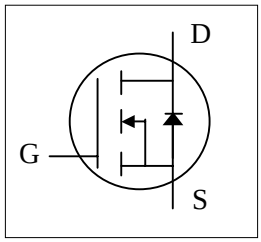
AP09T10GH-HF

Preliminary

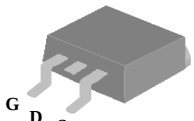
Advanced Power Electronics Corp.

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

- ▼ **Simple Drive Requirement**
- ▼ **Lower Gate Chage**
- ▼ **Fast Switching Characteristic**
- ▼ **RoHS Compliant & Halogen-Free**



BV_{DSS}	100V
$R_{DS(ON)}$	300mΩ
I_D	5A



TO-252(H)

Description

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

The TO-252 package is widely preferred for 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	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	5	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	3	A
I_{DM}	Pulsed Drain Current[1]	12	A
P_D@T_C=25℃	Total Power Dissipation	12.5	W
P_D@T_A=25℃	Total Power Dissipation[3]	2	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	Maximum Thermal Resistance, Junction-case	10	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient (PCB mount)[3]	62.5	℃/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=250uA	100	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=3A	-	-	300	mΩ
		V_{GS}=4.5V, I_D=1A	-	-	450	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=3A	-	4	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V, V_{GS}=0V	-	-	25	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=3A	-	8	-	nC
Q_{gs}	Gate-Source Charge	V_{DS}=80V	-	1.5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=10V	-	2.5	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=50V	-	5	-	ns
t_r	Rise Time	I_D=3A	-	12	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω	-	12	-	ns
t_f	Fall Time	V_{GS}=10V	-	3	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	250	-	pF
C_{oss}	Output Capacitance	V_{DS}=25V	-	50	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	30	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=3A, V_{GS}=0V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_S=3A, V_{GS}=0V,	-	25	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	20	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in^2 copper pad of FR4 board