

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number:	MPF990
Manufacturer:	onsemi
Package:	Please confirm with sales
Availability:	Please confirm with sales

Product Page:

<https://antrexco.com/product/details/onsemi/mpf990.html>

Request a Quote:

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Contact Information

Email: info@antrexco.com

WhatsApp: +86-186-8066-5326

Website: <https://antrexco.com>

Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

MPF930, MPF960, MPF990

Preferred Device

Small Signal MOSFET 2 Amps, 35, 60, 90 Volts N-Channel TO-92

MAXIMUM RATINGS

Rating	Symbol	MPF930	MPF960	MPF990	Unit
Drain-Source Voltage	V_{DS}	35	60	90	Vdc
Drain-Gate Voltage	V_{DG}	35	60	90	Vdc
Gate-Source Voltage – Continuous – Non-repetitive ($t_p \leq 50 \mu s$)	V_{GS} V_{GSM}	± 20 ± 40			Vdc Vpk
Drain Current Continuous (Note 1.) Pulsed (Note 2.)	I_D I_{DM}	2.0 3.0			Adc
Total Device Dissipation @ $T_A = 25^\circ C$ Derate above $25^\circ C$	P_D	1.0 8.0			Watts mW/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to 150			$^\circ C$
Thermal Resistance	θ_{JA}	125			$^\circ C/W$

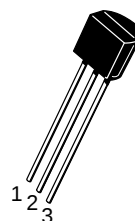
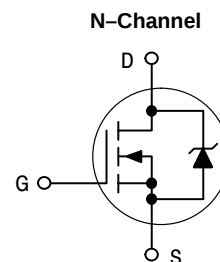
1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$.



ON Semiconductor

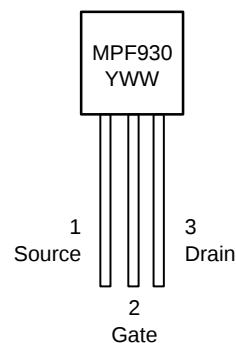
<http://onsemi.com>

2 AMPERES
35, 60, 90 VOLTS
 $R_{DS(on)} = 0.7 \Omega$ (MPF930)
 $R_{DS(on)} = 0.8 \Omega$ (MPF960)
 $R_{DS(on)} = 1.2 \Omega$ (MPF990)



TO-92
CASE 29
Style 22

MARKING DIAGRAM & PIN ASSIGNMENT



Y = Year
WW = Work Week

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

MPF930, MPF960, MPF990

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain–Source Breakdown Voltage (V _{GS} = 0, I _D = 10 μAdc)	MPF930 MPF960 MPF990	V _{(BR)DSX}	35 60 90	– – –	– – –	Vdc
Gate Reverse Current (V _{GS} = 15 Vdc, V _{DS} = 0)		I _{GSS}	–	–	50	nAdc

ON CHARACTERISTICS (Note 2.)

Zero–Gate–Voltage Drain Current (V _{DS} = Maximum Rating, V _{GS} = 0)		I _{DSS}	–	–	10	μAdc
Gate Threshold Voltage (I _D = 1.0 mAdc, V _{DS} = V _{GS})		V _{GS(Th)}	1.0	–	3.5	Vdc
Drain–Source On–Voltage (V _{GS} = 10 Vdc) (I _D = 0.5 Adc)	MPF930 MPF960 MPF990	V _{DS(on)}	– – –	0.4 0.6 0.6	0.7 0.8 1.2	Vdc
(I _D = 1.0 Adc)	MPF930 MPF960 MPF990		– – –	0.9 1.2 1.2	1.4 1.7 2.4	
(I _D = 2.0 Adc)	MPF930 MPF960 MPF990		– – –	2.2 2.8 2.8	3.0 3.5 4.8	
Static Drain–Source On Resistance (V _{GS} = 10 Vdc, I _D = 1.0 Adc)	MPF930 MPF960 MPF990	r _{DS(on)}	– – –	0.9 1.2 1.2	1.4 1.7 2.0	Ω
On–State Drain Current (V _{DS} = 25 Vdc, V _{GS} = 10 Vdc)		I _{D(on)}	1.0	2.0	–	Amps

SMALL–SIGNAL CHARACTERISTICS

Input Capacitance (V _{DS} = 25 Vdc, V _{GS} = 0, f = 1.0 MHz)	C _{iss}	–	70	–	pF
Reverse Transfer Capacitance (V _{DS} = 25 Vdc, V _{GS} = 0, f = 1.0 MHz)	C _{rss}	–	20	–	pF
Output Capacitance (V _{DS} = 25 Vdc, V _{GS} = 0, f = 1.0 MHz)	C _{oss}	–	49	–	pF
Forward Transconductance (V _{DS} = 25 Vdc, I _D = 0.5 Adc)	g _{fs}	200	380	–	mmhos

SWITCHING CHARACTERISTICS

Turn–On Time	t _{on}	–	7.0	15	ns
Turn–Off Time	t _{off}	–	7.0	15	ns

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

MPF930, MPF960, MPF990

RESISTIVE SWITCHING

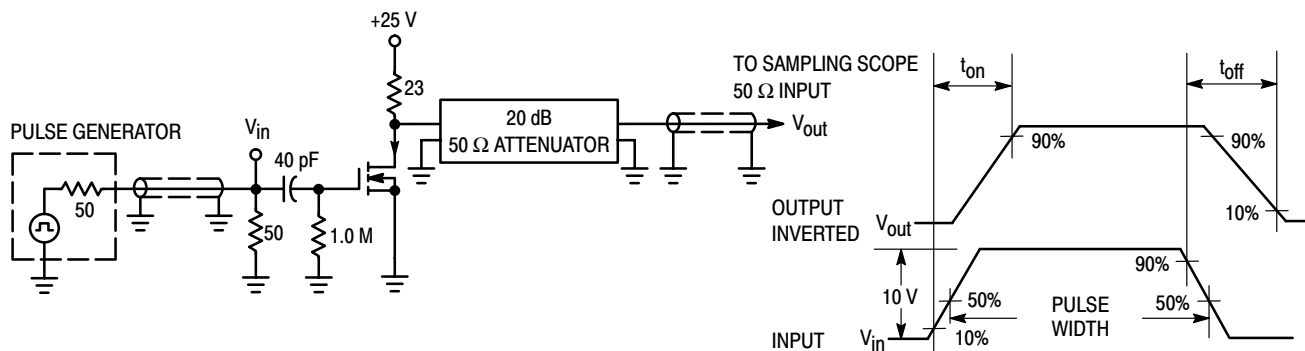


Figure 1. Switching Test Circuit

Figure 2. Switching Waveforms

ORDERING INFORMATION

Device	Package	Shipping
MPF930	TO-92	1000 Unit/Box
MPF930RLRE	TO-92	2000 Tape & Reel
MPF930A	TO-92	1000 Unit/Box
MPF930ARLRE	TO-92	2000 Tape & Reel
MPF960	TO-92	1000 Unit/Box
MPF960RLRA	TO-92	2000 Tape & Reel
MPF990	TO-92	1000 Unit/Box
MPF990RLRA	TO-92	2000 Tape & Reel
MPF990RLRP	TO-92	2000 Ammo Pack

MPF930, MPF960, MPF990

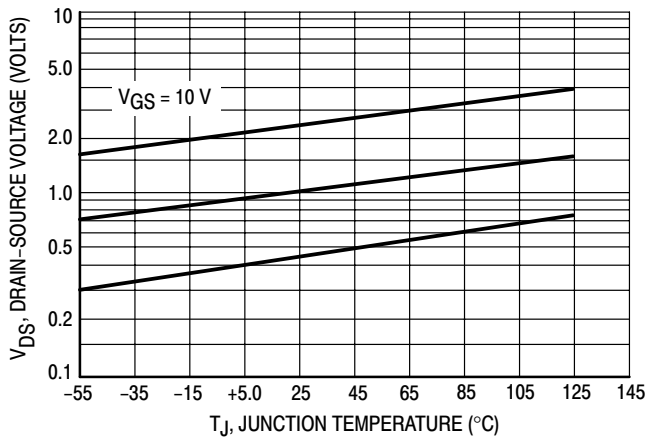


Figure 3. On Voltage versus Temperature

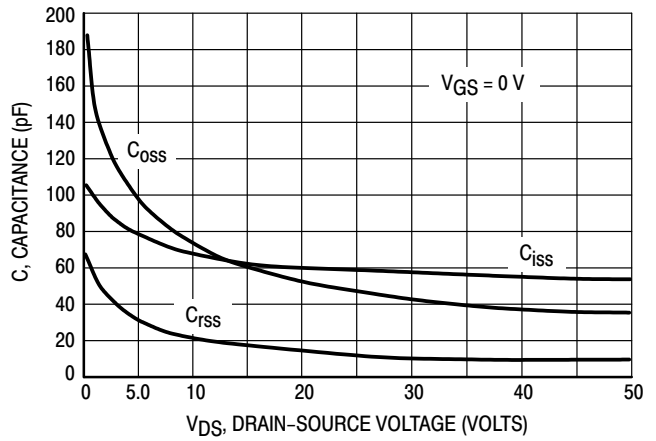


Figure 4. Capacitance Variation

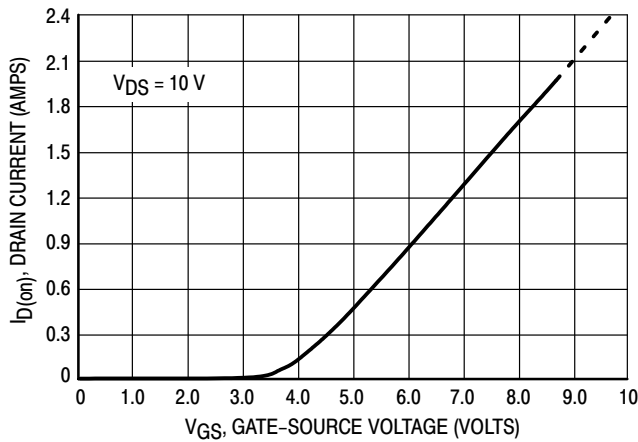


Figure 5. Transfer Characteristic

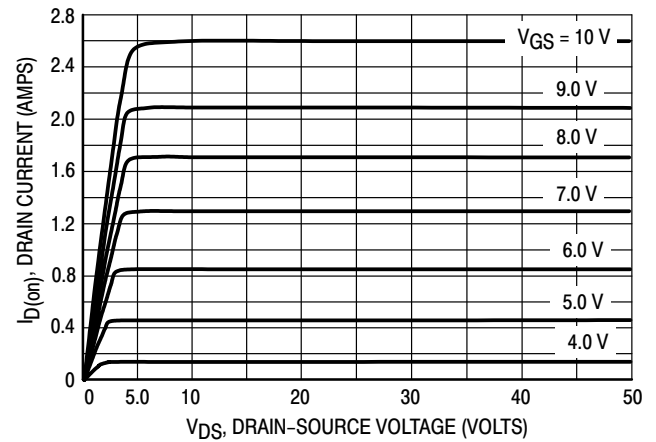


Figure 6. Output Characteristic

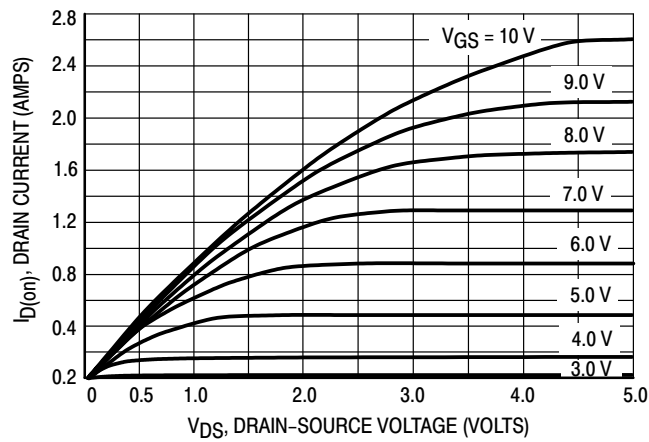
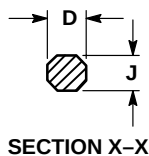
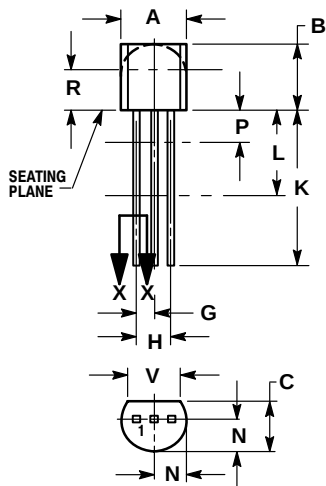


Figure 7. Saturation Characteristic

MPF930, MPF960, MPF990

PACKAGE DIMENSIONS

TO-92
CASE 29-11
ISSUE AL



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 22:

- PIN 1. SOURCE
- GATE
- DRAIN

Notes

Notes

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Email: ONlit-asia@hibbertco.com

JAPAN: ON Semiconductor, Japan Customer Focus Center

4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031
Phone: 81-3-5740-2700
Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

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