

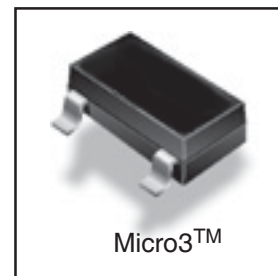
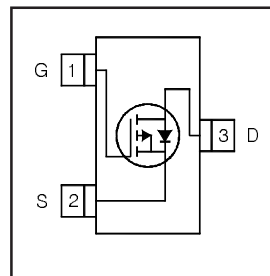
- Ultra Low On-Resistance
- P-Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- Low Gate Charge
- Lead-Free
- Halogen-Free

$V_{DS}$	$R_{DS(on)}$ max (m $\Omega$ )	$I_D$
-30V	98 @ $V_{GS} = -10V$	-3.0A
	165 @ $V_{GS} = -4.5V$	-2.6A

## Description

These P-channel MOSFETs from International Rectifier utilize advanced processing techniques to achieve the extremely low on-resistance per silicon area. This benefit provides the designer with an extremely efficient device for use in battery and load management applications.

A thermally enhanced large pad leadframe has been incorporated into the standard SOT-23 package to produce a HEXFET Power MOSFET with the industry's smallest footprint. This package, dubbed the Micro3™, is ideal for applications where printed circuit board space is at a premium. The low profile (<1.1mm) of the Micro3 allows it to fit easily into extremely thin application environments such as portable electronics and PCMCIA cards. The thermal resistance and power dissipation are the best available.



## Absolute Maximum Ratings

	Parameter	Max.	Units
$V_{DS}$	Drain- Source Voltage	-30	V
$I_D$ @ $T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-3.0	A
$I_D$ @ $T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-2.4	
$I_{DM}$	Pulsed Drain Current ①	-24	
$P_D$ @ $T_A = 25^\circ C$	Power Dissipation	1.25	W
$P_D$ @ $T_A = 70^\circ C$	Power Dissipation	0.80	
	Linear Derating Factor	10	mW/°C
$V_{GS}$	Gate-to-Source Voltage	$\pm 20$	V
$T_J, T_{STG}$	Junction and Storage Temperature Range	-55 to + 150	°C

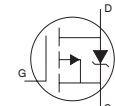
## Thermal Resistance

	Parameter	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient ③	100	°C/W

## Electrical Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-30	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.019	—	V/°C	Reference to $25^\circ\text{C}, I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	—	98	mΩ	$V_{GS} = -10V, I_D = -3.0A$ ②
		—	—	165		$V_{GS} = -4.5V, I_D = -2.6A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	-1.0	—	-2.5	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
$g_{fs}$	Forward Transconductance	3.1	—	—	S	$V_{DS} = -10V, I_D = -3.0A$
$I_{DSS}$	Drain-to-Source Leakage Current	—	—	-1.0	μA	$V_{DS} = -24V, V_{GS} = 0V$
		—	—	-5.0		$V_{DS} = -24V, V_{GS} = 0V, T_J = 70^\circ\text{C}$
$I_{GSS}$	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -20V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 20V$
$Q_g$	Total Gate Charge	—	9.5	14	nC	$I_D = -3.0A$
$Q_{gs}$	Gate-to-Source Charge	—	2.3	3.5		$V_{DS} = -24V$
$Q_{gd}$	Gate-to-Drain ("Miller") Charge	—	1.6	2.4		$V_{GS} = -10V$ ②
$t_{d(on)}$	Turn-On Delay Time	—	12	—	ns	$V_{DD} = -15V$ ②
$t_r$	Rise Time	—	18	—		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	88	—		$R_G = 6.0\Omega$
$t_f$	Fall Time	—	52	—		$V_{GS} = -10V$
$C_{iss}$	Input Capacitance	—	510	—	pF	$V_{GS} = 0V$
$C_{oss}$	Output Capacitance	—	71	—		$V_{DS} = -25V$
$C_{rss}$	Reverse Transfer Capacitance	—	43	—		$f = 1.0\text{MHz}$

## Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode)	—	—	-1.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
$I_{SM}$	Pulsed Source Current (Body Diode) ①	—	—	-24		
$V_{SD}$	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -1.3A, V_{GS} = 0V$ ②
$t_{rr}$	Reverse Recovery Time	—	17	26	ns	$T_J = 25^\circ\text{C}, I_F = -1.3A$
$Q_{rr}$	Reverse Recovery Charge	—	12	18	nC	$di/dt = -100A/\mu s$ ②

### Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Pulse width  $\leq 400\mu s$ ; duty cycle  $\leq 2\%$ .

③ Surface mounted on FR-4 board,  $t \leq 5\text{sec}$ .