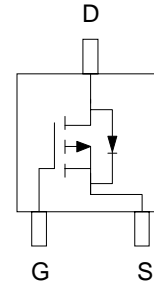


## Features

- -20V/-2.8A ,  $R_{DS(ON)}=72m\Omega(\text{typ.}) @ V_{GS}=-10V$   
 $R_{DS(ON)}=100m\Omega(\text{typ.}) @ V_{GS}=-4.5V$
- Super High Dense Cell Design for Extremely Low  $R_{DS(ON)}$
- Reliable and Rugged
- SOT-23 Package

## Pin Description



Top View of SOT-23

## Applications

- Power Management in Notebook Computer , Portable Equipment and Battery Powered Systems.

## Ordering and Marking Information

<p>APM2301 □□-□□</p> <p>Handling Code</p> <p>Temp. Range</p> <p>Package Code</p>	<p>Package Code A : SOT-23</p> <p>Operation Junction Temp. Range C : -55 to 150°C</p> <p>Handling Code TR : Tape &amp; Reel</p>
<p>APM2301 A :      <span style="border: 1px solid black; padding: 2px;">M01X</span></p>	<p>X - Date Code</p>

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

Symbol	Parameter	Rating	Unit
$V_{DSS}$	Drain-Source Voltage	-20	V
$V_{GSS}$	Gate-Source Voltage	$\pm 16$	
$I_D^*$	Maximum Drain Current – Continuous	-2.8	A
$I_{DM}$	Maximum Drain Current – Pulsed	-10	

\* Surface Mounted on FR4 Board,  $t \leq 10$  sec.

# APM2301

## Absolute Maximum Ratings Cont. (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
P <sub>D</sub>	Maximum Power Dissipation	T <sub>A</sub> =25°C	1.25
		T <sub>A</sub> =100°C	0.5
T <sub>J</sub>	Maximum Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
R <sub>θJA</sub>	Thermal Resistance – Junction to Ambient	100	°C/W

## Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Test Condition	APM2301			Unit
			Min.	Typ.	Max.	
<b>Static</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =-250μA	20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V			1	μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =-250μA	0.6		1.5	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±100	nA
R <sub>DS(ON)</sub> <sup>a</sup>	Drain-Source On-state Resistance	V <sub>GS</sub> =-10V, I <sub>DS</sub> =-2.8A		72	85	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>DS</sub> =-2.5A		98	110	
V <sub>SD</sub> <sup>a</sup>	Diode Forward Voltage	I <sub>SD</sub> =-1.25A, V <sub>GS</sub> =0V	0.6		1.3	V
<b>Dynamic<sup>b</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-10V, I <sub>DS</sub> =-3A V <sub>GS</sub> =-4.5V		7.6	10	nC
Q <sub>gs</sub>	Gate-Source Charge			3.2		
Q <sub>gd</sub>	Gate-Drain Charge			2		
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =-10V, I <sub>DS</sub> =-1A, V <sub>GEN</sub> =-4.5V, R <sub>G</sub> =6Ω R <sub>L</sub> =6Ω		11	22	ns
T <sub>r</sub>	Turn-on Rise Time			32	55	
t <sub>d(OFF)</sub>	Turn-off Delay Time			38	68	
T <sub>f</sub>	Turn-off Fall Time			32	55	
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V		430		pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =-15V		235		
C <sub>rss</sub>	Reverse Transfer Capacitance	Frequency=1.0MHz		95		

### Notes

<sup>a</sup> : Pulse test ; pulse width ≤300μs, duty cycle ≤ 2%

<sup>b</sup> : Guaranteed by design, not subject to production testing