



**Advanced Power
Electronics Corp.**

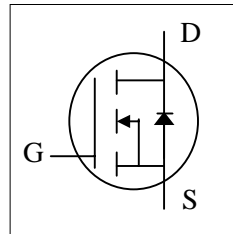
AP9467AGH-HF

Halogen-Free Product

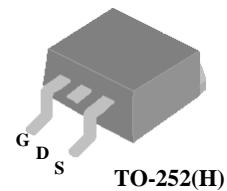
N-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Low On-resistance
- ▼ Simple Drive Requirement
- ▼ Fast Switching Characteristic
- ▼ Halogen Free & RoHS Compliant Product



BV_{DSS}	40V
$R_{DS(ON)}$	11.5m Ω
I_D	43A



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	40	V
V_{GS}	Gate-Source Voltage	+20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	43	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	27	A
I_{DM}	Pulsed Drain Current ¹	180	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	39	W
$P_D@T_A=25^{\circ}C$	Total Power Dissipation	2	W
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	3.2	$^{\circ}C/W$
Rthj-a	Maximum Thermal Resistance, Junction-ambient (PCB mount) ³	62.5	$^{\circ}C/W$



AP9467AGH-HF

Electrical Characteristics @ $T_j=25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=30A$	-	-	11.5	m Ω
		$V_{GS}=4.5V, I_D=20A$	-	-	20	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	-	3	V
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=20A$	-	38	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=40V, V_{GS}=0V$	-	-	10	μA
I_{GSS}	Gate-Source Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Q_g	Total Gate Charge ²	$I_D=30A$	-	9.5	15	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=32V$	-	2	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=4.5V$	-	6.5	-	nC
$t_{d(on)}$	Turn-on Delay Time ²	$V_{DS}=20V$	-	7	-	ns
t_r	Rise Time	$I_D=30A$	-	64	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=3.3\Omega, V_{GS}=10V$	-	18	-	ns
t_f	Fall Time	$R_D=0.67\Omega$	-	6	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	660	1060	pF
C_{oss}	Output Capacitance	$V_{DS}=25V$	-	140	-	pF
C_{rss}	Reverse Transfer Capacitance	$f=1.0MHz$	-	85	-	pF
R_g	Gate Resistance	$f=1.0MHz$	-	2.2	3.3	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_S=30A, V_{GS}=0V$	-	-	1.2	V
t_{rr}	Reverse Recovery Time ²	$I_S=10A, V_{GS}=0V,$	-	21	-	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	-	14	-	nC

Notes:

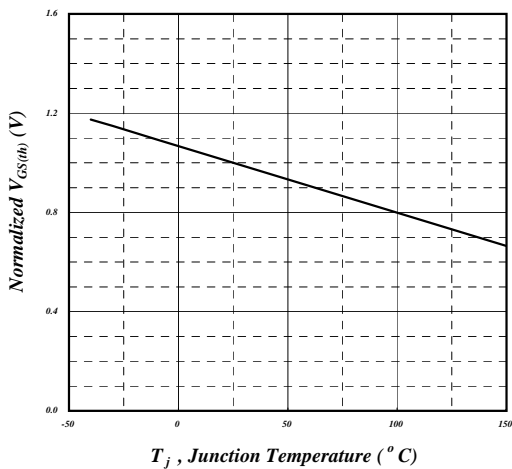
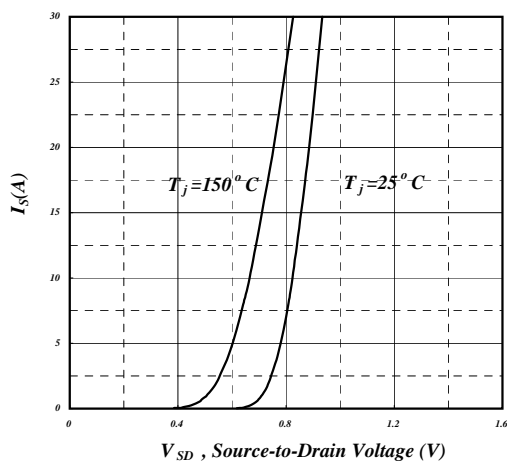
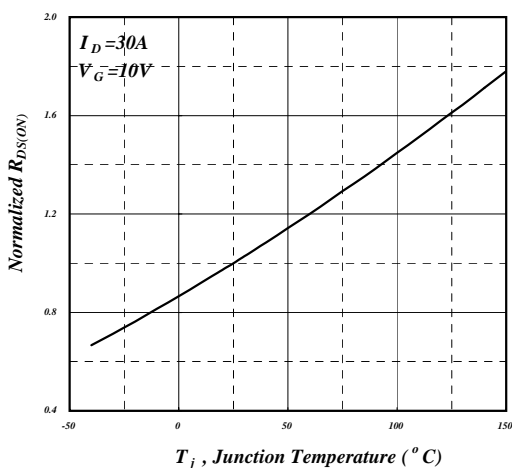
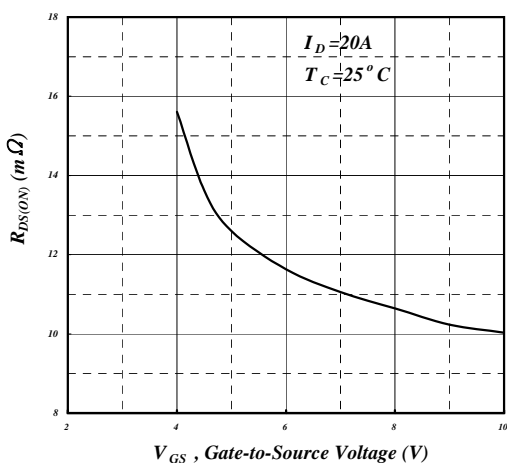
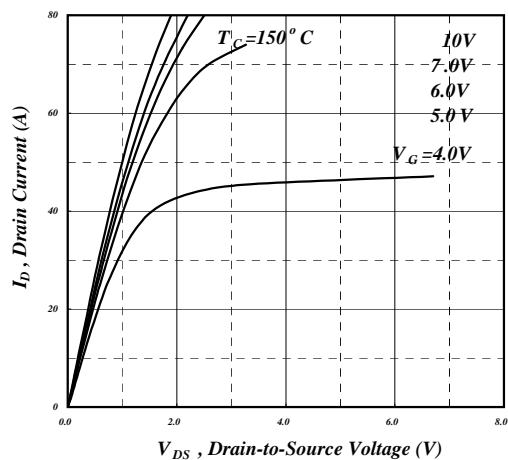
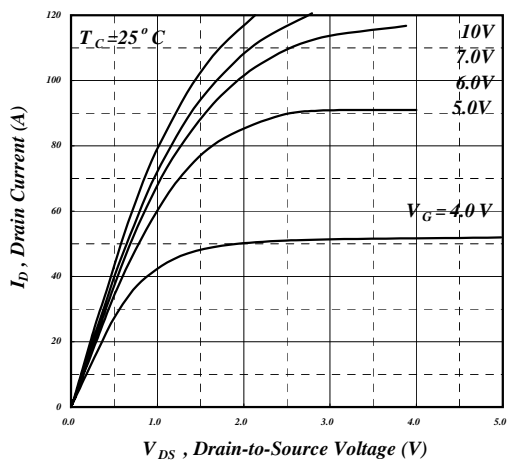
1. Pulse width limited by max. junction temperature
2. Pulse test
3. Surface mounted on 1 in² copper pad of FR4 board

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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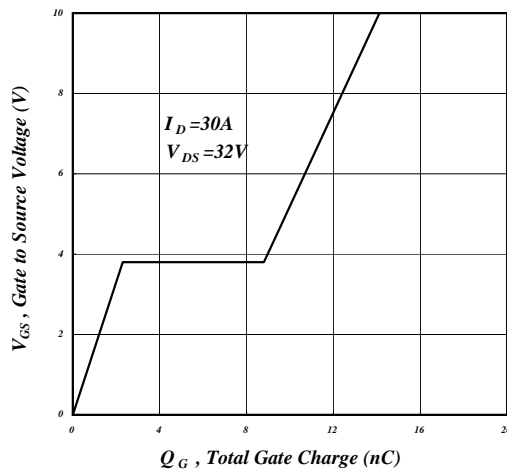


Fig 7. Gate Charge Characteristics

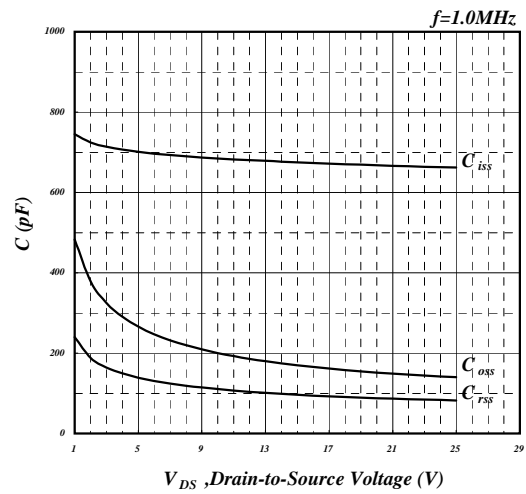


Fig 8. Typical Capacitance Characteristics

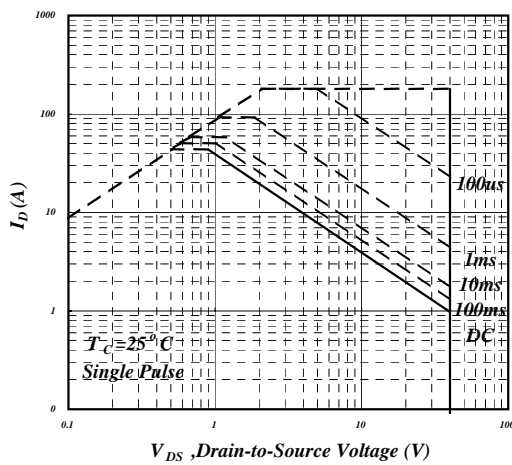


Fig 9. Maximum Safe Operating Area

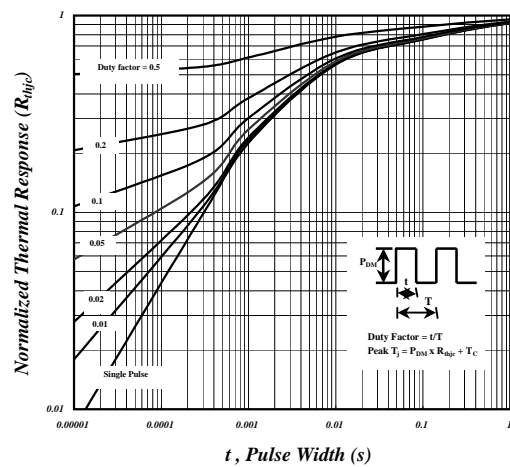


Fig 10. Effective Transient Thermal Impedance

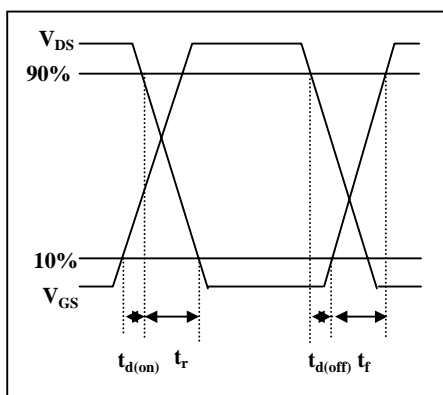


Fig 11. Switching Time Waveform

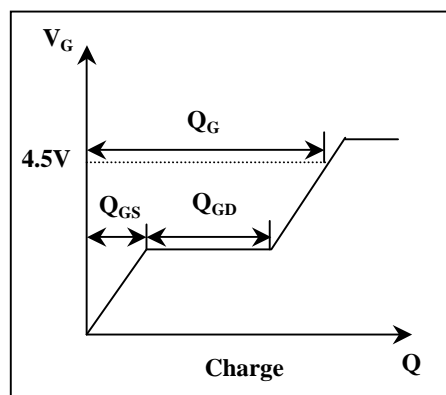
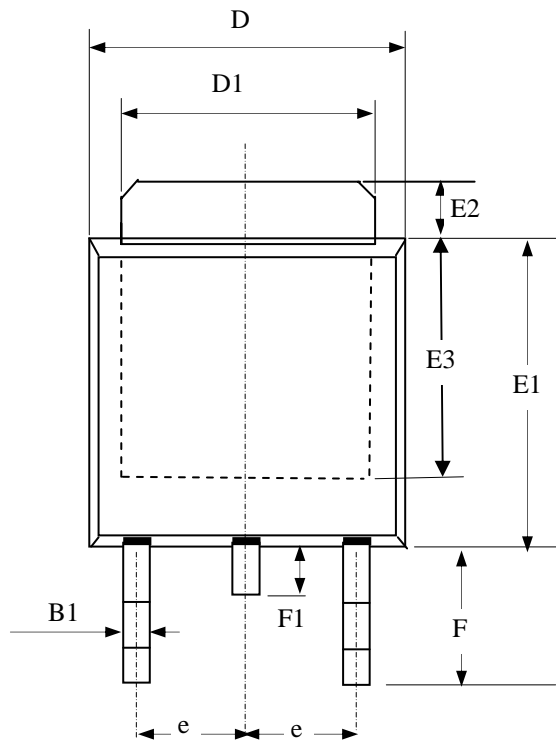


Fig 12. Gate Charge Waveform



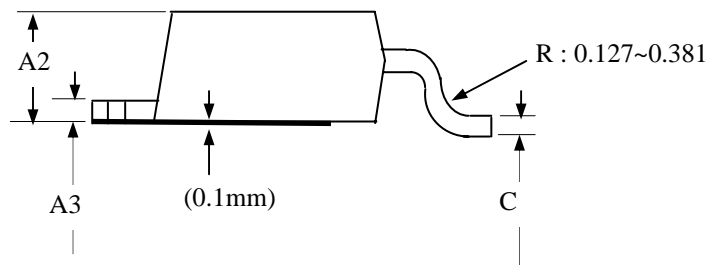
Package Outline : TO-252



SYMBOLS	Millimeters		
	MIN	NOM	MAX
A2	2.10	2.30	2.50
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	0.50	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

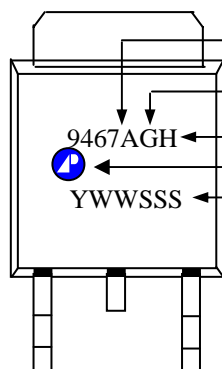
1.All Dimensions Are in Millimeters.

2.Dimension Does Not Include Mold Protrusions.



Part Marking Information & Packing : TO-252

Laser Marking



Part Number

Package Code

LOGO

Date Code (YWWSSS)

Meet Rohs requirement
for low voltage MOSFET only

Y : Last Digit Of The Year

WW : Week

SSS : Sequence