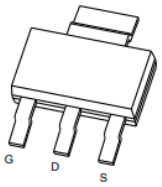
GPM230N03LSA

30V N-Channel MOSFET

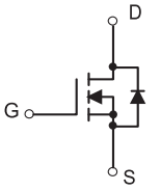
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	22mΩ@10V	5.8A
	30mΩ@4.5V	

SOT-223



Schematic diagram



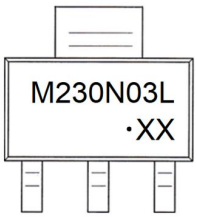
Feature

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

Application

- Load Switch
- PWM

MARKING:



M230N03L = 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	T_A = 25℃	I_D	5.8	A
Pulsed Drain Current[1]		I_{DM}	23.2	A
Single Pulsed Avalanche Current[3,4]		I_{AS}	10	A
Single Pulsed Avalanche Energy[3,4]		E_{AS}	25	mJ
Power Dissipation[3]	T_A = 25℃	P_D	2.5	W
Thermal Resistance from Junction to Ambient[4]		$R_{\theta JA}$	50	℃/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} = 30V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[2]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.6	3	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 3.2A		22	29	mΩ
		V_{GS} = 4.5V, I_D = 2.8A		30	40	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		520		pF
Output Capacitance	C_{oss}			63.8		
Reverse Transfer Capacitance	C_{rss}			50.8		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		2.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 15V, V_{GS} = 10V, I_D = 3.2A		11.3		nC
Gate-source Charge	Q_{gs}			2.2		
Gate-drain Charge	Q_{gd}			2.0		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 15V, V_{GS} = 10V,ID=6A R_G = 3Ω		6.4		ns
Turn-on Rise Time	t_r			3.1		
Turn-off Delay Ttime	$t_{d(off)}$			15		
Turn-off Fall Time	t_f			2.6		
Source - Drain Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	V_{GS} = 0V, I_S = 1A			1.0	V

Notes :

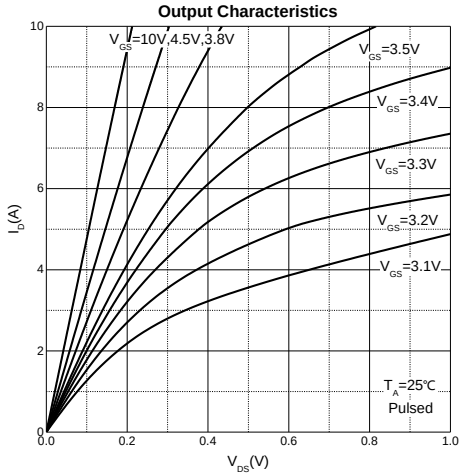
1.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

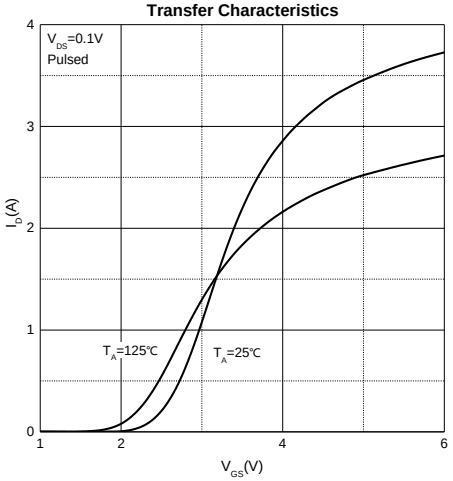
2.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

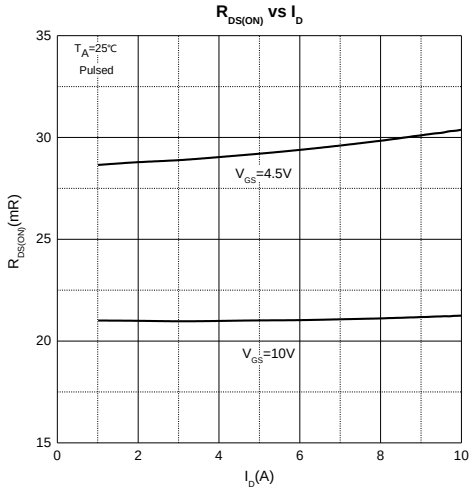
3.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

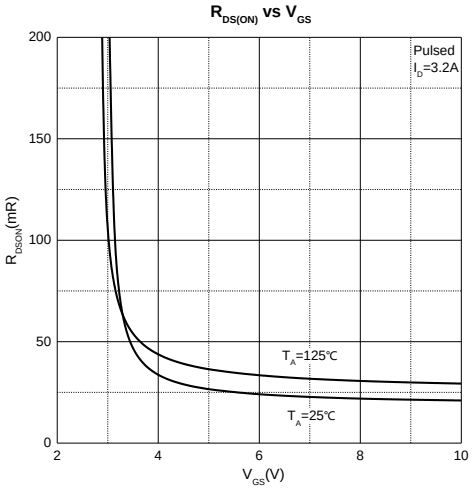
4.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

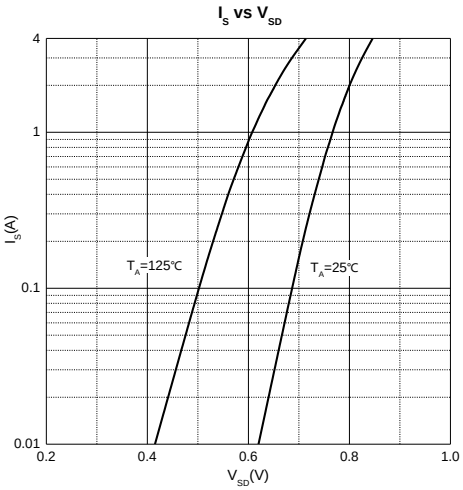
Typical Characteristics

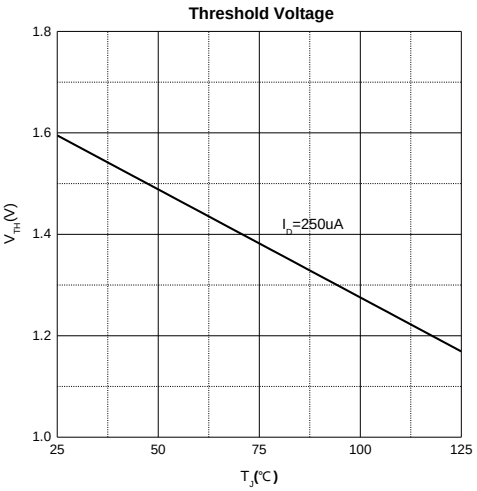




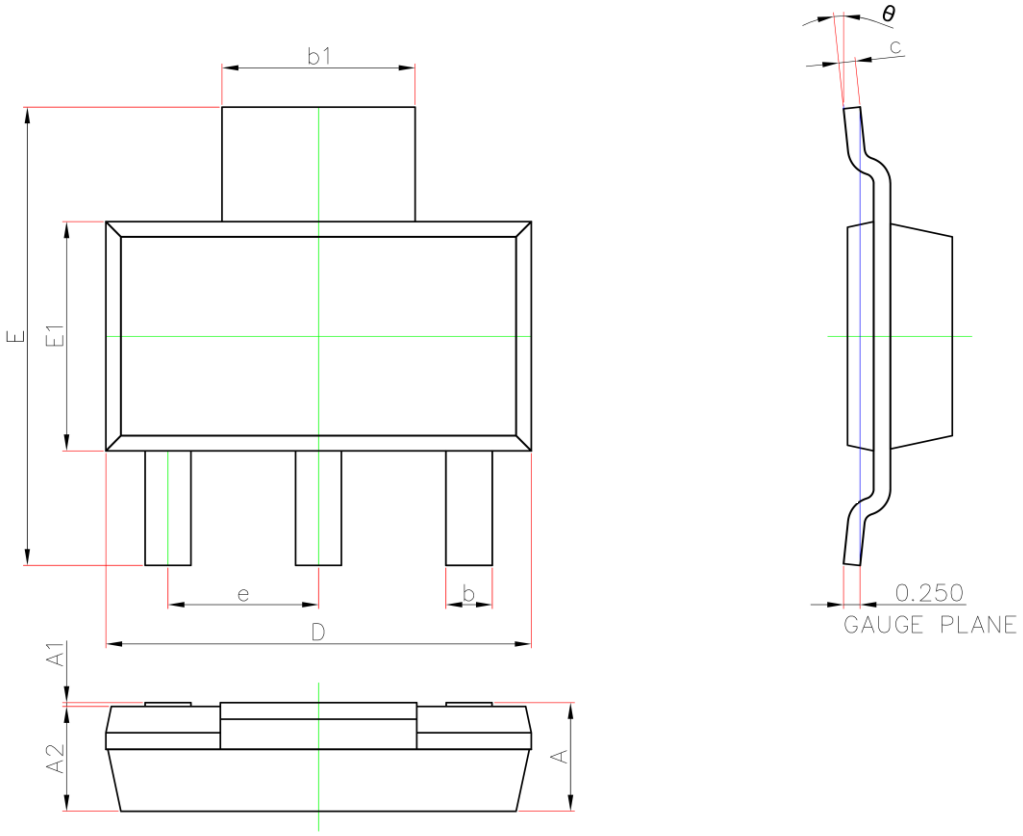








SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.800MAX		0.071MAX	
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.600	0.840	0.024	0.033
b1	2.900	3.100	0.114	0.122
c	0.200	0.400	0.008	0.016
D	6.100	6.700	0.240	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300BSC		0.091BSC	
θ	0°	10°	0°	10°