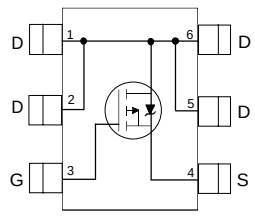
International
IOR Rectifier

PD - 95224

IRLMS6702PbF

HEXFET® Power MOSFET

- Generation V Technology
- Micro6 Package Style
- Ultra Low $R_{DS(on)}$
- P-Channel MOSFET
- Lead-Free



Top View

V_{DSS} = -20V

$R_{DS(on)}$ = 0.20Ω


Micro6™

Description

Fifth Generation HEXFET® power MOSFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the fast switching speed and ruggedized device design that HEXFET® power MOSFETs are well known for, provides the designer with an extremely efficient and reliable device for use in a wide variety of applications.

The Micro6™ package with its customized leadframe produces a HEXFET® power MOSFET with $R_{DS(on)}$ 60% less than a similar size SOT-23. This package is ideal for applications where printed circuit board space is at a premium. It's unique thermal design and $R_{DS(on)}$ reduction enables a current-handling increase of nearly 300% compared to the SOT-23.

Absolute Maximum Ratings

	Parameter	Max.	Units
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ -4.5V	-2.4	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ -4.5V	-1.9	
I_{DM}	Pulsed Drain Current ①	-13	
P_D @T_A = 25°C	Power Dissipation	1.7	W
	Linear Derating Factor	13	mW/°C
V_{GS}	Gate-to-Source Voltage	± 12	V
dv/dt	Peak Diode Recovery dv/dt ②	5.0	V/ns
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

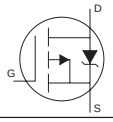
Thermal Resistance Ratings

	Parameter	Min.	Typ.	Max	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient ④	—	—	75	°C/W

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-20	–––	–––	V	V_{GS} = 0V, I_D = -250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	–––	-0.005	–––	V/°C	Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	–––	–––	0.200	Ω	V_{GS} = -4.5V, I_D = -1.6A ③
		–––	–––	0.375		V_{GS} = -2.7V, I_D = -0.80A ③
$V_{GS(th)}$	Gate Threshold Voltage	-0.70	–––	–––	V	V_{DS} = V_{GS}, I_D = -250µA
g_{fs}	Forward Transconductance	1.5	–––	–––	S	V_{DS} = -10V, I_D = -0.80A
I_{DSS}	Drain-to-Source Leakage Current	–––	–––	-1.0	µA	V_{DS} = -16V, V_{GS} = 0V
		–––	–––	-25		V_{DS} = -16V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	–––	–––	-100	nA	V_{GS} = -12V
	Gate-to-Source Reverse Leakage	–––	–––	100		V_{GS} = 12V
Q_g	Total Gate Charge	–––	5.8	8.8	nC	I_D = -1.6A
Q_{gs}	Gate-to-Source Charge	–––	1.8	2.6		V_{DS} = -16V
Q_{gd}	Gate-to-Drain ("Miller") Charge	–––	2.1	3.1		V_{GS} = -4.5V, See Fig. 6 and 9 ③
$t_{d(on)}$	Turn-On Delay Time	–––	13	–––	ns	V_{DD} = -10V
t_r	Rise Time	–––	20	–––		I_D = -1.6A
$t_{d(off)}$	Turn-Off Delay Time	–––	21	–––		R_G = 6.0Ω
t_f	Fall Time	–––	18	–––		R_D = 6.1Ω, See Fig. 10 ③
C_{iss}	Input Capacitance	–––	210	–––	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	–––	130	–––		V_{DS} = -15V
C_{rss}	Reverse Transfer Capacitance	–––	73	–––		f = 1.0MHz, See Fig. 5

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	–––	–––	-1.7	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	–––	–––	-13		
V_{SD}	Diode Forward Voltage	–––	–––	-1.2	V	T_J = 25°C, I_S = -1.6A, V_{GS} = 0V ③
t_{rr}	Reverse Recovery Time	–––	25	37	ns	T_J = 25°C, I_F = -1.6A
Q_{rr}	Reverse RecoveryCharge	–––	15	22	nC	di/dt = -100A/µs ③

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)

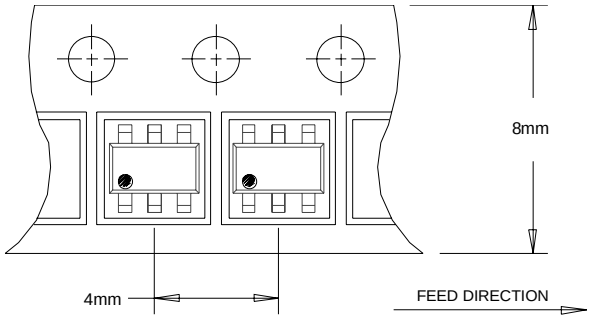
② I_{SD} ≤ -1.6A, di/dt ≤ -100A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C

③ Pulse width ≤ 300µs; duty cycle ≤ 2%.

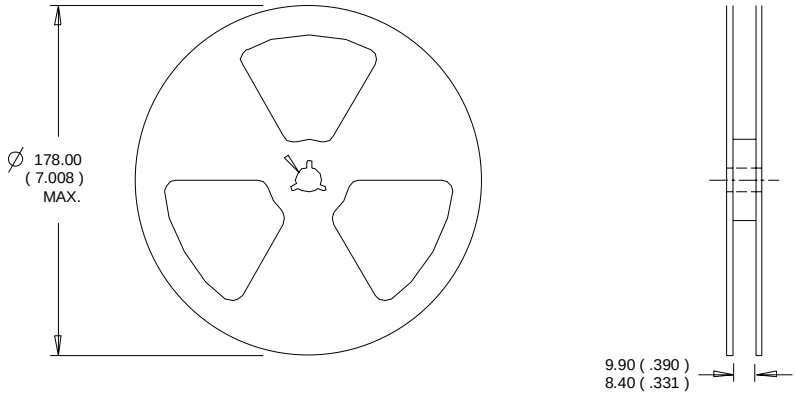
④ Surface mounted on FR-4 board, t ≤ 5sec.

Micro6 Tape & Reel Information

Dimensions are shown in milimeters (inches)



NOTES :
1. OUTLINE CONFORMS TO EIA-481 & EIA-541.



NOTES:
1. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

This product has been designed and qualified for the consumer market.

Data and specifications subject to change without notice.

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