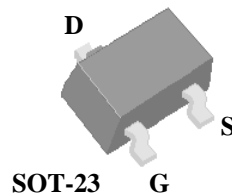


AP2306AGEN-HF

- ▼ Capable of 2.5V Gate Drive
- ▼ Small Outline Package
- ▼ Surface Mount Device
- ▼ RoHS Compliant & Halogen-Free

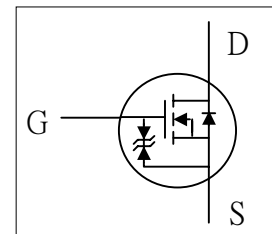


BV_{DSS}	30V
$R_{DS(ON)}$	50mΩ
I_D	4.1A

Description

Advanced Power MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The SOT-23 package is widely used for commercial-industrial applications.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	+6	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current ³ , V_{GS} @ 4.5V	4.1	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current ³ , V_{GS} @ 4.5V	3.3	A
I_{DM}	Pulsed Drain Current ¹	16	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	1.38	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	90	°C/W

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Electrical Characteristics @ $T_j=25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=4.5V, I_D=4A$	-	-	50	m Ω
		$V_{GS}=2.5V, I_D=3A$	-	-	72	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	-	1.5	V
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=3A$	-	15	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V, V_{GS}=0V$	-	-	10	μA
I_{GSS}	Gate-Source Leakage	$V_{GS}=\pm 6V, V_{DS}=0V$	-	-	± 30	μA
Q_g	Total Gate Charge	$I_D=3A$	-	8.7	14	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=15V$	-	1.3	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=4.5V$	-	3.5	-	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=15V$	-	65	-	ns
t_r	Rise Time	$I_D=1A$	-	130	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=3.3\Omega$	-	470	-	ns
t_f	Fall Time	$V_{GS}=5V$	-	290	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	610	1000	pF
C_{oss}	Output Capacitance	$V_{DS}=25V$	-	60	-	pF
C_{rss}	Reverse Transfer Capacitance	$f=1.0\text{MHz}$	-	50	-	pF

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	$I_S=6A, V_{GS}=0V,$	-	220	-	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	-	600	-	nC

Notes:

1. Pulse width limited by Max. junction temperature.
2. Pulse test
3. Surface mounted on 1 in² copper pad of FR4 board ; 270°C/W when mounted on min. copper pad.