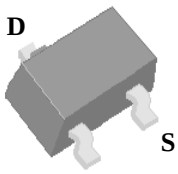
TY Semicondutor®

Product specification

AP2311GN-HF

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



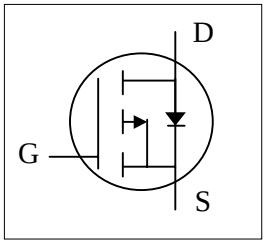
SOT-23

BV_{DSS}	-60V
$R_{DS(ON)}$	250mΩ
I_D	- 1.8A

Description

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 widely 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	- 60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25℃	Continuous Drain Current[3]	- 1.8	A
I_D@T_A=70℃	Continuous Drain Current[3]	- 1.4	A
I_{DM}	Pulsed Drain Current[1]	-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	Maximum Thermal Resistance, Junction-ambient[3]	90	℃/W

AP2311GN-HF

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	-60	-	-	V
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25℃, I_D=-1mA	-	-0.04	-	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-1.8A	-	200	250	mΩ
		V_{GS}=-4.5V, I_D=-1.4A	-	240	300	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1	-	-3	V
g_{fs}	Forward Transconductance	V_{DS}=-10V, I_D=-1A	-	2	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-60V, V_{GS}=0V	-	-	-10	uA
	Drain-Source Leakage Current (T_j=70°C)	V_{DS}=-48V, V_{GS}=0V	-	-	-25	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V	-	-	±100	nA
Q_g	Total Gate Charge[2]	I_D=-1A	-	6	10	nC
Q_{gs}	Gate-Source Charge	V_{DS}=-48V	-	1	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=-4.5V	-	3	-	nC
$t_{d(on)}$	Turn-on Delay Time[2]	V_{DS}=-30V	-	8	-	ns
t_r	Rise Time	I_D=-1A	-	5	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω,V_{GS}=-10V	-	22	-	ns
t_f	Fall Time	R_D=30Ω	-	3	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	510	810	pF
C_{oss}	Output Capacitance	V_{DS}=-25V	-	50	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	40	-	pF
R_g	Gate Resistance	f=1.0MHz	-	6.4	9.6	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=-1.2A, V_{GS}=0V	-	-	-1.2	V
t_{rr}	Reverse Recovery Time[2]	I_S=-1A, V_{GS}=0V,	-	30	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	38	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse width ≤300us , duty cycle ≤2%.

3.Surface mounted on 1 in^2 copper pad of FR4 board, t ≤10sec ; 270 ℃/W when mounted on Min. copper pad.