

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	45mΩ@10V	27A
	49mΩ@4.5V	

### Feature

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

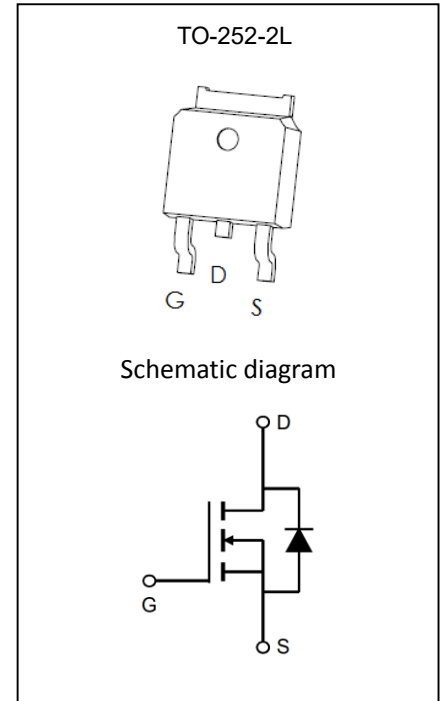
### Application

- Power Switching Application

### MARKING:



M370N10L = Device Code  
 XX = Date Code  
 Solid Dot = Green Indicator



### 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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	27	A
$T_C = 25^\circ\text{C}$			
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	108	A
Single Pulsed Avalanche Current <sup>3</sup>	$I_{AS}$	19	A
Single Pulsed Avalanche Energy <sup>3</sup>	$E_{AS}$	90	mJ
Power Dissipation <sup>5</sup>	$P_D$	41.7	W
$T_C = 25^\circ\text{C}$			
Thermal Resistance from Junction to Ambient <sup>6</sup>	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

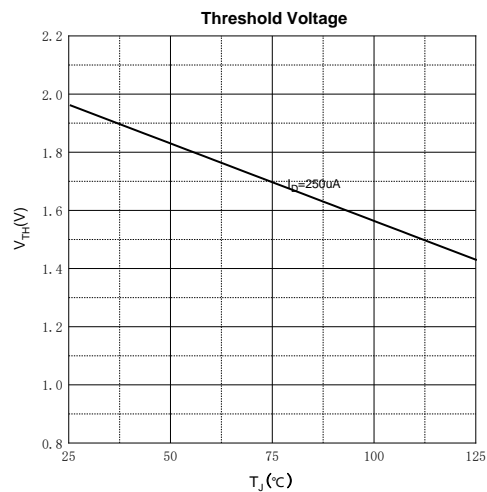
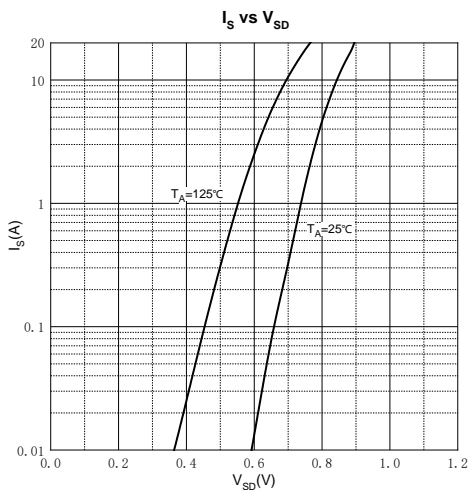
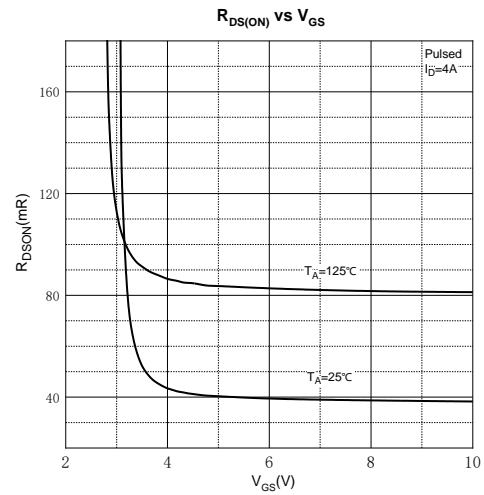
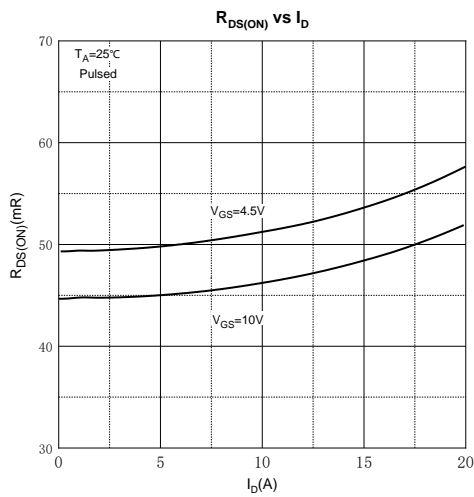
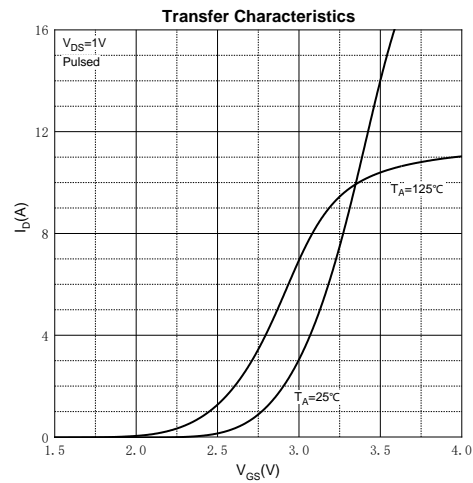
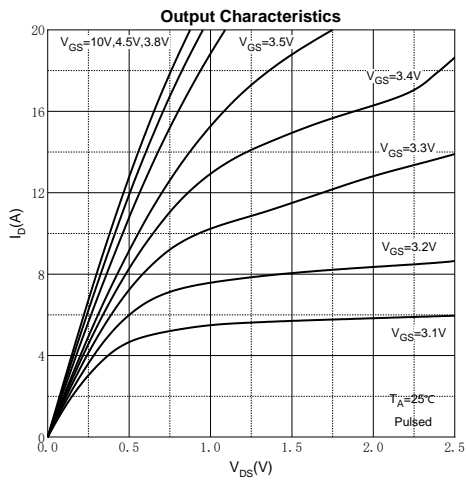
## MOSFET ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

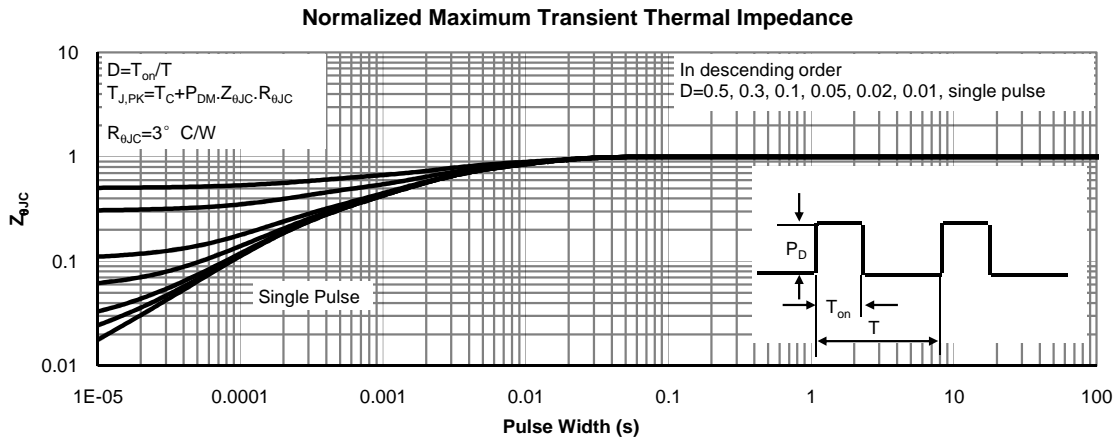
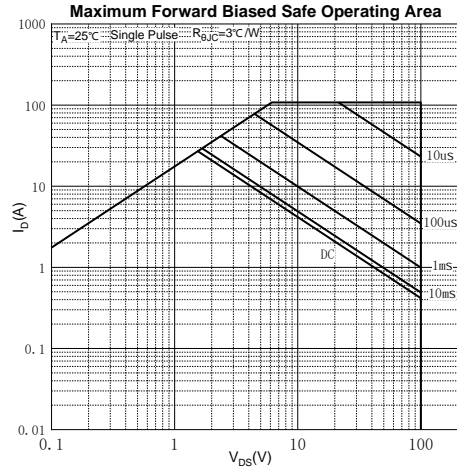
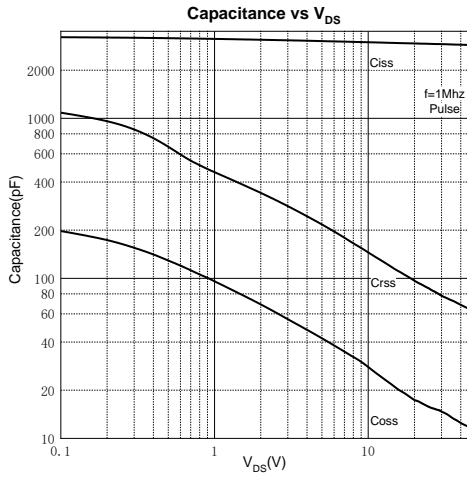
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0V			1	μA
Gate - Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
<b>On Characteristics<sup>4</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.0	2.0	3.0	V
Drain-source On-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 4A		45	56	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4A		49	69	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 4A	10			S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 45V, V <sub>GS</sub> = 0V, f = 1MHz		3026		pF
Output Capacitance	C <sub>oss</sub>			62		
Reverse Transfer Capacitance	C <sub>rss</sub>			51		
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz		1.4		Ω
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 15A		54.5		nC
Gate-source Charge	Q <sub>gs</sub>			8.0		
Gate-drain Charge	Q <sub>gd</sub>			12.1		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 50V, V <sub>GS</sub> = 10V, R <sub>L</sub> = 5Ω R <sub>G</sub> = 3Ω		7.5		ns
Turn-on Rise Time	t <sub>r</sub>			3.5		
Turn-off Delay Time	t <sub>d(off)</sub>			23		
Turn-off Fall Time	t <sub>f</sub>			5.5		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>4</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 4A			1.2	V

Notes :

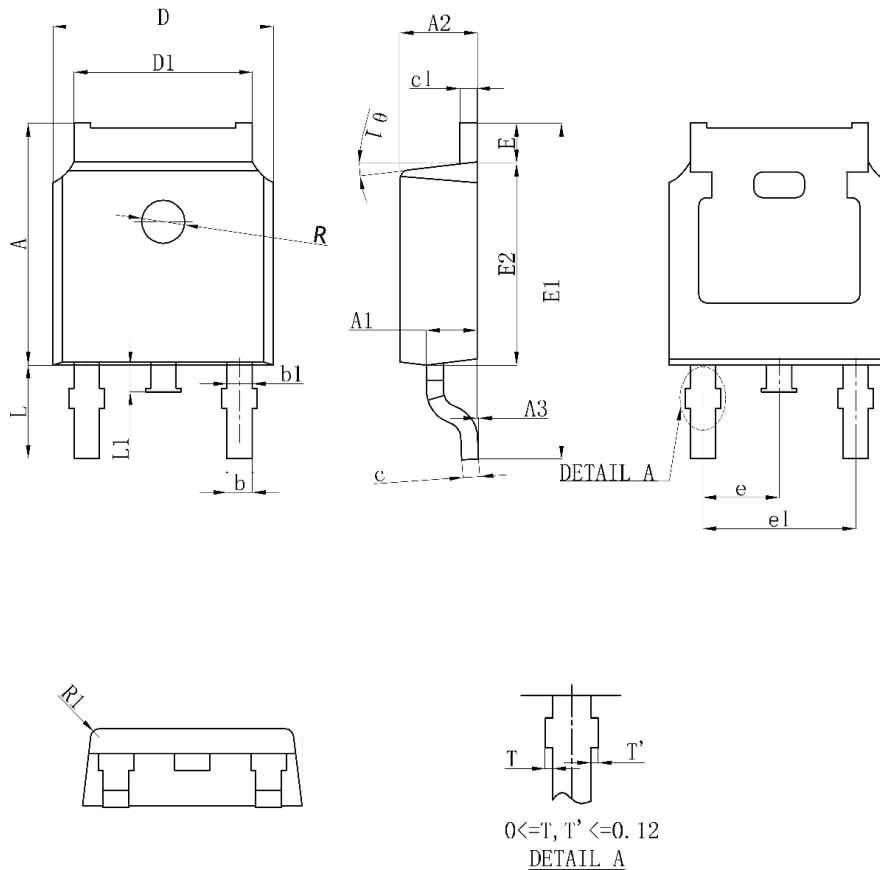
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.E<sub>AS</sub> condition: V<sub>DD</sub> = 50V, V<sub>GS</sub> = 10V, L = 0.5mH, R<sub>G</sub> = 25Ω Starting T<sub>J</sub> = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.And device mounted on a large heatsink
- 6.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C.

## Typical Characteristics





## TO-252-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	7.050	7.150	0.278	0.281
A1	0.960	1.060	0.038	0.042
A2	2.200	2.400	0.087	0.094
A3	0.000	0.100	0.000	0.004
b	0.760REF		0.030REF	
b1	1.000REF		0.039REF	
c	0.508REF		0.020REF	
c1	0.508REF		0.020REF	
D	6.550	6.650	0.258	0.262
D1	5.100	5.460	0.201	0.215
E	0.950	1.050	0.037	0.041
E1	9.700	10.400	0.382	0.409
E2	6.000	6.200	0.236	0.244
e	2.286BSC		0.090BSC	
e1	4.572REF		0.180REF	
L	2.650	2.950	0.104	0.116
L1	0.700	0.900	0.028	0.035
$\theta$	7°REF		7°REF	
R	1.300REF		0.051REF	
R1	0.250REF		0.010REF	