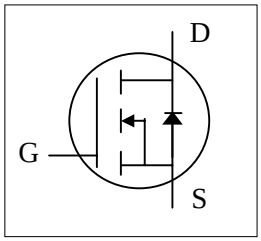
AP20N15GH/J

Preliminary

Advanced Power Electronics Corp.

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

- ▼ **Lower On-resistance**
- ▼ **Simple Drive Requirement**
- ▼ **Fast Switching Characteristic**
- ▼ **RoHS Compliant**

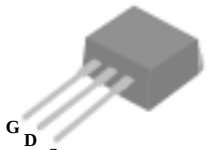


BV_{DSS}	150V
$R_{DS(ON)}$	105mΩ
I_D	22A

Description

The TO-252 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters. The through-hole version (AP20N15GJ) is available for low-profile applications.

TO-252(H)



TO-251(J)

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	22	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	14	A
I_{DM}	Pulsed Drain Current[1]	88	A
P_D@T_C=25℃	Total Power Dissipation	96	W
	Linear Derating Factor	0.77	W/℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter		Value	Units
Rthj-c	Thermal Resistance Junction-case	Max.	1.3	℃/W
Rthj-a	Thermal Resistance Junction-ambient	Max.	110	℃/W

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=1mA	150	-	-	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}=10V, I_D=14A	-	-	105	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	2	-	4	V
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=14A	-	15	-	S
I_{DSS}	Drain-Source Leakage Current (T_j=25°C)	V_{DS}=150V, V_{GS}=0V	-	-	25	uA
	Drain-Source Leakage Current (T_j=150°C)	V_{DS}=120V ,V_{GS}=0V	-	-	100	uA
I_{GSS}	Gate-Source Leakage	V_{GS}= ±20V	-	-	±100	nA
Q_g	Total Gate Charge[2]	I_D=14A	-	18	28	nC
Q_{gs}	Gate-Source Charge	V_{DS}=120V	-	6	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=10V	-	5.7	-	nC
$t_{d(on)}$	Turn-on Delay Time[2]	V_{DS}=75V	-	12	-	ns
t_r	Rise Time	I_D=14A	-	30	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=10Ω,V_{GS}=10V	-	17	-	ns
t_f	Fall Time	R_D=5.4Ω	-	2	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	1070	1720	pF
C_{oss}	Output Capacitance	V_{DS}=25V	-	240	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	8	-	pF
R_g	Gate Resistance	f=1.0MHz	-	1.5	2.3	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=14A, V_{GS}=0V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_S=14A, V_{GS}=0V,	-	130	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	700	-	nC

Notes:

1.Pulse width limited by safe operating area.

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