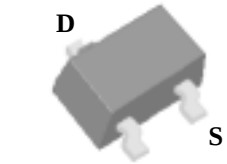
TY Semicondutor®

Product specification

AP2301N

- ▼ **Simple Drive Requirement**
- ▼ **Small Package Outline**
- ▼ **Surface Mount Device**

BV_{DSS}	-20V
$R_{DS(ON)}$	130mΩ
I_D	- 2.6A

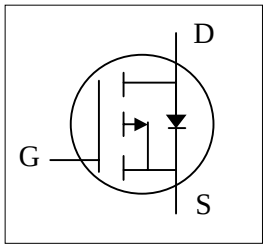


SOT-23

Description

The Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, , low on-resistance and cost-effectiveness.

The SOT-23 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	- 20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D@T_A=25℃	Continuous Drain Current[3]	-2.6	A
I_D@T_A=70℃	Continuous Drain Current[3]	-2.1	A
I_{DM}	Pulsed Drain Current[1,2]	-10	A
P_D@T_A=25℃	Total Power Dissipation	1.38	W
	Linear Derating Factor	0.01	W/℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter		Value	Unit
Rthj-a	Thermal Resistance Junction-ambient[3]	Max.	90	℃/W

AP2301N

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-20	-	-	V
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25℃, I_D=-1mA	-	-0.1	-	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-5V, I_D=-2.8A	-	-	130	mΩ
		V_{GS}=-2.8V, I_D=-2.0A	-	-	190	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.5	-	-	V
g_{fs}	Forward Transconductance	V_{DS}=-5V, I_D=-2.8A	-	4.4	-	S
I_{DSS}	Drain-Source Leakage Current (T_j=25°C)	V_{DS}=-20V, V_{GS}=0V	-	-	-1	uA
	Drain-Source Leakage Current (T_j=70°C)	V_{DS}=-16V, V_{GS}=0V	-	-	-10	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±12V	-	-	±100	nA
Q_g	Total Gate Charge[2]	I_D=-2.8A	-	5.2	10	nC
Q_{gs}	Gate-Source Charge	V_{DS}=-6V	-	1.36	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=-5V	-	0.6	-	nC
$t_{d(on)}$	Turn-on Delay Time[2]	V_{DS}=-15V	-	5.2	-	ns
t_r	Rise Time	I_D=-1A	-	9.7	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=6Ω,V_{GS}=-10V	-	19	-	ns
t_f	Fall Time	R_D=15Ω	-	29	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	295	-	pF
C_{oss}	Output Capacitance	V_{DS}=-6V	-	170	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	65	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_S	Continuous Source Current (Body Diode)	V_D=V_G=0V , V_S=-1.2V	-	-	-1	A
I_{SM}	Pulsed Source Current (Body Diode)[1]		-	-	-10	A
V_{SD}	Forward On Voltage[2]	T_j=25℃, I_S=-1.6A, V_{GS}=0V	-	-	-1.2	V