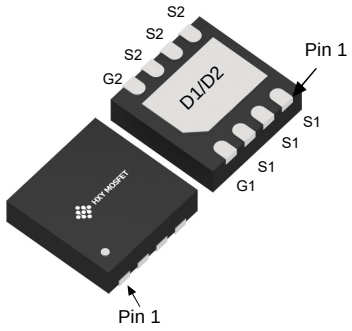
HXY30HD02DF

Dual N-Channel Enhancement Mode MOSFET

Description

The HXY30HD02DF uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



DFN3X3C-8L

General Features

V_{DS} = 20V I_D =30A

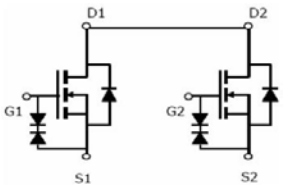
$R_{DS(ON)}$ < 6.6mΩ @ V_{GS}=20V

Application

Battery protection

Load switch

Uninterruptible power supply



N+N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
HXY30HD02DF	DFN3X3C-8L	HXY MOSFET	5000

Absolute Maximum Ratings (TC=25°C unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_C=25°C	Continuous Drain Current, V_{GS} @ 10V[1]	30	A
I_{DM}	Pulsed Drain Current[2]	100	A
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
T_L	Lead Temperature for Soldering Purposes(1/8"from case for 10s)	260	°C

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =19V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±7	uA
Gate threshold voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.5	0.7	1.0	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =8.0A		5.8	6.6	mΩ
		V_{GS} =2.5V, I_D =6.0A		6.8	9.5	mΩ
Forward tranconductance (note 3)	g_{FS}	V_{DS} =5V, I_D =4A		10		S
Diode forward voltage (note 3)	V_{SD}	I_S=1.50A, V_{GS} = 0V			1.0	V
Dynamic Characteristics (note4)						
Input Capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz		1827		pF
Output Capacitance	C_{oss}			241.5		pF
Reverse Transfer Capacitance	C_{rss}			225.4		pF
Switching Characteristics (note 4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=4.5V, V_{DS} =10V, I_D=6A R_{GEN}=3Ω		6.4		ns
Turn-on rise time	t_r			24.5		ns
Turn-off delay time	$t_{d(off)}$			260.4		ns
Turn-off fall time	t_f			143		ns
Total Gate Charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D=6A		25.2		nC
Gate-Source Charge	Q_{gs}			2.24		nC
Gate-Drain Charge	Q_{gd}			9.1		nC

Notes :

1.Repetitive rating：Pluse width limited by maximum junction temperature

2.Surface Mounted on FR4 board，t≤10 sec.

3.Pulse test : Pulse width≤300μs, duty cycle≤2%.

4.Guaranteed by design, not subject to production.

Typical Characteristics

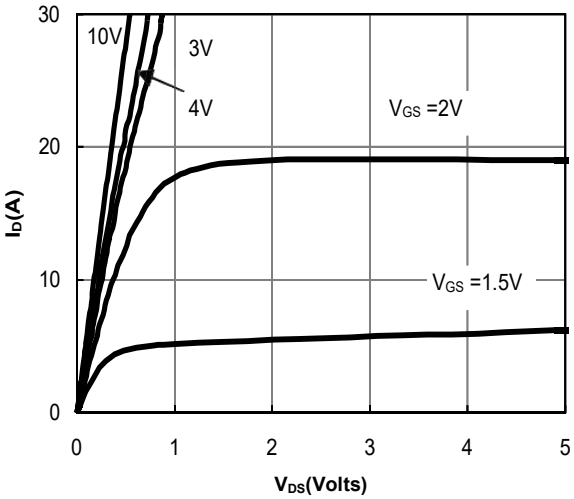


Figure 1: On-Regions Characteristi CS

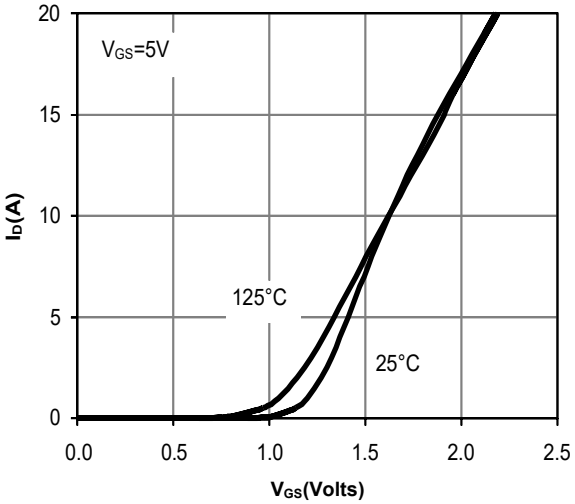


Figure 2: Transfer Characteristics

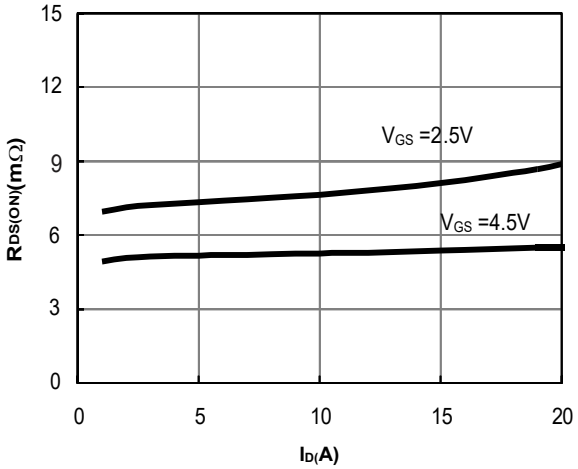


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

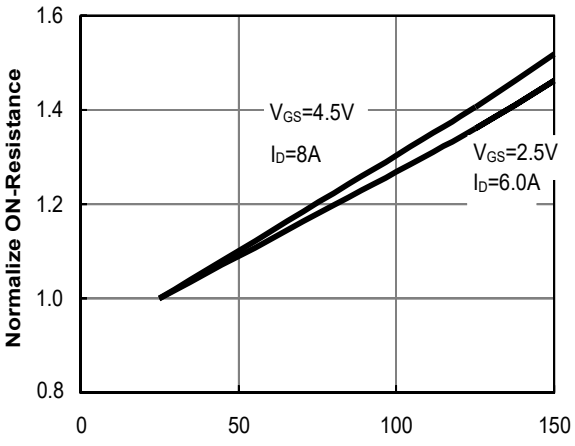


Figure 4: On-Resistance vs. Junction Temperature

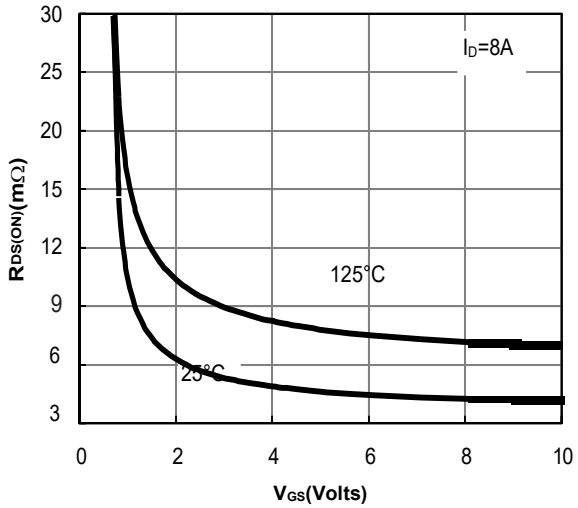


Figure 5: On-Resistance vs. Gate-Source Voltage

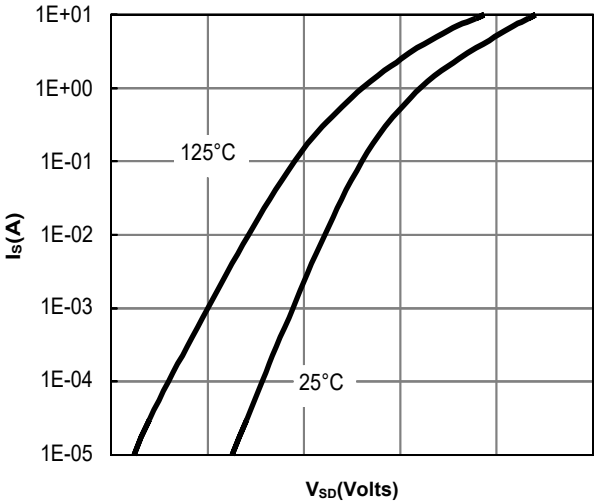


Figure 6: Body-Diode Characteristics

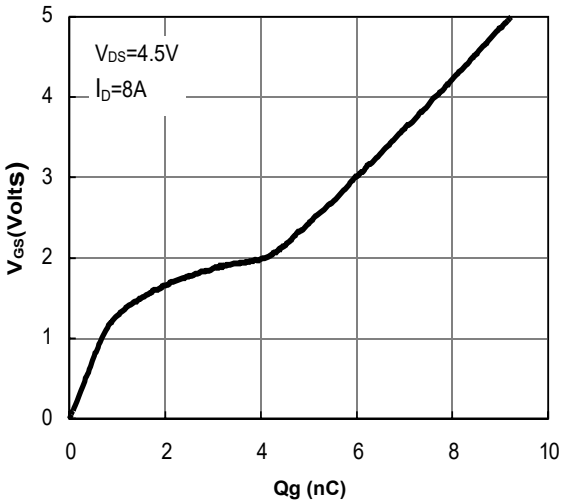


Figure 7: Gate-Charge Characteristics

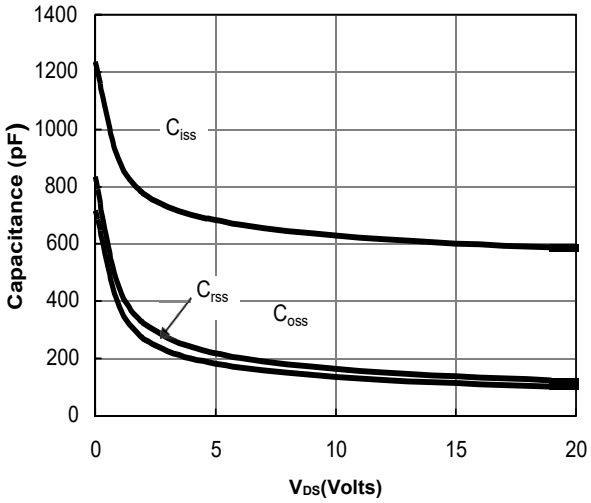


Figure 8: Capacitance Characteristics

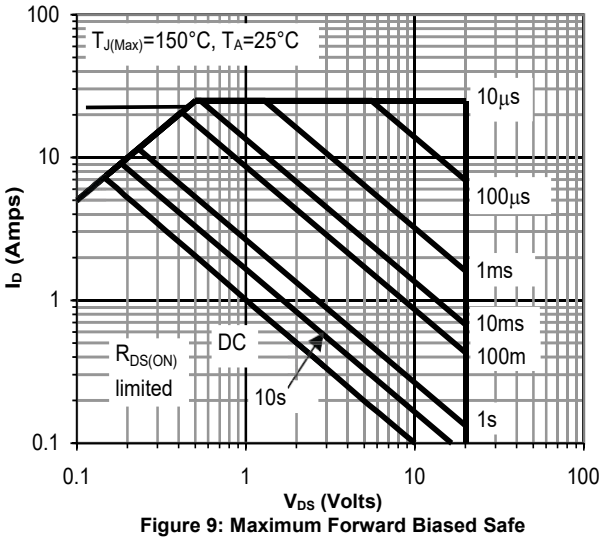


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

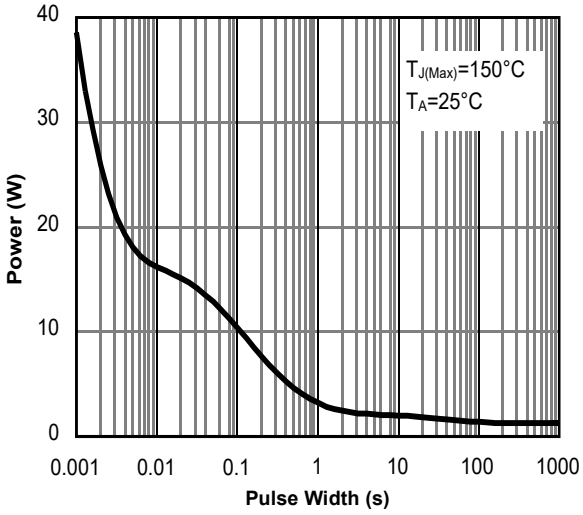


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

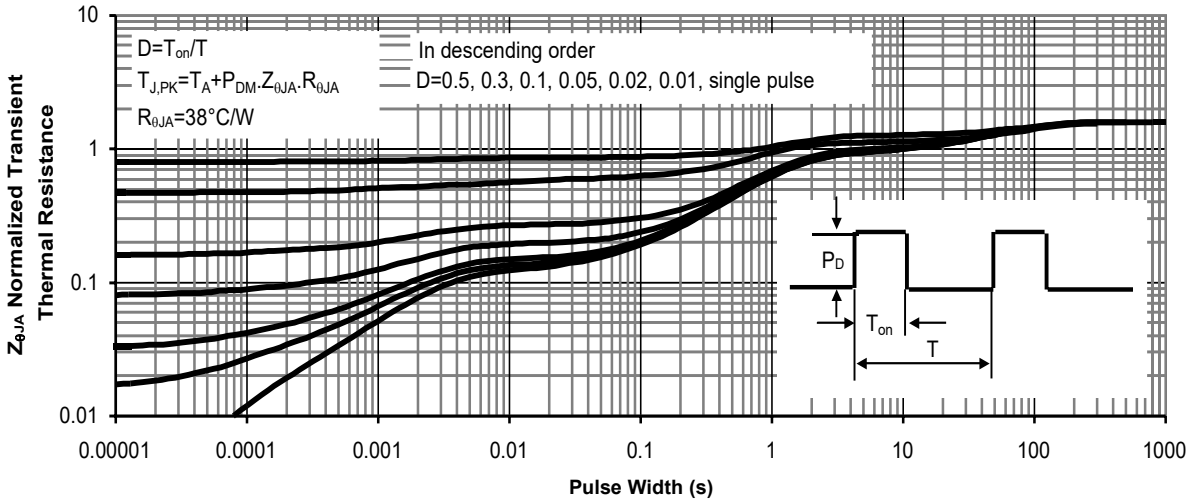
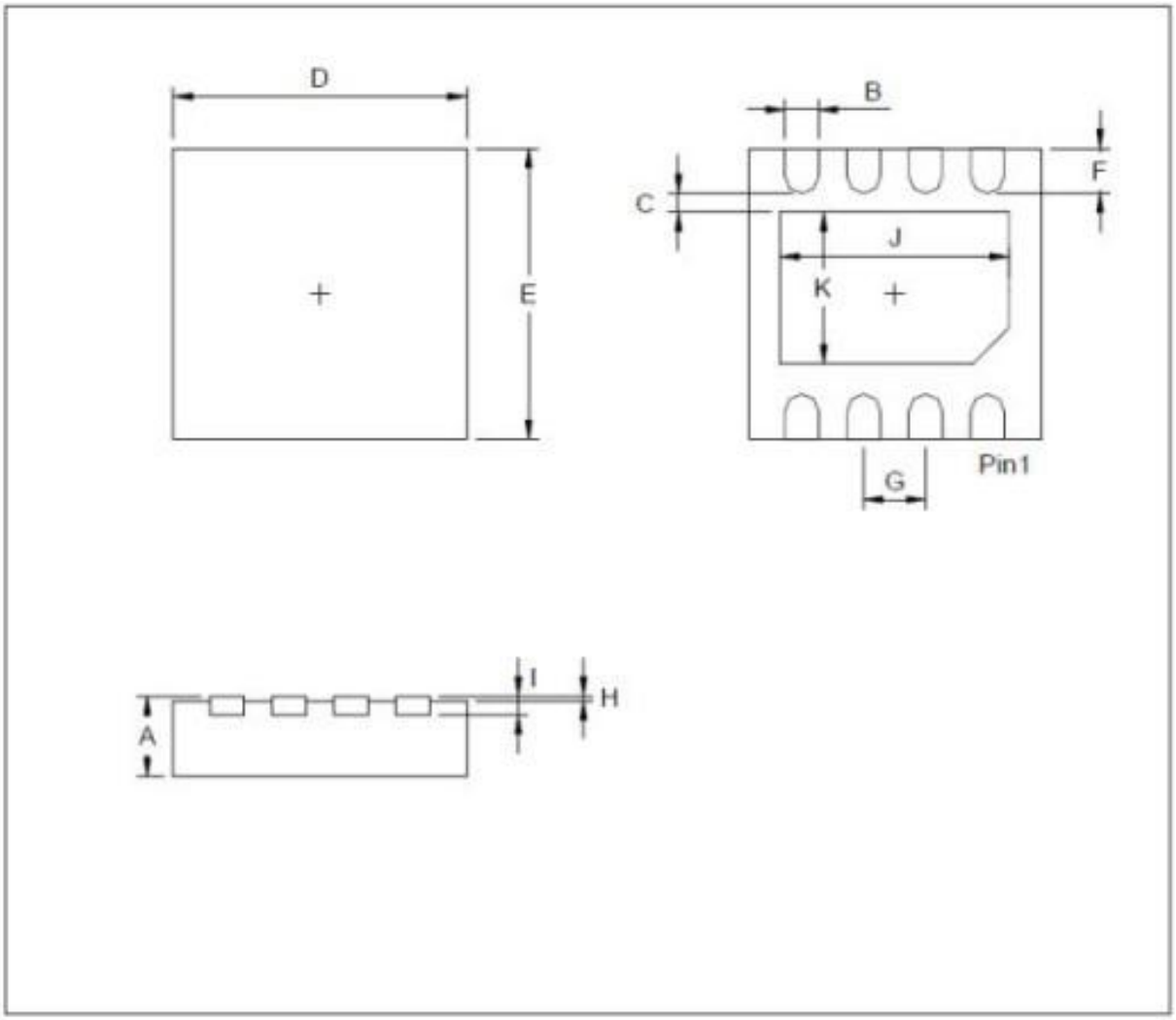


Figure 11: Normalized Maximum Transient Thermal Impedance

DFN3X3C-8L Package Information



Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.7		0.8	I		0.203	
B	0.25		0.35	J	2.2		2.4
C	0.2			K	1.4		1.6
D	2.924		3.076				
E	2.924		3.076				
F	0.324		0.476				
G		0.65					
H	0		0.05				

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