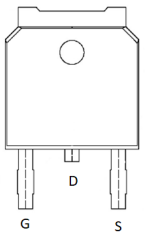
GPM060N03LTF

30V N-Channel MOSFET

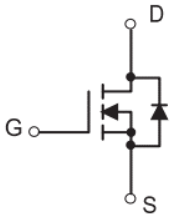
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	6.4mΩ@10V	47A
	7.5mΩ@4.5V	
	12.6mΩ@2.5V	

TO-252-2L



Schematic diagram



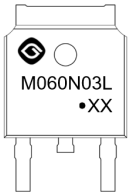
Feature

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

Application

- Power Switching Application

MARKING:



M060N03L = 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}	±12	V
Continuous Drain Current[1]	T_C = 25℃	I_D	47	A
Continuous Drain Current[1]	T_C =100℃	I_D	30	A
Pulsed Drain Current[2]		I_{DM}	188	A
Single Pulsed Avalanche Current[3]		I_{AS}	17	A
Single Pulsed Avalanche Energy[3]		E_{AS}	72	mJ
Power Dissipation[5]	T_C = 25℃	P_D	28	W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	4.4	℃/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} = ±12V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.5	1.0	1.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D =10A		6.4	8	mΩ
		V_{GS} = 4.5V, I_D = 10A		7.5	9.5	
		V_{GS} = 2.5V, I_D = 10A		12.6	20	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1205		pF
Output Capacitance	C_{oss}			139		
Reverse Transfer Capacitance	C_{rss}			126		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.4		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 15V, V_{GS} = 10V, I_D = 2A		30		nC
Gate-source Charge	Q_{gs}			2.0		
Gate-drain Charge	Q_{gd}			5.5		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 20V, V_{GS} = 10V, I_D = 2A,R_G = 3Ω		7		ns
Turn-on Rise Time	t_r			19		
Turn-off Delay Ttime	$t_{d(off)}$			24		
Turn-off Fall Time	t_f			24		
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.E_{AS} condition: V_{DD} = 15V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

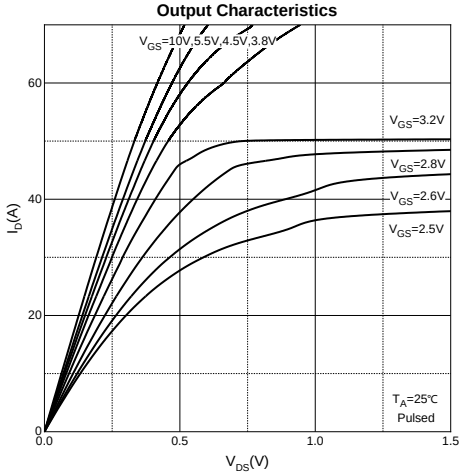
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

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

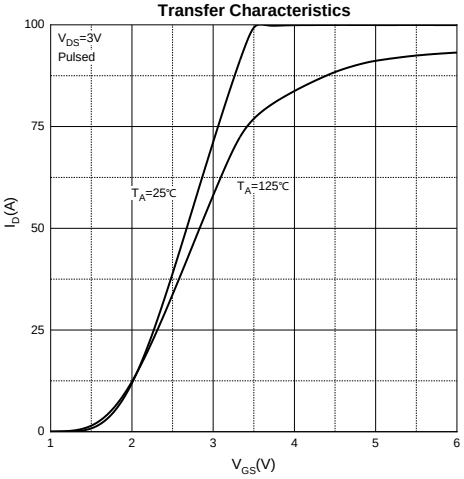
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics

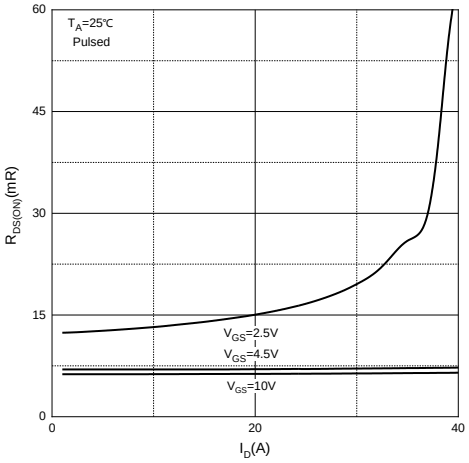
Output Characteristics



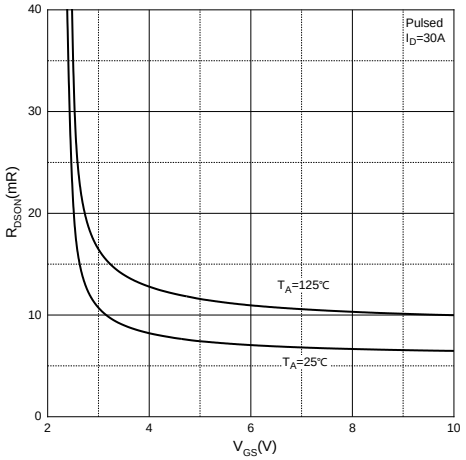
Transfer Characteristics



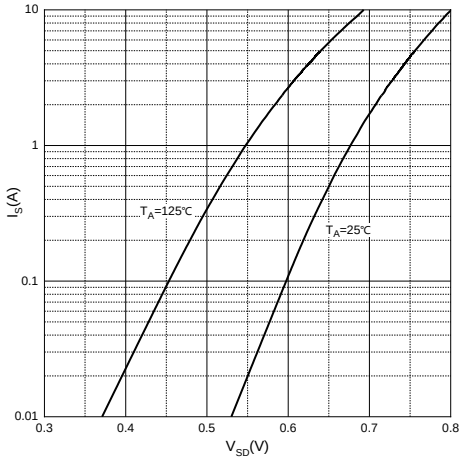
$R_{DS(ON)}$ vs I_D



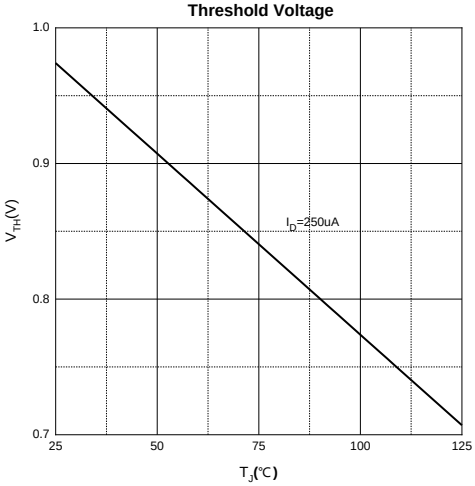
$R_{DS(ON)}$ vs V_{GS}



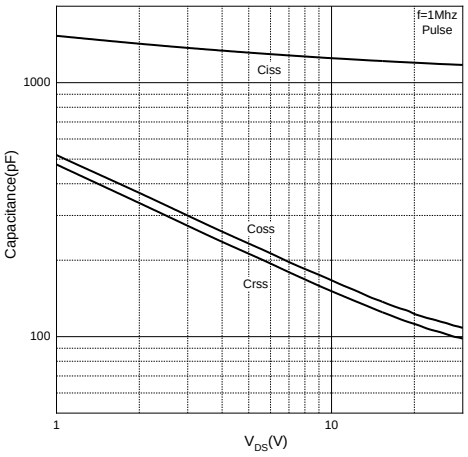
I_S vs V_{SD}



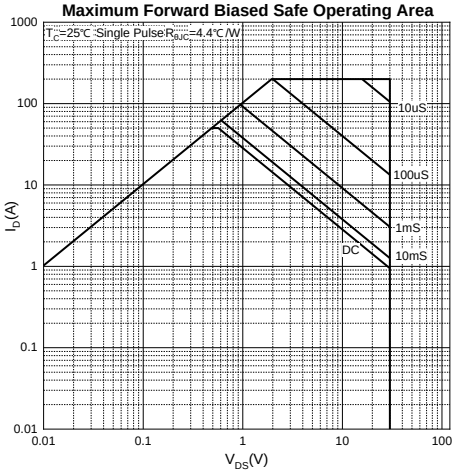
Threshold Voltage



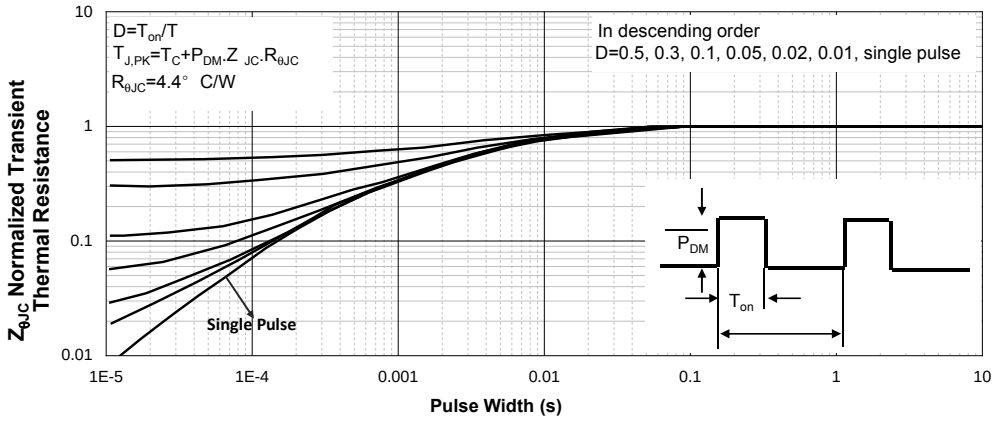
Capacitance vs V_{DS}



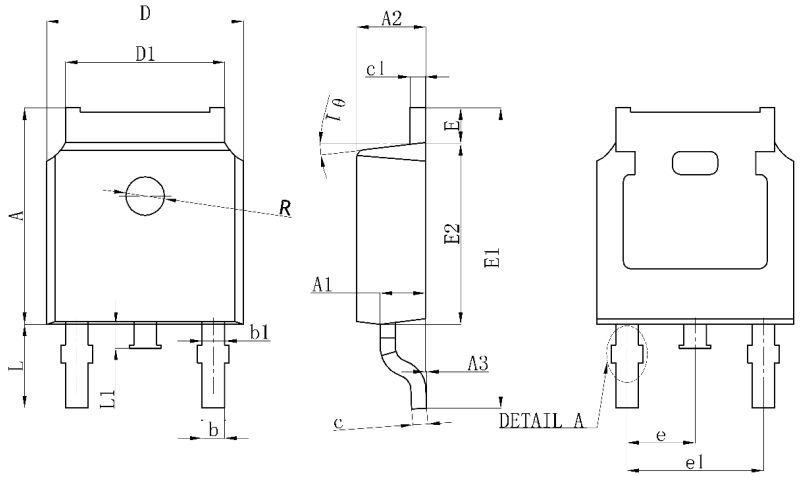
Maximum Forward Biased Safe Operating Area

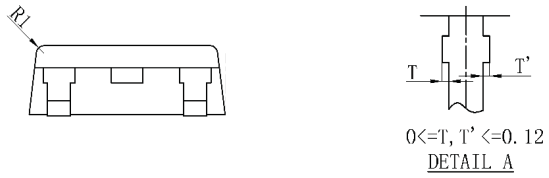


Normalized Transient Thermal Impedance vs Pulse Width



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
θ1	7°REF		7°REF	
R	1.300REF		0.051REF	
R1	0.250REF		0.010REF	