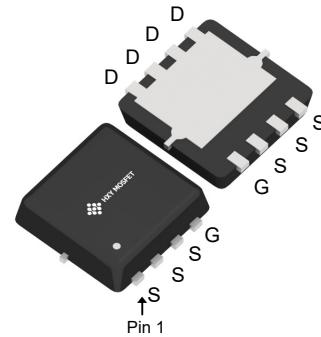




Description

The DMT34M5LFVW-7 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.

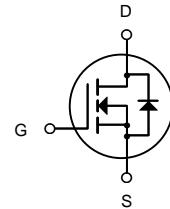


General Features

$V_{DS} = 30V$ $I_D = 100A$

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

DFN3X3-8L



N-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
DMT34M5LFVW-7	DFN3X3-8L	HXY MOSFET	5000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	100	A
$I_D @ T_c=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	60	A
IMD	Pulsed Drain Current ¹	320	A
EAS	Single Pulse Avalanche Energy ²	156	mJ
P_D	Total Power Dissipation	31.7	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
$R_{\theta JC}$	Thermal Resistance Junction-Case	3.94	°C/W



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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=250\mu\text{A}$	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{\text{GS}}=0\text{V}, V_{\text{DS}}=30\text{V}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{\text{GS}}=\pm 20\text{V}, V_{\text{DS}}=0\text{A}$	---	---	± 100	nA
$V_{\text{GS(th)}}$	GATE-Source Threshold Voltage	$V_{\text{GS}}=V_{\text{DS}}, I_{\text{D}}=250\mu\text{A}$	1	1.6	2.5	V
$R_{\text{DS(ON)}}$	Drain-Source On Resistance ³	$V_{\text{GS}}=10\text{V}, I_{\text{D}}=30\text{A}$	---	2.5	3	$\text{m}\Omega$
		$V_{\text{GS}}=4.5\text{V}, I_{\text{D}}=20\text{A}$	---	4.3	5.5	
C_{iss}	Input Capacitance	$V_{\text{DS}}=15\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	---	3499	---	pF
C_{oss}	Output Capacitance		---	499	--	
C_{rss}	Reverse Transfer Capacitance		---	430	---	
$t_{\text{d(on)}}$	Turn-On Delay Time	$V_{\text{DS}}=15\text{V}, I_{\text{D}}=30\text{A}, R_{\text{G}}=3\Omega, V_{\text{GS}}=10\text{V}$	---	12	---	ns
t_r	Rise Time		---	119	---	ns
$t_{\text{d(off)}}$	Turn-Off Delay Time		---	59	---	ns
t_f	Fall Time		---	109	---	ns
Q_g	Total Gate Charge	$V_{\text{GS}}=10\text{V}, V_{\text{DS}}=15\text{V}, I_{\text{D}}=30\text{A}$	---	69	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	17	---	nC
V_{SD}	Diode Forward Voltage	$V_{\text{GS}}=0\text{V}, I_{\text{SD}}=30\text{A}$	---	---	1.2	V
I_s	Continuous Drain Current	$V_{\text{D}}=V_{\text{G}}=0\text{V}$	---	---	100	A
I_{SM}	Pulsed Drain Current		---	---	320	A
Tr_{rr}	Reverse Recovery Time	$I_{\text{F}}=20\text{A}, T_J=25^\circ\text{C}$ $di/dt=100\text{A}/\mu\text{s}$	---	21	---	NS
Q_{rr}	Reverse Recovery Charge		---	9	---	NC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J=25^\circ\text{C}$, $V_{\text{DD}}=15\text{V}$, $V_{\text{G}}=10\text{V}$, $R_{\text{G}}=25\Omega$, $L=0.5\text{mH}$, $I_{\text{AS}}=25\text{A}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$



Typical Performance Characteristics

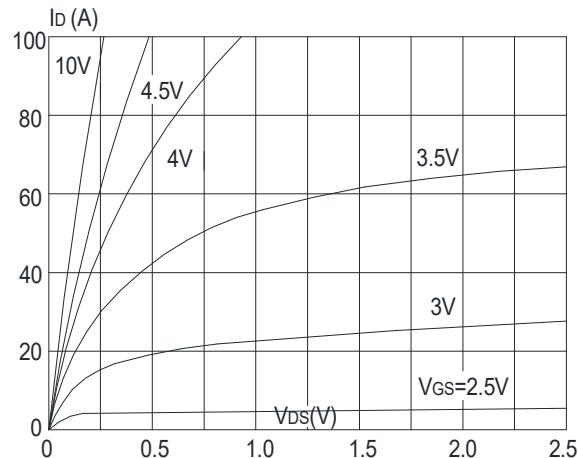


Figure 1: Output Characteristics

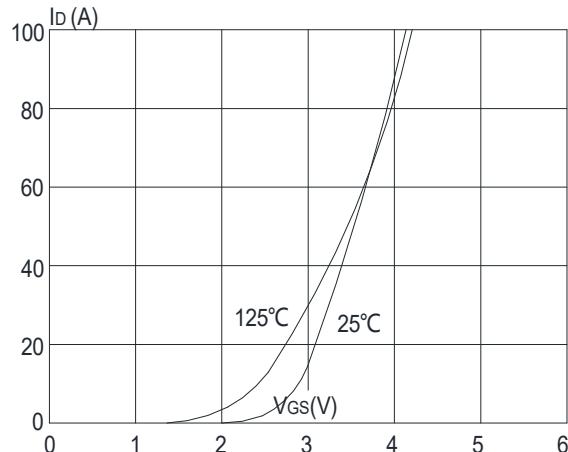


Figure 2: Typical Transfer Characteristics

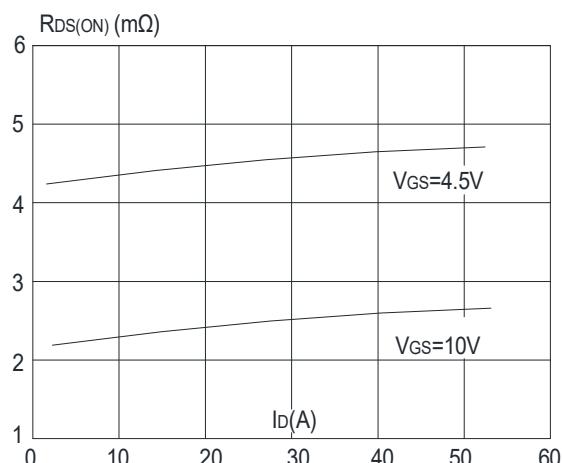


Figure 3: On-resistance vs. Drain Current

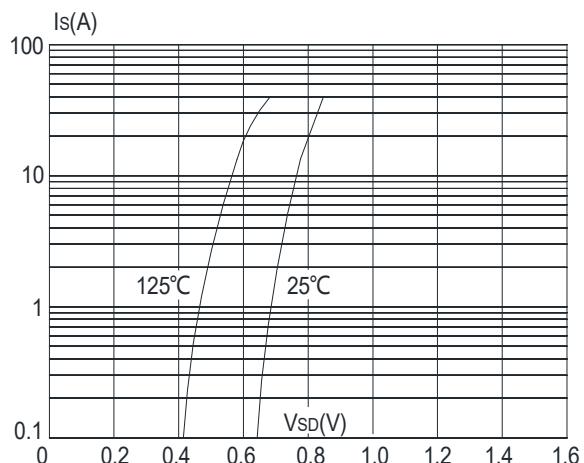


Figure 4: Body Diode Characteristics

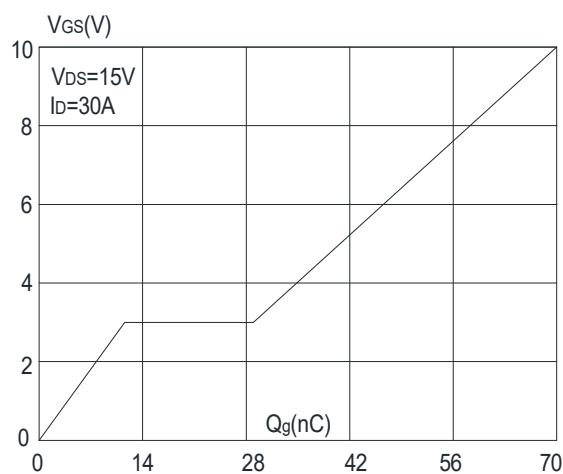


Figure 5: Gate Charge Characteristics

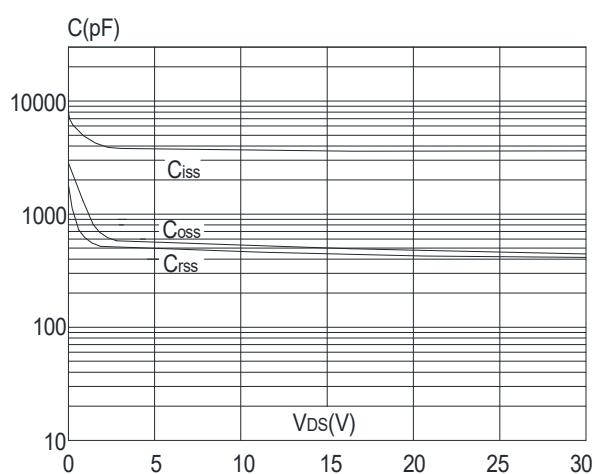


Figure 6: Capacitance Characteristics

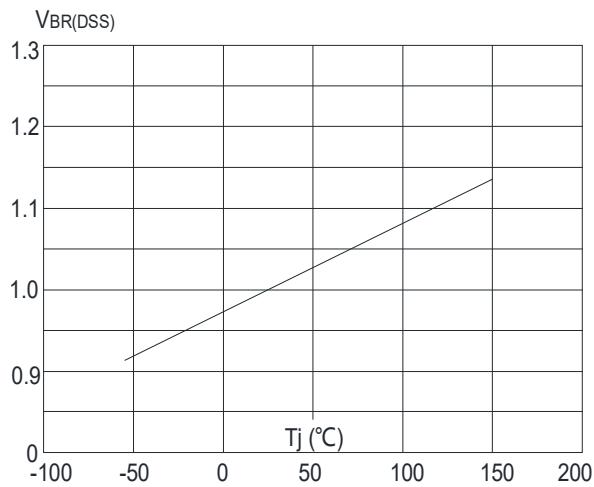


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

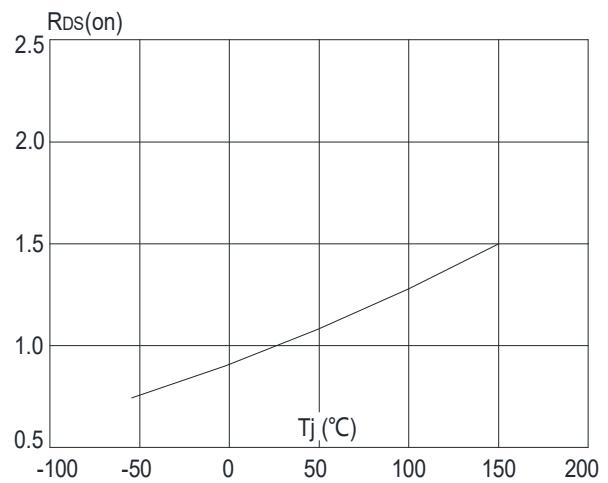


Figure 8: Normalized on Resistance vs. Junction Temperature

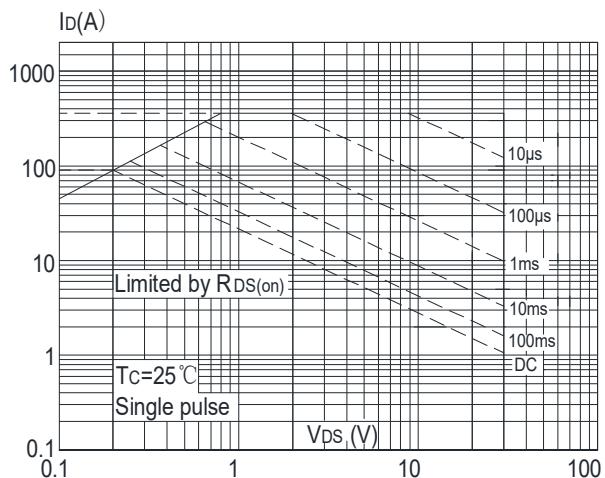


Figure 9: Maximum Safe Operating Area

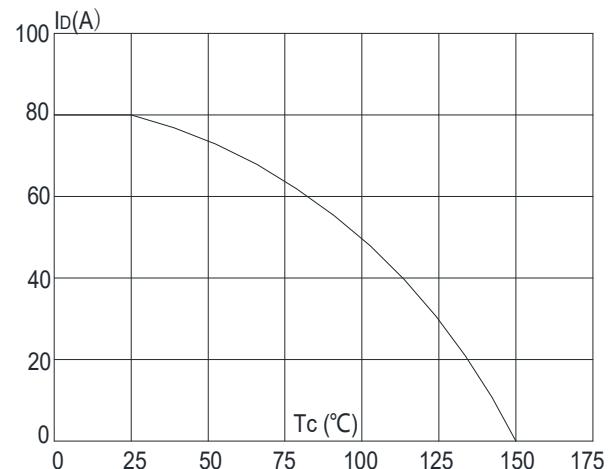


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

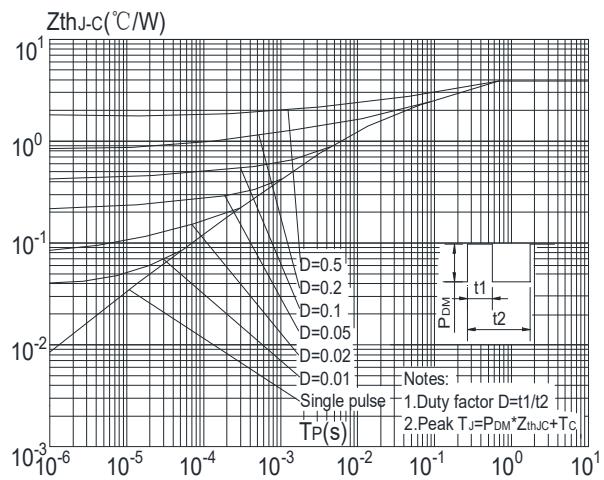
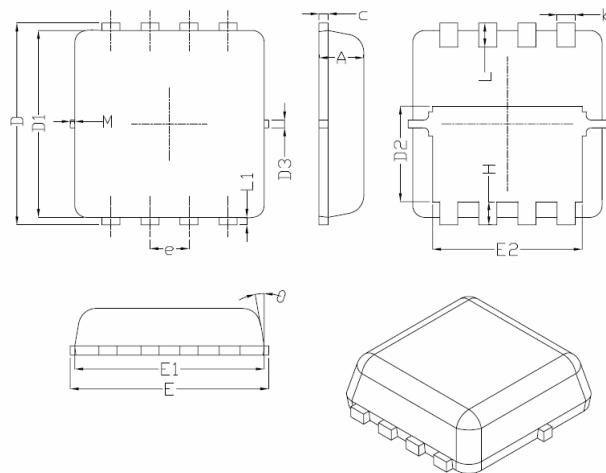


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



DFN3X3-8L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.48	1.58	1.68
D3	-	0.13	-
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	-	0.13	-
M	*	*	0.15
θ		10°	12°



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