STM403N095LSH8H

Dual N-Channel Enhancement Mode Field Effect Transistor

FEATURES

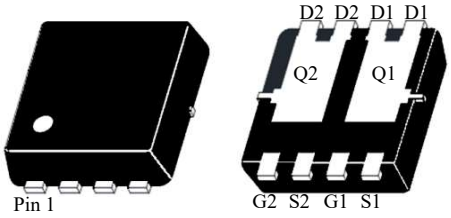
· Low $R_{DS(on)}$

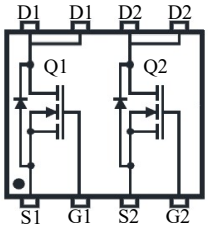
· Low Input Capacitance

· Suffix "H" indicates Halogen-free parts, ex. STM403N095LSH8H

PIN CONFIGURATION

DFN3×3-8L





TOP VIEW

D1, D2	Drain
G1, G2	Gate
S1, S2	Source

Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current T_C=25℃	I_D	40	A
Continuous Drain Current T_C=100℃		25	
Pulsed Drain Current (Note 1)	I_{DM}	90	A
Avalanche Current	I_{AS}	21	A
Avalanche Energy (Note 2)	E_{AS}	22	mJ
Power Dissipation T_C=25℃	P_D	21.9	W
Thermal Resistance from Junction to Ambient (Note 3)	$R_{\theta JA}$	80	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	5.7	℃/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to + 150	℃

Note:

1. The data tested by pulsed, pulse width ≦100μs, duty cycle ≦2%, Reptitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

2. Limited by $T_{J(MAX)}$, starting T_J=25℃, L=0.1mH, R_g=25Ω, I_D=21A, V_{GS}=10V.

3. Device mounted on FR-4 substrate PC board, 2oz copper, with 1 inch^2 copper plate in still air.

Electrical Characteristics(T_A=25 ℃ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	I_D=250μA	$V_{(BR)DSS}$	30	-	-	V
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(th)}$	1.0	-	2.5	V
Zero Gate Voltage Drain Current	V_{DS}=24V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain-Source On-Resistance	V_{GS}=10V, I_D=15A V_{GS}=4.5V, I_D=10A	$R_{DS(on)}$	- -	8.0 -	10.2 13.5	mΩ
Forward Transconductance	V_{DS}=5V, I_D=15A	g_{FS}	-	13.8	-	S
Dynamic						
Gate Resistance	V_{DS}=0V, f=1MHz	R_g	-	1.6	-	Ω
Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_D=15A	Q_g	-	12	-	nC
	V_{DS}=15V, V_{GS}=10V, I_D=15A		-	23	-	
Gate-Source Charge		Q_{gs}	-	3	-	
Gate-Drain Charge		Q_{gd}	-	6	-	
Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	C_{iss}	-	1122	-	pF
Output Capacitance		C_{oss}	-	139	-	
Reverse Transfer Capacitance		C_{rss}	-	106	-	
Turn on Delay Time	V_{DS}=15V, I_D=15A V_{GS}=10V, R_g=2.2Ω	$t_{d(on)}$	-	13	-	ns
Turn on Rise Time		t_r	-	71	-	
Turn off Delay Time		$t_{d(off)}$	-	13	-	
Turn off Fall Time		t_f	-	21	-	
Drain-Source Body Diode						
Diode Forward Voltage	V_{GS}=0V, I_S=15A	V_{SD}	-	-	1.2	V
Diode Continuous Forward Current	-	I_S	-	-	40	A
Diode Pulse Current		I_{SM}	-	-	90	A
Reverse Recovery Time	I_S=15A, di/dt=100A/μs	t_{rr}	-	6.5	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.4	-	nC

RATINGS AND CHARACTERISTIC CURVES

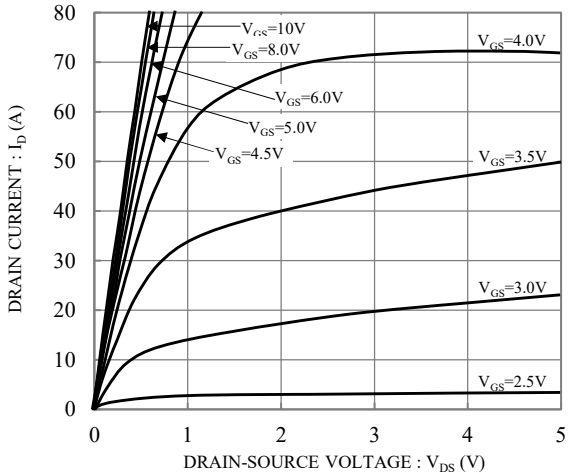


Fig.1 Typical Output Characteristics

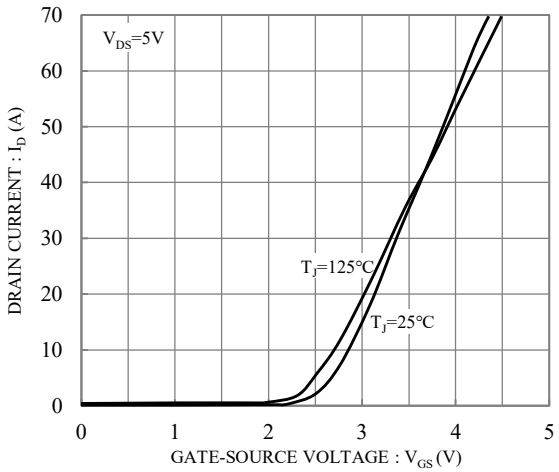


Fig.2 Typical Transfer Characteristics

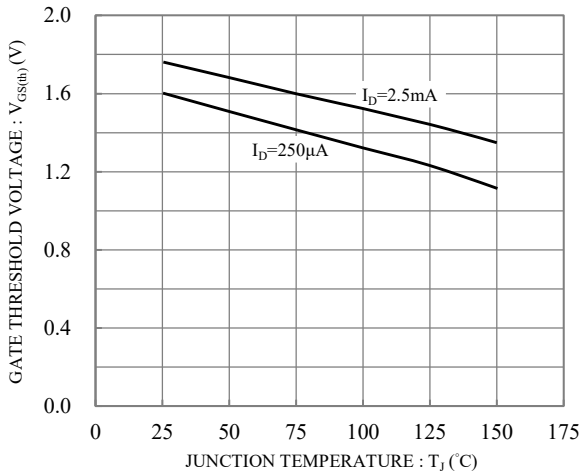


Fig.3 Gate Threshold Voltage vs. Junction Temperature

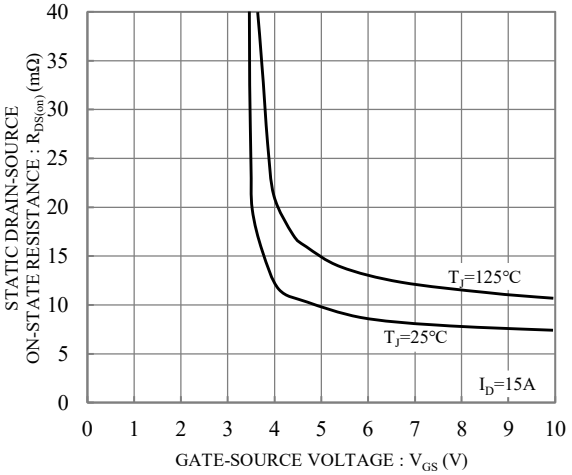


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

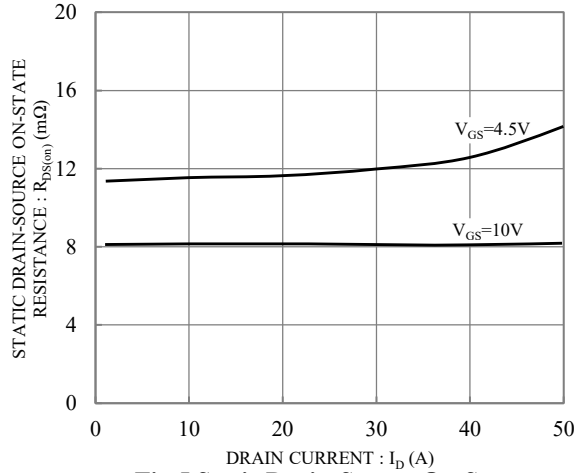


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

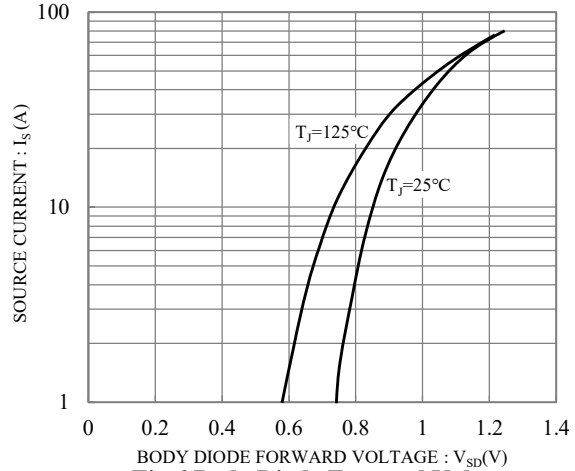


Fig.6 Body Diode Forward Voltage vs. Source Current

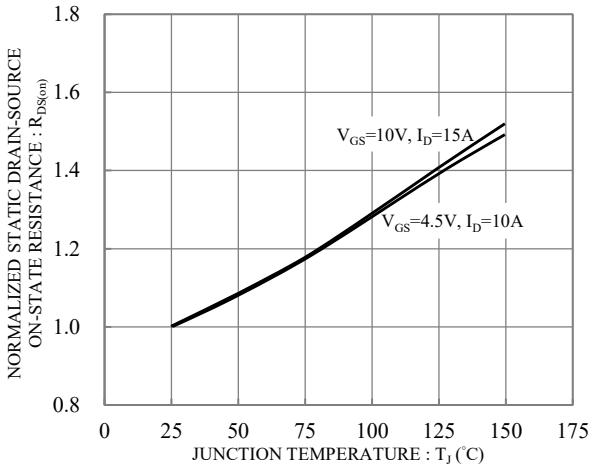


Fig.7 Drain-Source On-State Resistance vs Junction Tempearture

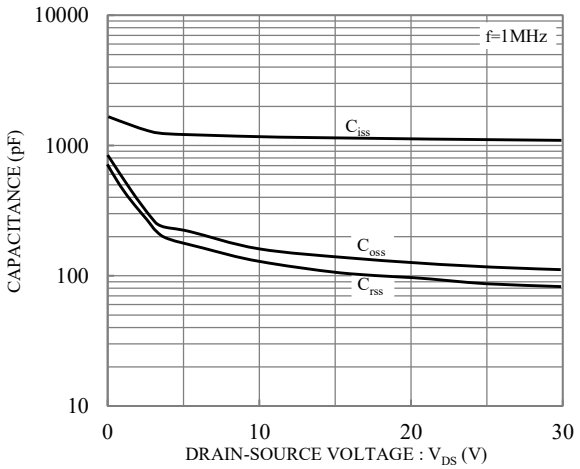


Fig.8 Capacitance vs Drain-Source Voltage

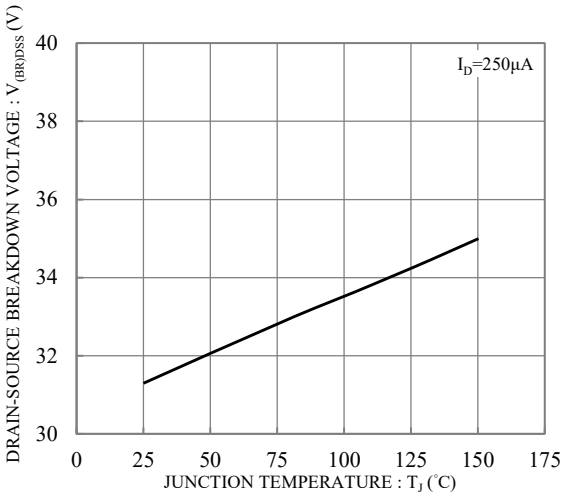


Fig.9 Breakdown Voltage vs Junction Temperature

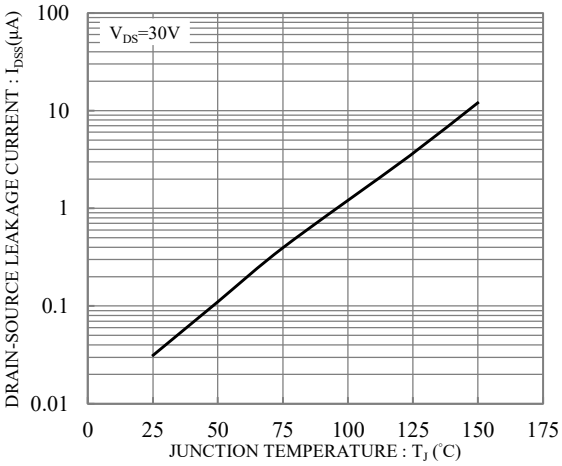


Fig.10 Drain-Source Leakge Current vs Junction Temperature

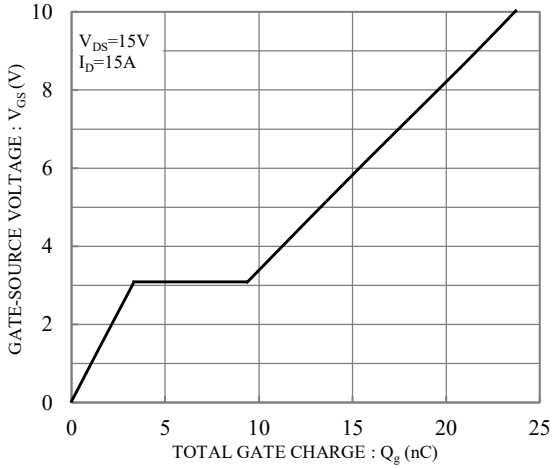


Fig.11 Gate Charge Characteristics

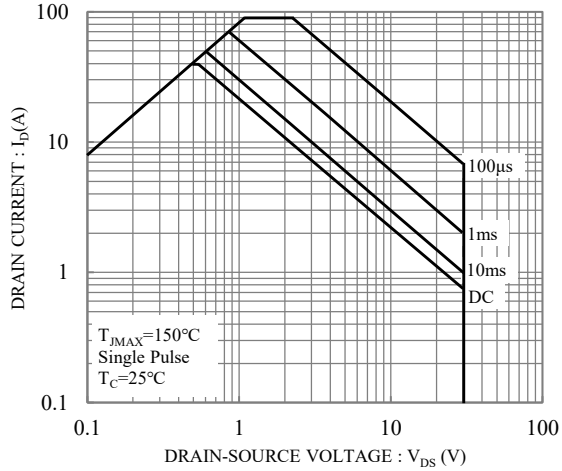


Fig.12 Safe Operation Area

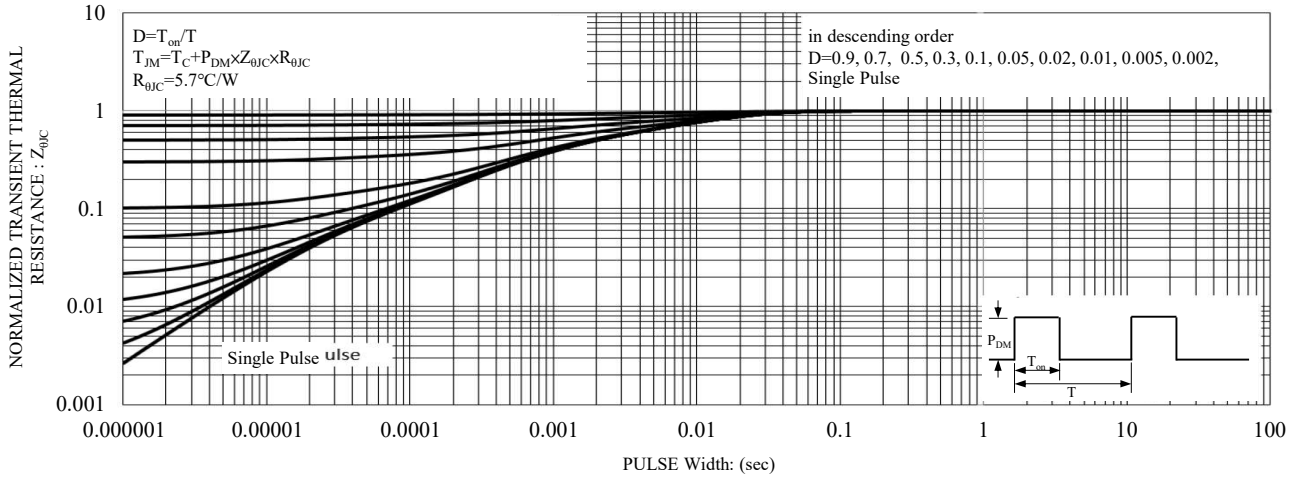


Fig.13 Maximum Transient Thermal Impedance

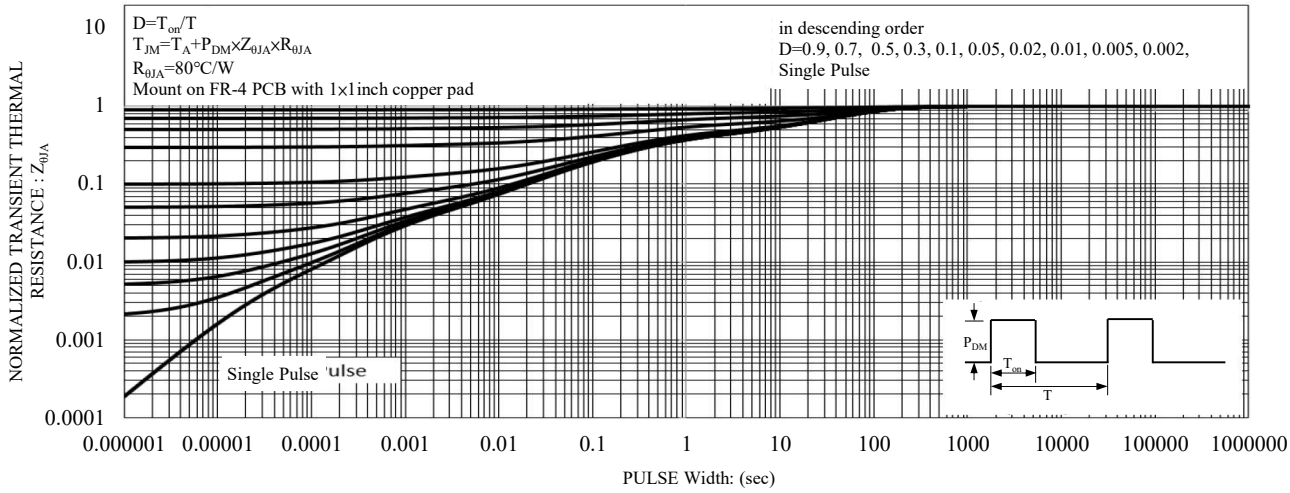
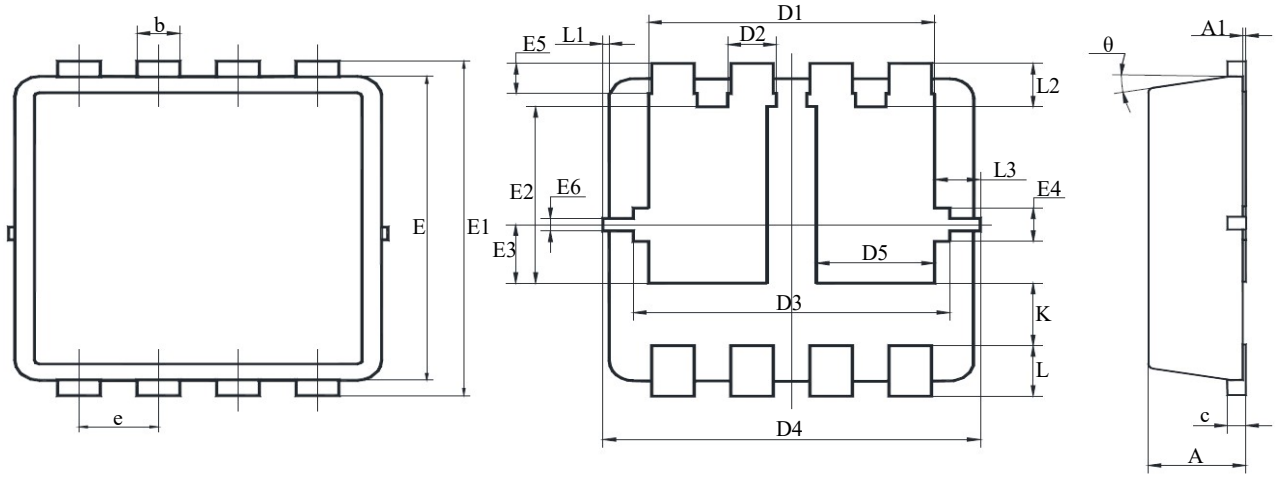


Fig.14 Maximum Transient Thermal Impedance

PACKAGE DIMENSION

DFN5×6-8L



Top View　　Bottom View　　Side View

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.050	0.000	0.002
b	0.240	0.350	0.009	0.014
c	0.100	0.250	0.004	0.010
D1	2.400	2.600	0.094	0.102
D2	0.300	0.500	0.012	0.020
D3	2.500	2.700	0.098	0.106
D4	3.000	3.200	0.118	0.126
D5	0.935	1.135	0.037	0.045
E	2.900	3.100	0.114	0.122
E1	3.100	3.300	0.122	0.130
E2	1.650	1.850	0.065	0.073
E3	0.480	0.680	0.019	0.027
E4	0.230	0.430	0.009	0.017
E5	0.200	0.400	0.008	0.016
E6	0.250	0.150	0.010	0.006
e	0.600	0.700	0.024	0.028
K	0.520	0.720	0.020	0.028
L	0.300	0.500	0.012	0.020
L1	0.000	0.100	0.000	0.004
L2	0.330	0.530	0.013	0.021
L3	0.275	0.475	0.011	0.019
H	0	12°	0	12°