

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	76mΩ@10V	7A

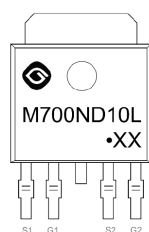
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

- Power Switching Application

MARKING:

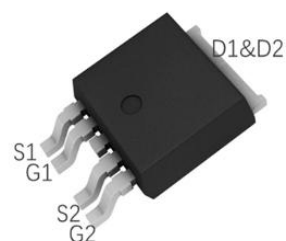


M700ND10L = Device Code

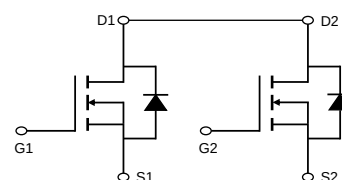
XX = Date Code

Solid Dot = Green Indicator

TO-252-4L



Schematic diagram



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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	100	V
Gate - Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	7	A
	$T_C = 100^\circ\text{C}$	I_D	5	A
Pulsed Drain Current ²		I_{DM}	28	A
Single Pulsed Avalanche Current ³		I_{AS}	15	A
Single Pulsed Avalanche Energy ³		E_{AS}	56.3	mJ
Power Dissipation ⁵		P_D	23	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	5.5	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

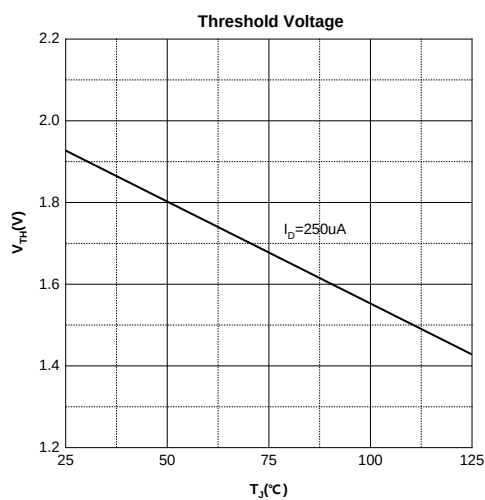
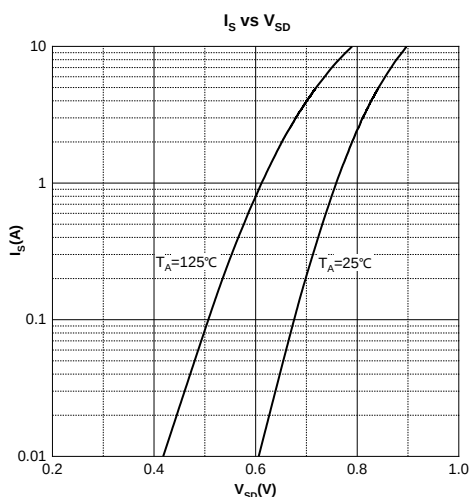
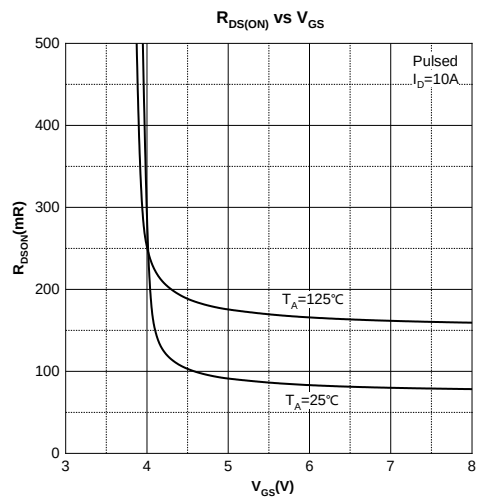
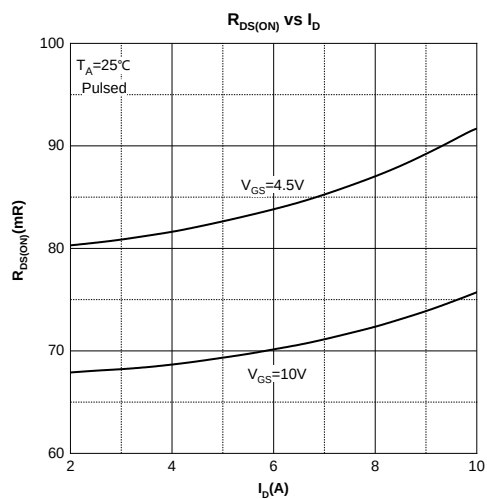
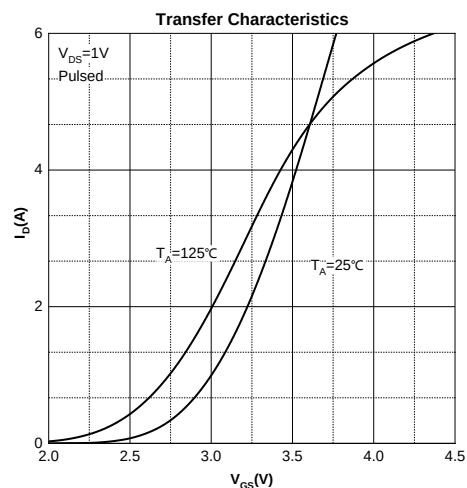
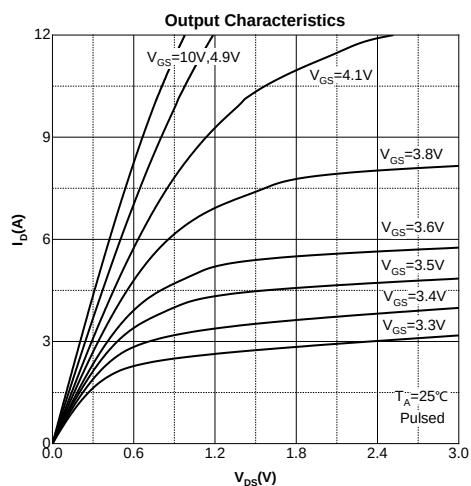
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

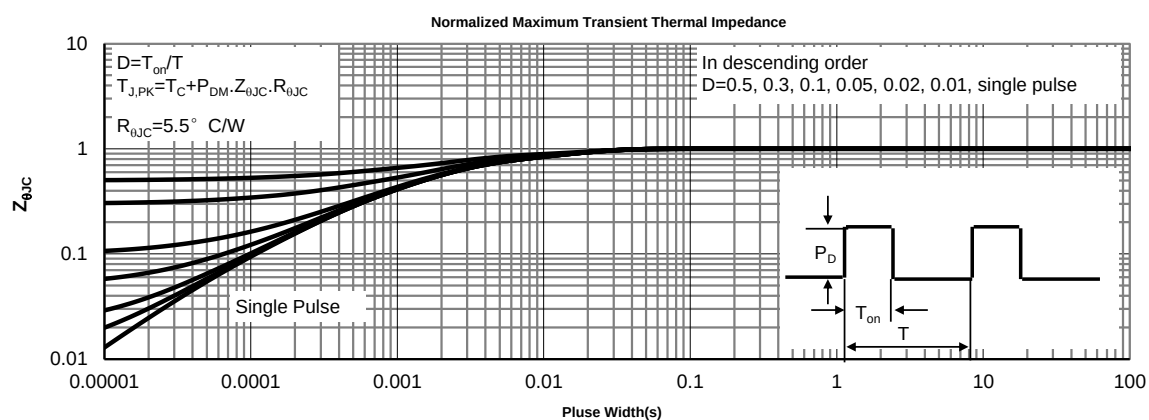
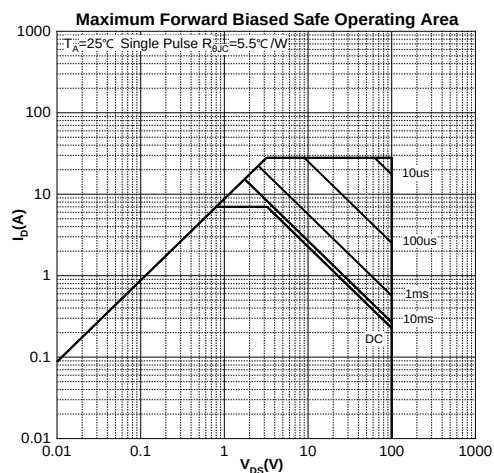
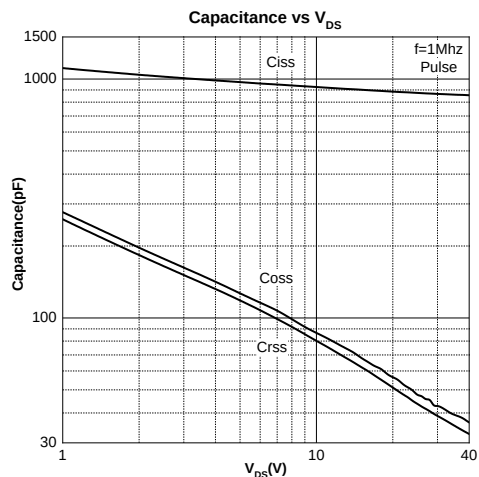
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics ⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	2.0	3.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		76	100	m Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, f = 1MHz$		845		pF
Output Capacitance	C_{oss}			34		
Reverse Transfer Capacitance	C_{rss}			31		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		1.7		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS} = 10V, I_D = 10A$		21		nC
Gate-source Charge	Q_{gs}			3.8		
Gate-drain Charge	Q_{gd}			6.8		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 50V, V_{GS} = 10V, R_L = 2.5\Omega$ $R_G = 3\Omega$		8		ns
Turn-on Rise Time	t_r			7		
Turn-off Delay Ttime	$t_{d(off)}$			26		
Turn-off Fall Time	t_f			5		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

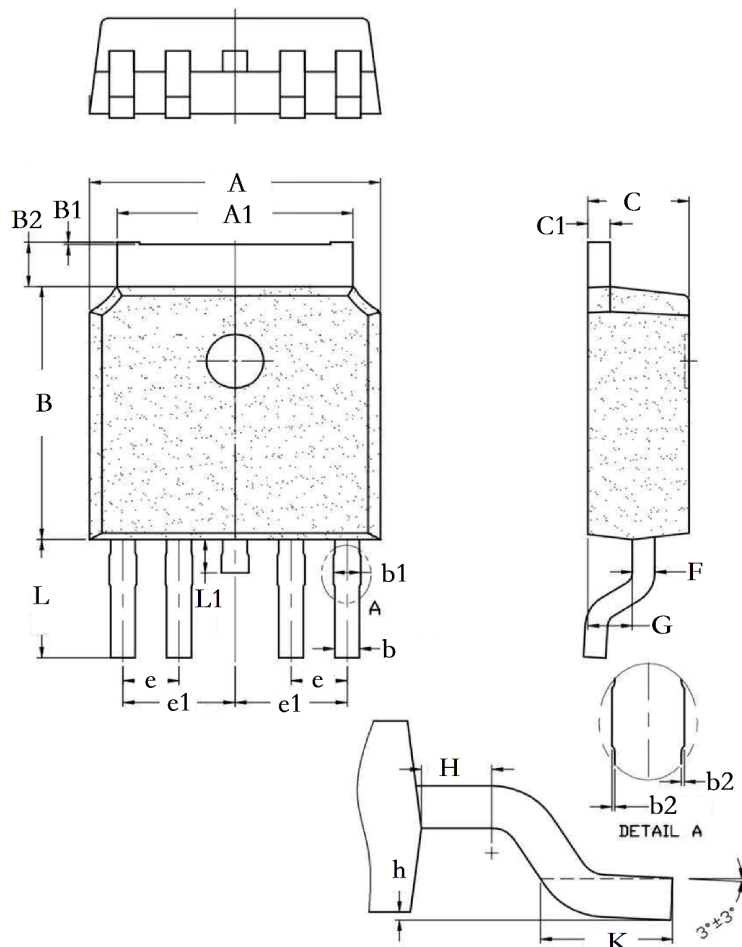
Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.And device mounted on a large heatsink
- 6.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics





TO-252-4L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	6.550	6.650	0.258	0.262
A1	5.234	5.434	0.206	0.214
B	6.050	6.150	0.238	0.242
B1	0.000	0.050	0.000	0.002
B2	0.962	1.162	0.038	0.046
C	2.250	2.350	0.089	0.093
C1	0.458	0.558	0.018	0.022
L	2.698	2.998	0.106	0.118
L1	0.700	0.900	0.028	0.035
b	0.510	0.610	0.020	0.024
b1	0.570	0.670	0.022	0.026
b2	0.000	0.050	0.000	0.002
e	1.270TYP		0.050TYP	
e1	2.540TYP		0.100TYP	
F	0.458	0.558	0.018	0.022
G	0.960	1.06	0.038	0.042
H	0.650	0.950	0.026	0.037
h	0.050	0.150	0.002	0.006
K	1.300	1.700	0.051	0.067