



## Description

The IRF3710PBF uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. It can be used in a wide variety of applications.

## General Features

$V_{DS} = 100V, I_D = 60A$

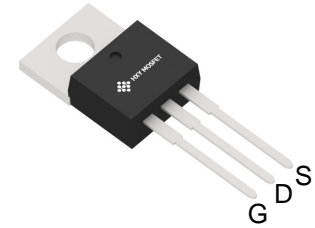
$R_{DS(ON)} < 17m\Omega @ V_{GS} = 10V$

## Application

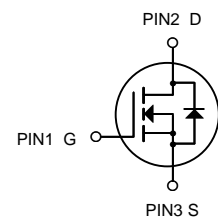
High efficiency switch mode power supplies

Power factor correction

Electronic lamp ballast



TO-220H  
(TO-220AB)



N-Channel MOSFET

## Ordering Information

Product ID	Pack	Brand	Units Tube
IRF3710PBF	TO-220H(TO-220AB)	HXY MOSFET	50

## Absolute Maximum Ratings@ $T_j=25^\circ C$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	100	V
V <sub>GS</sub>	Gate-Source Voltage	$\pm 20$	V
I <sub>D</sub> @T <sub>C</sub> =25°C	Drain Current	60	A
IDM	Pulsed Drain Current <sup>1</sup>	230	A
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	160	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C



**Electrical Characteristics ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)**

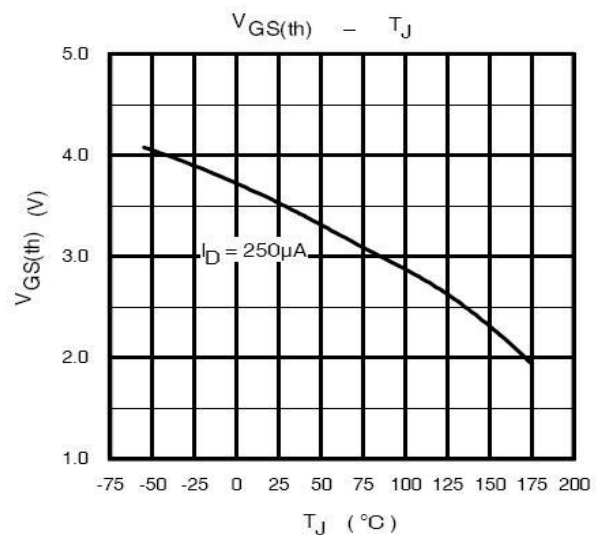
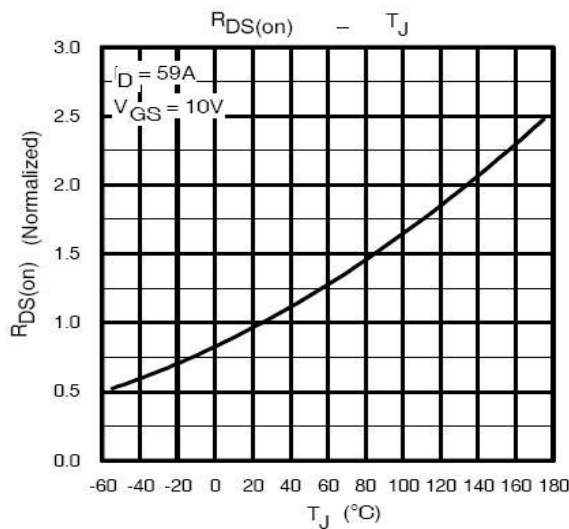
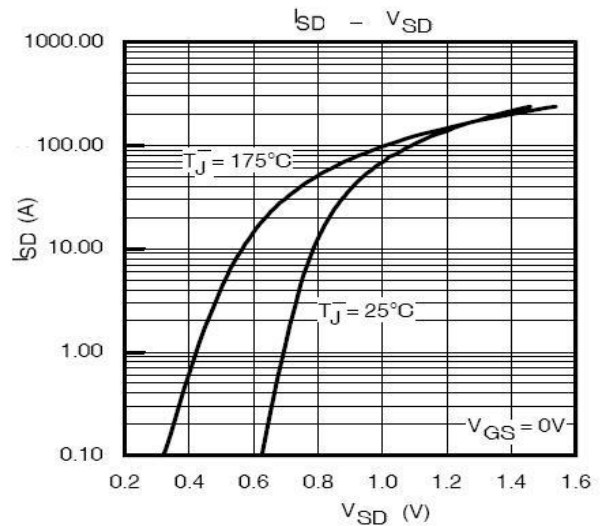
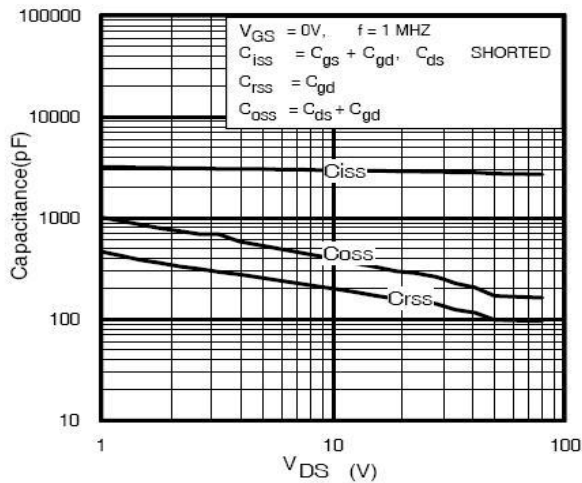
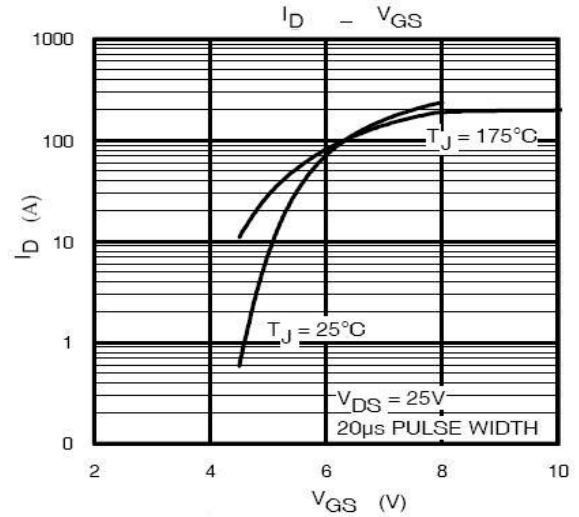
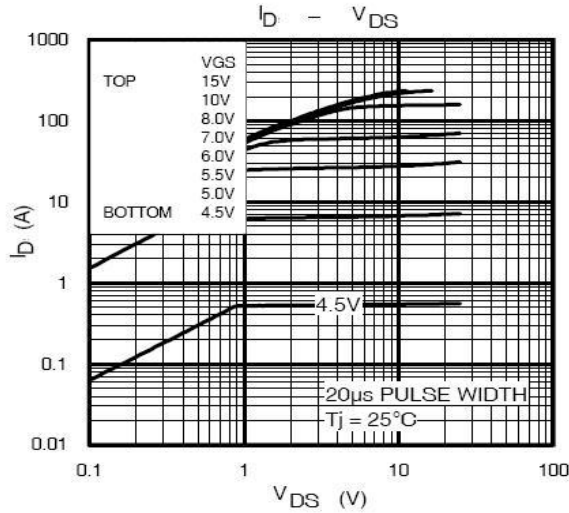
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage <sup>(Note 1)</sup>	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=100V, V_{GS}=0V$	1	-	100	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$	-	14	17	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=10V, I_D=15A$	8	-	-	S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V,$ $F=1.0\text{MHz}$	-	2780	-	PF
Output Capacitance	$C_{oss}$		-	400	-	PF
Reverse Transfer Capacitance	$C_{rss}$		-	35	-	PF
<b>Switching Characteristics</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=50V, I_D=30A$ $R_G=50\Omega$ <sup>(Note 2)</sup>	-	25	-	nS
Turn-on Rise Time	$t_r$		-	7	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	45	-	nS
Turn-Off Fall Time	$t_f$		-	8	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=80V, I_D=30A,$ $V_{GS}=10V$ <sup>(Note 2)</sup>	-	60	-	nC
Gate-Source Charge	$Q_{gs}$		-	12	-	nC
Gate-Drain Charge	$Q_{gd}$		-	15	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=60A$	-	-	1.3	V
Diode Forward Current <sup>(Note 2)</sup>	$I_S$		-	-	60	A

**Notes:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

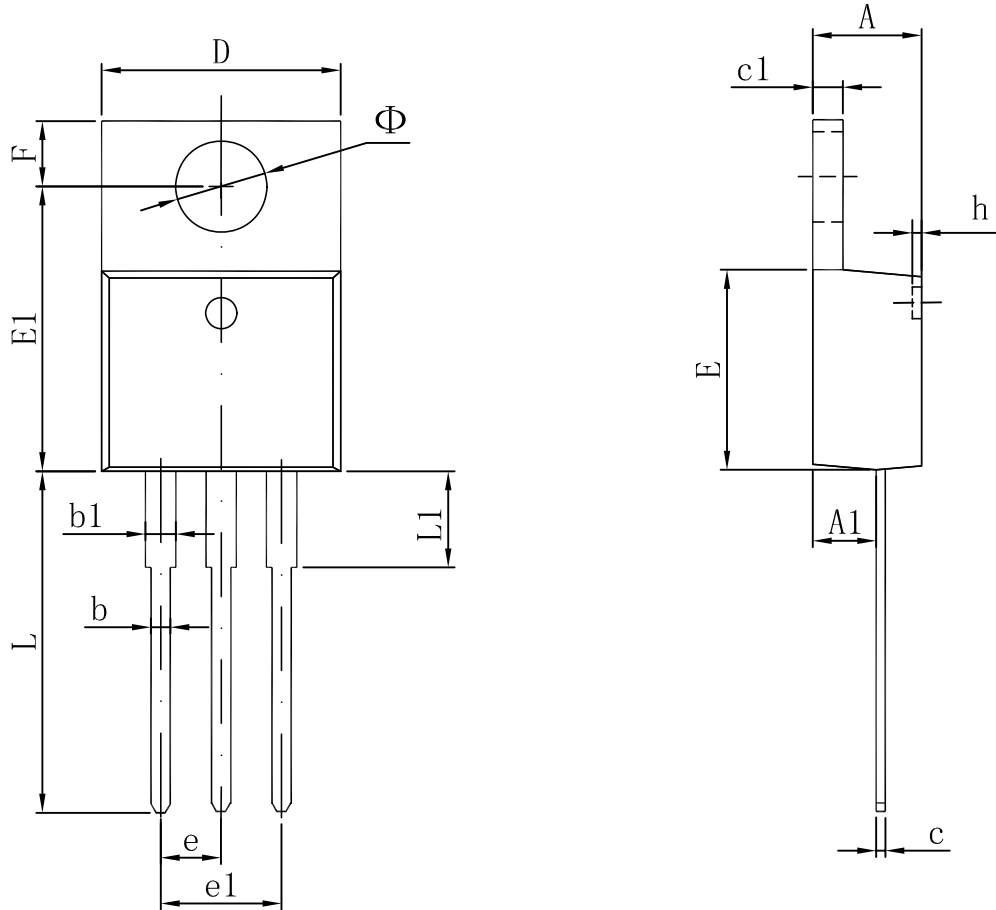


### Typical Electrical





**Package Information**  
**TO-220H(TO-220AB)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155



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