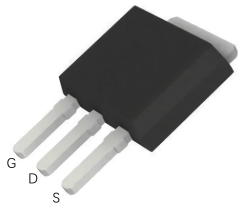
GPM070N03LTE

30V N-Channel MOSFET

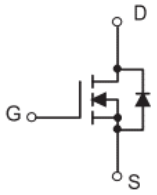
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	5.5mΩ@10V	50A
	7.7mΩ@4.5V	

TO-251-3L



Schematic diagram



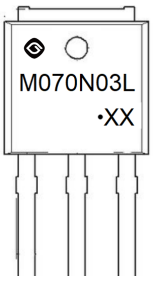
Feature

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

Application

- Power Switching Application

MARKING:



M070N03L = Device Code

XX = Date Code

Solid Dot = Green Indicater

ABSOLUTE 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	V
Continuous Drain Current[1]	T_C = 25℃	I_D	50	A
Continuous Drain Current[1]	T_C = 100℃	I_D	40	A
Continuous Drain Current[6]	T_A = 25℃	I_D	15	A
Pulsed Drain Current[2]		I_{DM}	130	A
Single Pulsed Avalanche Current[3]		I_{AS}	20	A
Single Pulsed Avalanche Energy[3]		E_{AS}	100	mJ
Power Dissipation[5]	T_C = 25℃	P_D	35	W
Power Dissipation[6]	T_A = 25℃	P_D	3.5	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	35	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	5	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25℃ 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	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, 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	1.0	1.6	3.0	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A		5.5	7.0	mΩ
		V_{GS} = 4.5V, I_D = 10A		7.5	11.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1666		pF
Output Capacitance	C_{oss}			222		
Reverse Transfer Capacitance	C_{rss}			176		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.48		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 15V, V_{GS} = 4.5V, I_D = 20A		15		nC
Gate-source Charge	Q_{gs}			3.8		
Gate-drain Charge	Q_{gd}			5.5		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 15V, V_{GS} = 10V, R_L = 0.75Ω R_G = 3Ω		6		ns
Turn-on Rise Time	t_r			10		
Turn-off Delay Ttime	$t_{d(off)}$			16		
Turn-off Fall Time	t_f			4		
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 ≤ 10μs, duty cycle ≤ 1%.

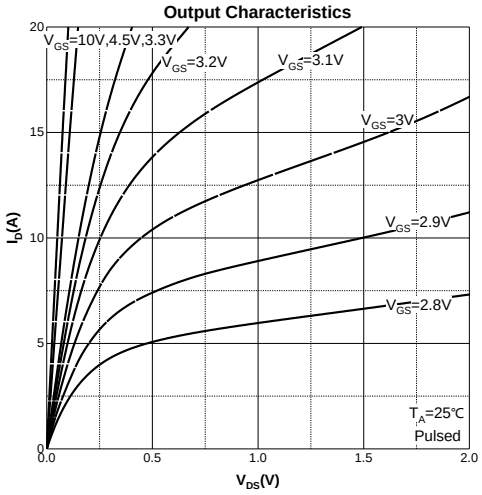
3.E_{AS} condition: V_{DD} = 25V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

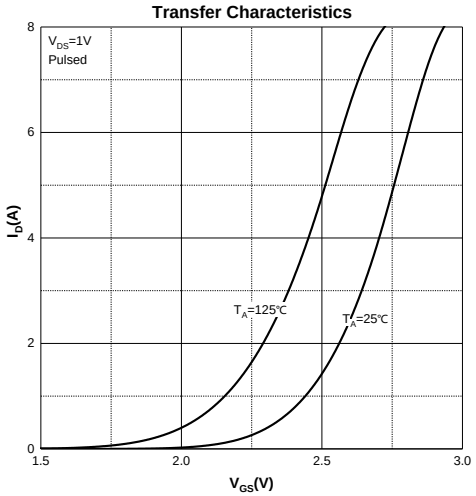
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

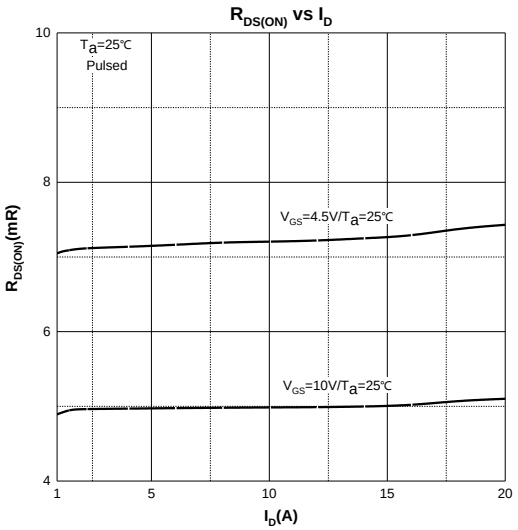
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

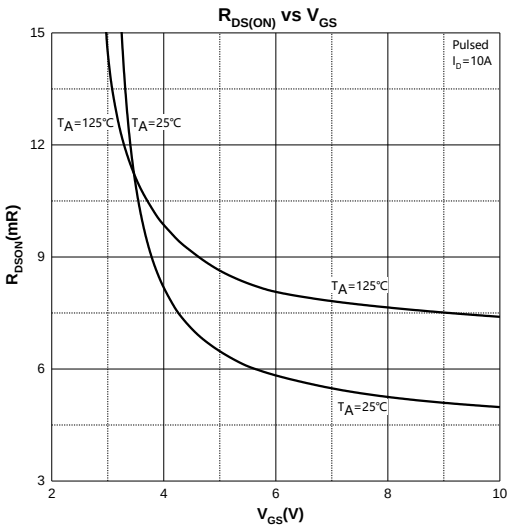
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

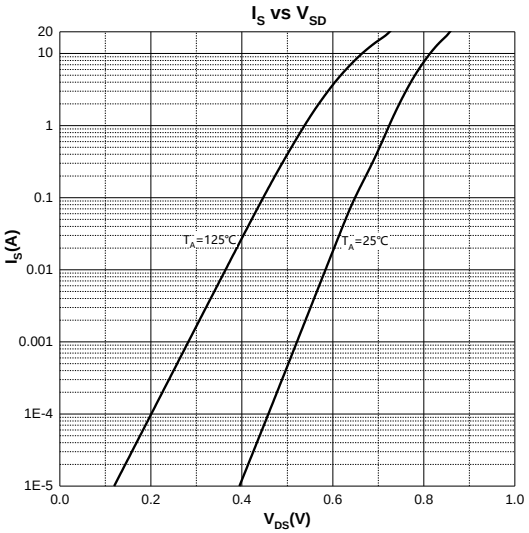
Typical Characteristics

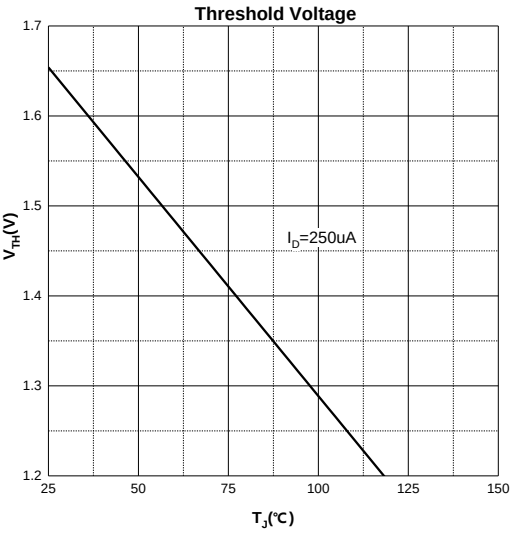


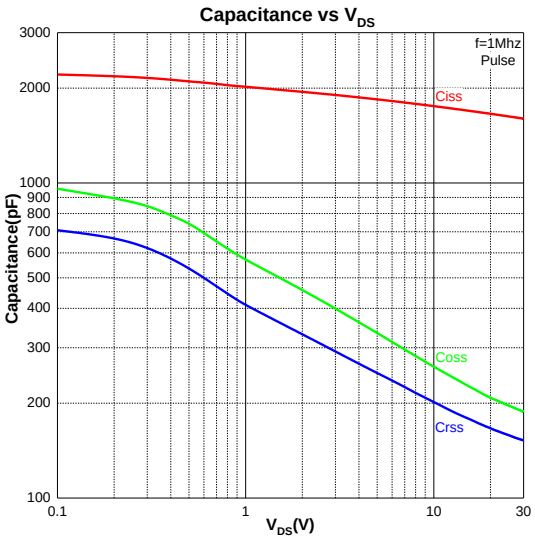


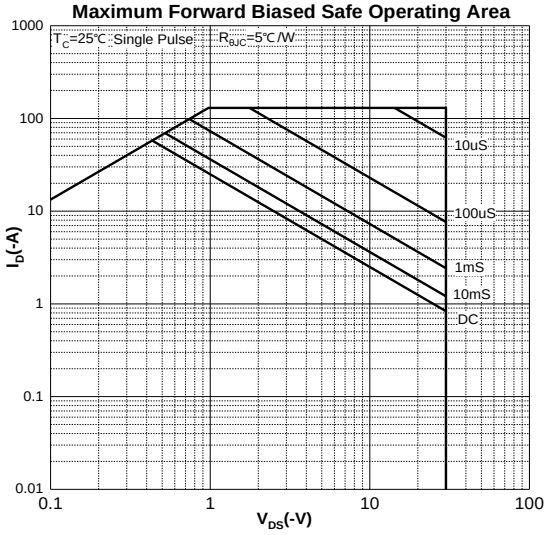




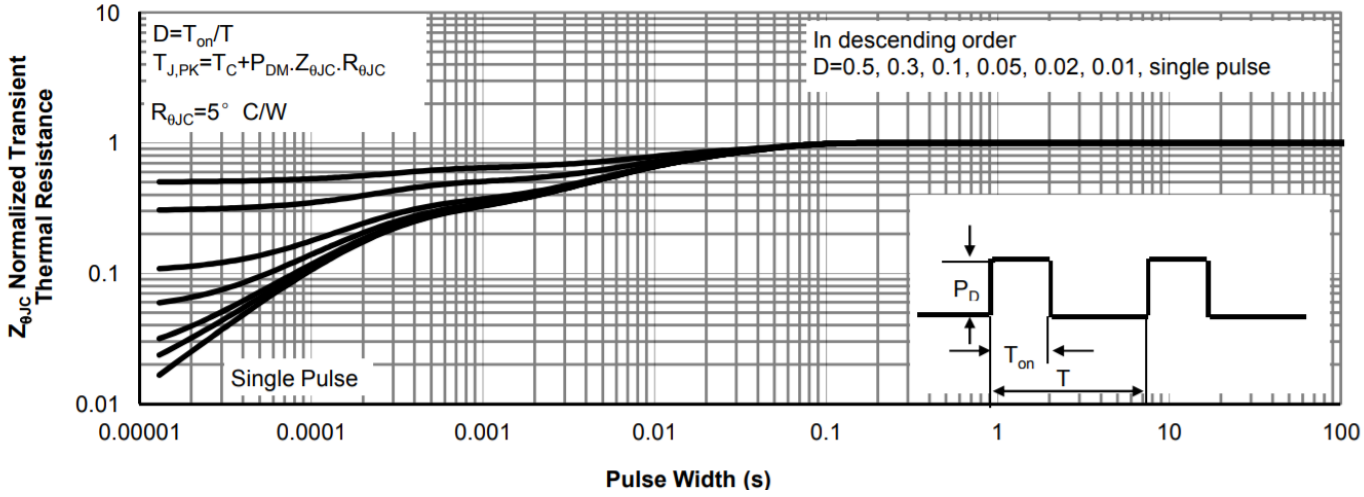




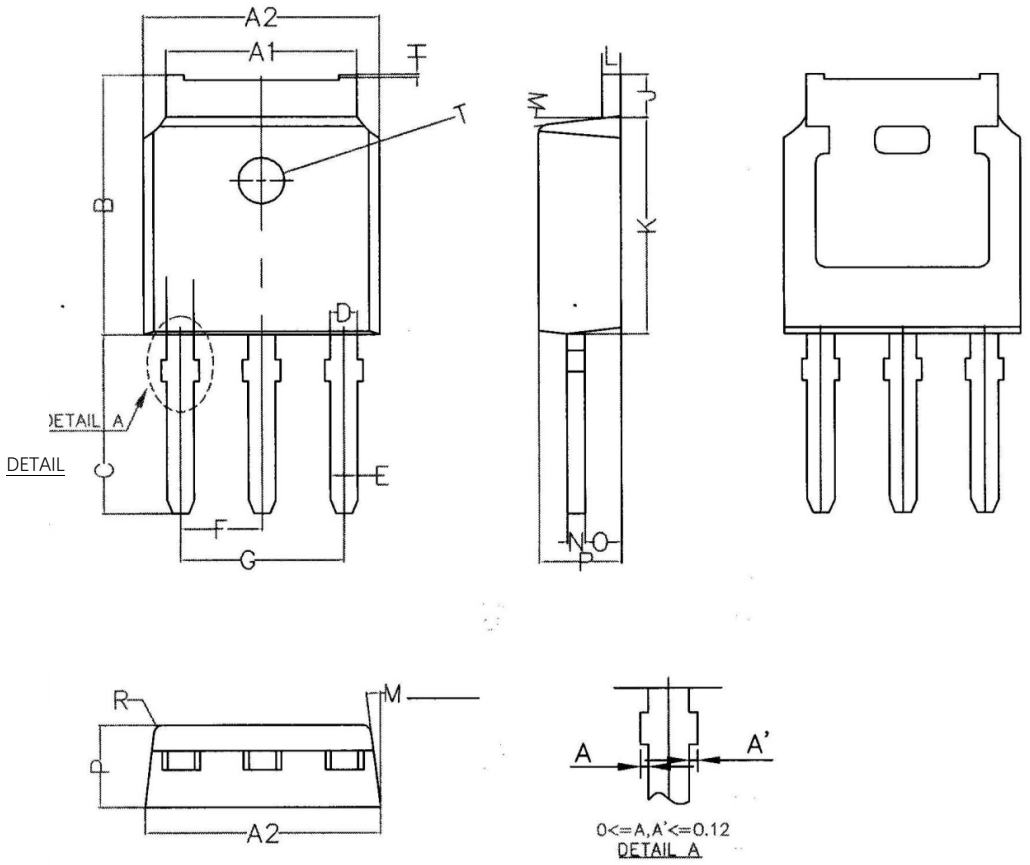




Normalized Maximum Transient Thermal Impedance



TO-251-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A1	5.220	5.420	0.206	0.213
A2	6.550	6.650	0.258	0.262
B	7.050	7.150	0.278	0.281
C	4.800	5.200	0.189	0.205
D	1.000TYP		0.039TYP	
E	0.760TYP		0.030TYP	
F	2.286TYP		0.090TYP	
G	4.572TYP		0.180TYP	
H	0.150TYP		0.006TYP	
J	0.950	1.050	0.037	0.041
K	6.05	6.15	0.238	0.242
L	0.508TYP		0.020TYP	
M	7°		7°	
N	0.508TYP		0.020TYP	
O	0.960	1.060	0.038	0.042
P	2.250	2.350	0.089	0.093
R	0.25		0.010TYP	