

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	62mΩ@10V	18A

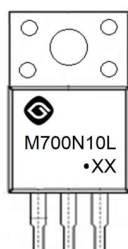
Feature

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

Application

- Power Switching Application

MARKING:



M700N10L = Device Code

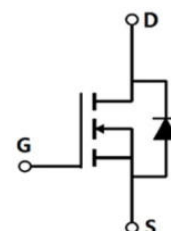
XX = Date Code

Solid Dot = Green Indicator

TO-220F



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	18	A
	$T_C = 100^\circ\text{C}$	I_D	12	A
Pulsed Drain Current ²		I_{DM}	72	A
Single Pulsed Avalanche Current ³		I_{AS}	13	A
Single Pulsed Avalanche Energy ³		E_{AS}	42.3	mJ
Power Dissipation ⁵		P_D	44.6	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	2.8	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

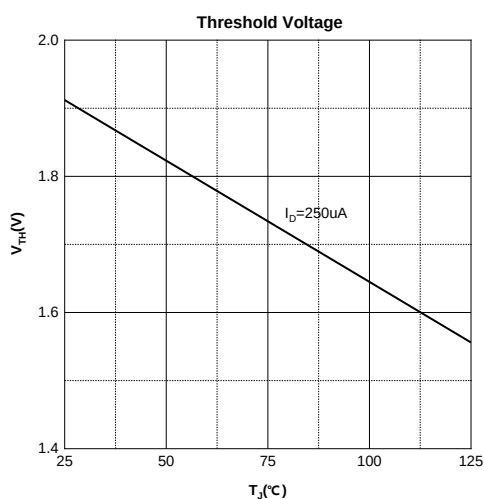
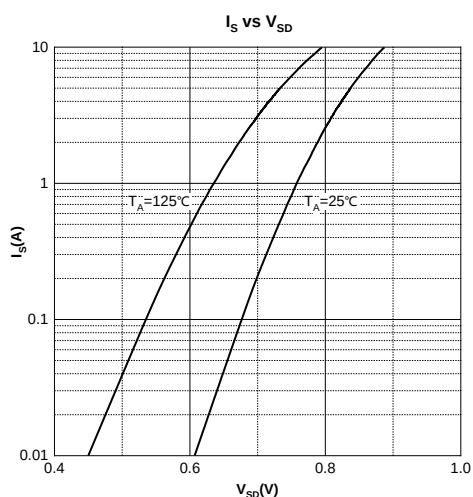
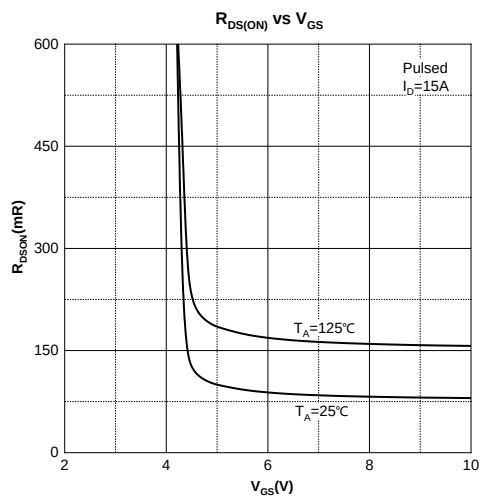
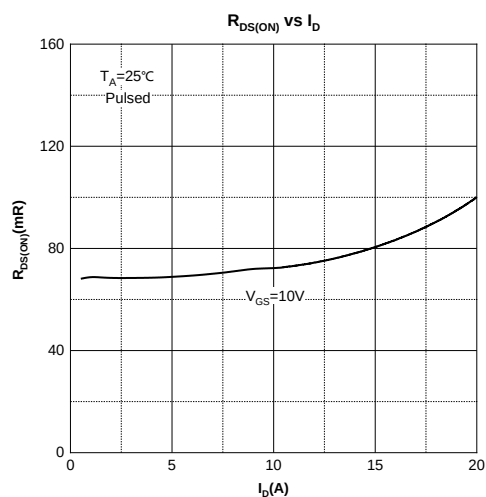
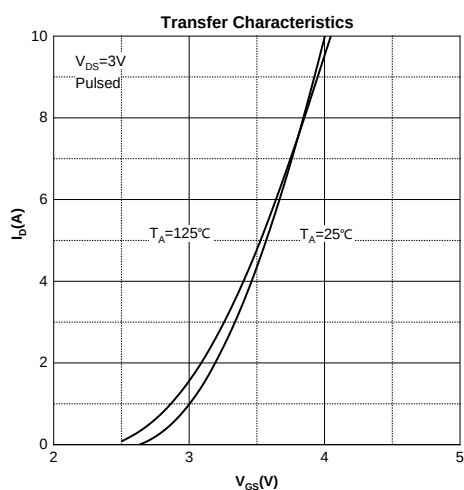
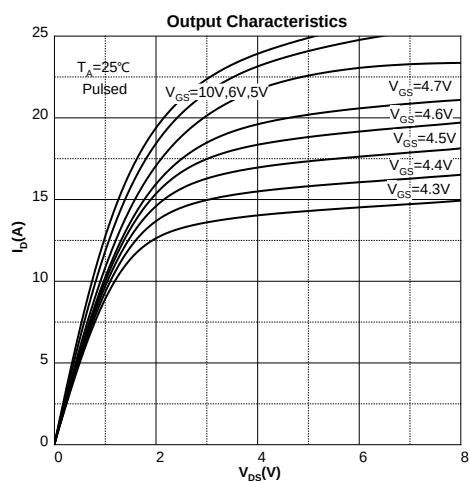
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

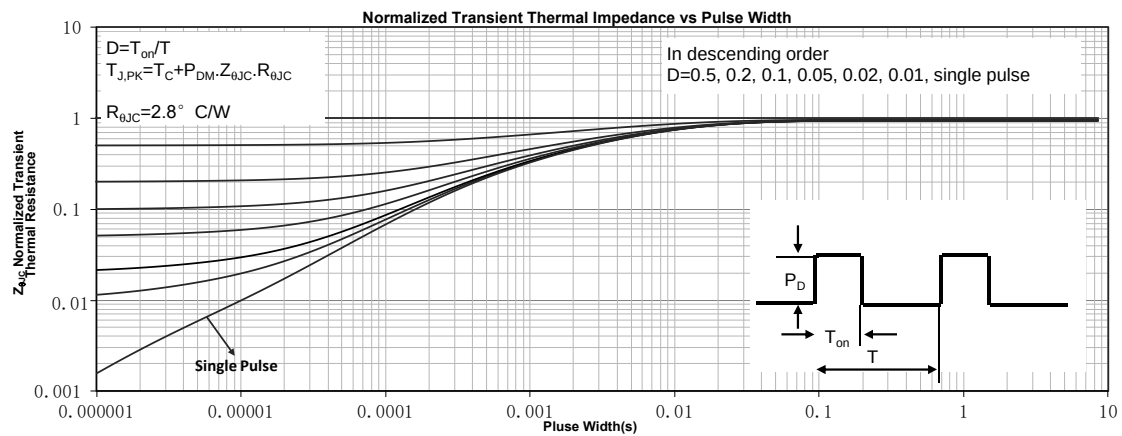
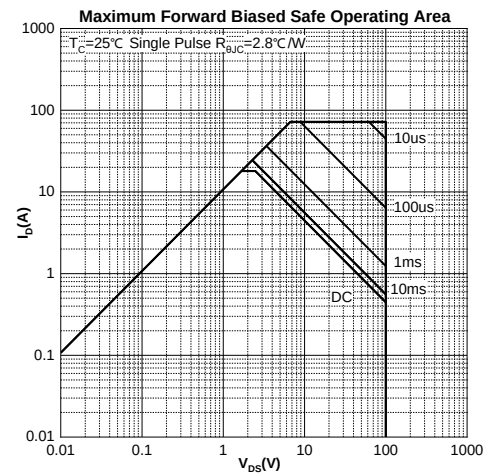
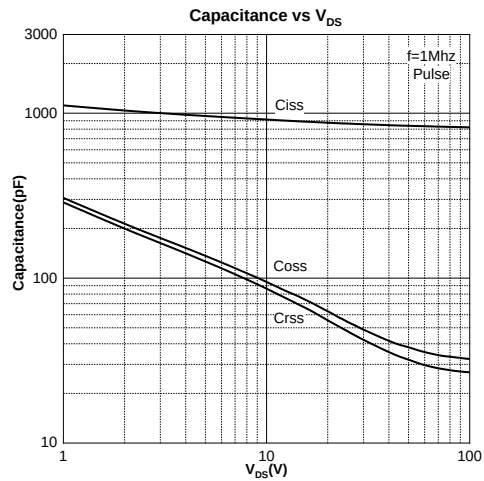
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.9	3	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1A		62	80	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		838		pF
Output Capacitance	C _{oss}			38		
Reverse Transfer Capacitance	C _{rss}			32		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2.4		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 55V, V _{GS} = 10V, I _D = 1.5A		21		nC
Gate-source Charge	Q _{gs}			2.4		
Gate-drain Charge	Q _{gd}			6.6		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 50V, V _{GS} = 10V, I _D = 5A, R _G = 3Ω		5		ns
Turn-on Rise Time	t _r			22		
Turn-off Delay Time	t _{d(off)}			20		
Turn-off Fall Time	t _f			17		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 2A			1.2	V

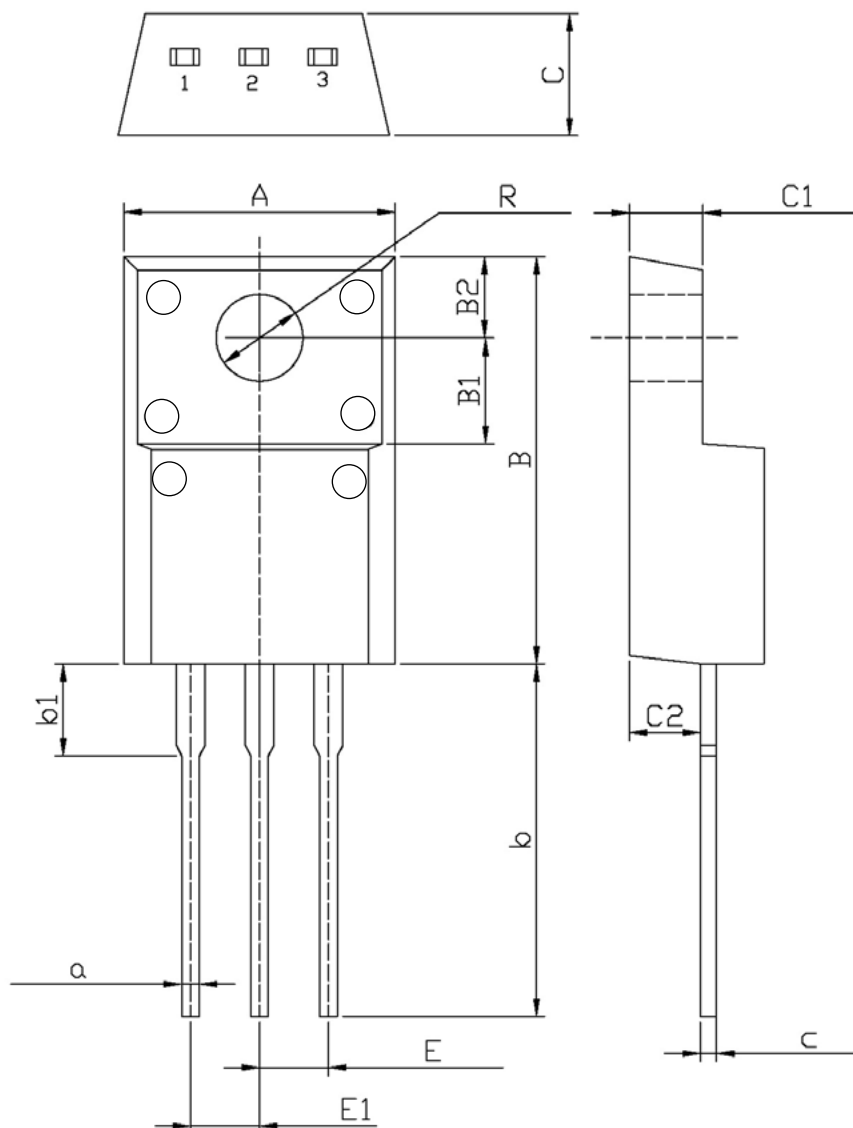
Notes :

- 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} = 50V, V_{GS} = 10V, 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





TO-220F Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
C	4.300	4.700	0.169	0.185
A	9.700	10.300	0.382	0.406
B	14.700	15.300	0.579	0.602
B1	3.800	4.000	0.150	0.157
B2	2.900	3.100	0.114	0.122
R	3.000	3.400	0.118	0.134
b	12.500	13.500	0.492	0.531
b1	2.900	3.900	0.114	0.154
a	0.550	0.750	0.022	0.030
E	2.290	2.790	0.090	0.110
E1	2.290	2.790	0.090	0.110
C1	2.500	2.900	0.098	0.114
C2	2.500	2.700	0.098	0.106
c	0.500	0.700	0.020	0.028