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Jameco Part Number 209234

## FullPak Fully-isolated HEXFETs

FullPak HEXFETs are fully-isolated versions of the popular TO-220 and TO-247 ("TO-3P") packages. The well-known benefits of HEXFET power MOSFETs include voltage control, fast switching, temperature stability, ease of paralleling, low on-state resistance, high transconductance, superior  $dv/dt$  and avalanche ruggedness, and a broad range of voltages and ratings. In addition, these devices provide the designer with a cost-saving alternative in situations where electrical isolation is required.

FullPak HEXFETs are excellent for use in a wide array of commercial applications in consumer, automotive, telecommunications, computer and industrial circuits (switching power supplies, amplifiers, and high-energy pulse circuits).

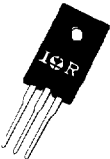
If you have an application where your circuit enclosure and/or heatsinks must be grounded (or your internal circuitry must be isolated

from the heatsink/enclosure), then *the FullPak is for you*. Until now, semiconductors were insulated from grounded heatsinks with insulating washers and nylon screws. Improper installation of insulating hardware caused failures which resulted in poor reliability which in turn led to higher manufacturing and servicing costs.

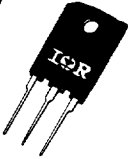
FullPak HEXFETs allow you to mount directly to grounded metal work, eliminating the need for insulating hardware and without a significant change in thermal characteristics. The convenient TO-220 and TO-3P size packages provide the advantage for existing designs and equipment to be retrofitted without modification! The FullPak also provides 2000 Vdc isolation (1500Vac, 60Hz) while contributing only about 12pF (typ.) from drain to heatsink.

See the tables below for the FullPak to fit your needs!

### Isolated TO-220

Part Number	$V_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFI224 IRFI234 IRFI244	60	0.10 0.05 0.028	14 20 30	<b>ISO-TO-220</b> SIMILAR to TO-220AB 
IRFI530 IRFI540	100	0.16 0.077	9.7 17	
IRFI630 IRFI640	200	0.40 0.18	5.9 9.8	
IRFI634 IRFI644	250	0.45 0.28	5.6 7.9	
IRFI730 IRFI740	400	1.0 0.55	3.5 5.4	
IRFI820 IRFI830 IRFI840	500	3.0 1.5 0.85	2.1 3.1 4.6	

### Isolated TO-247


Part Number	$V_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFIP044 IRFIP054	60	0.028 0.014	40 64	<b>ISO-TO-3P</b> SIMILAR to TO-247AC 
IRFIP140 IRFIP150	100	0.077 0.055	23 31	
IRFIP240 IRFIP250	200	0.18 0.085	14 22	
IRFIP244 IRFIP254	250	0.28 0.14	11 17	
IRFIP340 IRFIP350	400	0.055 0.30	8.0 11	
IRFIP440 IRFIP448 IRFIP450	500	0.85 0.60 0.40	6.4 7.9 10	

## Logic-Level HEXFETs


Logic-level HEXFETs feature the same basic characteristics as their well-established standard-gate counterparts — but instead of requiring a full 10V from gate to source to turn on, logic-level HEXFETs require only 5V to achieve full enhancement. This allows direct interface

between power loads and logic-IC level output signals — hence the name "logic-level." This simplification of the gate drive requirement means significant cost savings, design simplification and higher reliability through the elimination of costly excess circuitry.


### Surface Mount D-Pak

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRLR014 IRLR024	60	0.20 0.10	8.5 16	TO-252AA D-Pak 
IRLR110 IRLR120	100	0.54 0.27	4.6 8.4	

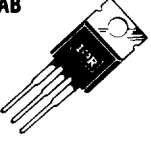
### HEXDIP

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRLD014 IRLD024	60	0.20 0.10	1.7 2.5	HD-1 SIMILAR MO-001AN 
IRLD110 IRLD120	100	0.54 0.27	1.0 1.3	


### TO-251 I-Pak

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRLU014 IRLU024	60	0.02 0.10	8.5 16	TO-251AA I-Pak 
IRLU110 IRLU120	100	0.54 0.27	4.6 8.4	


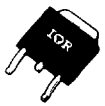
### TO-220

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRLZ14 IRLZ24 IRLZ34 IRLZ44	60	0.20 0.10 0.05 0.028	10 17 30 35	TO-220AB 
IRL510 IRL520 IRL530 IRL540	100	0.54 0.27 0.16 0.077	5.6 9.2 14 28	


## HEXSense Current Sensing N-Channel

Part Number	$V_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRCZ24 IRCZ34 IRCZ44	60	0.10 0.050 0.028	17 30 50	<b>5 PIN TO-220</b> SIMILAR to TO-204AA 
IRC530 IRC540	100	0.16 0.077	14 29	
IRC630 IRC640	200	0.40 0.18	9.0 18	
IRC634 IRC644	250	0.45 0.28	8.1 14	
IRC730 IRC740	400	1.0 0.55	5.5 10	
IRC830 IRC840	500	1.5 0.85	4.5 8.0	
IRCP054	60	0.014	70	

## Surface Mount Devices N-Channel

Part Number	$V_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFS1Z0	100	2.4	0.90	<b>TO-243AA</b> SOT-89 
IRFR014 IRFR024	60	0.20 0.10	8.4 16	<b>TO-252AA</b> D-Pak 
IRFR110 IRFR120	100	0.54 0.27	4.7 8.4	
IRFR210 IRFR220	200	1.5 0.8	2.6 4.8	
IRFR214 IRFR224	250	2.0 1.1	2.2 3.8	
IRFR310 IRFR320	400	3.6 1.8	1.7 3.1	
IRFR420	500	3.0	2.4	
IRFRC20	600	4.4	2.0	


## Surface Mount Devices P-Channel

Part Number	$V_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFR9014 IRFR9024	-60	0.50 0.28	-5.6 -9.6	<b>TO-252AA</b> D-Pak 
IRFR9110 IRFR9120	-100	1.2 0.60	-3.4 -6.3	
IRFR9210 IRFR9220	-200	3.0 1.5	-1.9 -3.6	


# Products From IR

# HEXFET Power MOSFETs Plastic Insertable Package

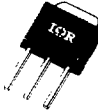
## HEXDIP N-Channel

Part Number	$V_{DS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFD014 IRFD024	60	0.20 0.10	1.7 2.5	HD-1 SIMILAR to MO-001AN 
IRFD110 IRFD120 IRFD120	100	0.54 0.27 2.4	1.0 1.3 0.50	
IRFD210 IRFD220	200	1.5 0.80	0.60 0.80	

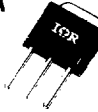
## HEXDIP P-Channel

Part Number	$V_{DS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFD9014 IRFD9024	-60	0.50 0.28	-1.1 -1.6	HD-1 SIMILAR to MO-001AN 
IRFD9110 IRFD9120	-100	1.2 0.60	-0.7 -1.0	
IRFD9210 IRFD9220	-200	3.0 1.5	-0.40 -0.58	

## TO-251 N-Channel

Part Number	$V_{DS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFU014 IRFU024	60	0.20 0.10	8.4 16	TO-251AA I-Pak 
IRFU110 IRFU120	100	0.54 0.27	4.7 8.4	
IRFU210 IRFU220	200	1.5 0.80	2.6 4.8	
IRFU214 IRFU224	250	2.0 1.1	2.2 3.8	
IRFU310 IRFU320	400	3.6 1.8	1.7 3.1	
IRFU420	500	3.0	2.4	
IRFU20	600	4.4	2.0	

## TO-251 P-Channel


Part Number	$V_{DS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFU9014 IRFU9024	-60	0.50 0.28	-5.6 -9.6	TO-251AA I-Pak 
IRFU9110 IRFU9120	-100	1.2 0.60	-3.4 -6.3	
IRFU9210 IRFU9220	-200	3.0 1.5	-2.0 -3.6	

# HEXFET Power MOSFETs


## Plastic Insertable Package

# Products From IR


### TO-220 N-Channel

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFZ14 IRFZ24 IRFZ34 IRFZ44 IRFZ48 IRFP064	60	0.20 0.10 0.050 0.028 0.018 0.009	10 17 30 52 72 138	TO-220AB 
IRF510 IRF520 IRF530 IRF540	100	0.54 0.27 0.16 0.077	5.6 9.2 14 28	
IRF610 IRF620 IRF630 IRF640	200	1.5 0.80 0.40 0.18	3.3 5.2 9.0 18	
IRF614 IRF624 IRF634 IRF644	250	2.0 1.1 0.45 0.28	2.7 4.4 8.1 14	
IRF710 IRF720 IRF730 IRF740	400	3.6 1.8 1.0 0.55	2.0 3.3 5.5 10	
IRF820 IRF830 IRF840	500	3.0 1.5 0.85	2.5 4.5 8.0	
IRFBC20 IRFBC30 IRFBC40	600	4.4 2.2 1.2	2.2 3.6 6.2	
IRFBE20 IRFBE30	800	6.5 3.0	1.8 4.1	
IRFBF20 IRFBF30	900	8.0 3.7	1.7 3.6	
IRFBG20 IRFBG30	1000	11.5 5.0	1.4 3.1	


### TO-220 P-Channel

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRF9Z14 IRF9Z24 IRF9Z34	-60	0.50 0.28 0.14	-6.7 -11 -18	TO-220AB 
IRF9510 IRF9520 IRF9530 IRF9540	-100	1.21 0.60 0.30 0.20	-4.0 -6.8 -12 -19	
IRF9610 IRF9620 IRF9630 IRF9640	-200	3.0 1.51 0.80 0.50	-2.3 -3.9 -6.5 -11	

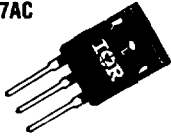
### TO-247 N-Channel

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRFP044 IRFP054 IRFP064	60	0.028 0.014 1.96	57 92 138	TO-247AC TO-3P 
IRFP140 IRFP150	100	0.077 0.055	31 43	
IRFP240 IRFP250	200	0.18 0.085	20 30	
IRFP244 IRFP254	250	0.28 0.14	15 23	


## TO-247 N-Channel

Part Number	BVDSS Drain Source Voltage (Volts)	RDS(on) On-State Resistance (Ohms)	I <sub>D</sub> Max. Continuous Drain Current (Amps)	Case Style
IRFP340 IRFP350 IRFP360	400	0.55 0.30 0.20	11 16 23	<b>TO-247AC</b> TO-3P  
IRFP440 IRFP448 IRFP450 IRFP460	500	0.85 0.60 0.40 0.27	8.8 11 14 20	
IRFPC30 IRFPC40 IRFPC50	600	2.2 1.2 0.60	4.3 6.8 11	
IRFPE30 IRFPE40 IRFPE50	800	3.0 2.0 1.2	3.7 5.4 7.8	
IRFPF30 IRFPF40 IRFPF50	900	3.7 2.5 1.6	3.3 4.7 6.8	
IRFPG30 IRFPG40 IRFPG50	1000	5.0 3.5 2.0	2.8 4.3 6.1	


## TO-247 P-Channel

Part Number	BVDSS Drain Source Voltage (Volts)	RDS(on) On-State Resistance (Ohms)	I <sub>D</sub> Max. Continuous Drain Current (Amps)	Case Style
IRFP9140	-100	0.20	-21	<b>TO-247AC</b> TO-3P  
IRFP9240	-200	0.50	-12	

## TO-39 N-Channel

Part Number	BVDSS Drain Source Voltage (Volts)	RDS(on) On-State Resistance (Ohms)	I <sub>D</sub> Max. Continuous Drain Current (Amps)	Case Style
IRFF110 IRFF120 IRFF130	100	0.60 0.30 0.18	3.5 6.0 8.0	<b>TO-205AF</b> TO-39  
IRFF210 IRFF220 IRFF230	200	1.50 0.80 0.40	2.2 3.5 5.5	
IRFF310 IRFF320 IRFF330	400	3.6 1.8 1.0	1.35 2.5 3.5	
IRFF420 IRFF430	500	3.0 1.5	1.6 2.8	

## TO-39 P-Channel

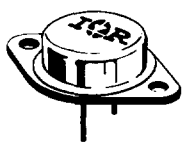
Part Number	BVDSS Drain Source Voltage (Volts)	RDS(on) On-State Resistance (Ohms)	I <sub>D</sub> Max. Continuous Drain Current (Amps)	Case Style
IRFF9110 IRFF9120 IRFF9130	-100	1.2 0.60 0.30	-2.6 -3.5 -6.5	<b>TO-205AF</b> TO-39  
IRFF9210 IRFF9220 IRFF9230	-200	3.0 1.5 0.80	-1.6 -2.5 -4.0	

# HEXFET Power MOSFETs

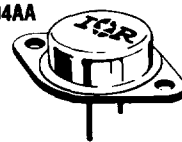
## Plastic Insertable Package

# Products From IR

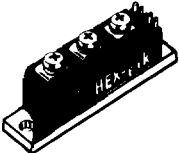
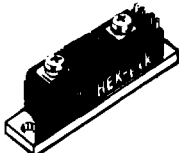
### TO-3 N-Channel

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRF034 IRF044 IRF054	60	0.050 0.028 0.014	30 30 30	<b>TO-204AA</b> <b>TO-3</b> 
IRF130 IRF140 IRF150	100	0.16 0.077 0.055	14 28 30	
IRF230 IRF240 IRF250	200	0.40 0.18 0.085	9.0 18 30	
IRF234 IRF244 IRF254	250	0.45 0.28 0.14	8.4 14 22	
IRF330 IRF340 IRF350 IRF360	400	1.0 0.55 0.30 0.20	5.5 10 14 25	
IRF430 IRF440 IRF448 IRF450 IRF460	500	1.5 0.85 0.60 0.40 0.27	4.5 8.0 9.6 13 21	
IRFAC30 IRFAC40 IRFAC50	600	2.2 1.2 0.58	3.6 6.2 10.6	
IRFAE30 IRFAE40 IRFAE50	800	3.2 2.0 1.2	3.1 4.8 7.1	
IRFAF30 IRFAF40 IRFAF50	900	4.0 2.5 1.6	2.8 4.3 6.2	
IRFAG30 IRFAG40 IRFAG50	1000	5.6 3.5 2.0	2.3 3.9 5.6	

### TO-3 P-Channel

Part Number	$BV_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Max. Continuous Drain Current (Amps)	Case Style
IRF9130 IRF9140	-100	0.30 0.20	-12 -19	<b>TO-204AA</b> <b>TO-3</b> 
IRF9230 IRF9240	-200	0.80 0.50	-6.5 -11	

TO-240 N-Channel

Part Number	$V_{DSS}$ Drain Source Voltage (Volts)	$R_{DS(on)}$ On-State Resistance (Ohms)	$I_D$ Continuous Drain Current 25°C Case (Amps)	$I_{DM}$ Pulse Drain Current (Amps)	$P_D$ Max Power Dissipation (Watts)	Case Style
IRFK2D054	60	0.010	120	480	500	TO-240AA
IRFK2D150	100	0.028	72	288		
IRFK2D250	200	0.043	54	216		
IRFK2D350	400	0.150	25	100		
IRFK2D450	500	0.200	22	88		
IRFK2DC50	600	0.350	18	72		
IRFK2DE50	800	0.600	12	48		
IRFK2F054	60	0.010	120	480		
IRFK2F150	100	0.028	72	288		
IRFK2F250	200	0.043	54	216		
IRFK2F350	400	0.150	25	100		
IRFK2F450	500	0.200	22	88		
IRFK2FC50	600	0.350	16	72		
IRFK2FE50	800	0.600	12	48		
IRFK3D150	100	0.020	125	435	625	
IRFK3D250	200	0.030	70	280		
IRFK3D350	400	0.100	37	148		
IRFK3D450	500	0.135	33	132		
IRFK3DC50	600	0.230	24	96		
IRFK3F150	100	0.020	125	435		
IRFK3F250	200	0.030	70	280		
IRFK3F350	400	0.100	37	148		
IRFK3F450	500	0.135	33	132		
IRFK3FC50	600	0.230	24	96		
IRFK4H054	60	0.005	150	960	500	TO-240AA
IRFK4H150	100	0.014	145	580		
IRFK4H250	200	0.021	108	432		
IRFK4H350	400	0.075	50	200		
IRFK4H450	500	0.100	44	176		
IRFK4HC50	600	0.175	35	140		
IRFK4HE50	800	0.300	26	104		
IRFK4J054	60	0.005	150	960		
IRFK4J150	100	0.014	145	580		
IRFK4J250	200	0.021	108	432		
IRFK4J350	400	0.075	50	200		
IRFK4J450	500	0.100	44	176		
IRFK4JC50	600	0.175	35	140		
IRFK4JE50	800	0.300	26	104		
IRFK6H150	100	0.010	150	720	625	
IRFK6H250	200	0.015	140	560		
IRFK6H350	400	0.050	75	300		
IRFK6H450	500	0.067	66	264		
IRFK6HC50	600	0.100	48	192		
IRFK6J150	100	0.010	150	720		
IRFK6J250	200	0.015	140	560		
IRFK6J350	400	0.050	75	300		
IRFK6J450	500	0.067	66	264		
IRFK6JC50	600	0.100	48	192		