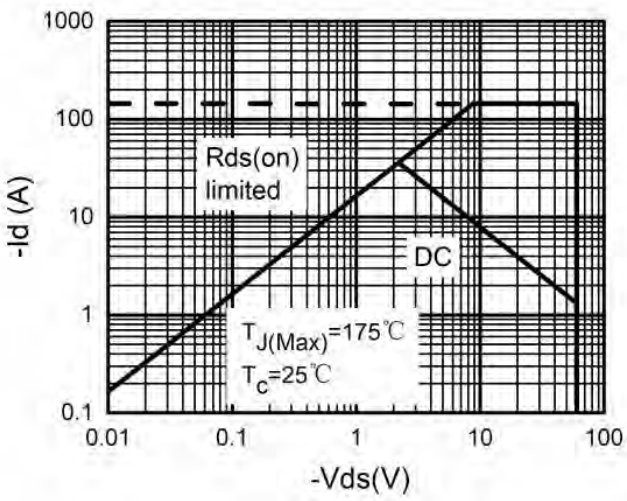
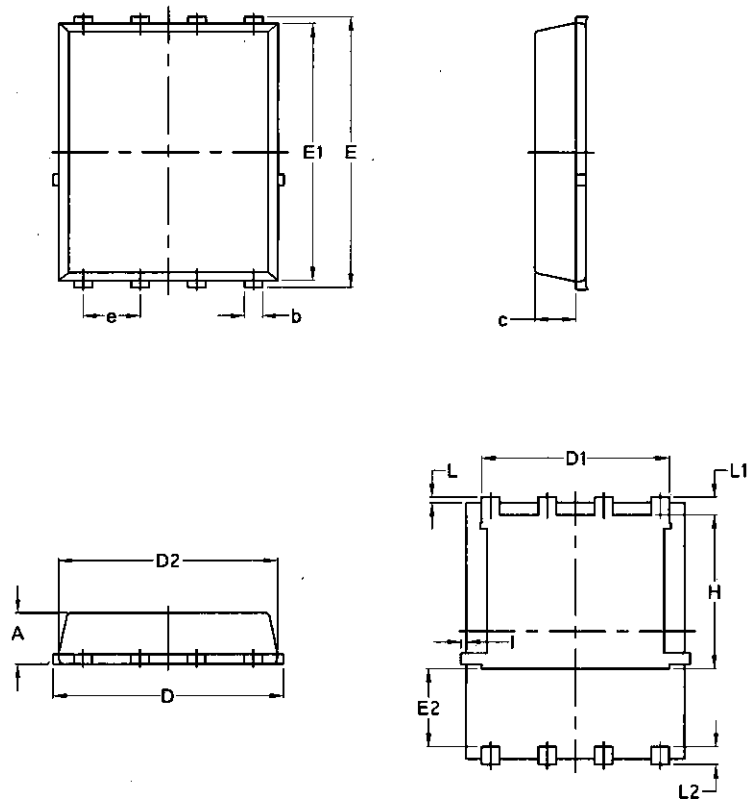


Figure 10. Maximum Safe Operating Area



DFN5X6-8L Package Information



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

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