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### Understanding [Embedded - FPGAs \(Field Programmable Gate Array\)](#)

Embedded - FPGAs, or Field Programmable Gate Arrays, are advanced integrated circuits that offer unparalleled flexibility and performance for digital systems. Unlike traditional fixed-function logic devices, FPGAs can be programmed and reprogrammed to execute a wide array of logical operations, enabling customized functionality tailored to specific applications. This reprogrammability allows developers to iterate designs quickly and implement complex functions without the need for custom hardware.

### Applications of Embedded - FPGAs

The versatility of Embedded - FPGAs makes them indispensable in numerous fields. In telecommunications.

#### Details

Product Status	Active
Number of LABs/CLBs	469
Number of Logic Elements/Cells	6000
Total RAM Bits	184320
Number of I/O	100
Number of Gates	-
Voltage - Supply	0.95V ~ 1.05V
Mounting Type	Surface Mount
Operating Temperature	-40°C ~ 125°C (TJ)
Package / Case	-
Supplier Device Package	196-CPBGA (8x8)
Purchase URL	<a href="https://www.e-xfl.com/product-detail/xilinx/xc7s6-1cpga196q">https://www.e-xfl.com/product-detail/xilinx/xc7s6-1cpga196q</a>



ON Semiconductor®

<http://onsemi.com>

# MCH3914

## N-Channel JFET 15V, 16 to 50mA, 29mS, MCPH3

### Features

- $|y_{fs}|$  is large
- $C_{iss}$  is small
- Small package
- FBET process
- Halogen free compliance

### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSX}$		15	V
Gate-to-Drain Voltage	$V_{GDS}$		-15	V
Gate Current	$I_G$		5	mA
Drain Current	$I_D$		50	mA
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	300	mW
Junction Temperature	$T_j$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

This product is designed to "ESD immunity &lt; 200V\*\*", so please take care when handling.

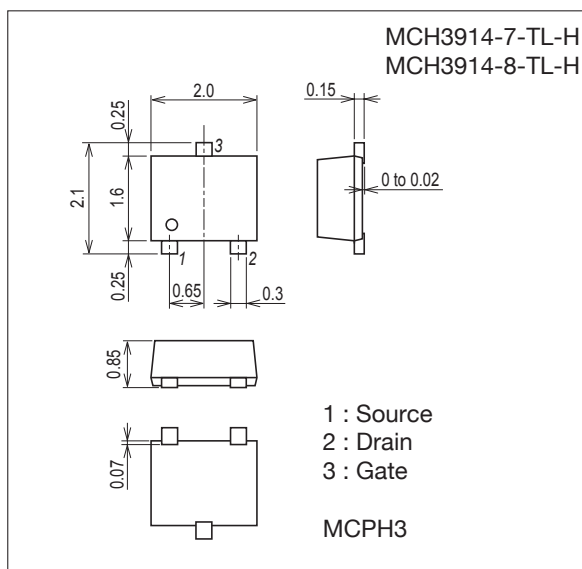
\* Machine Model

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Package Dimensions

unit : mm (typ)

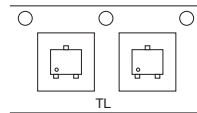
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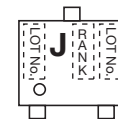
### Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

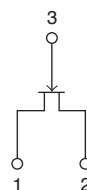
### Packing Type : TL



### Marking



### Electrical Connection



### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

MCH3914

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	V(BR)GDS	I <sub>G</sub> =-10μA, V <sub>DS</sub> =0V	-15			V
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =0V			-1.0	nA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =10μA	-0.6	-1.4	-3.0	V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	16.0*		50.0*	mA
Forward Transfer Admittance	y <sub>fs</sub>  1	V <sub>DS</sub> =5V, I <sub>D</sub> =10mA, f=1kHz	14	21		mS
	y <sub>fs</sub>  2	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz	14	29		mS
Input Capacitance	Ciss	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1MHz		4.9		pF
Reverse Transfer Capacitance	Crss			1.4		pF

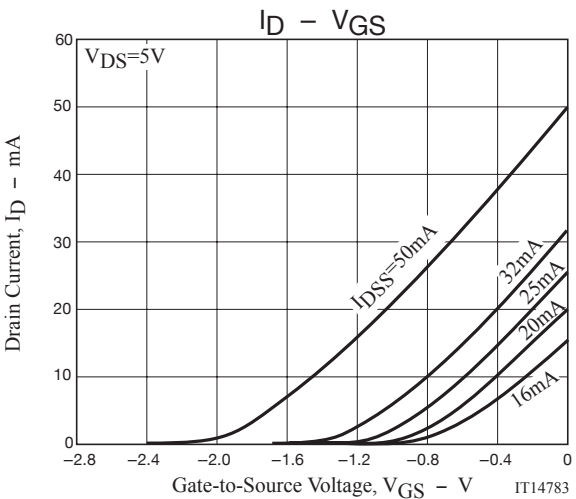
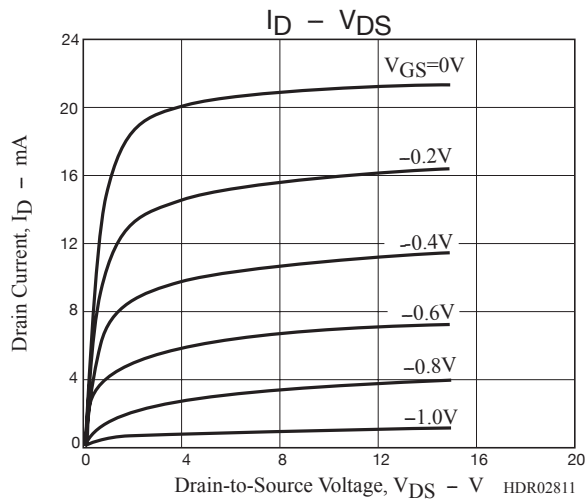
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

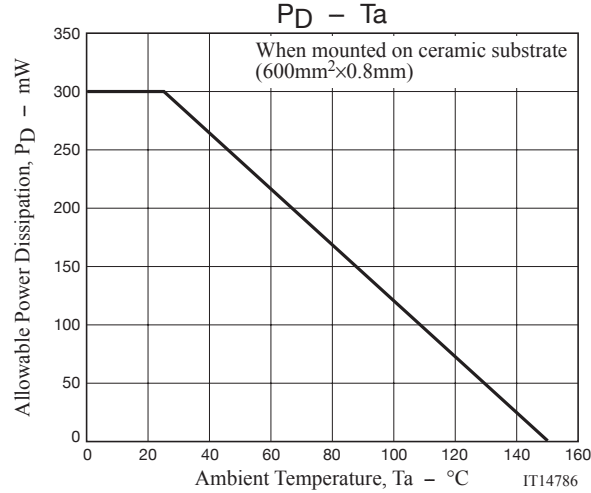
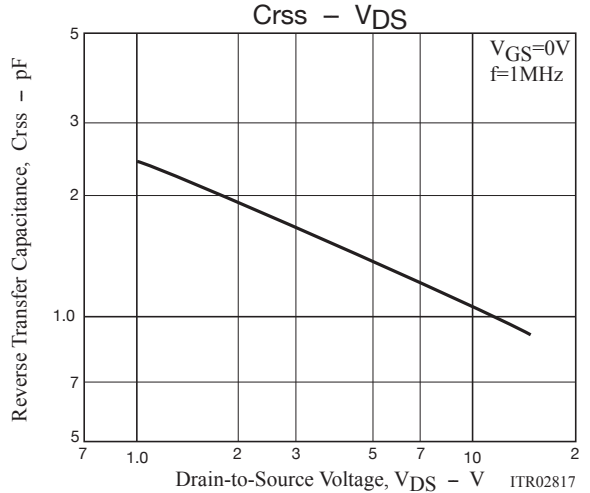
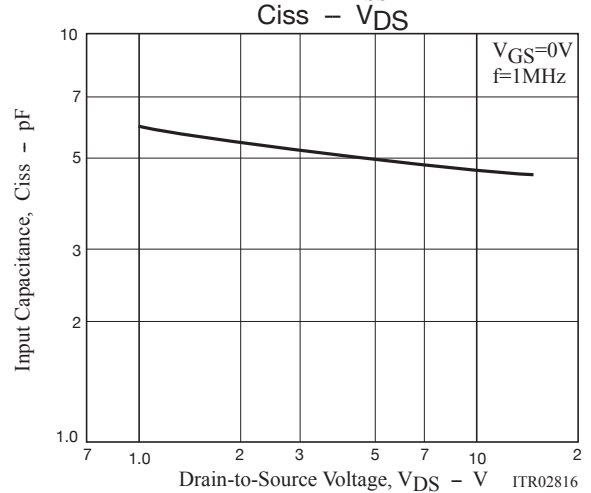
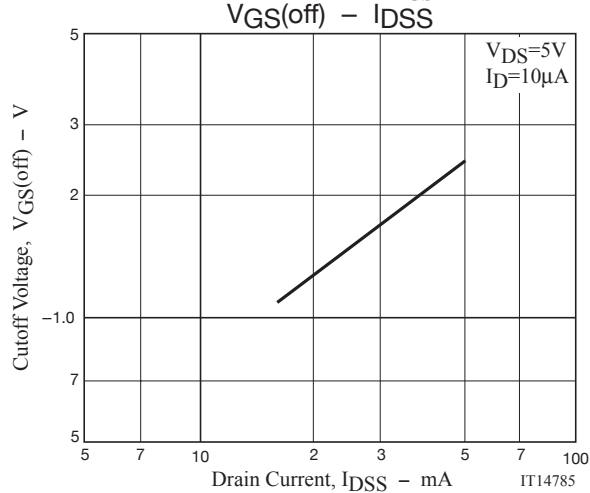
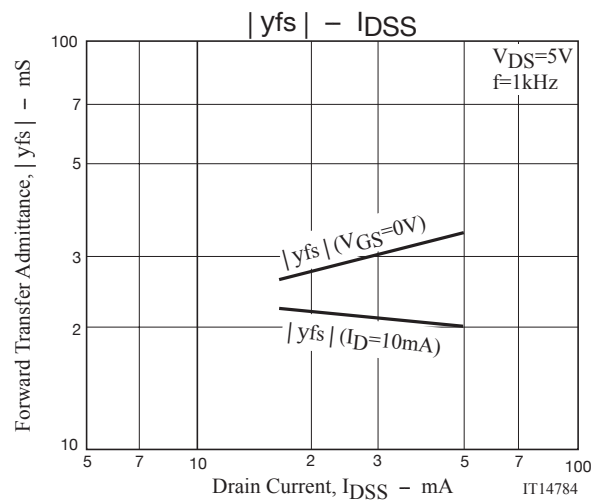
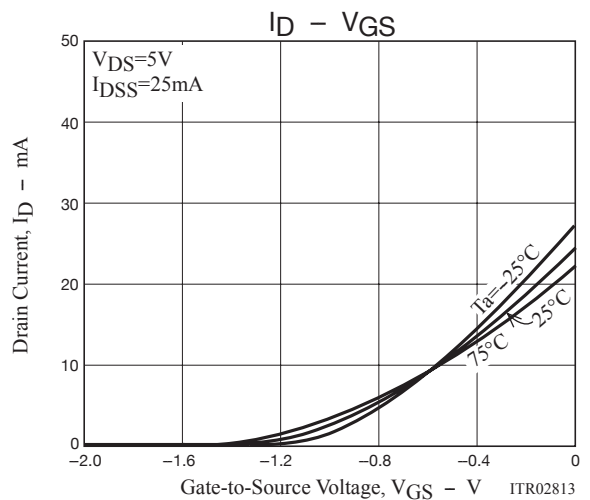
\* : The MCH3914 is classified by I<sub>DSS</sub> as follows : (unit : mA)

Rank	7	8
I <sub>DSS</sub>	16.0 to 32.0	25.0 to 50.0

Ordering Information

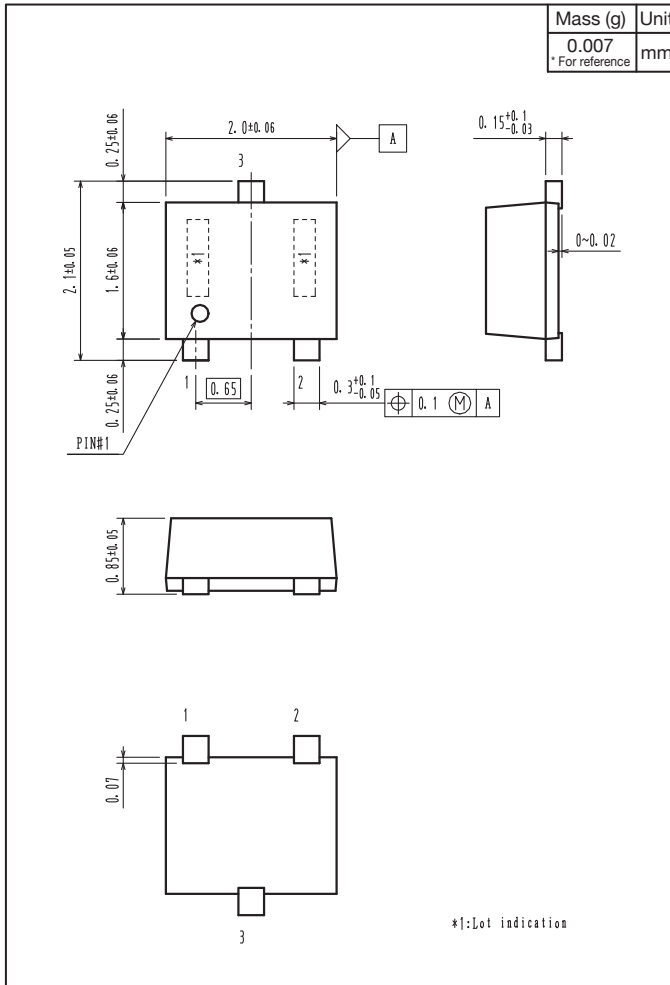
Device	Package	Shipping	memo
MCH3914-7-TL-H	MCPH3	3,000pcs./reel	Pb Free and Halogen Free
MCH3914-8-TL-H	MCPH3	3,000pcs./reel	



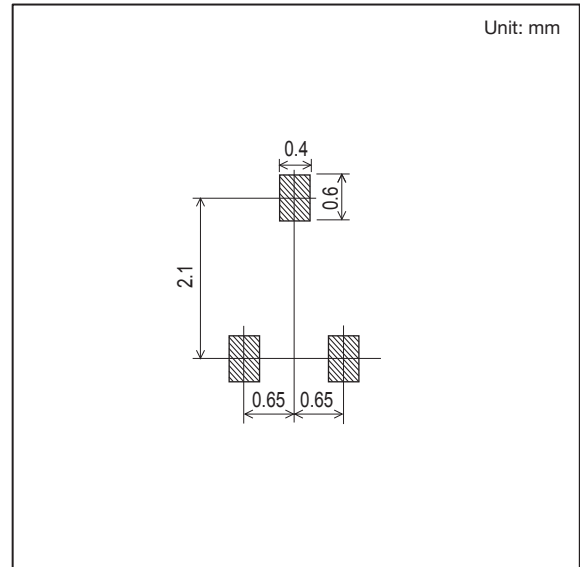


## Outline Drawing

MCH3914-7-TL-H, MCH3914-8-TL-H



## Land Pattern Example



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