



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

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

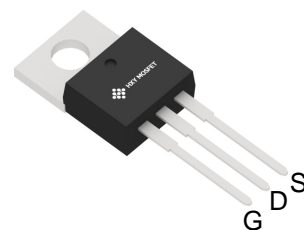
$R_{DS(ON)} < 17m\Omega @ V_{GS}=10V$

Application

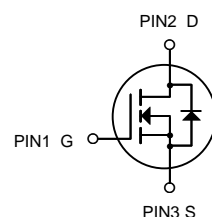
High efficiency switch mode power supplies

Power factor correction

Electronic lamp ballast



TO-220H
(TO-220AB)



N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Marking	Units Tube
IRF3710PBF	TO-220H(TO-220AB)	HXY IRF3710 YYYY	50

Absolute Maximum Ratings@ $T_J=25^{\circ}C$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	100	V
VGS	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Drain Current	60	A
IDM	Pulsed Drain Current ¹	230	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	160	W
TSTG	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$



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

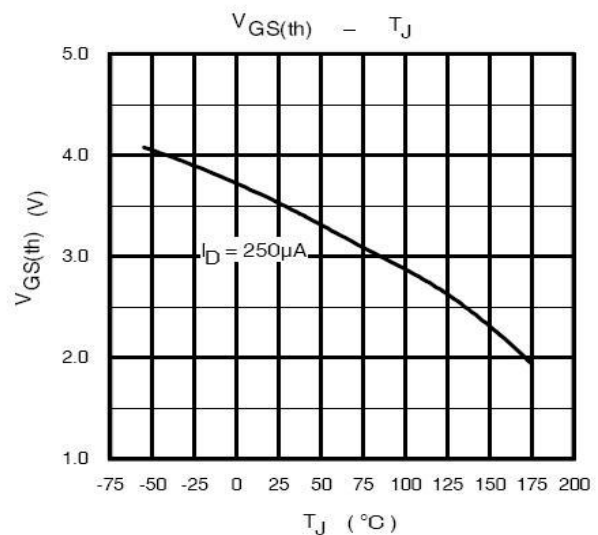
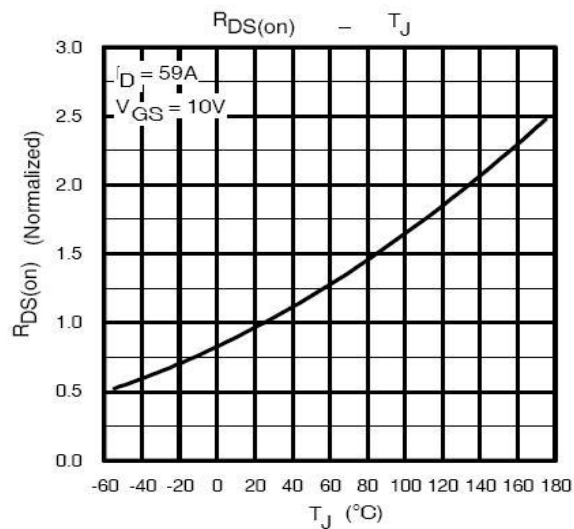
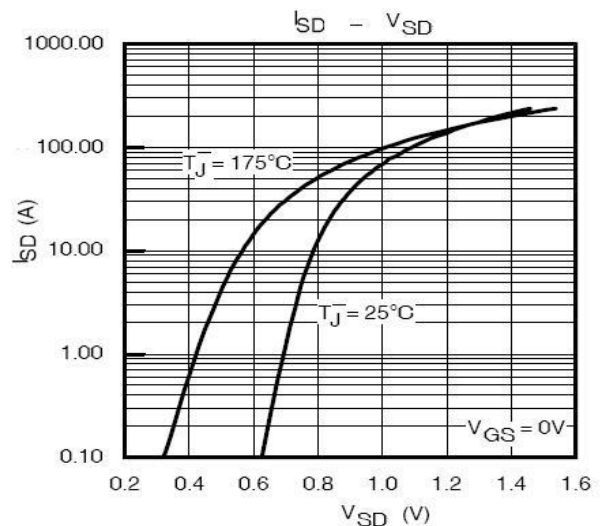
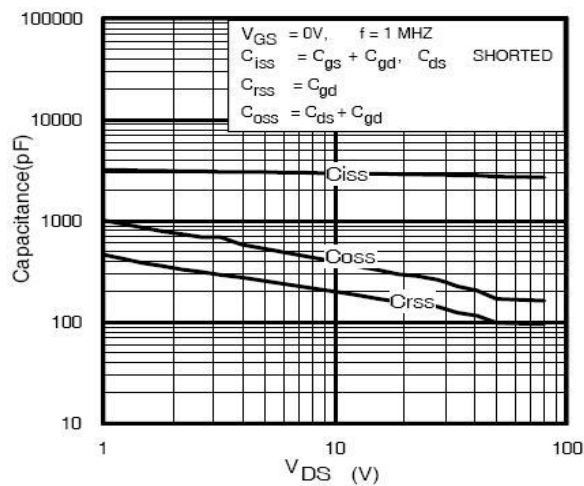
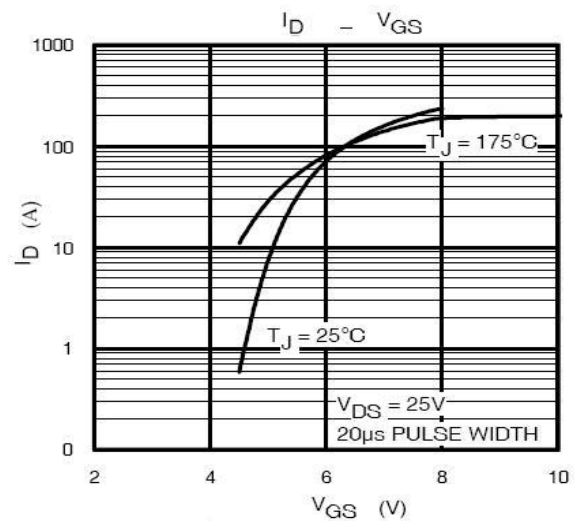
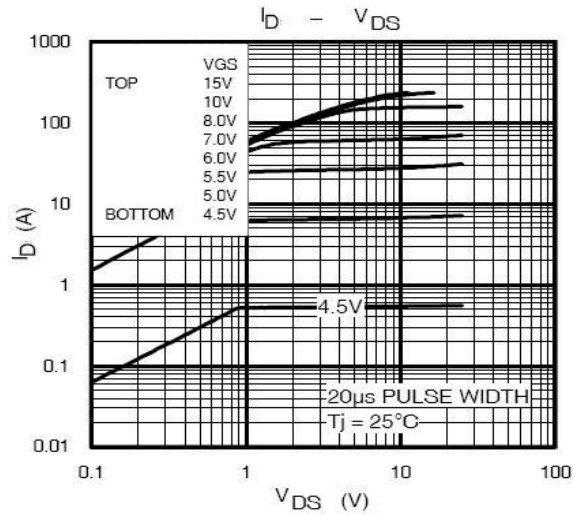
Parameter	Symbol	Condition	Min	Typ	Max	Unit	
Off Characteristics							
Drain-Source Breakdown Voltage ^(Note 1)	BV _{DSS}	V _{GS} =0V I _D =250μA	100	-	-	V	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	1	-	100	μA	
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA	
On Characteristics							
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	-	4.0	V	
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =10A	-	14	17	mΩ	
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =15A	8	-	-	S	
Dynamic Characteristics							
Input Capacitance	C _{ISS}	V _{DS} =50V, V _{GS} =0V, F=1.0MHz	-	2780	-	PF	
Output Capacitance	C _{OSS}		-	400	-	PF	
Reverse Transfer Capacitance	C _{RSS}		-	35	-	PF	
Switching Characteristics							
Turn-on Delay Time	t _{d(on)}	V _{DS} =50V, I _D =30A R _G =50 Ω ^(Note 2)	-	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 ^(Note 2)	-	60	-	nC	
Gate-Source Charge	Q _{gs}		-	12	-	nC	
Gate-Drain Charge	Q _{gd}		-	15	-	nC	
Drain-Source Diode Characteristics							
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =60A	-		1.3	V	
Diode Forward Current ^(Note 2)	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 $\leq 2\%$.

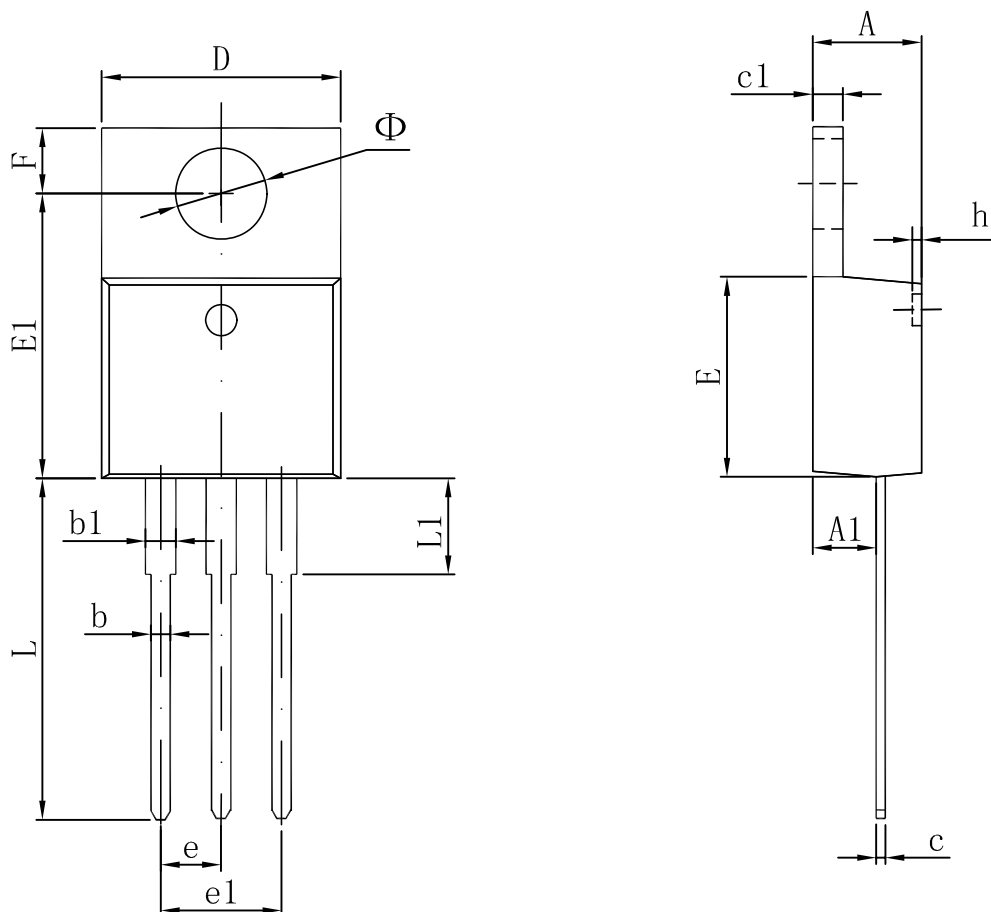


Typical Electrical





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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