

20V P-Channel MOSFET

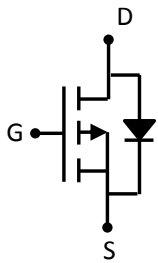
Description

The PM2301 uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in PWM, load switching and general purpose applications.

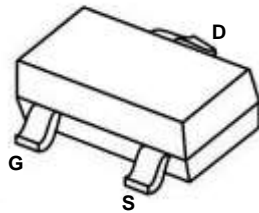
Features

- TrenchFET Power MOSFET

Dimensions and Pin Configuration



Circuit diagram

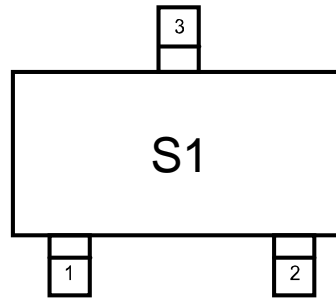


SOT-23

Applications

- PA Switch
- Load Switch

Marking Information



S1= Device Marking Code

MOSFET Product Summary

$V_{(BR)DSS}$	$R_{DS(ON) MAX}$	I_D
-20V	112mΩ@-4.5V	-2.3A
	142mΩ@-2.5V	

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

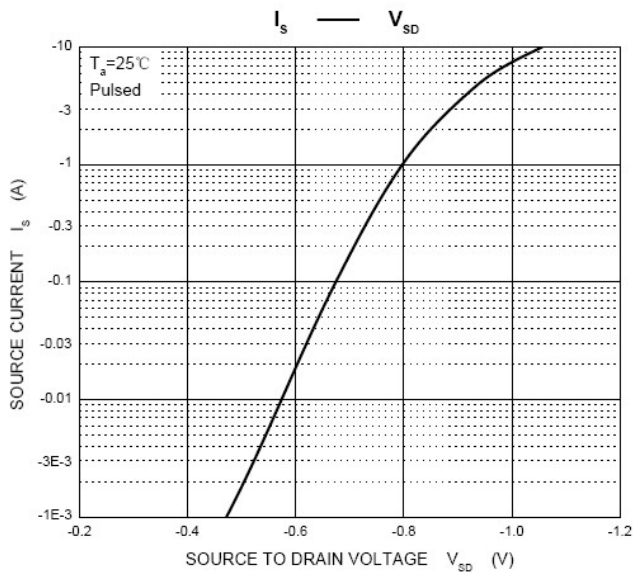
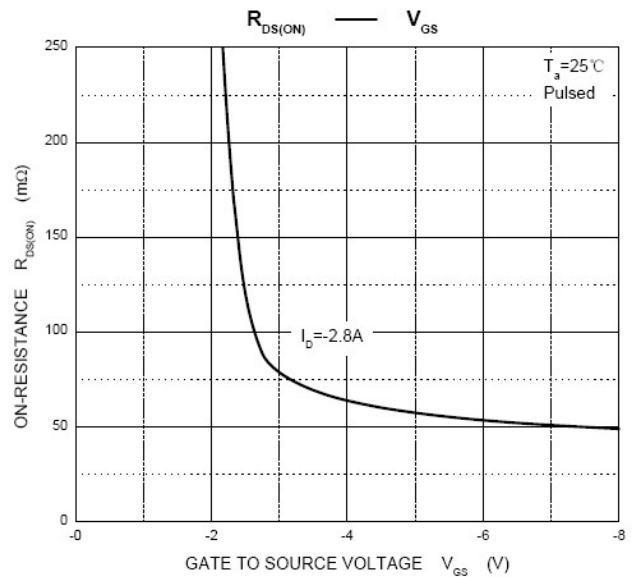
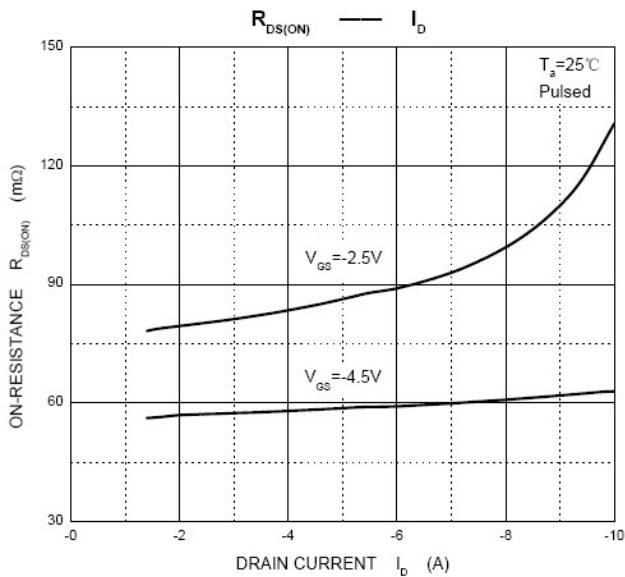
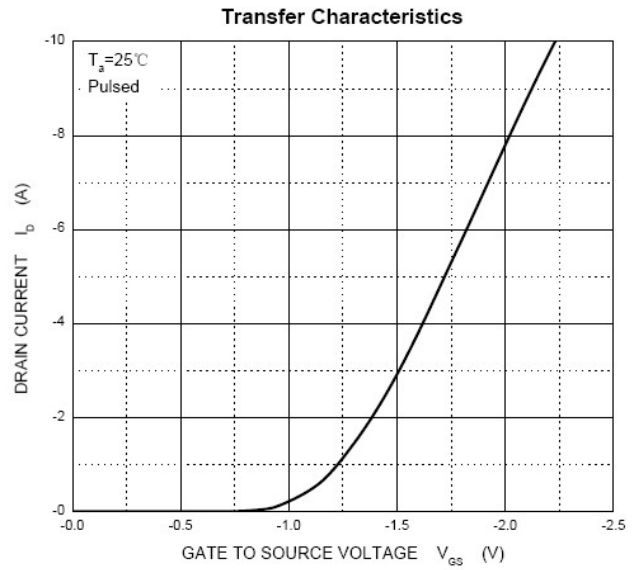
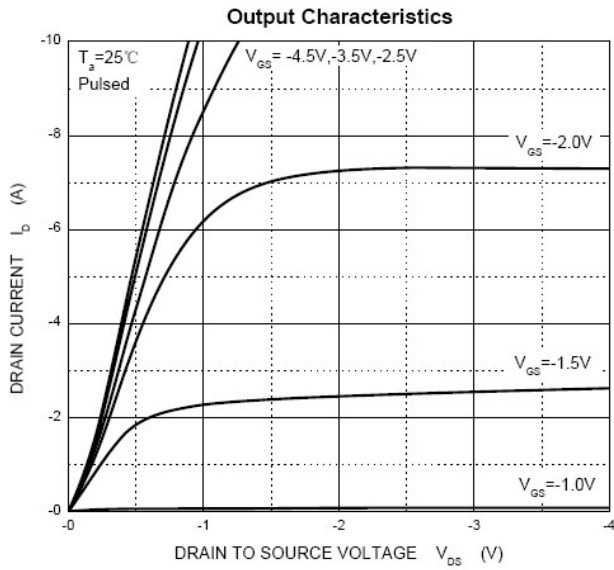
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	-2.3	A
Pulsed Drain Current	I_{DM}	-10	A
Continuous Drain Current	I_S	-0.72	A
Power Dissipation	P_D	0.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	312.5	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$

Electrical Characteristics (T_A = 25°C unless otherwise noted)

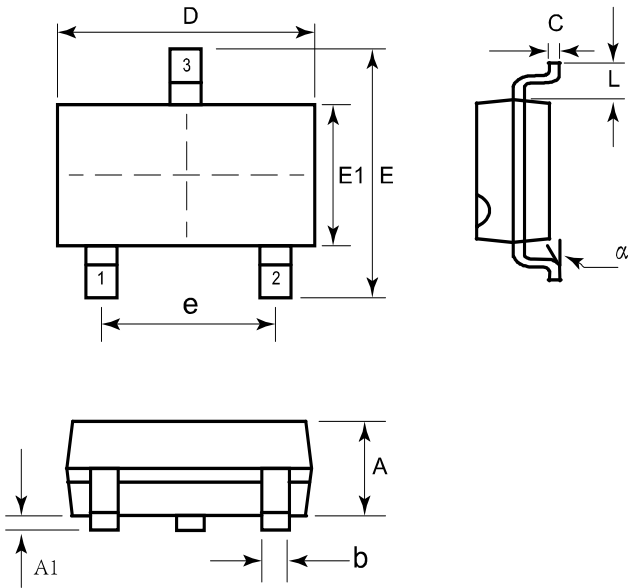
参数 Parameter	符号 Symbols	测试条件 Test Condition	界限 Limits			单位 Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=-250uA	-20			V
Gate-Threshold voltage	V _{GS(th)}	VDS=VGS, ID=-250uA	-0.4	-0.7	-1.0	V
Gate-body Leakage	IGSS	VDS=0V, VGS=±8V			±100	nA
Zero Gate Voltage Drain current	IDSS	VDS=-20V, VGS=0V			-1	uA
Drain-Source On-Resistance _(a)	RDS(ON)	VGS=-4.5V, ID=-2.8A		90	112	mΩ
		VGS=-2.5V, IC=-2A		110	142	
Forward trans conductance _(a)	gfs	VDS=-5V, ID=-2.8A		6.5		S
Dynamic_(b)						
Input capacitance	Ciss	VDS=-10V, VGS=0V, f=1MHz			405	pF
Output capacitance	Coss				75	
Reverse Transfer capacitance	Crss				55	
Total gate charge	Qg	VDS=-10V, VGS=-4.5V, ID=-3A		5.5	10	nC
				3.3	6	
Gate-source charge	Qgs	VDS=-10V, VGS=-2.5V, ID=-3A		0.7		
Gate-drain charge	Qgd			1.3		
Gate resistance	Rg	F=1MHz		6.0		Ω
Turn-on Time	td(on)	VDD=-10V, RL=10Ω, VGEN=-4.5V, ID=-1A, RG=1Ω		11	20	ns
Rise time	tr			35	60	
Turn-off Time	td(off)			30	50	
Fall time	tf			10	20	
Drain-source body diode characteristics						
Continuous source-drain diode current	IS	Tc=25°C			-3	A
Pulse diode forward current _(a)	ISM				-10	
Body diode voltage	VSD	IS=-0.7A,		-0.8	-1.2	V

Notes: a. Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%.

Typical Characteristics

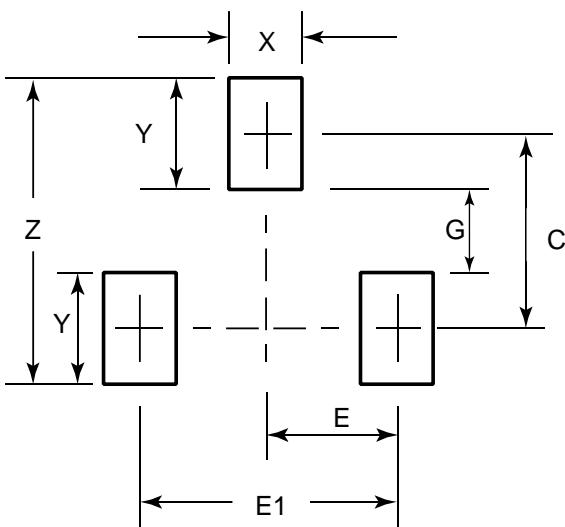


SOT-23 Package Outline Drawing



SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	0.037	0.040	0.88	0.95	1.02
A1	0.000	-	0.004	0.01	-	0.10
b	0.012	-	0.020	0.30	-	0.51
C	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075 BSC			1.90 BSC		
L	0.022 BSC			0.55 BSC		
α	0°		8°	0°		8°

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E	0.95	0.037
E1	1.90	0.075
G	0.80	0.031
X	1.00	0.039
Y	1.40	0.055
Z	3.60	0.141