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SEMICONDUCTOR



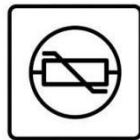
ESD



TVS



TSS



MOV



GDT



PLED

NTMFS4935N-MS

Product specification

Description

The NTMFS4935N-MS 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.

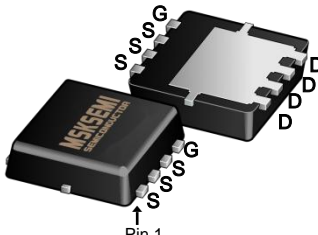
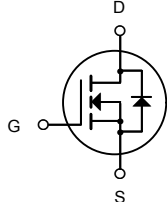

Features

- $V_{DS} = 30V$ $I_D = 90A$
- $R_{DS(ON)} < 4.7m\Omega$ $V_{GS} = 10V$

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Reference News

DFN5X6-8L	N-Channel MOSFET	Marking
		

Absolute Maximum Ratings (T_c=25°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, $V_{GS} @ 10V$ ¹	90	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$ ¹	50	A
I_{DM}	Pulsed Drain Current ²	162	A
EAS	Single Pulse Avalanche Energy ³	144.7	mJ
I_{AS}	Avalanche Current	53.8	A
$P_D @ T_C = 25^\circ C$	Total Power Dissipation ⁴	62.5	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
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	2.4	°C/W

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V,$	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note3</small>	$V_{GS}=10V, I_D=30A$	-	3.5	4.7	m Ω
		$V_{GS}=4.5V, I_D=20A$	-	7.0	10	
C_{ISS}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	2100	-	pF
C_{OSS}	Output Capacitance		-	326	-	pF
C_{RSS}	Reverse Transfer Capacitance		-	282	-	pF
Q_g	Total Gate Charge	$V_{DS}=15V, I_D=30A, V_{GS}=10V$	-	45	-	nC
Q_{gs}	Gate-Source Charge		-	3	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	15	-	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=15V, I_D=30A, R_{GEN}=3\Omega, V_{GS}=10V$	-	21	-	ns
t_r	Turn-on Rise Time		-	32	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	59	-	ns
t_f	Turn-off Fall Time		-	34	-	ns
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	50	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	200	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	$I_F=20A, dI/dt=100A/\mu s$	-	15	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	4	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J=25\text{ }^\circ\text{C}$, $V_G=10V$, $R_G=25\ \Omega$, $L=0.5mH$, $I_{AS}=18.4A$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Characteristics

Figure 1: Output Characteristics

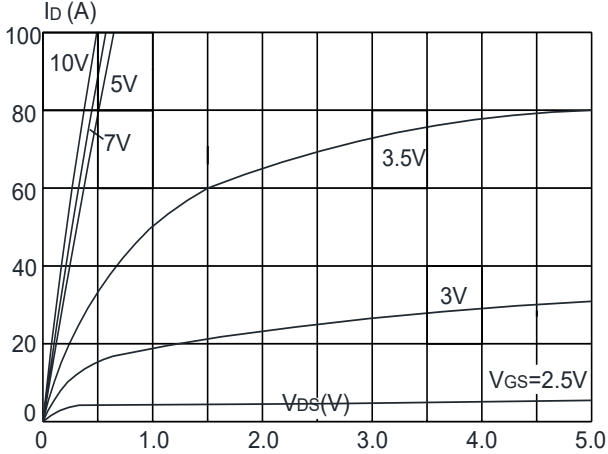


Figure 2: Typical Transfer Characteristics

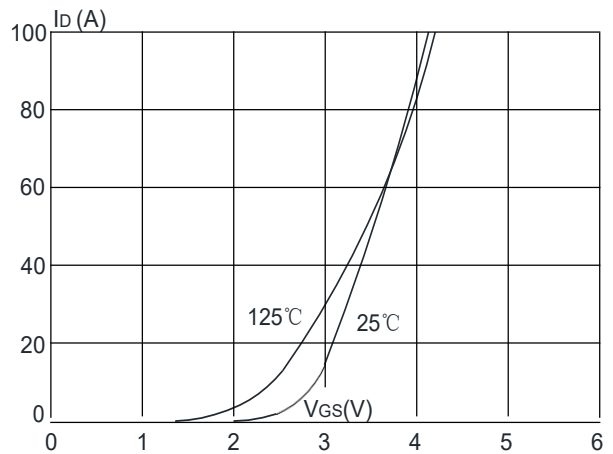


Figure 3: On-resistance vs. Drain Current

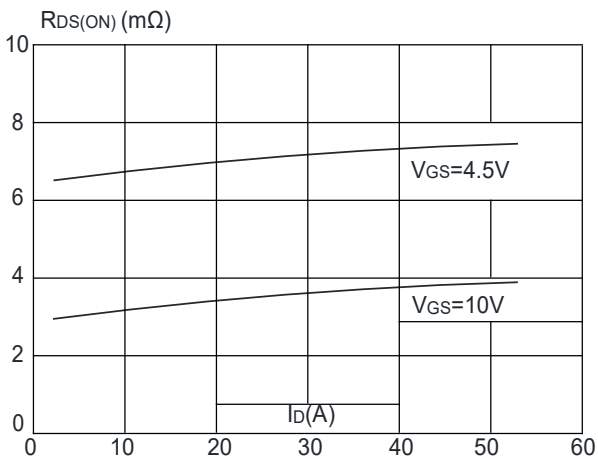


Figure 4: Body Diode Characteristics

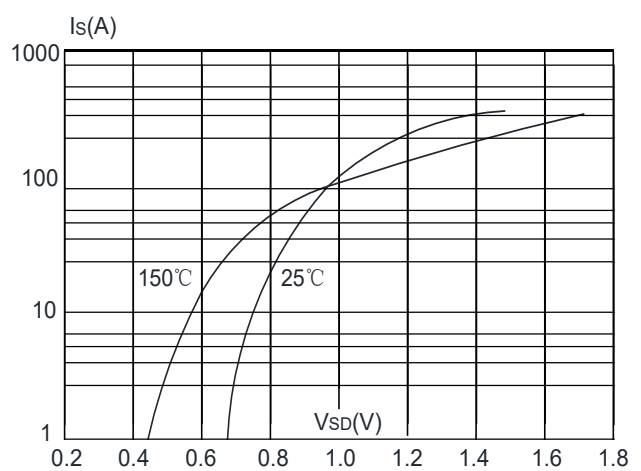


Figure 5: Gate Charge Characteristics

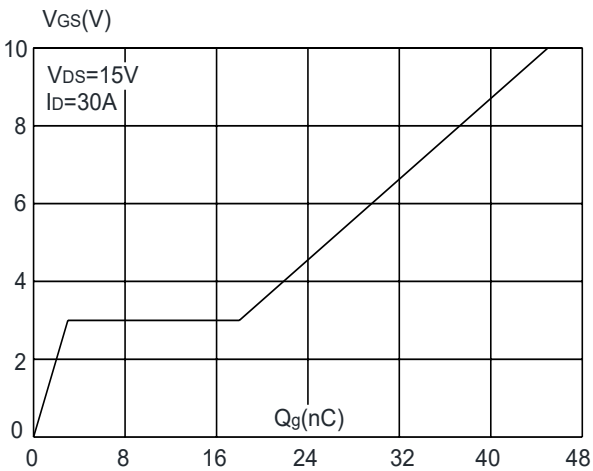


Figure 6: Capacitance Characteristics

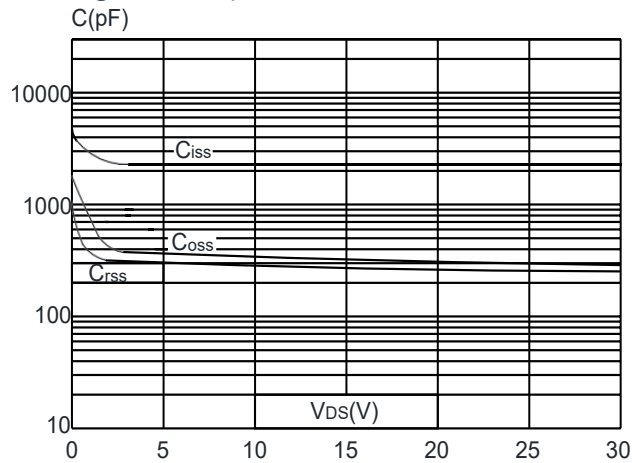


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

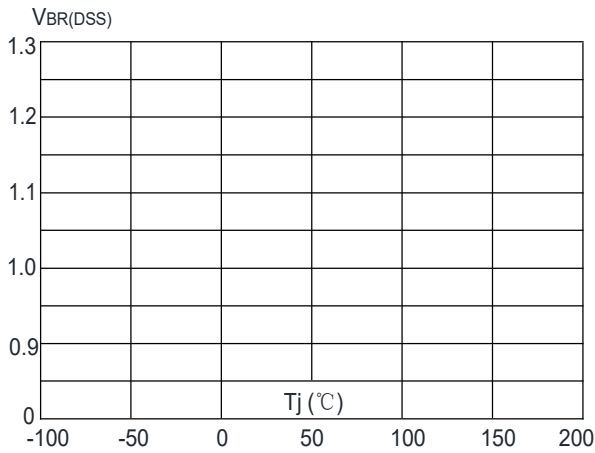


Figure 8: Normalized on Resistance vs. Junction Temperature

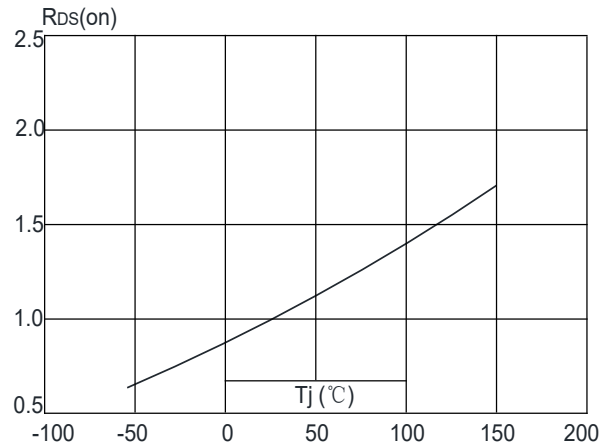


Figure 9: Maximum Safe Operating Area

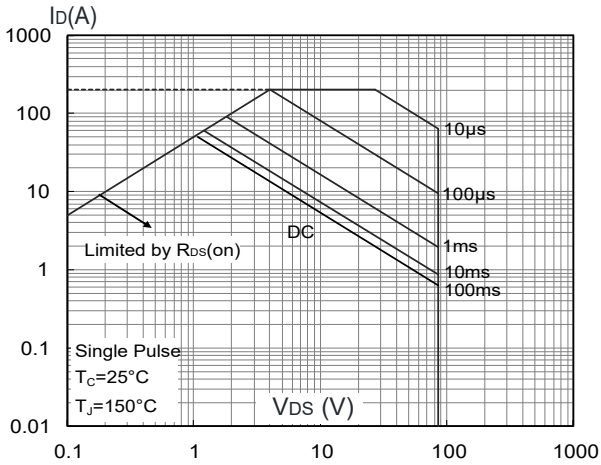


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

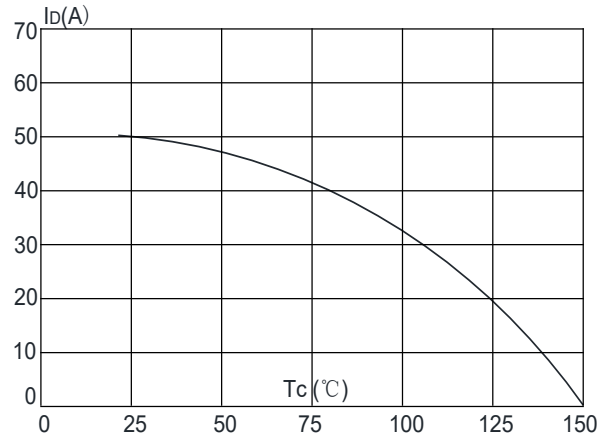
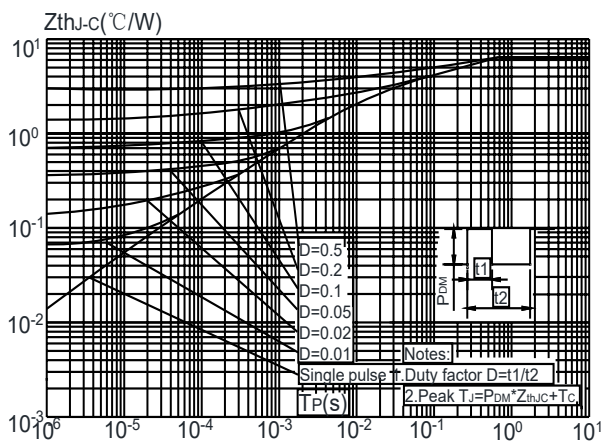
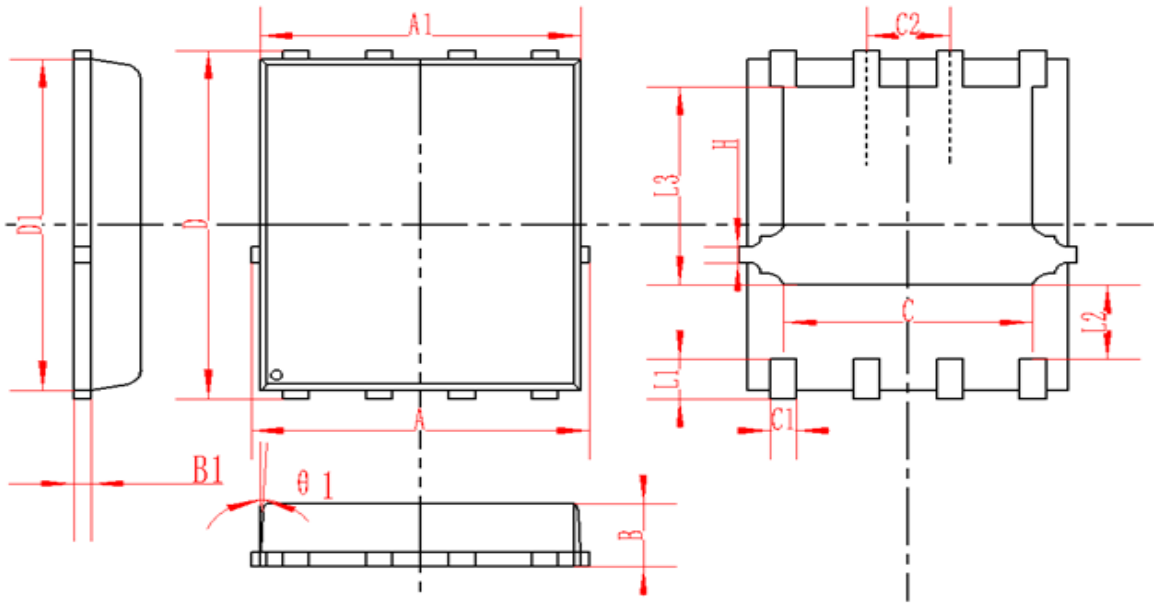


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



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		
$\theta 1$	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

REEL SPECIFICATION

P/N	PKG	QTY
NTMFS4935N-MS	DFN5X6-8L	5000

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