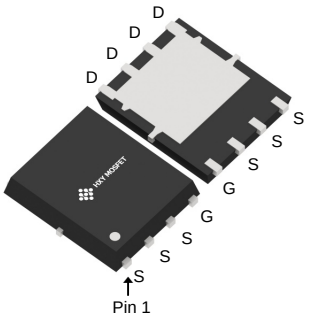
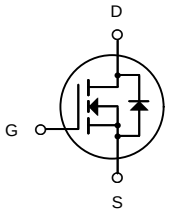
Description

The NTMFS5C673NLT1G 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



N-Channel MOSFET

General Features

V_{DS} = 60V I_D =65A

$R_{DS(ON)}$ < 11mΩ V_{GS}=10V

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
NTMFS5C673NLT1G	DFN5X6-8L	HXY MOSFET	5000

Absolute Maximum Ratings (T_C=25°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°C	Continuous Drain Current, V_{GS} @ 10V	65	A
I_D@T_C=70°C	Continuous Drain Current, V_{GS} @ 10V	49	A
I_{DM}	Pulsed Drain Current[2]	180	A
EAS	Single Pulse Avalanche Energy[3]	56	mJ
P_D@T_C=25°C	Total Power Dissipation[4]	89	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	62	°C/W

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	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,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.6	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=20A	-	8	11	mΩ
		V_{GS}=4.5V, I_D=10A	-	14	20	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	-	930	-	pF
C_{oss}	Output Capacitance		-	370	-	pF
C_{rss}	Reverse Transfer Capacitance		-	20	-	pF
Q_g	Total Gate Charge	V_{DS}=30V, I_D=20A, V_{GS}=10V	-	19	-	nC
Q_{gs}	Gate-Source Charge		-	4.8	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	4.5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=30V, I_D=20A, R_G=1.6Ω, V_{GS}=10V	-	4.9	-	ns
t_r	Turn-on Rise Time		-	31	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	23	-	ns
t_f	Turn-off Fall Time		-	8.7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	65	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	240	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=30A	-	-	1.4	V
t_{rr}	Body Diode Reverse Recovery Time	T_J=25°C, I_F=20A,dI/dt=100A/μs	-	34	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	14	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: T_J=25°C, V_{DD}=30V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=12A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

Figure1: Output Characteristics

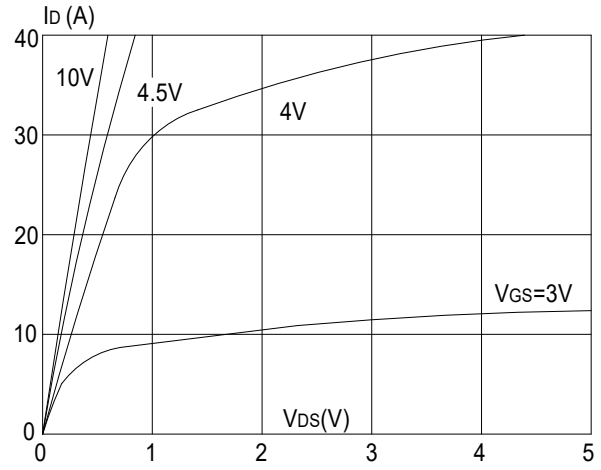


Figure 2: Typical Transfer Characteristics

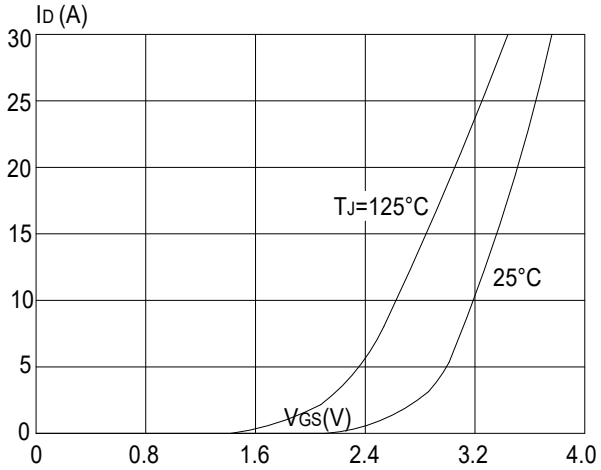


Figure 3: On-resistance vs. Drain Current

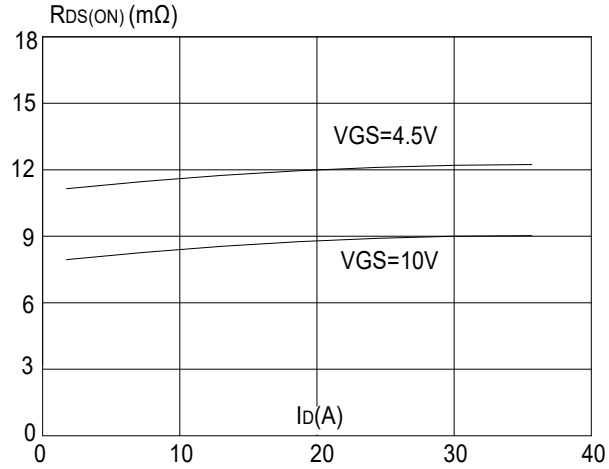


Figure 4: Body Diode Characteristics

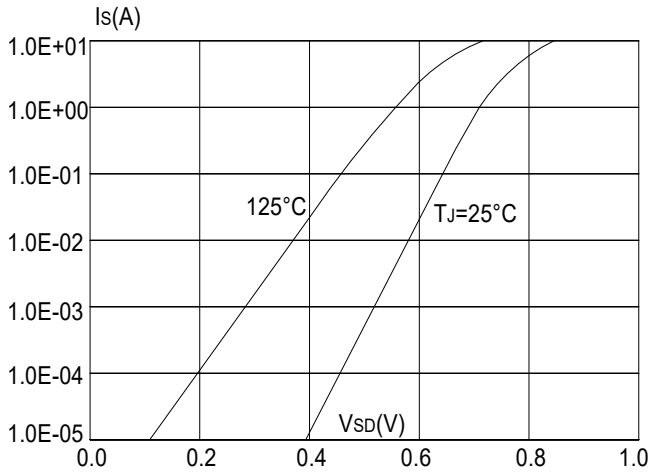


Figure 5: Gate Charge Characteristics

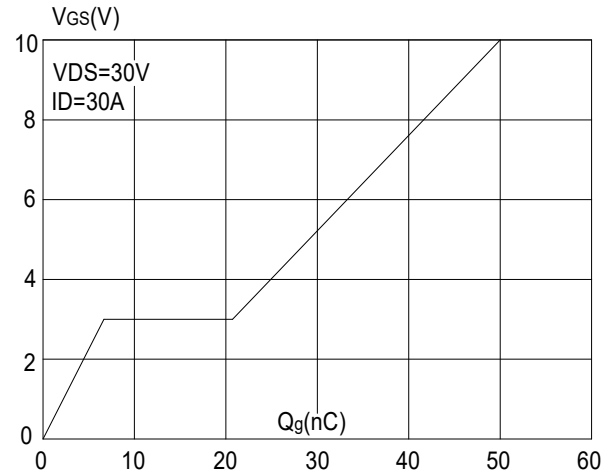


Figure 6: Capacitance Characteristics

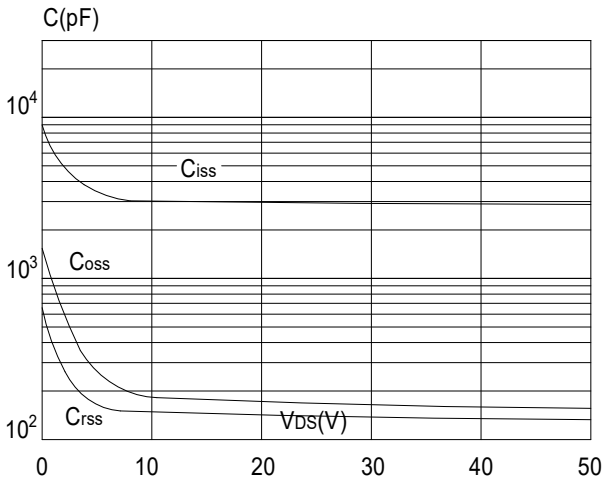


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

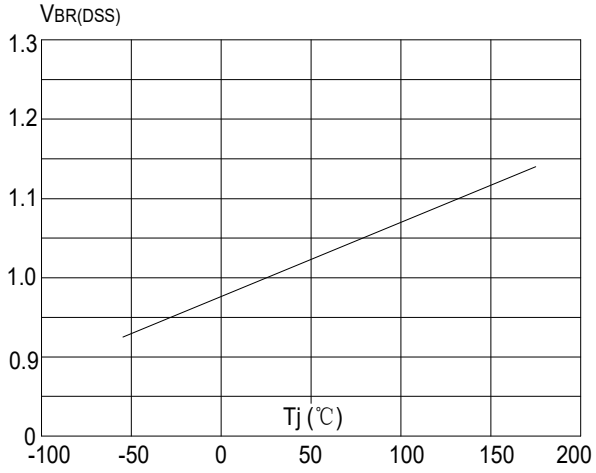


Figure 8: Normalized on Resistance vs. Junction Temperature

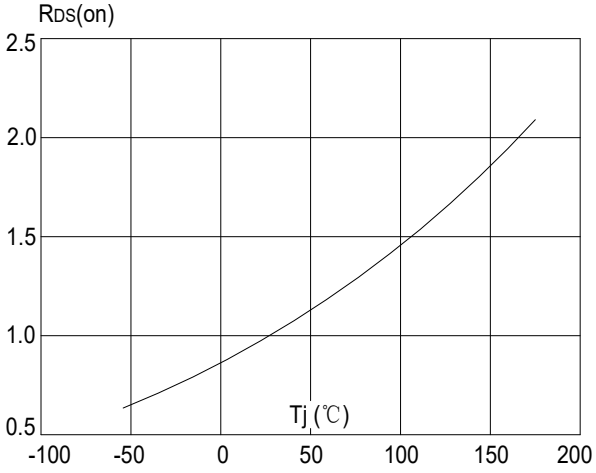


Figure 9: Maximum Safe Operating Area

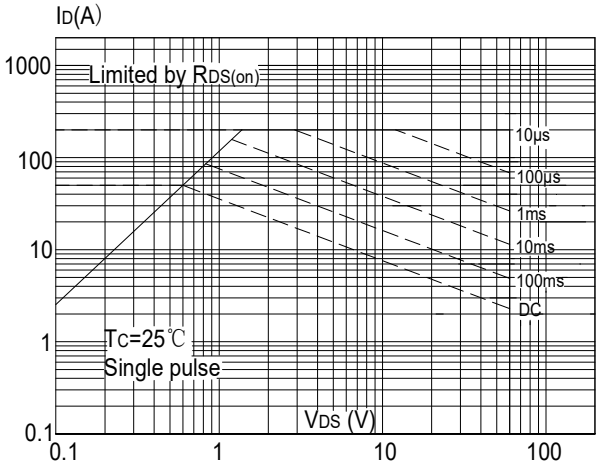


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

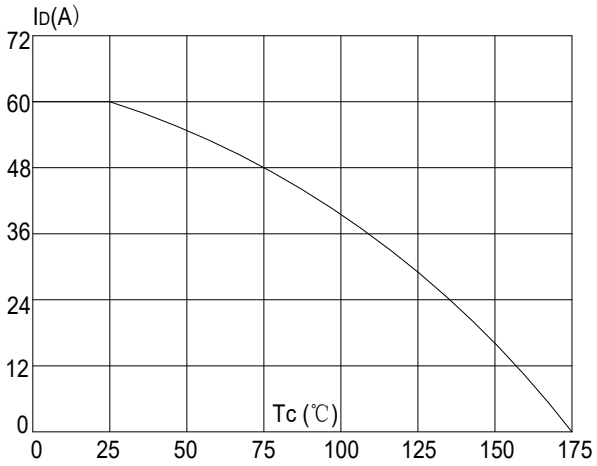
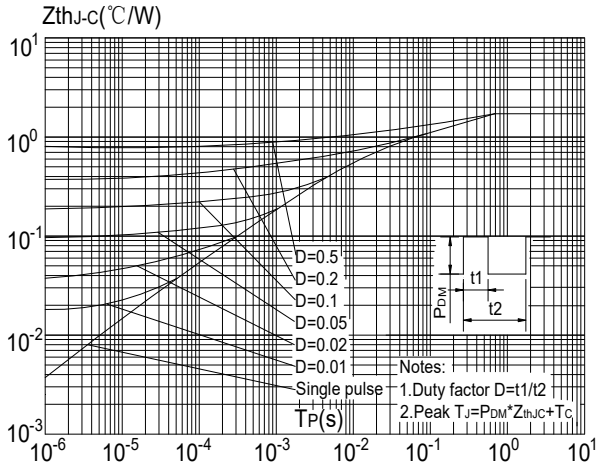
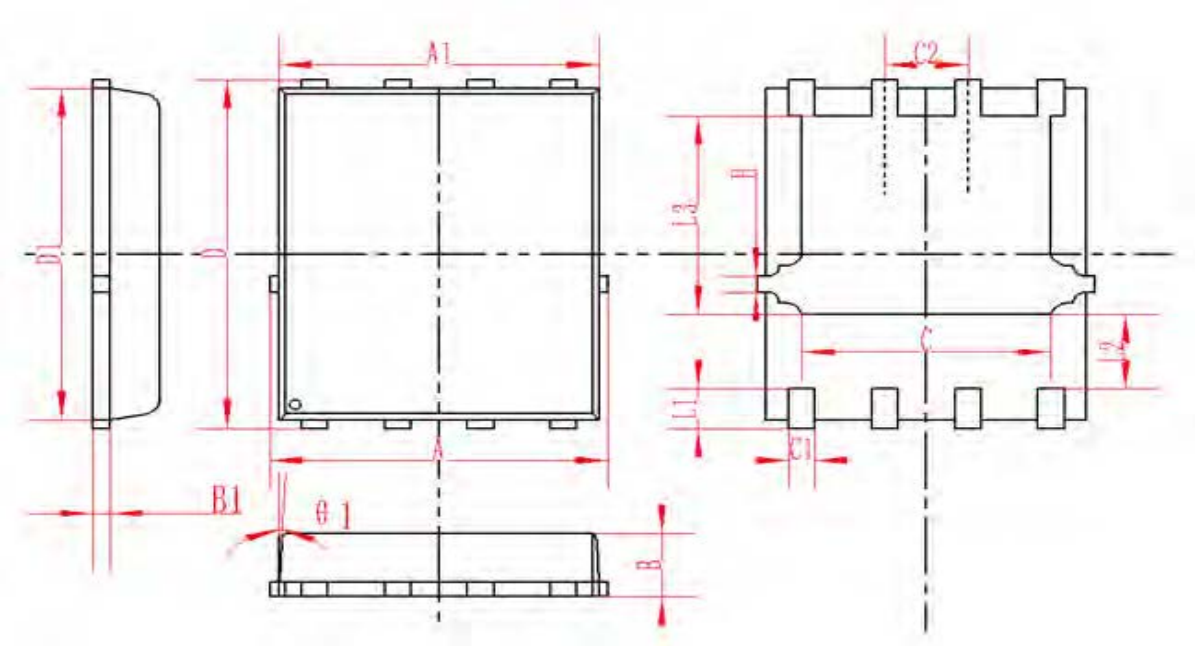


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



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

Attention

■ Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.

■ HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.

■ Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer’s products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer’s products or equipment.

■ HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could
give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of HUA XUAN YANG ELECTRONICS CO.,LTD.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

HXY MOSFET:

HXY2300MI DTC143ZE HMCP602-I/SN PESD5V0S1BB TPSMB28A-VR SS5150B HXY8205ES
IRLML6246PBF MAX487ESA TPSMB100CA-VR HXY2101EI BZT52C3V3S HT7150 P6SMB200A
BZT52C13 HC4D20120A HESDNC5VB1AF-B P6SMB33CA SQJA04EP-T1_BE3 SS10100 HC3D10170A
HT7540-1 MMBT3904T SS1045 US2M HAD8542ARZ HOPA2340UA P6SMB36CA SD15C SS510C