

IRLMS5703PbF

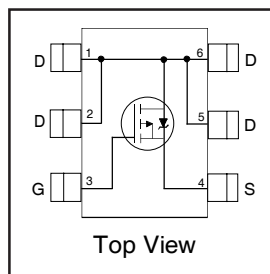
HEXFET® Power MOSFET

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

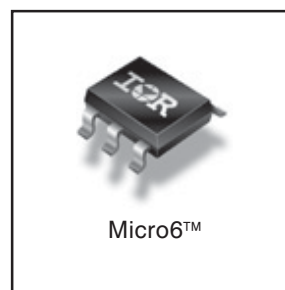
Description

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.



$V_{DSS} = -30V$
$R_{DS(on)} = 0.18\Omega$



Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-2.4	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-1.9	
I_{DM}	Pulsed Drain Current ①	-13	
$P_D @ T_A = 25^\circ C$	Power Dissipation	1.7	W
	Linear Derating Factor	13	mW/°C
V_{GS}	Gate-to-Source Voltage	± 20	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

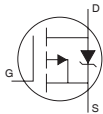
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Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source Breakdown Voltage	-30	—	—	V	V _{GS} = 0V, I _D = -250μA
ΔV _{(BR)DSS/ΔT_J}	Breakdown Voltage Temp. Coefficient	—	0.01	—	V/°C	Reference to 25°C, I _D = -1mA
R _{DS(on)}	Static Drain-to-Source On-Resistance	—	—	0.180	Ω	V _{GS} = -10V, I _D = -1.6A ④
		—	—	0.325		V _{GS} = -4.5V, I _D = -0.80A ④
V _{GS(th)}	Gate Threshold Voltage	-1.0	—	—	V	V _{DS} = V _{GS} , I _D = -250μA
g _{fs}	Forward Transconductance	1.1	—	—	S	V _{DS} = -10V, I _D = -0.80A
I _{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	V _{DS} = -24V, V _{GS} = 0V
		—	—	-25		V _{DS} = -24V, V _{GS} = 0V, T _J = 125°C
I _{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	V _{GS} = -20V
	Gate-to-Source Reverse Leakage	—	—	-100		V _{GS} = 20V
Q _g	Total Gate Charge	—	7.2	11	nC	I _D = -1.6A
Q _{gs}	Gate-to-Source Charge	—	1.4	2.1		V _{DS} = -24V
Q _{gd}	Gate-to-Drain ("Miller") Charge	—	2.3	3.4		V _{GS} = -10V, See Fig. 6 and 9 ④
t _{d(on)}	Turn-On Delay Time	—	10	—	ns	V _{DD} = -15V
t _r	Rise Time	—	12	—		I _D = -1.6A
t _{d(off)}	Turn-Off Delay Time	—	20	—		R _G = 6.2Ω
t _f	Fall Time	—	8.4	—		R _D = 9.2Ω, See Fig. 10 ④
C _{iss}	Input Capacitance	—	170	—	pF	V _{GS} = 0V
C _{oss}	Output Capacitance	—	89	—		V _{DS} = -25V
C _{rss}	Reverse Transfer Capacitance	—	44	—		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	—	29	44	ns	T _J = 25°C, I _F = -1.6A
Q _{rr}	Reverse Recovery Charge	—	27	41	nC	di/dt = -100A/μs ③

Notes:

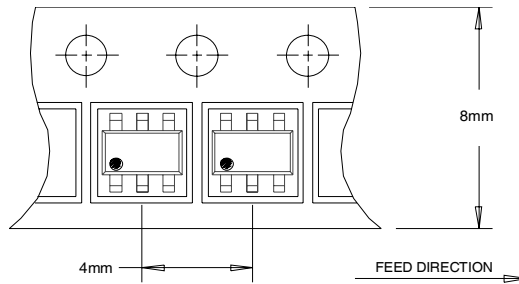
- ① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)
- ② I_{SD} ≤ -1.6A, di/dt ≤ -140A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 150°C
- ③ Pulse width ≤ 300μs; duty cycle ≤ 2%.
- ④ Surface mounted on FR-4 board, t ≤ 5sec.

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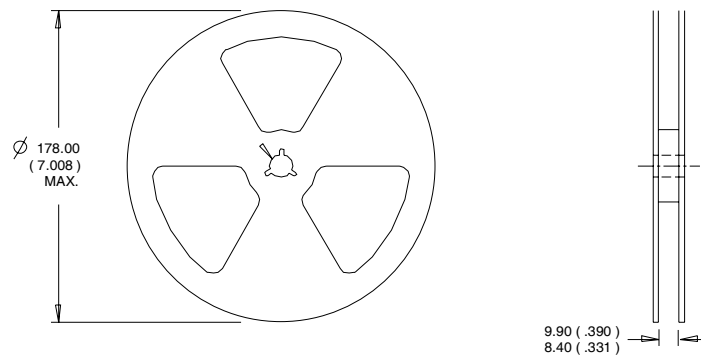
Micro6 Tape & Reel Information

Dimensions are shown in millimeters (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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