

Description

The IRF3710Z 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.

TO-220

General Features

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

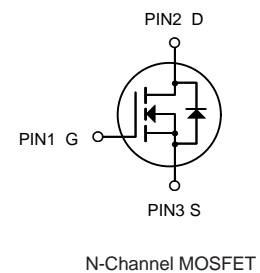
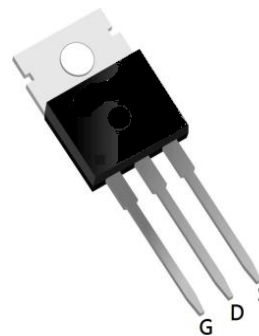
$R_{DS(ON)} < 17m\Omega @ V_{GS} = 10V$

Application

High efficiency switch mode power supplies

Power factor correction

Electronic lamp ballast



Package Marking and Ordering Information

Product ID	Pack	Marking	Units Tube
IRF3710Z	TO-220	EVVO IRF3710 YYYY	50

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	100	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Drain Current	60	A
IDM	Pulsed Drain Current ¹	230	A
P _D @T _C =25°C	Total Power Dissipation	160	W
TSTG	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

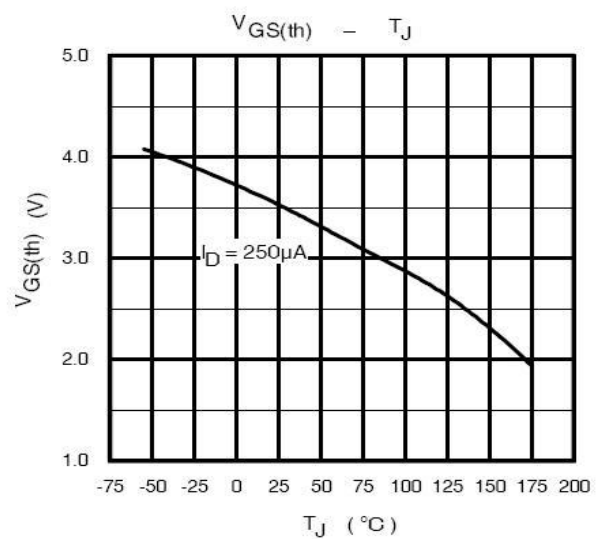
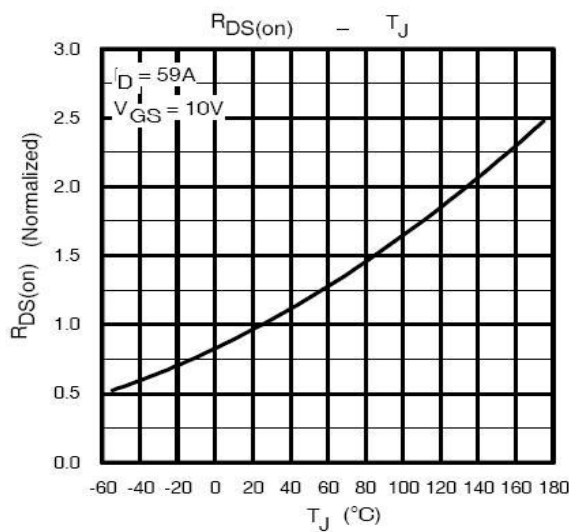
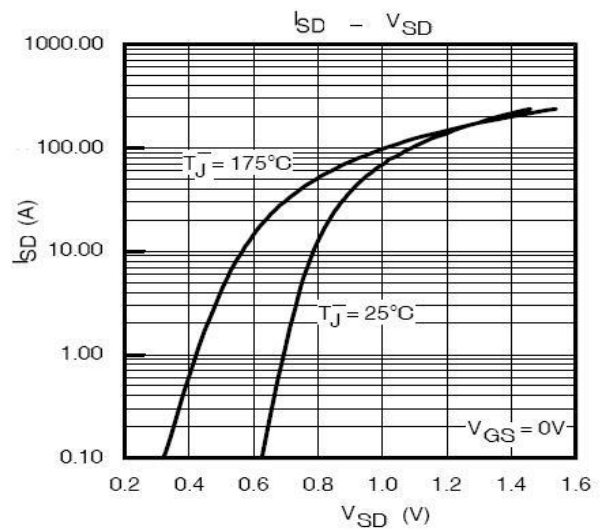
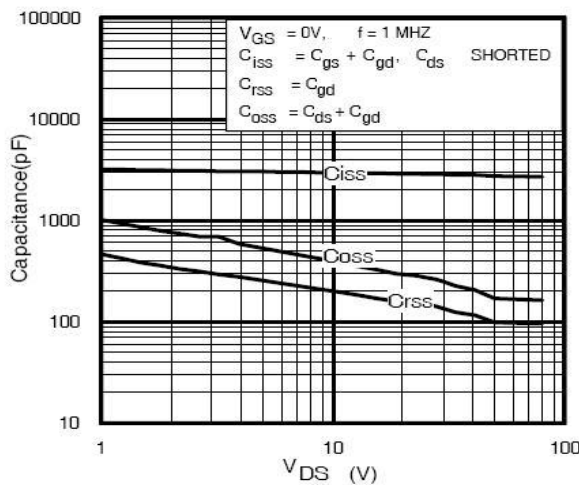
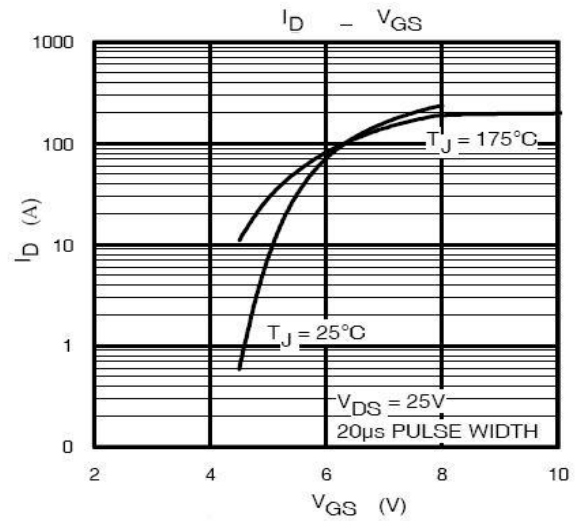
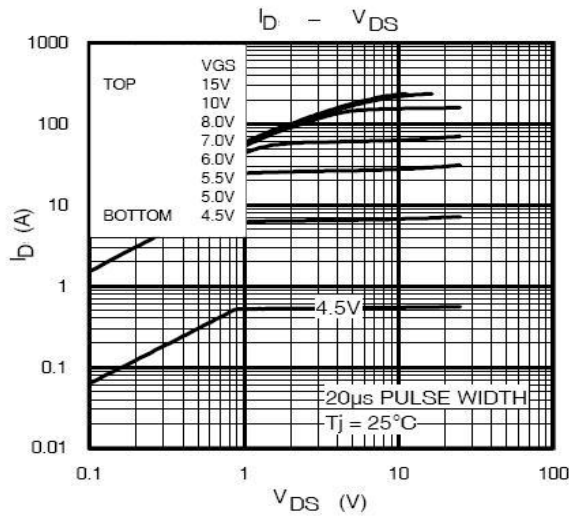
Electrical Characteristics (T_C=25°C unless otherwise noted)

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 =50Ω ^(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:

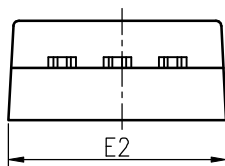
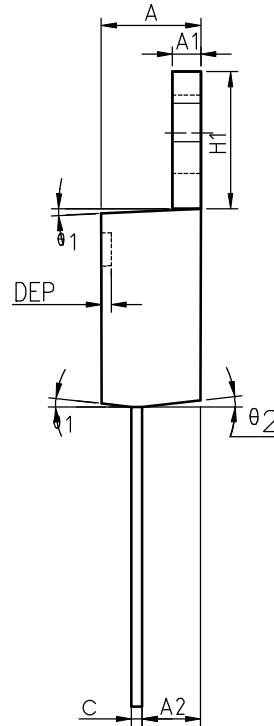
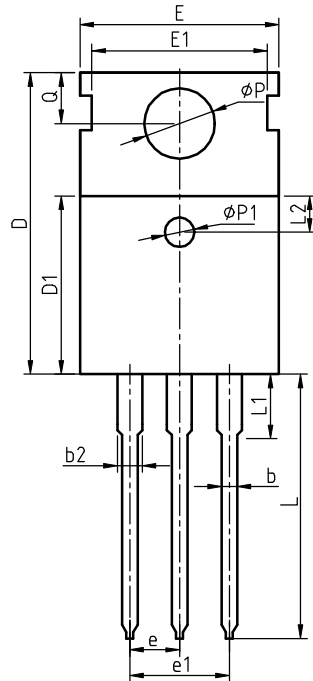
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

Typical Electrical



Package Information

TO-220



COMMON DIMENSIONS

SYMBOL	MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185
A1	1.27	1.30	1.33	0.050	0.051	0.052
A2	2.35	2.40	2.50	0.093	0.094	0.098
b	0.77	0.80	0.90	0.030	0.031	0.035
b2	1.17	1.27	1.36	0.046	0.050	0.054
c	0.48	0.50	0.56	0.019	0.020	0.022
D	15.40	15.60	15.80	0.606	0.614	0.622
D1	9.00	9.10	9.20	0.354	0.358	0.362
DEP	0.05	0.10	0.20	0.002	0.004	0.008
E	9.80	10.00	10.20	0.386	0.394	0.402
E1	-	8.70	-	-	0.343	-
E2	9.80	10.00	10.20	0.386	0.394	0.402
e		2.54	BSC		0.100	BSC
e1		5.08	BSC		0.200	BSC
H1	6.40	6.50	6.60	0.252	0.256	0.260
L	12.75	13.50	13.65	0.502	0.531	0.537
L1	-	3.10	3.30	-	0.122	0.130
L2		2.50	REF		0.098	REF
P	3.50	3.60	3.63	0.138	0.142	0.143
P1	3.50	3.60	3.63	0.138	0.142	0.143
Q	2.73	2.80	2.87	0.107	0.110	0.113
theta 1	5°	7°	9°	5°	7°	9°
theta 2	1°	3°	5°	1°	3°	5°
theta 3	1°	3°	5°	1°	3°	5°