



**Advanced Power
Electronics Corp.**

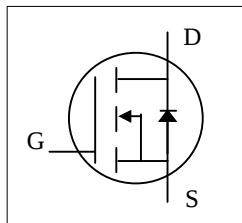
AP01L60H/J-H

RoHS-compliant Product

N-CHANNEL ENHANCEMENT MODE

POWER MOSFET

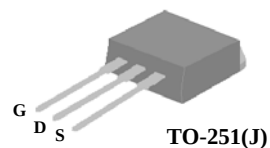
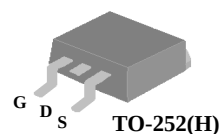
- ▼ 100% Avalanche Rated
- ▼ Fast Switching Speed
- ▼ Simple Drive Requirement



BV_{DSS}	700V
$R_{DS(ON)}$	12 Ω
I_D	1A

Description

The TO-252 package is universally preferred for all commercial-industrial surface mount applications and suited for AC/DC converters. The through-hole version (AP01L60J) is available for low-profile applications.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	700	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	1	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	0.8	A
I_{DM}	Pulsed Drain Current ¹	3	A
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	29	W
	Linear Derating Factor	0.232	W/ $^\circ\text{C}$
E_{AS}	Single Pulse Avalanche Energy ²	0.5	mJ
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c	Maximum Thermal Resistance, Junction-case	4.3	$^\circ\text{C}/\text{W}$
Rthj-a	Maximum Thermal Resistance, Junction-ambient (PCB mount) ⁴	62.5	$^\circ\text{C}/\text{W}$
Rthj-a	Maximum Thermal Resistance, Junction-ambient	110	$^\circ\text{C}/\text{W}$



AP01L60H/J-H

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	700	-	-	V
$\Delta BV_{DSS} / \Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.8	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =0.4A	-	-	12	Ω
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 =0.5A	-	0.8	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =600V, V _{GS} =0V	-	-	10	uA
	Drain-Source Leakage Current (T _j =150°C)	V _{DS} =480V, V _{GS} =0V	-	-	100	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ³	I _D =1A	-	4.0	-	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	-	1.0	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	1.1	-	nC
t _{d(on)}	Turn-on Delay Time ³	V _{DD} =300V	-	6.6	-	ns
t _r	Rise Time	I _D =1A	-	5.0	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =10V	-	11.7	-	ns
t _f	Fall Time	R _D =300Ω	-	9.2	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	170	-	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	30.7	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	5.1	-	pF

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		-	-	5	A
V _{SD}	Forward On Voltage ³	T _j =25°C , I _S =1A, V _{GS} =0V	-	-	1.2	V

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Starting T_j=25°C , V_{DD}=50V , L=1.0mH , R_G=25Ω , I_{AS}=1.0A.
- 3.Pulse test
- 4.Surface mounted on 1 in² copper pad of FR4 board

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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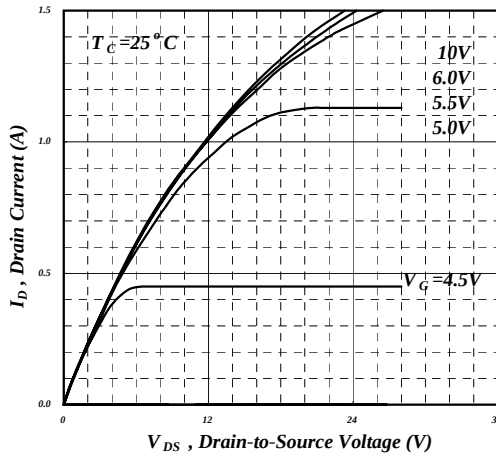


Fig 1. Typical Output Characteristics

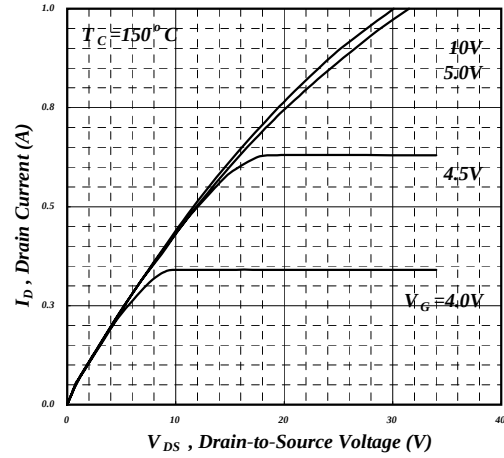


Fig 2. Typical Output Characteristics

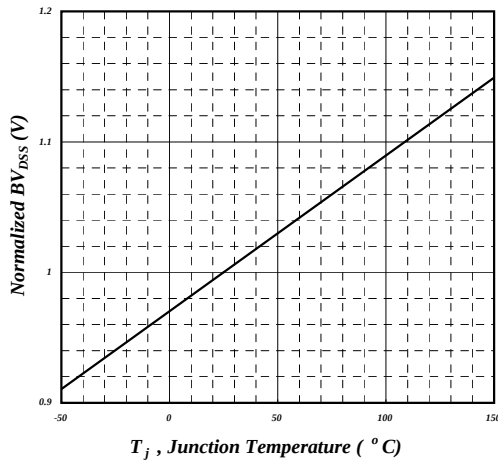


Fig 3. Normalized BV_{DSS} v.s. Junction Temperature

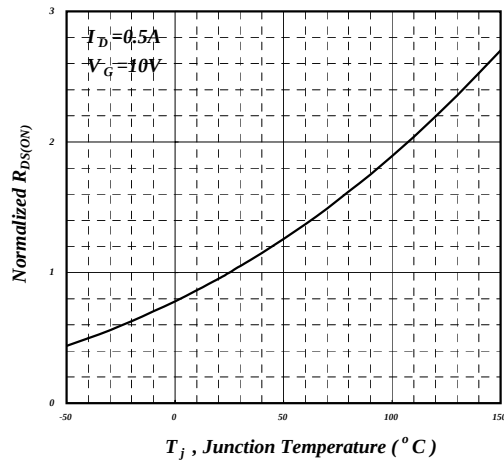


Fig 4. Normalized On-Resistance v.s. Junction Temperature

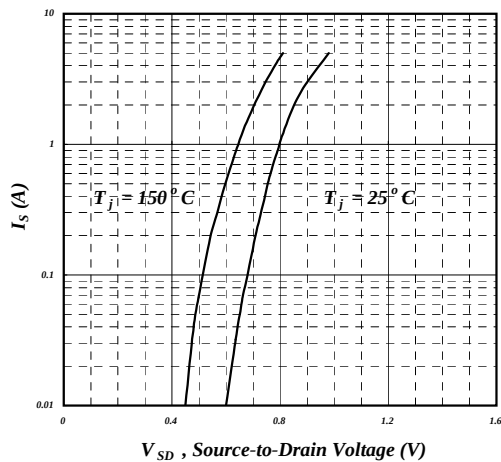


Fig 5. Forward Characteristic of Reverse Diode

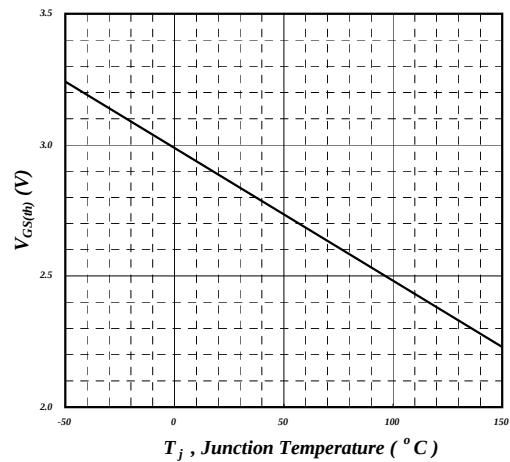


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

