



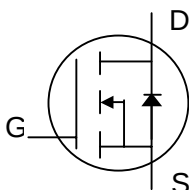
N-channel Enhancement-mode Power MOSFET

Simple Drive Requirement

Fast Switching Characteristics

Low Gate Charge

RoHS-compliant, halogen-free

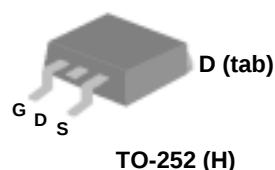


BV_{DS}	200V
$R_{DS(ON)}$	250m Ω
I_D	10A

Description

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

The AP15T20GH-HF-3 is in the TO-252 package which is widely preferred for commercial and industrial surface mount applications such as medium-power DC/DC converters.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D at $T_C=25^\circ\text{C}$	Continuous Drain Current ³	10	A
I_D at $T_C=100^\circ\text{C}$	Continuous Drain Current ³	6.1	A
I_{DM}	Pulsed Drain Current ¹	26	A
P_D at $T_C=25^\circ\text{C}$	Total Power Dissipation	62.5	W
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	Unit
Rthj-c	Maximum Thermal Resistance, Junction-case	2	$^\circ\text{C/W}$
Rthj-a	Maximum Thermal Resistance, Junction-ambient (PCB mount) ³	62.5	$^\circ\text{C/W}$

Ordering Information

AP15T20GH-HF-3TR : in RoHS-compliant halogen-free TO-252 shipped on tape and reel (3000 pcs/reel)



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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	200	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=5A$	-	-	250	m Ω
		$V_{GS}=4.5V, I_D=3A$	-	-	260	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	-	3	V
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=5A$	-	20	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=160V, V_{GS}=0V$	-	-	25	μA
I_{GSS}	Gate-Source Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Q_g	Total Gate Charge	$I_D=5A$	-	45	72	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=160V$	-	5.5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=10V$	-	15	-	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=100V$	-	10	-	ns
t_r	Rise Time	$I_D=5A$	-	10	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=3.3\Omega$	-	37	-	ns
t_f	Fall Time	$V_{GS}=10V$	-	11	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	1950	3120	pF
C_{oss}	Output Capacitance	$V_{DS}=25V$	-	100	-	pF
C_{rss}	Reverse Transfer Capacitance	$f=1.0\text{MHz}$	-	65	-	pF
R_g	Gate Resistance	$f=1.0\text{MHz}$	-	1.5	3	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_S=5A, V_{GS}=0V$	-	-	1.3	V
t_{rr}	Reverse Recovery Time	$I_S=5A, V_{GS}=0V,$	-	100	-	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	-	380	-	nC

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test - pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Surface mounted on 1 in² copper pad of FR4 board,

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

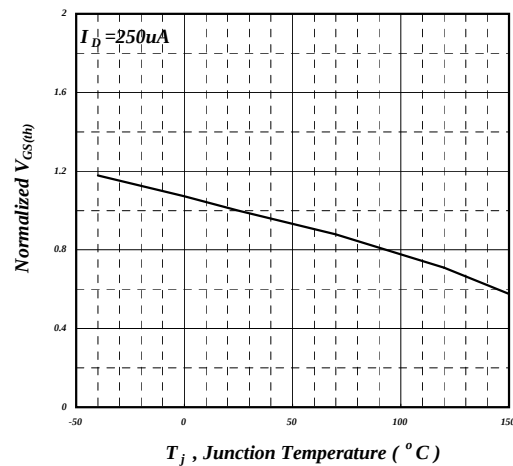
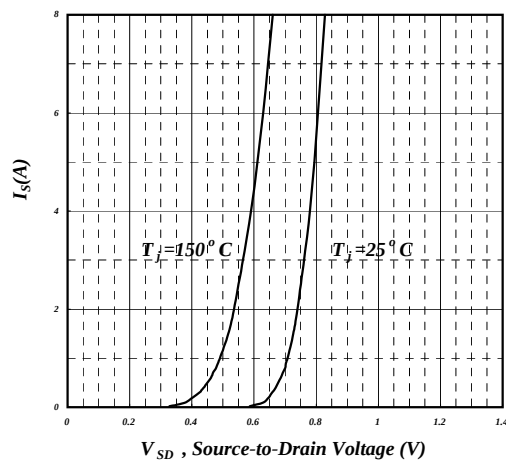
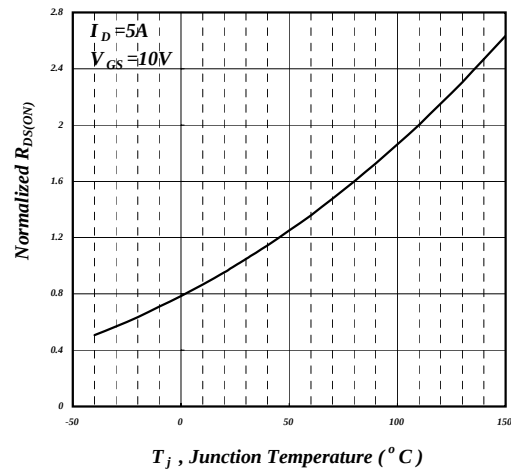
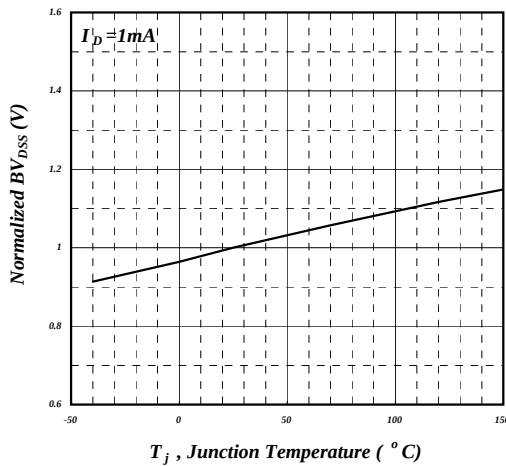
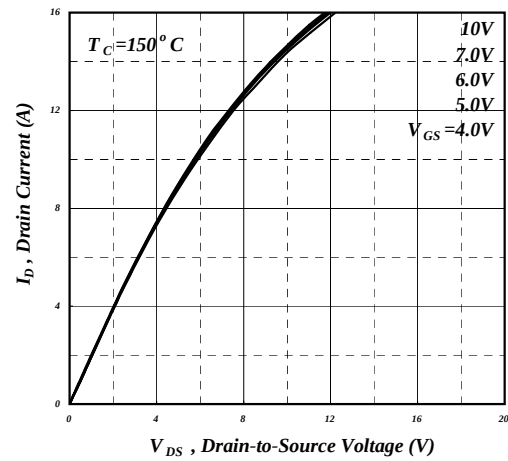
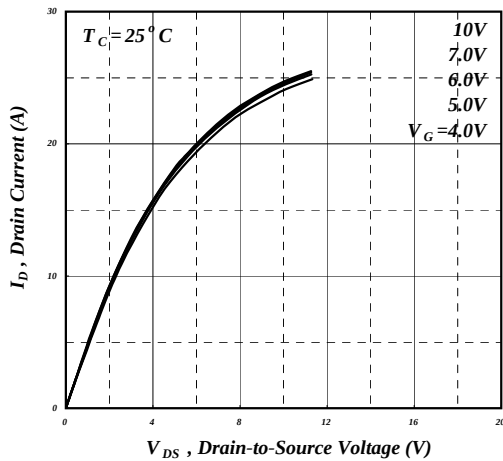
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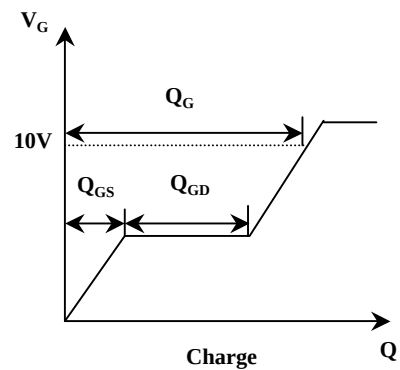
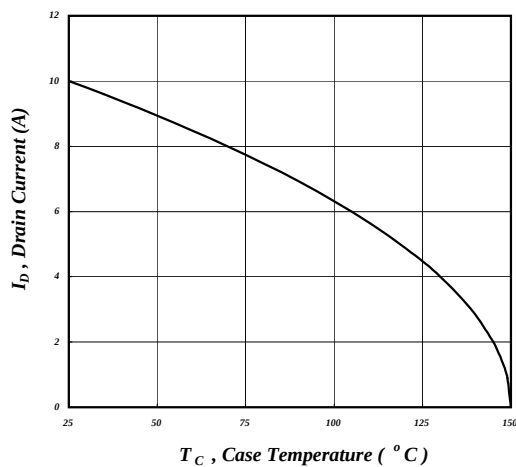
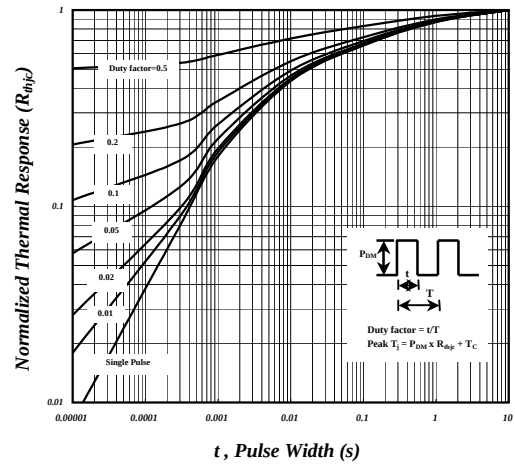
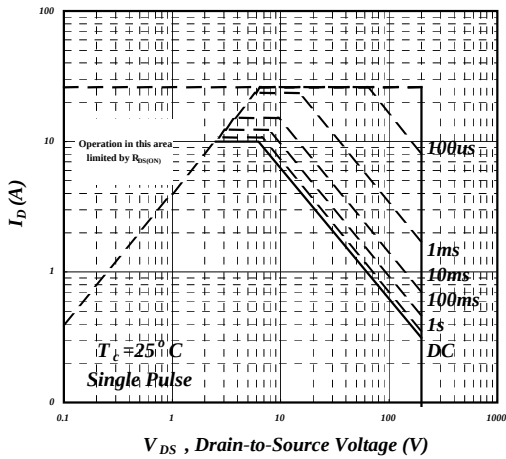
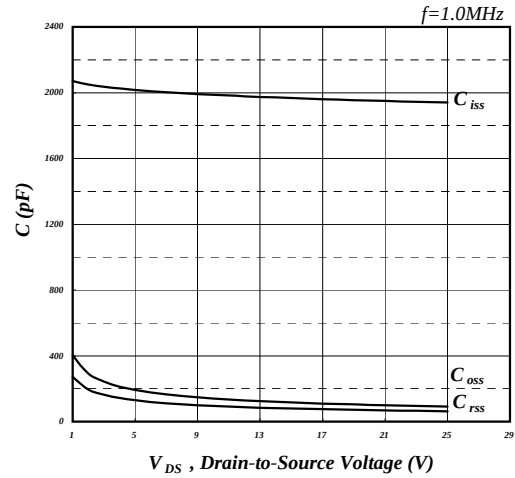
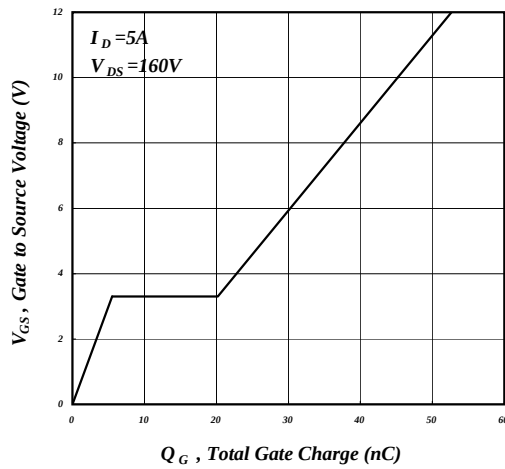
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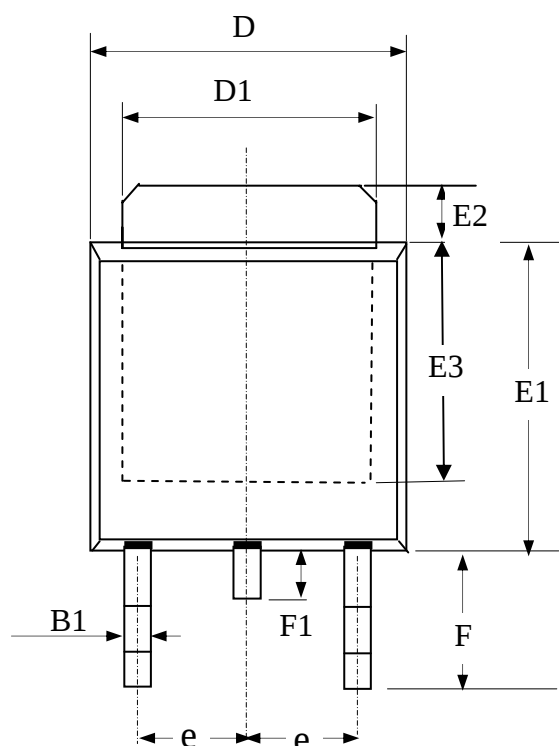
Typical Electrical Characteristics





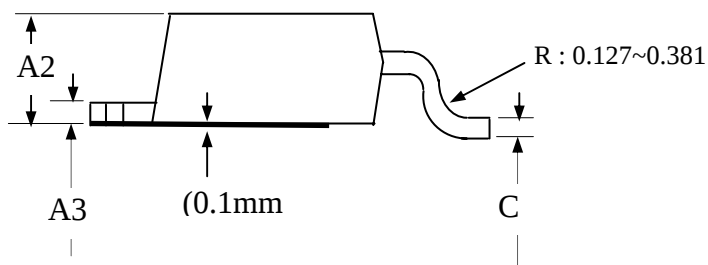


Package Dimensions: TO-252



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	0.50	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. Dimensions do not include mold protrusions.



Marking Information:

Laser Marking

