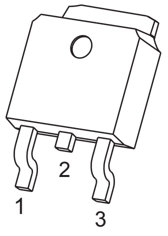
GPM130P10LTF

100V P-Channel MOSFET

Product Summary

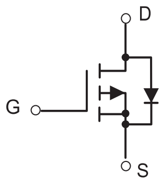
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	145mΩ@-10V	-12A

TO-252-2L



1. GATE
2. DRAIN
3. SOURCE

Schematic diagram



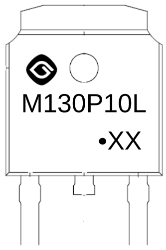
Feature

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

Application

- Power Switching Application

MARKING:



M130P10L = 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}	-100	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	-12	A
	T_C = 100℃	I_D	-9	A
Pulsed Drain Current[2]		I_{DM}	-48	A
Single Pulsed Avalanche Current[3]		I_{AS}	-15	A
Single Pulsed Avalanche Energy[3]		E_{AS}	56.3	mJ
Power Dissipation[5]	T_C = 25℃	P_D	33	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	56	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	3.75	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 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	-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	-1.0	-2.0	-3.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -15A		145	168	mΩ
Forward Transconductance	g_{FS}	V_{DS} = -5V, I_D = -5A	12			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -45V, V_{GS} = 0V, f = 1MHz		2926		pF
Output Capacitance	C_{oss}			72		
Reverse Transfer Capacitance	C_{rss}			66		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		9.1		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -55V, V_{GS} = -10V, I_D = -15A		55		nC
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			11		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -50V, V_{GS} = -10V, I_D = -10A, R_G = 9.1Ω		11		ns
Turn-On Rise Time	t_r			50		
Turn-Off Delay Time	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			35		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = -10A			-1.2	V
Diode Reverse Recovery Time	t_{rr}	I_F = -10A, dI/dt = 500A/ms		33		ns
Diode Reverse Recovery Charge	Q_{rr}	I_F = -10A, dI/dt = 500A/ms		45		nC

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} = -50V,V_{GS} = -10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25℃.

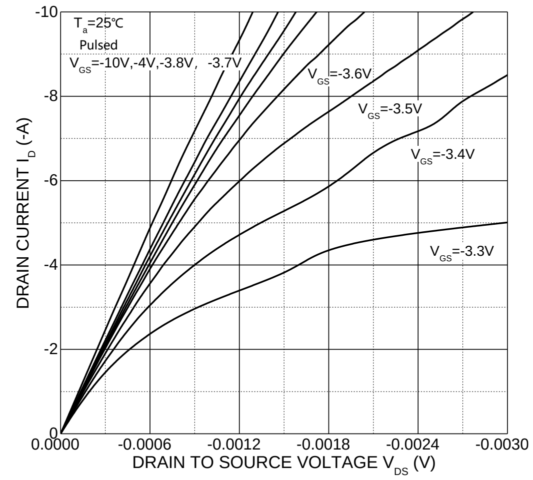
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

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

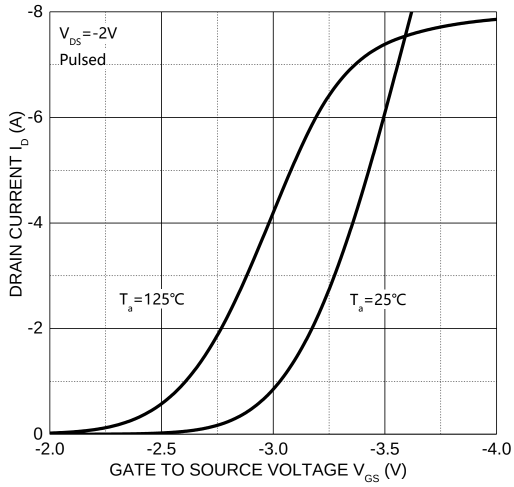
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics

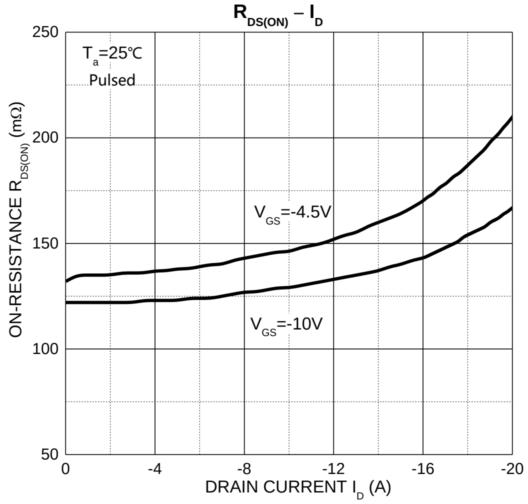
Output Characteristics



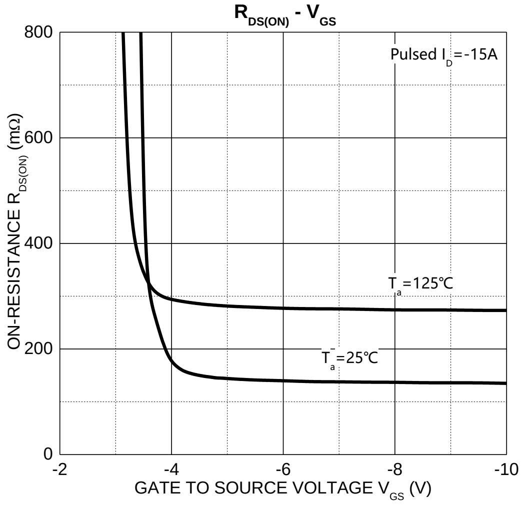
Transfer Characteristics



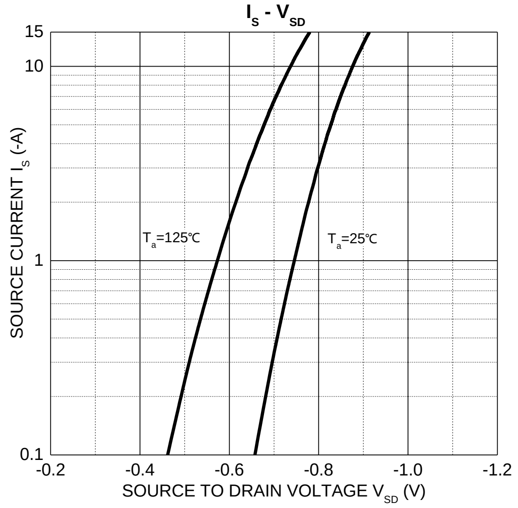
$R_{DS(ON)} – I_D$



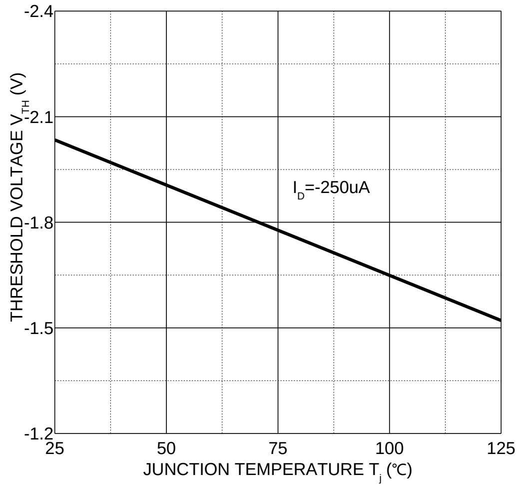
$R_{DS(ON)}$ - V_{GS}

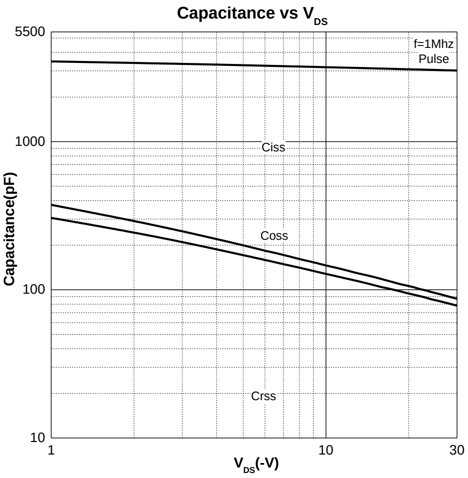


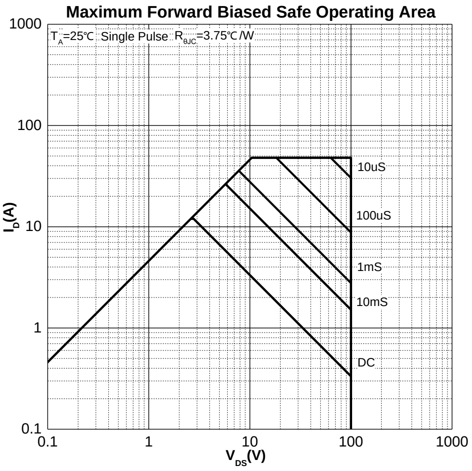
I_S - V_{SD}

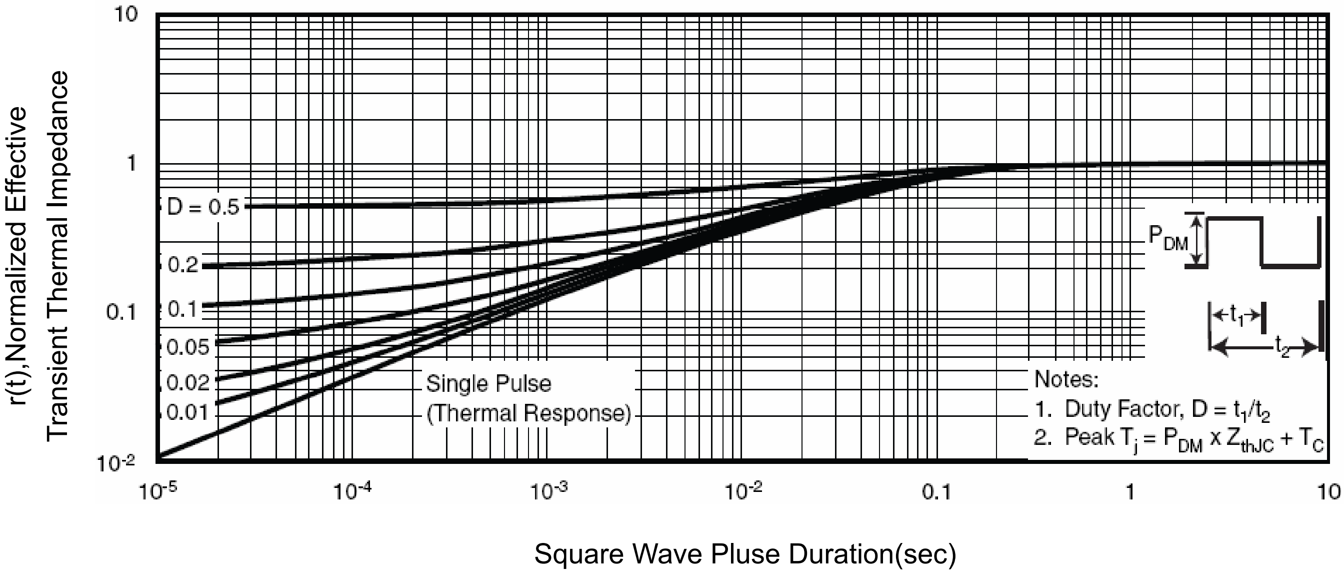


Threshold Voltage

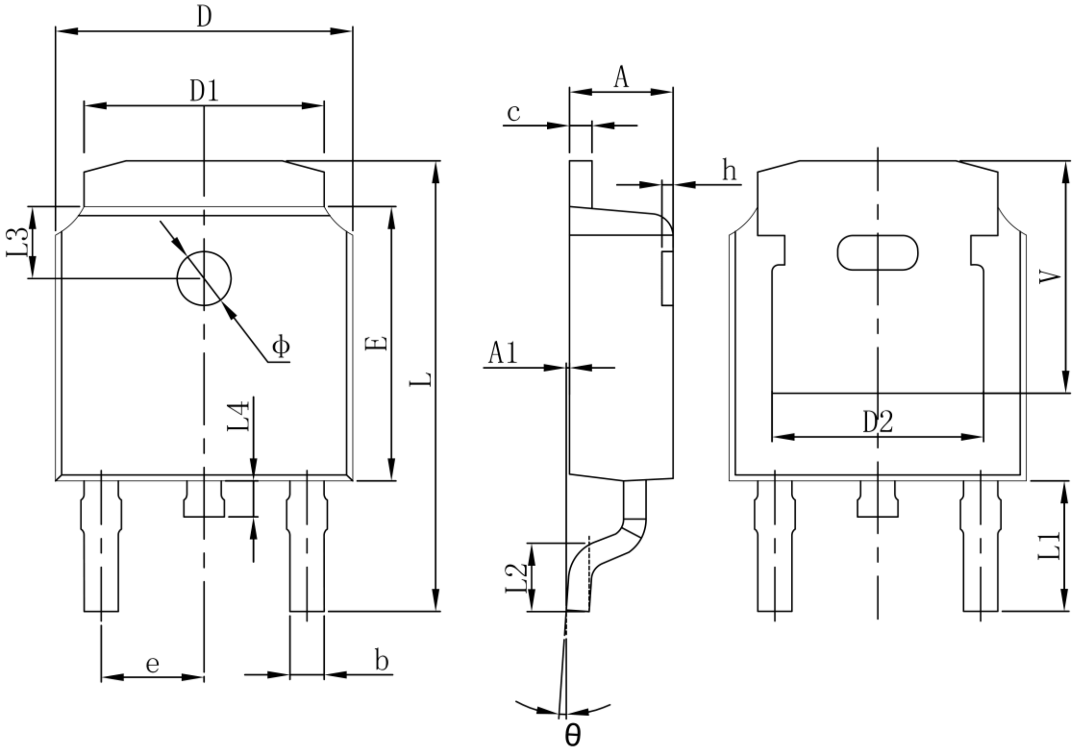



Capacitance vs V_{DS}


Maximum Forward Biased Safe Operating Area



TO-252-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830REF		0.190REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900REF		0.114REF	
L2	1.400	1.700	0.055	0.067
L3	1.600REF		0.063REF	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250REF		0.207REF	

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