

IRFP264 Datasheet



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DiGi Electronics Part Number	IRFP264-DG
Manufacturer	IXYS
Manufacturer Product Number	IRFP264
Description	MOSFET N-CH 250V 38A TO247AD
Detailed Description	N-Channel 250 V 38A (Tc) 280W (Tc) Through Hole TO-247 (IXTH)



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Purchase and inquiry

Manufacturer Product Number:

IRFP264

Series:

-

FET Type:

N-Channel

Drain to Source Voltage (Vdss):

250 V

Drive Voltage (Max Rds On, Min Rds On):

10V

Vgs(th) (Max) @ Id:

4V @ 250 μ A

Vgs (Max):

\pm 20V

FET Feature:

-

Operating Temperature:

-55 $^{\circ}$ C ~ 150 $^{\circ}$ C (Tj)

Supplier Device Package:

TO-247 (IXTH)

Base Product Number:

IRFP26

Manufacturer:

IXYS

Product Status:

Obsolete

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25 $^{\circ}$ C:

38A (Tc)

Rds On (Max) @ Id, Vgs:

75mOhm @ 23A, 10V

Gate Charge (Qg) (Max) @ Vgs:

210 nC @ 10 V

Input Capacitance (Ciss) (Max) @ Vds:

4800 pF @ 25 V

Power Dissipation (Max):

280W (Tc)

Mounting Type:

Through Hole

Package / Case:

TO-247-3

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095



Standard Power MOSFET

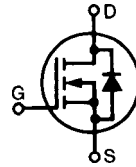
IRFP 264

$$V_{DSS} = 250 \text{ V}$$

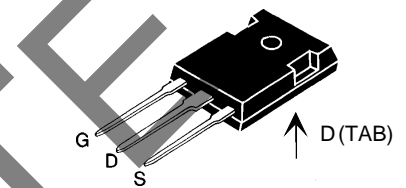
$$I_{D(\text{cont})} = 38 \text{ A}$$

$$R_{DS(\text{on})} = 0.075 \text{ } \Omega$$

N-Channel Enhancement Mode



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	250	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	250	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	38	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	150	A
I_{AR}		38	A
E_{AR}	$T_C = 25^\circ\text{C}$	28	mJ
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \text{ } \Omega$	5	V/ns
P_D	$T_C = 25^\circ\text{C}$	280	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight		6	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$

TO-247 AD

 G = Gate,
S = Source,

 D = Drain,
TAB = Drain

Features

- International standard package JEDEC TO-247 AD
- Low $R_{DS(\text{on})}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- High commutating dv/dt rating
- Fast switching times

Applications

- Switch-mode and resonant-mode power supplies
- Motor control
- Uninterruptible Power Supplies (UPS)
- DC choppers

Advantages

- Easy to mount with 1 screw (isolated mounting screw hole)
- Space savings
- High power density

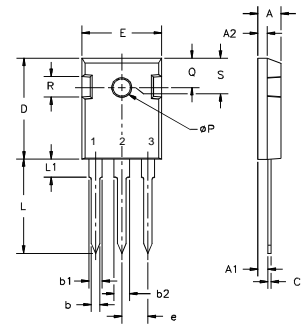
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \text{ } \mu\text{A}$	250		V
$V_{GS(\text{th})}$	$V_{DS} = V_{GS}$, $I_D = 250 \text{ } \mu\text{A}$	2		V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			25 μA 250 μA
$R_{DS(\text{on})}$	$V_{GS} = 10 \text{ V}$, $I_D = 23 \text{ A}$ Pulse test, $t \leq 300 \text{ } \mu\text{s}$, duty cycle $d \leq 2 \%$			0.075 Ω

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 23\text{ A}$, pulse test	20		S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		4800	pF
C_{oss}			745	pF
C_{rss}			280	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 38\text{ A}$ $R_G = 3.2\ \Omega$, (External)		22	ns
t_r			99	ns
$t_{d(off)}$			110	ns
t_f			92	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 200\text{ V}, I_D = 38\text{ A}$		210	nC
Q_{gs}			35	nC
Q_{gd}			98	nC
R_{thJC}			0.45	K/W
R_{thCK}		0.25		K/W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			38 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			150 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.8 V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		370	ns

TO-247 AD Outline



Terminals: 1 - Gate 2 - Drain
3 - Source Tab - Drain

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	242	BSC

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