## 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.
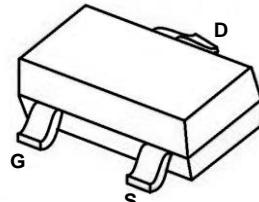
Features

- TrenchFET Power MOSFET

Dimensions and Pin Configuration
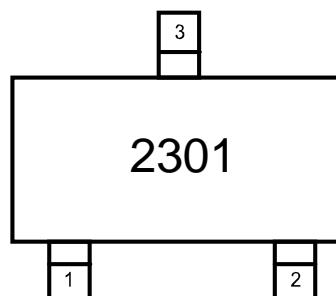
Circuit diagram   **SOT-23**

Applications

- PA Switch
- Load Switch

Marking Information

2301 = Device Marking Code

MOSFET Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)\ MAX}$	I_D
-20V	103mΩ@-4.5V	-2.8A
	140mΩ@-2.5V	

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-2.8	A
Pulsed Drain Current	I_{DM}	-12	A
Continuous Drain Current	I_S	-0.59	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{θJA}$	357	℃/W
Junction Temperature	T_J	150	℃

Electrical Characteristics (T$_A$ = 25°C unless otherwise noted)
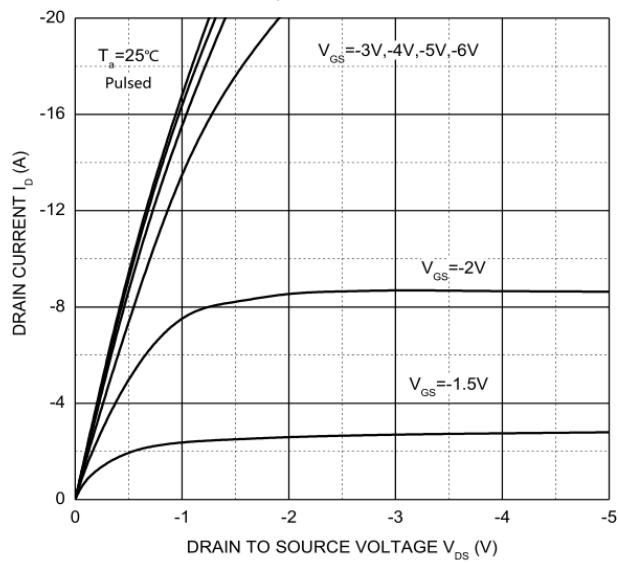
| Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V$_{(BR)DSS}$	V$_{GS}$ = 0V, I$_D$ =-250µA	-20			V
Zero gate voltage drain current	I$_{DSS}$	V$_{DS}$ =-16V,V$_{GS}$ = 0V			-1	µA
Gate-body leakage current	I$_{GSS}$	V$_{GS}$ =±12V, V$_{DS}$ = 0V			±100	nA
Gate-source threshold voltage	V$_{GS(th)}$	V$_{DS}$ =V$_{GS}$, I$_D$ =-250µA	-0.4	-0.7	-1.1	V
Drain-source on-resistance	R$_{DS(on)}$	V$_{GS}$ =-4.5V, I$_D$ =-2.8A		103	140	mΩ
		V$_{GS}$ =-2.5V, I$_D$ =-2A		140	200	
Forward tranconductance	g$_{FS}$	V$_{DS}$ =-5V, I$_D$ =-3.3A	3			S
Dynamic characteristics						
Input Capacitance[a,b]	C$_{iss}$	V$_{DS}$ =-6V,V$_{GS}$ =0V,f =1MHz		715		pF
Output Capacitance[a,b]	C$_{oss}$			170		pF
Reverse Transfer Capacitance[a,b]	C$_{rss}$			120		pF
Total Gate Charge[a]	Q$_g$	V$_{DS}$ =-6V,V$_{GS}$ =-4.5V,I$_D$=-3.3A			13	nC
Gate-Source Charge[a]	Q$_{gs}$			1.2		nC
Gate-Drain Charge[a]	Q$_{gd}$			1.6		nC
Switching[a,b]						
Turn-on delay time	t$_{d(on)}$	V$_{GEN}$=-4.5V,V$_{DD}$=-6V, I$_D$ =-1.0A,R$_G$=6Ω, R$_L$=6Ω			25	ns
Turn-on rise time	tr				55	ns
Turn-off delay time	t$_{d(off)}$				90	ns
Turn-off fall time	t$_f$				60	ns
Source-Drain Diode characteristics						
Diode Forward voltage	V$_{DS}$	V$_{GS}$ =0V, I$_S$=-1.6A			-1.2	V

Notes:
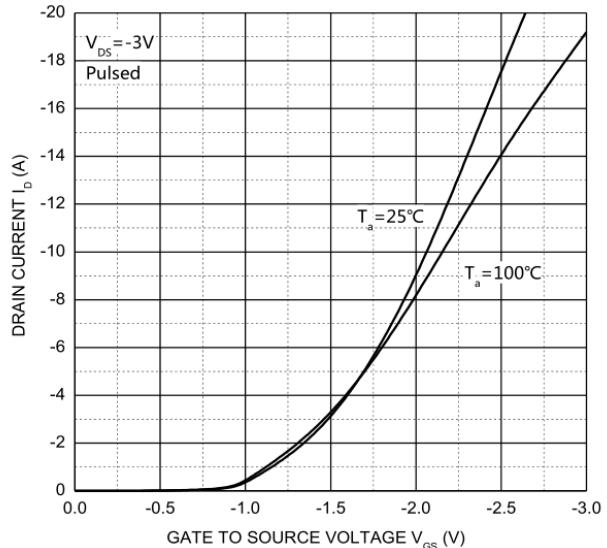
a. Pulse test; pulse width≤300μs, duty cycle≤2%.

b. These parameters have no way to verify.

Typical Characteristics
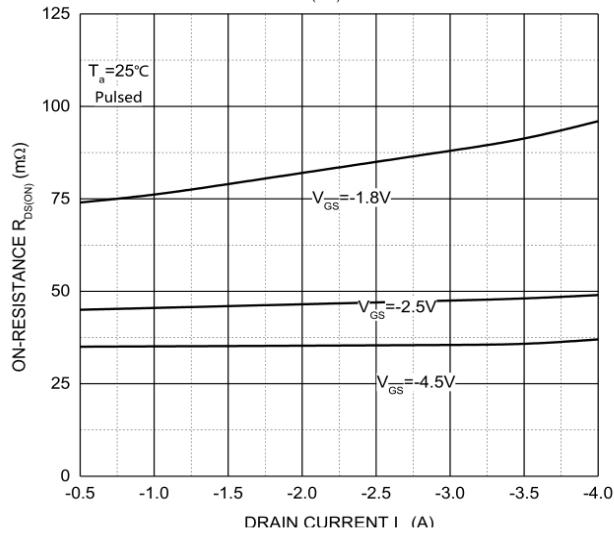
## Output Characteristics

$T_a=25℃$ Pulsed

$V_{GS}=-3V,-4V,-5V,-6V$

$V_{GS}=-2V$

$V_{GS}=-1.5V$

DRAIN CURRENT I_D (A)

DRAIN TO SOURCE VOLTAGE V_{DS} (V)
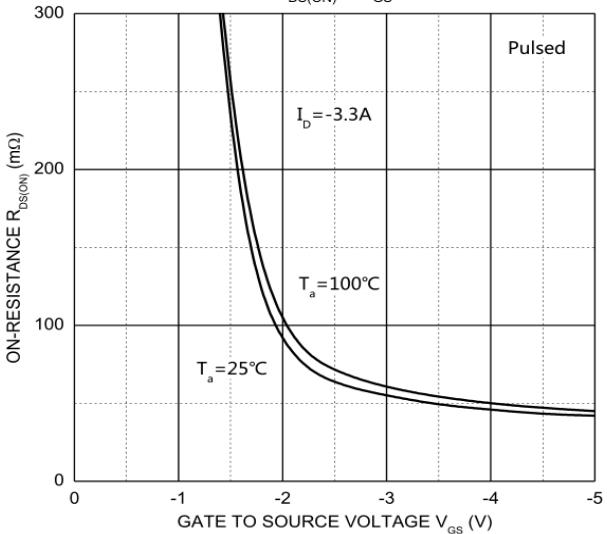
Transfer Characteristics

$V_{DS}=-3V$ Pulsed

$T_a=25℃$

$T_a=100℃$

DRAIN CURRENT I_D (A)

GATE TO SOURCE VOLTAGE V_{GS} (V)

$R_{DS(ON)} - I_D$

$T_a=25℃$ Pulsed

$V_{GS}=-1.8V$

$V_{GS}=-2.5V$

$V_{GS}=-4.5V$

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

DRAIN CURRENT I_D (A)

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

Pulsed

$I_D=-3.3A$

$T_a=100℃$

$T_a=25℃$

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

GATE TO SOURCE VOLTAGE V_{GS} (V)

$I_S - V_{SD}$

$T_a=100℃$

$T_a=25℃$

SOURCE CURRENT I_S (A)

SOURCE TO DRAIN VOLTAGE V_{SD} (V)

Threshold Voltage

$I_D=-250uA$

THRESHOLD VOLTAGE V_{TH} (V)

JUNCTION TEMPERATURE T_j (℃)
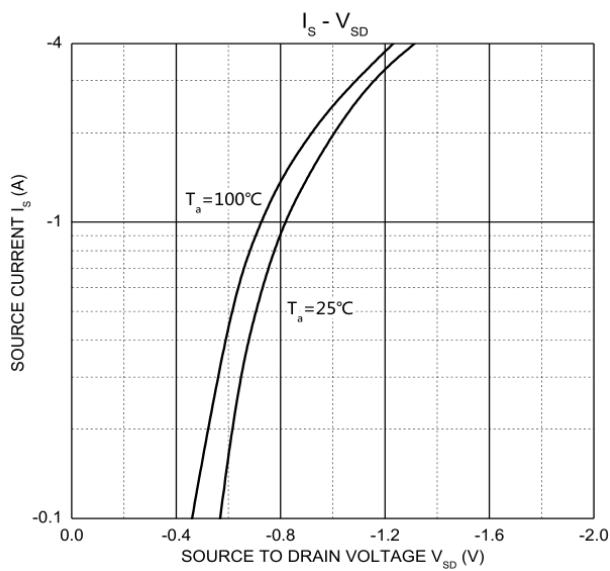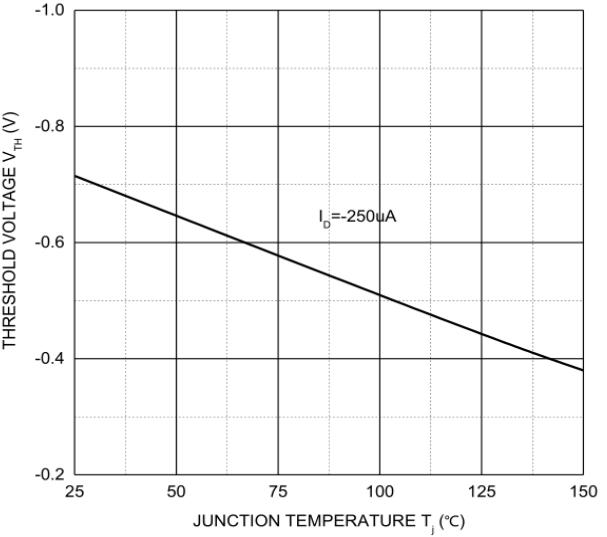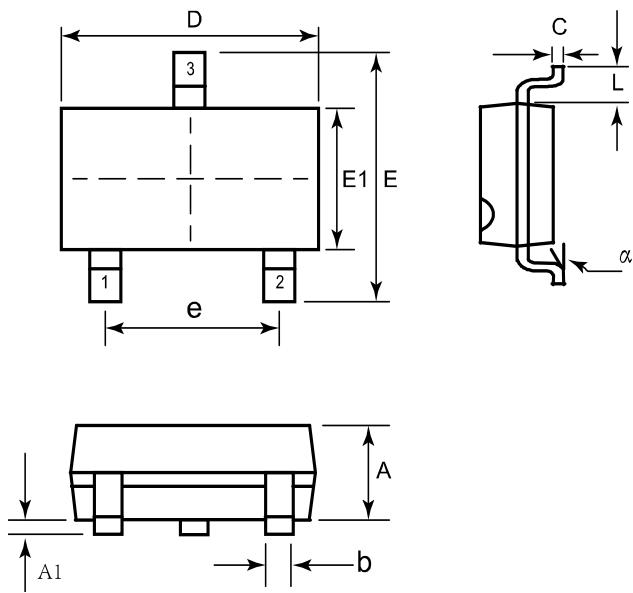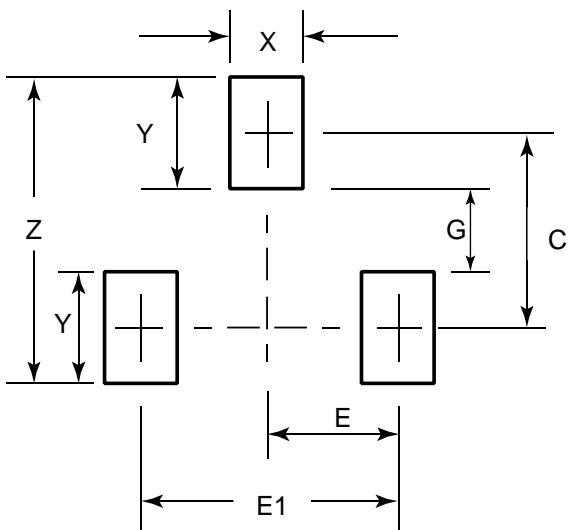
SOT-23 Package Outline Drawing

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by PN SILICON *manufacturer:*

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3