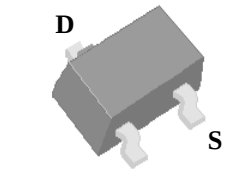
AP2302GN-HF

▼ **Capable of 2.5V gate drive**
▼ **Small package outline**
▼ **Surface mount package**
▼ **RoHS Compliant**

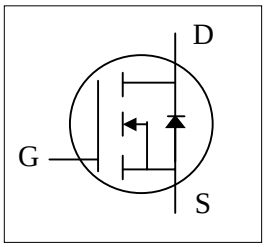
BV_{DSS}	20V
$R_{DS(ON)}$	85mΩ
I_D	3.2A



SOT-23

Description

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



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], V_{GS} @ 4.5V	3.2	A
I_D@T_A=70℃	Continuous Drain Current[3], V_{GS} @ 4.5V	2.6	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

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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}=4.5V, I_D=3.6A	-	-	85	mΩ
		V_{GS}=2.5V, I_D=3.1A	-	-	115	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.5	-	1.2	V
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D=3.6A	-	6	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=20V, V_{GS}=0V	-	-	1	uA
	Drain-Source Leakage Current (T_j=70°C)	V_{DS}=20V ,V_{GS}=0V	-	-	10	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge[2]	I_D=3.6A	-	4.4	-	nC
Q_{gs}	Gate-Source Charge	V_{DS}=10V	-	0.6	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=4.5V	-	1.9	-	nC
$t_{d(on)}$	Turn-on Delay Time[2]	V_{DS}=10V	-	5.2	-	ns
t_r	Rise Time	I_D=3.6A	-	37	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=6Ω,V_{GS}=5V	-	15	-	ns
t_f	Fall Time	R_D=2.8Ω	-	5.7	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	145	-	pF
C_{oss}	Output Capacitance	V_{DS}=10V	-	100	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	50	-	pF
R_g	Gate Resistance	f=1.0MHz	-	5.3	8	Ω

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]	I_S=1.6A, V_{GS}=0V	-	-	1.2	V