

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	6mΩ@4.5V	25A
	7.4mΩ@2.5V	

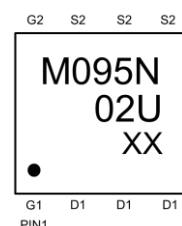
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- Low Gate Resistance

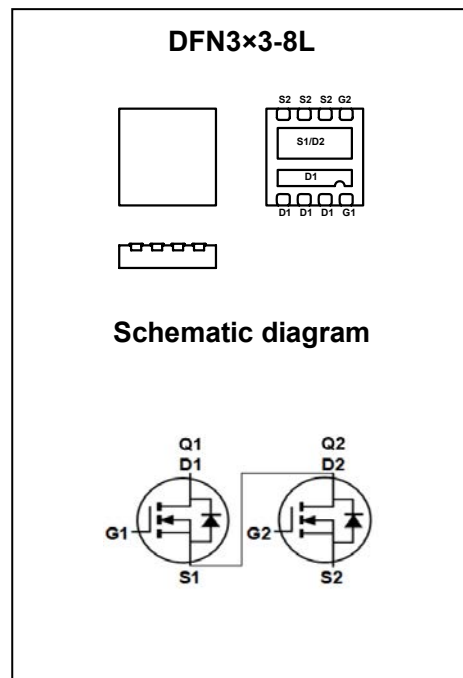
Application

- DC/DC Converter
- High-Frequency Switch

MARKING:



M095N02U = Device Code
 XX = Date Code
 Solid Dot = Pin1 Indicator



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

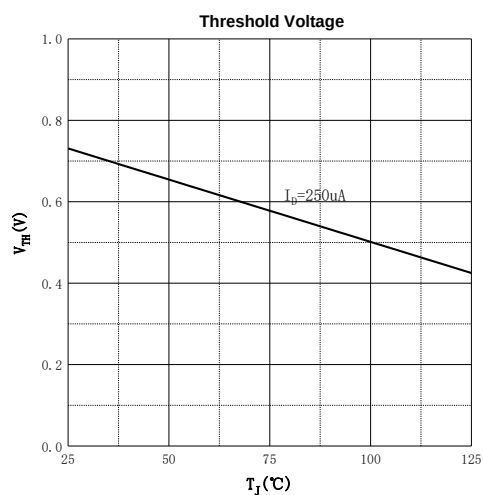
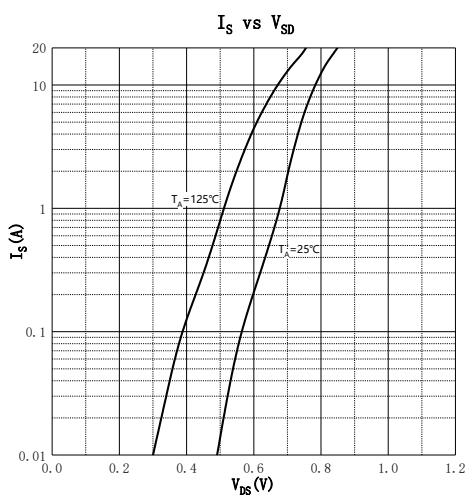
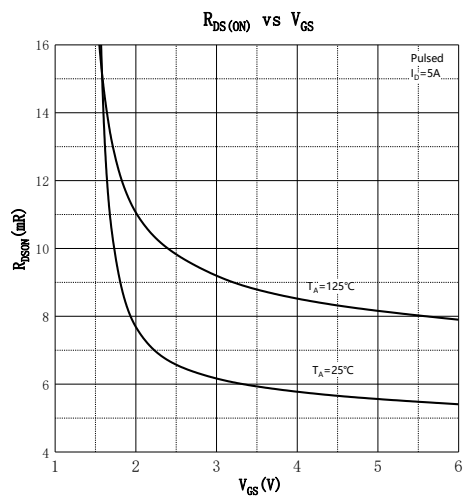
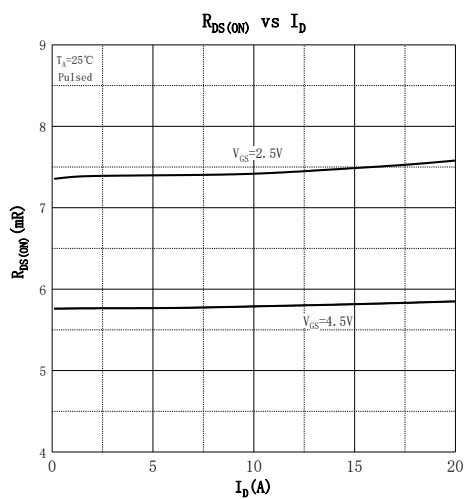
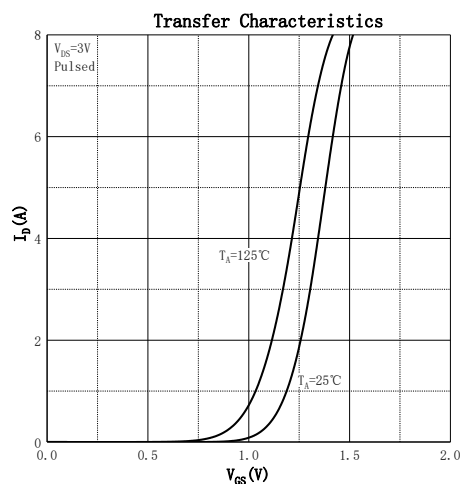
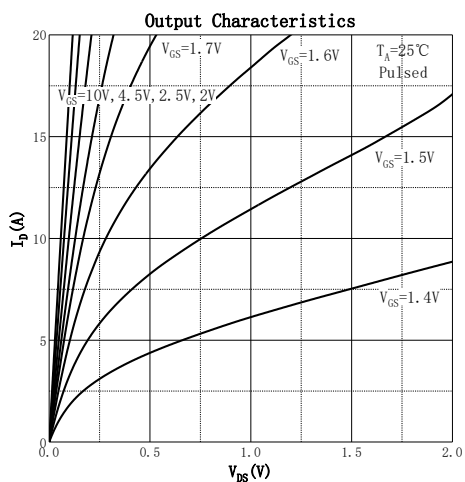
Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	20	V
Gate - Source Voltage	V_{GS}	±12	V
Continuous Drain Current ¹	I_D	25	A
Pulsed Drain Current ²	I_{DM}	100	A
Single Pulsed Avalanche Current ³	I_{AS}	9	A
Single Pulsed Avalanche Energy ³	E_{AS}	20	mJ
Power Dissipation ⁵	P_D	25	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	5	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

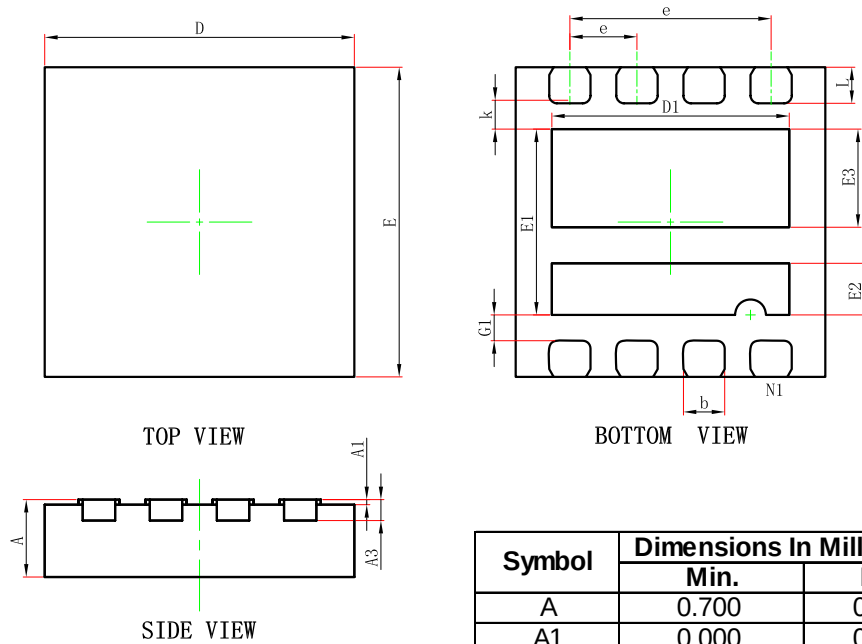
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off 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} = 16V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.7	1	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 5A		6	9.5	mΩ
		V _{GS} = 2.5V, I _D = 5A		7.4	12.5	mΩ
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 7A	8			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		1372		pF
Output Capacitance	C _{oss}			307		
Reverse Transfer Capacitance	C _{rss}			302		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 10V, V _{GS} = 4.5V, I _D = 10A		16		nC
Gate-source Charge	Q _{gs}			2.4		
Gate-drain Charge	Q _{gd}			6.3		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 1Ω R _G = 3Ω		2		ns
Turn-on Rise Time	t _r			6		
Turn-off Delay Ttime	t _{d(off)}			35		
Turn-off Fall Time	t _f			77		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 3A			1.2	V

Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.EAS condition: V_{DD} = 15V, V_{GS} = 5V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.And device mounted on a large heatsink
- 6.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics


DFN3×3-8L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.950	3.050	0.116	0.120
E	2.950	3.050	0.116	0.120
D1	2.250	2.350	0.089	0.093
E1	1.700	1.900	0.067	0.075
E2	0.450	0.550	0.018	0.022
E3	0.900	1.000	0.035	0.039
k	0.200	0.300	0.008	0.012
G1	0.200	0.300	0.008	0.012
b	0.350	0.450	0.014	0.018
e	0.650BSC		0.026BSC	
e1	1.95BSC		0.077BSC	
L	0.300	0.400	0.012	0.016