



**Advanced Power
Electronics Corp.**

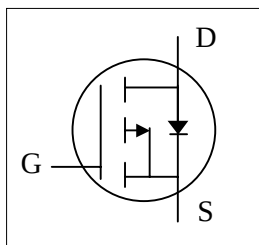
AP9435GH/J

RoHS-compliant Product

P-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Low Gate Charge
- ▼ Simple Drive Requirement
- ▼ Fast Switching

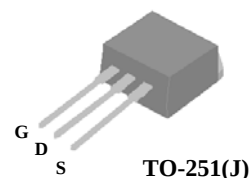
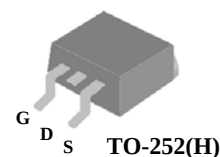


BV_{DSS}	-30V
$R_{DS(ON)}$	50m Ω
I_D	- 20A

Description

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

The TO-252/TO-251 package is widely used for commercial-industrial application.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	- 30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	- 20	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	-13	A
I_{DM}	Pulsed Drain Current ¹	-60	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	12.5	W
	Linear Derating Factor	0.1	W/ $^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c	Maximum Thermal Resistance, Junction-case	10	$^{\circ}C/W$
Rthj-a	Maximum Thermal Resistance, Junction-ambient	110	$^{\circ}C/W$



AP9435GH/J

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	-30	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-10A	-	-	50	mΩ
		V _{GS} =-4.5V, I _D =-5A	-	-	90	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 =-10A	-	10	-	S
I _{DSS}	Drain-Source Leakage Current (T _J =25°C)	V _{DS} =-30V, V _{GS} =0V	-	-	-1	uA
	Drain-Source Leakage Current (T _J =150°C)	V _{DS} =-24V, V _{GS} =0V	-	-	-25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =± 20V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =-10A	-	8	16	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-24V	-	1.6	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	4.3	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =-15V	-	6.3	-	ns
t _r	Rise Time	I _D =-10A	-	46	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =-10V	-	20	-	ns
t _f	Fall Time	R _D =1.5Ω	-	7.4	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	570	740	pF
C _{oss}	Output Capacitance	V _{DS} =-25V	-	80	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	75	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =-10A, V _{GS} =0V	-	-	-1.3	V
t _{rr}	Reverse Recovery Time ²	I _S =-10A, V _{GS} =0V,	-	18	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=-100A/μs	-	10	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.

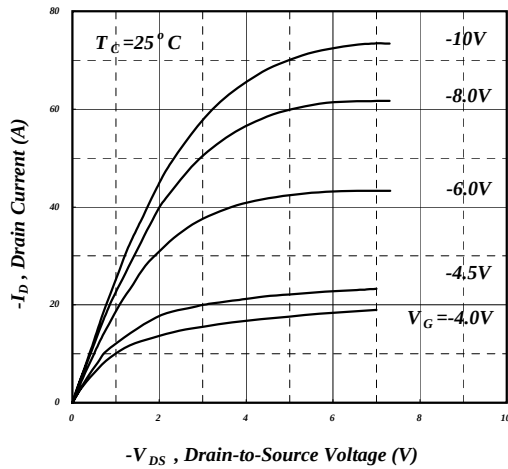


Fig 1. Typical Output Characteristics

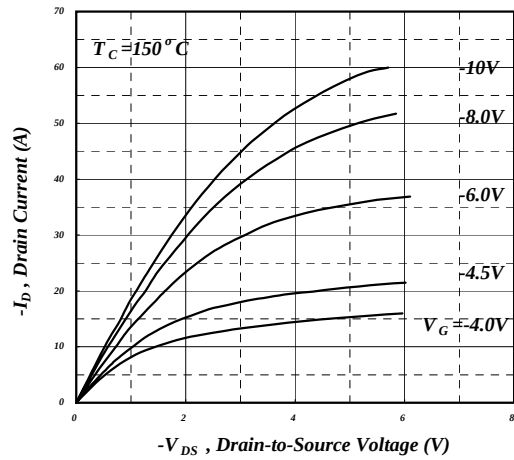


Fig 2. Typical Output Characteristics

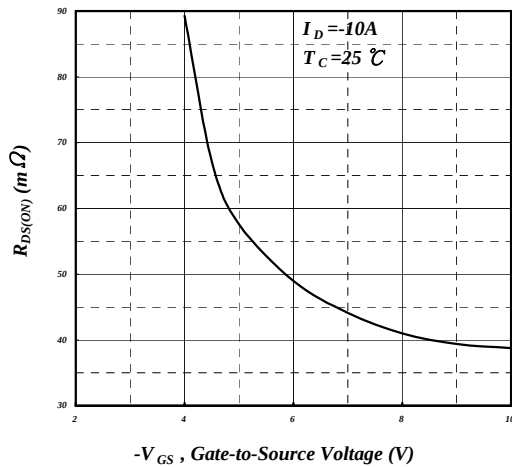


Fig 3. On-Resistance v.s. Gate Voltage

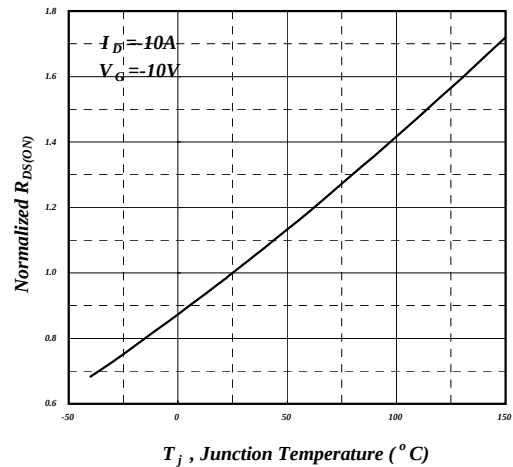


Fig 4. Normalized On-Resistance v.s. Junction Temperature

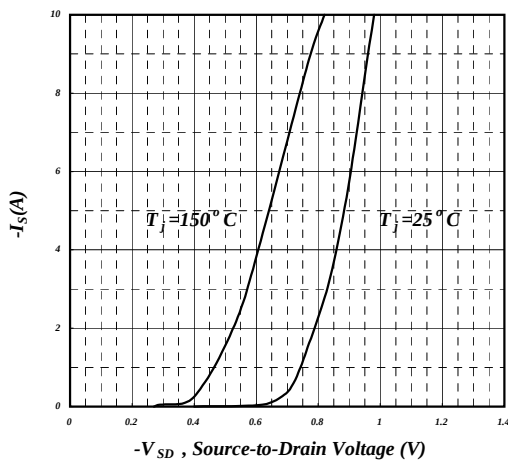


Fig5. Forward Characteristic of Reverse Diode

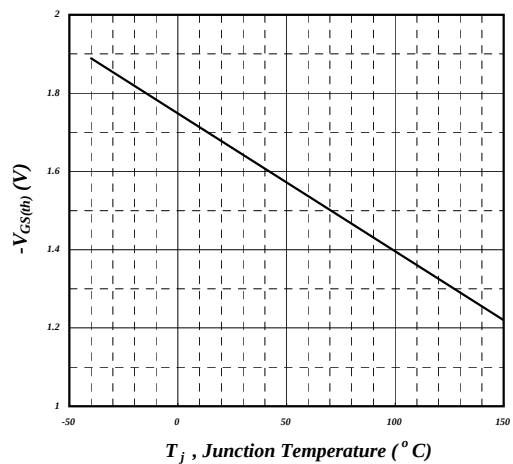


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

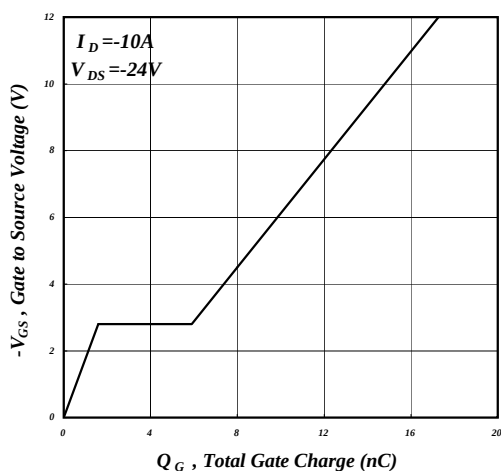


Fig 7. Gate Charge Characteristics

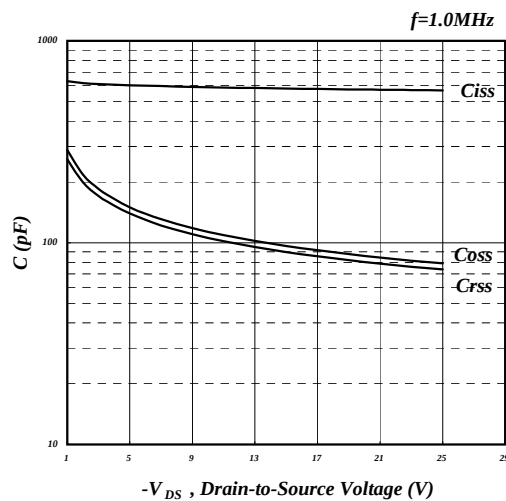


Fig 8. Typical Capacitance Characteristics

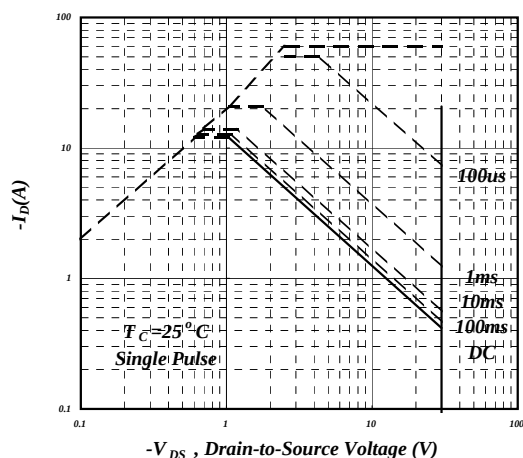


Fig 9. Maximum Safe Operating Area

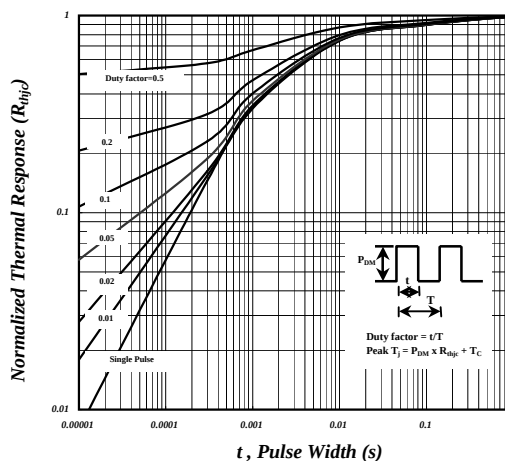


Fig 10. Effective Transient Thermal Impedance

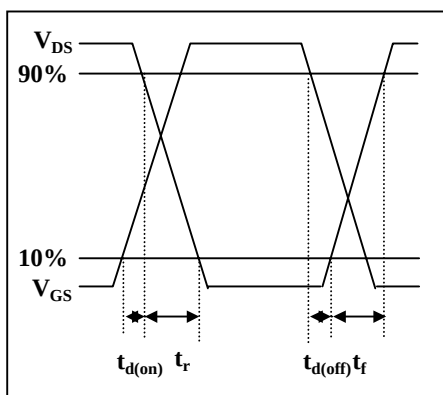


Fig 11. Switching Time Waveform

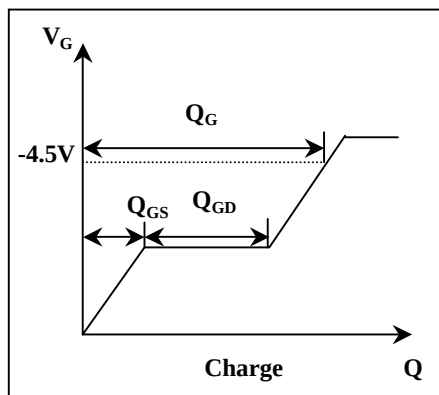
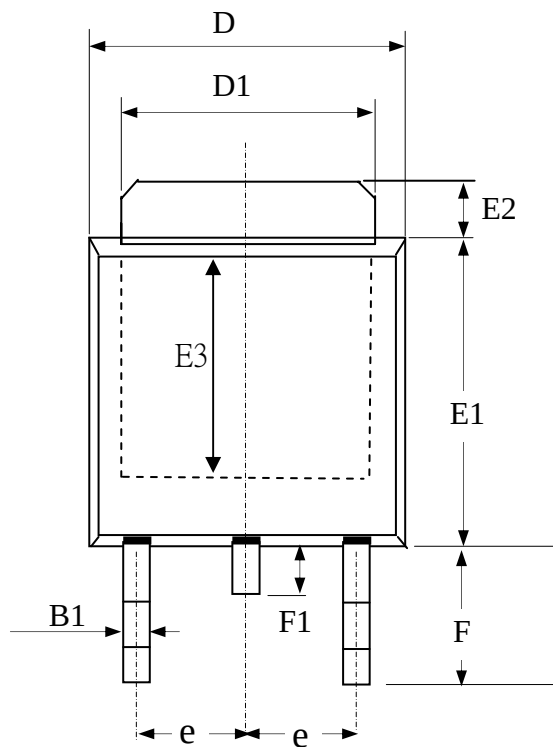


Fig 12. Gate Charge Waveform



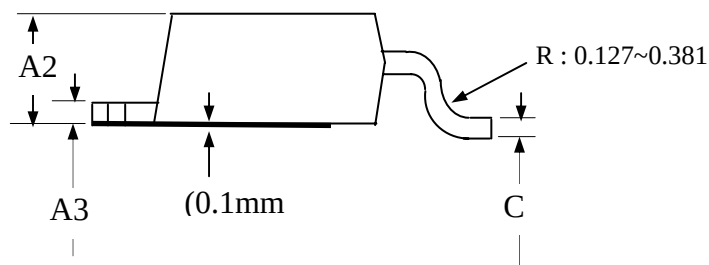
Package Outline : TO-252



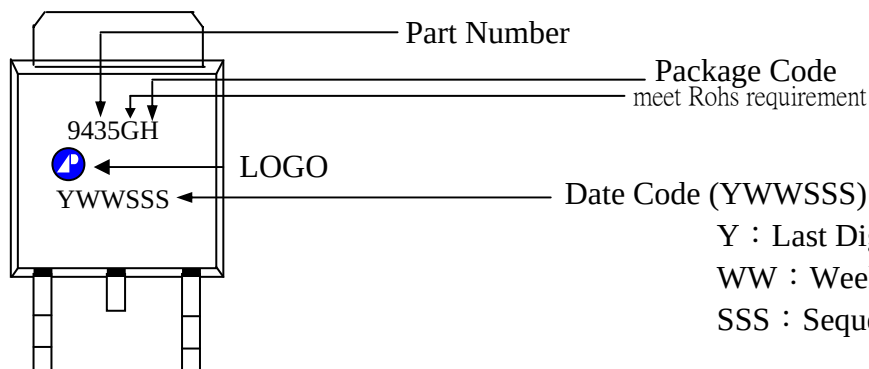
SYMBOLS	Millimeters		
	MIN	NOM	MAX
A2	1.80	2.30	2.80
A3	0.40	0.50	0.60
B1	0.40	0.70	1.00
D	6.00	6.50	7.00
D1	4.80	5.35	5.90
E3	3.50	4.00	4.50
F	2.20	2.63	3.05
F1	0.5	0.85	1.20
E1	5.10	5.70	6.30
E2	0.50	1.10	1.80
e	--	2.30	--
C	0.35	0.50	0.65

1.All Dimensions Are in Millimeters.

2.Dimension Does Not Include Mold Protrusions.



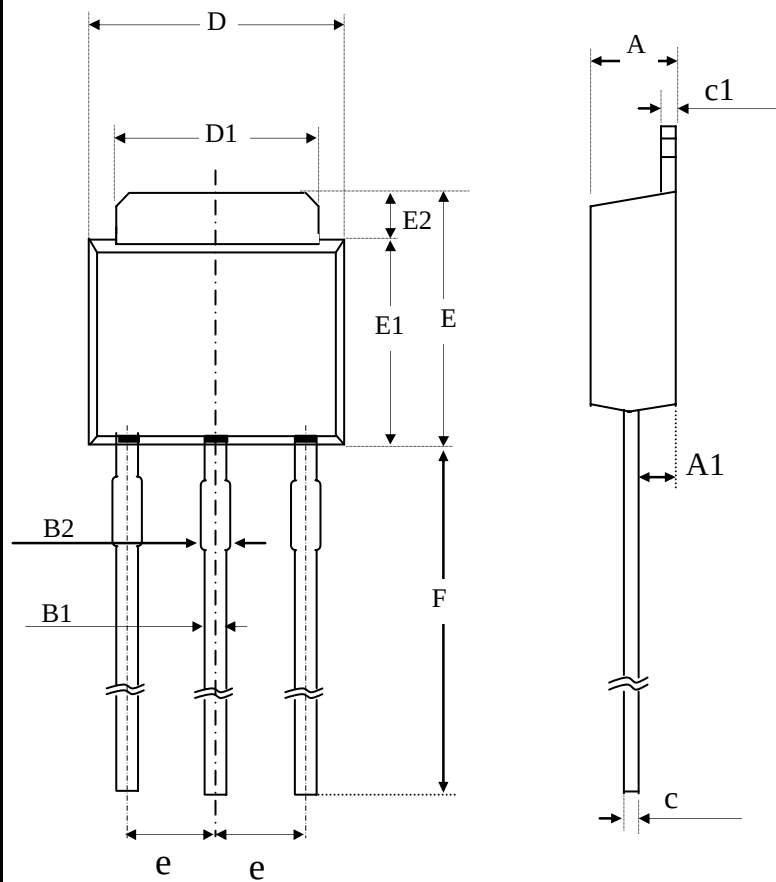
Part Marking Information & Packing : TO-252



Y : Last Digit Of The Year
WW : Week
SSS : Sequence



ADVANCED POWER ELECTRONICS CORP.



SYMBOLS	Millimeters		
	MIN	NOM	MAX
	Original	Original	Original
A	2.10	2.30	2.50
A1	0.60	1.20	1.80
B1	0.40	0.60	0.80
B2	0.60	0.95	1.25
c	0.40	0.50	0.65
c1	0.40	0.55	0.70
D	6.00	6.50	7.00
D1	4.80	5.40	5.90
E1	5.00	5.50	6.00
E2	1.20	1.70	2.20
e	----	2.30	----
F	7.00	---	16.70

1.All Dimensions Are in Millimeters.

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Part Marking Information & Packing : TO-251

