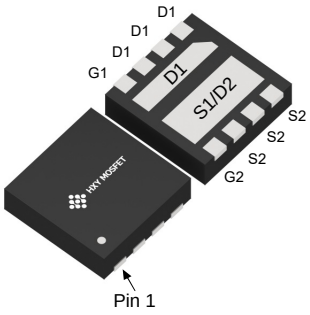
General Description

The HXY30HS03DF 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.



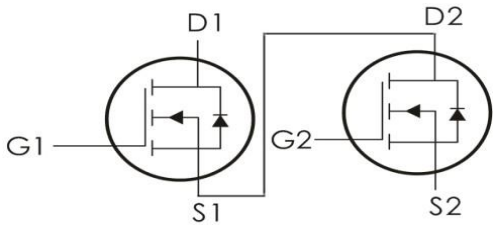
DFN3X3D-8L

General Features

V_{DS} =30V I_D =30 A
$R_{DS(ON)}$ < 10mΩ @ V_{GS}=10V

Applications

Consumer electronic power supply Motor control
Synchronous-rectification Isolated DC
Synchronous-rectification applications



Dual N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY30HS03DF	DFN3X3D-8L	HXY MOSFET	5000

Absolute Maximum Ratings (T_C=25℃ unle ss otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25℃	30	A
		T_C = 100℃	22	A
I_{DM}	Pulsed Drain Current note1		70	A
E_{AS}	Single Pulsed Avalanche Energy note2		40	mJ
P_D	Power Dissipation	T_C = 25℃	30	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		4.2	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55to+150	℃

Electrical Characteristics (T_J =25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{GS}=0V,V_{DS}=30V,T_J=25℃	---	---	1.0	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V V_{DS}=0A	---	---	±100	nA
$V_{GS(th)}$	Gate -Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.0	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance [3]	V_{GS}=10V,I_D=10A	---	8.8	10	mΩ
		V_{GS}=4 5V I_D=5A		11	15	
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	550	---	pF
C_{oss}	Output Capacitance		---	105	---	
C_{rss}	Reverse Transfer Capacitance		---	95	---	
$t_{d(on)}$	Turn-On Delay Time	V_{Ds}=30V, V_{GS}=10V, R_G=3.0Ω,I_D=18A	---	5	---	ns
t_r	Rise Time		---	8	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	21	---	ns
t_f	Fall Time		---	7	---	ns
Q_g	Total Gate Charge	V_{DS}=15V,V_{GS}=10V,I_D=10A	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	4.7	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	3.6	---	nC
I_S	Continuous Source Current [1,5]	V_G =V_D =0V	---	---	30	A
I_{SM}	Pulsed Source Current[2,5]		---	---	70	A
V_{SD}	Forward on voltage	I_{SD}=18A,T_J=25℃,V_{GS}=0V	---	---	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25℃, V_{GS}=10V, R_G=25Ω, L=0.5mH, I_{AS}=8A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics

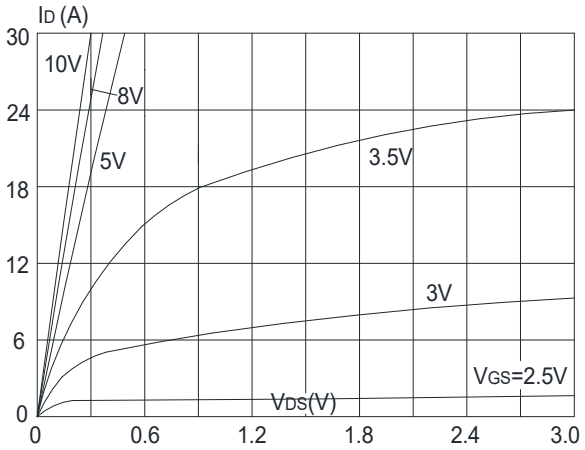


Figure1: Output Characteristics

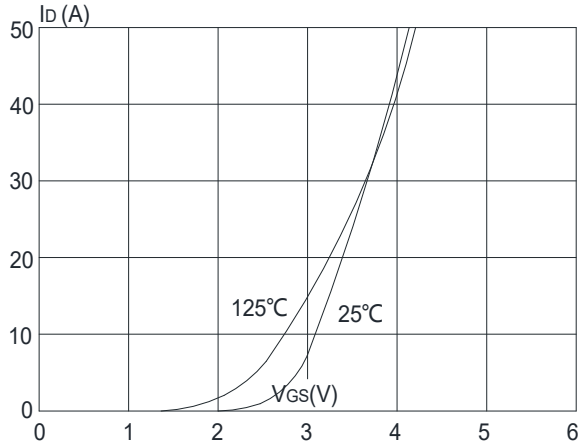


Figure 2: Typical Transfer Characteristics

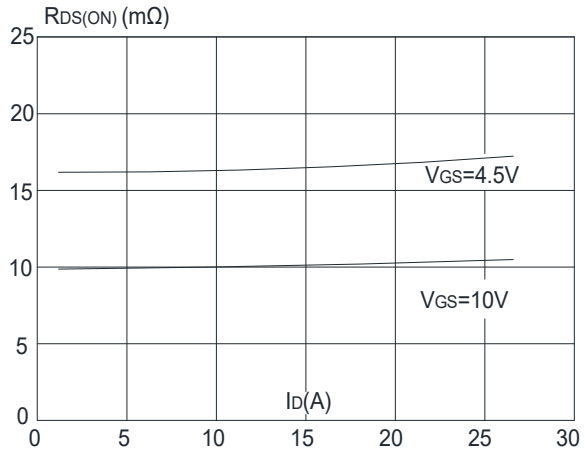


Figure 3: On-resistance vs. Drain Current

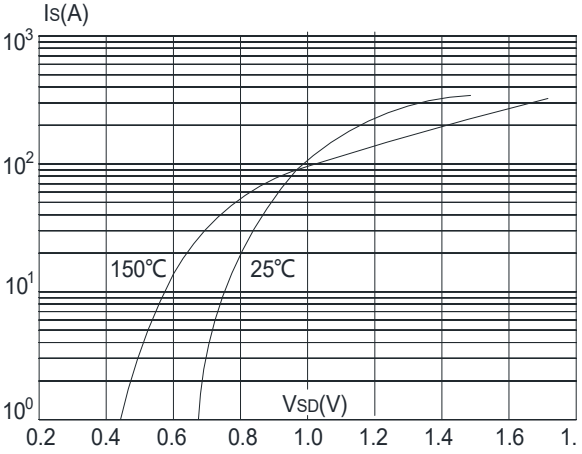


Figure 4: Body Diode Characteristics

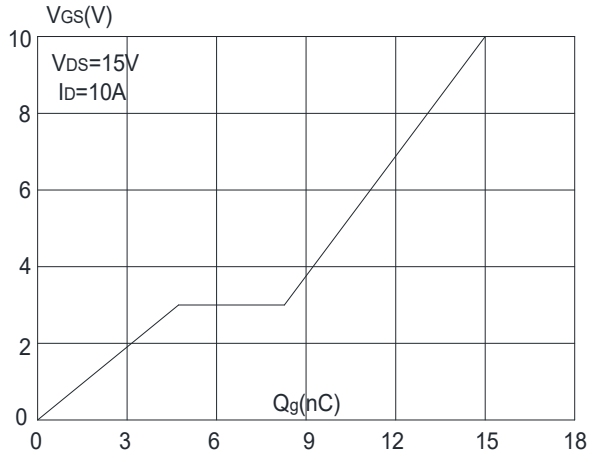


Figure 5: Gate Charge Characteristics

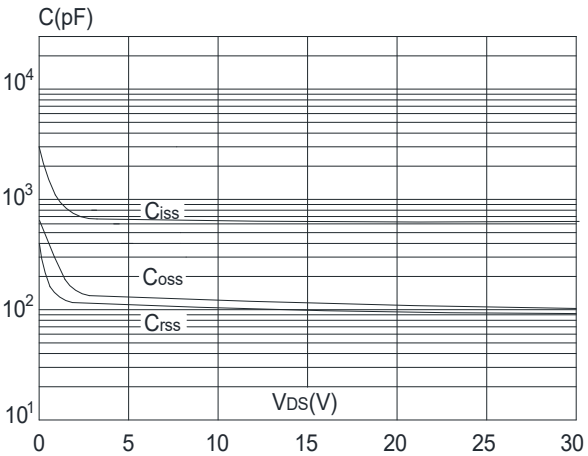


Figure 6: Capacitance Characteristics

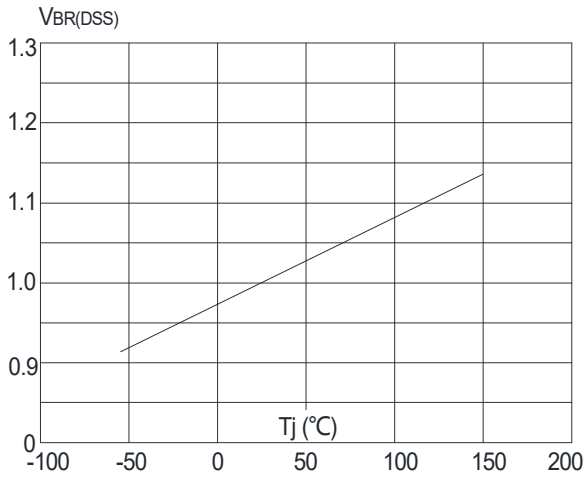


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

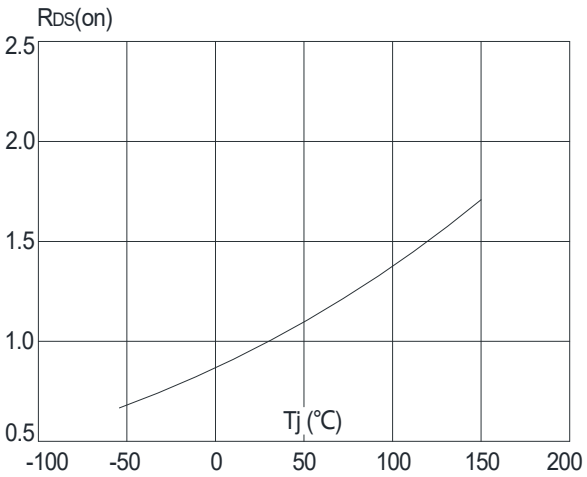


Figure 8: Normalized on Resistance vs. Junction Temperature

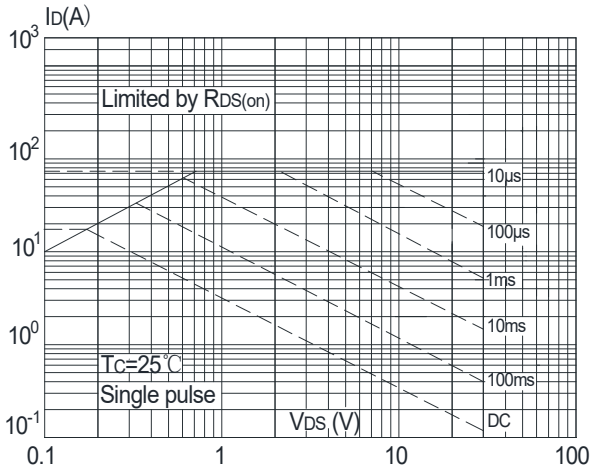


Figure 9: Maximum Safe Operating Area

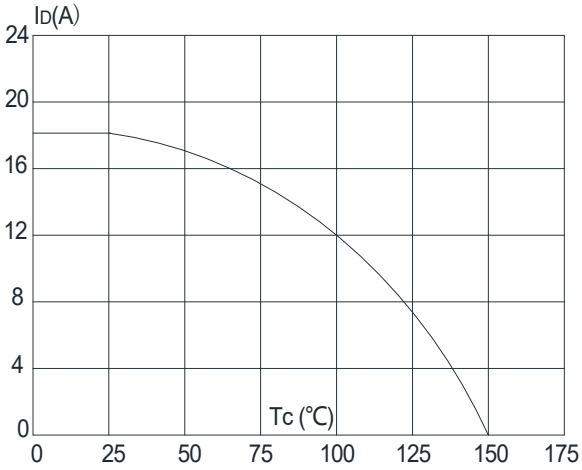


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

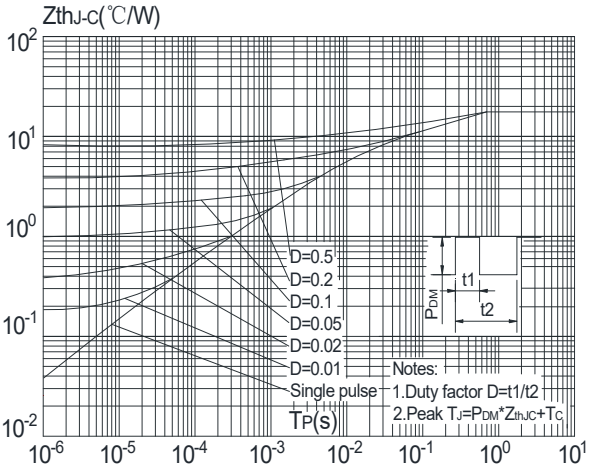
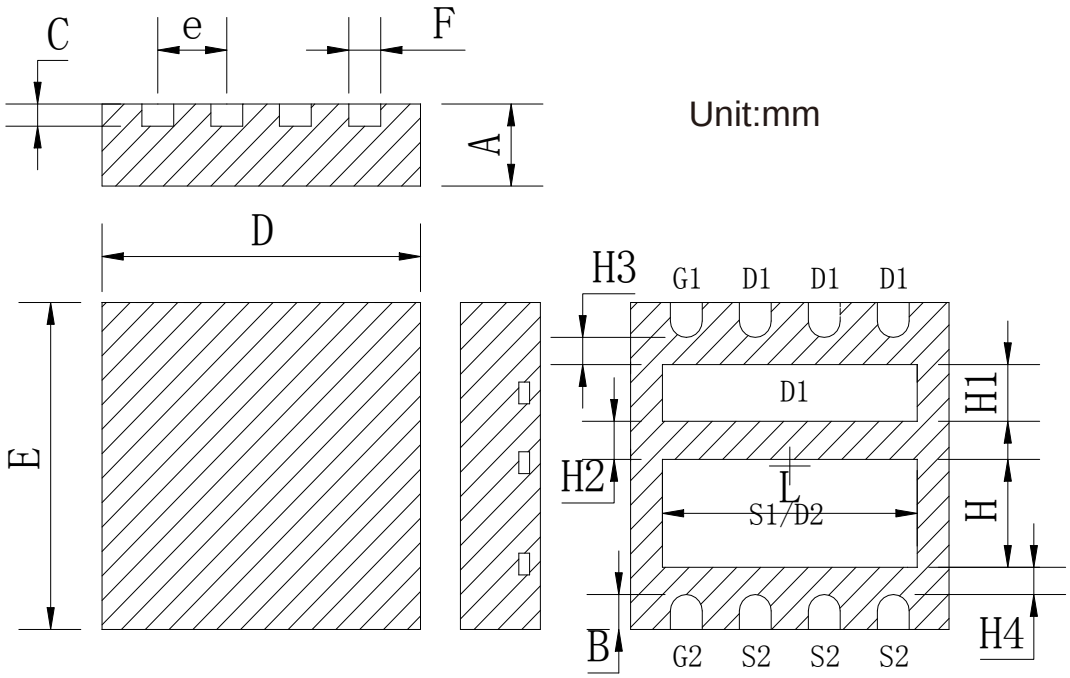


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

DFN3X3D-8L Package Information



Symbol	Min	Typ	Max
A	0.70	0.75	0.80
B	0.27	0.32	0.37
C	0.153	0.203	0.253
D	2.90	3.00	3.10
E	2.90	3.00	3.10
e	0.60	0.65	0.70
F	0.25	0.30	0.35
H	0.89	0.99	1.09
H1	0.42	0.52	0.62
H2	0.25	0.35	0.45
H3	0.15	0.25	0.35
H4	0.15	0.25	0.35
L	2.30	2.40	2.50

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