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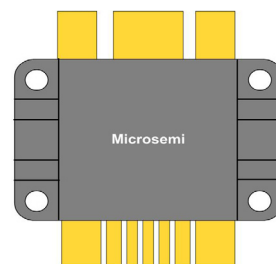
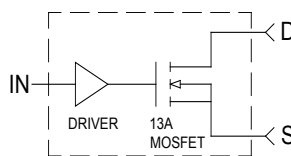
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## MOSFET Driver Hybrid

The DRF1200 hybrid includes a high power gate driver and the power MOSFET. The driver output can be configured as Inverting and Non-Inverting. It was designed to provide the system designer increased flexibility and lowered cost over a non-integrated solution.



### FEATURES

- Switching Frequency: DC TO 30MHz
- Low Pulse Width Distortion
- Single Power Supply
- 1V CMOS Schmitt Trigger Input 1V Hysteresis
- Inverting Non-Inverting Select
- RoHS Compliant
- Switching Speed 3-4ns
- $B_{V_{ds}} = 1Kv$
- $I_{ds} = 13A$  Max
- $R_{ds(on)} \leq 0.90$  Ohm
- $P_D = 624W$

### TYPICAL APPLICATIONS

- Class C, D and E RF Generators
- Switch Mode Power Amplifiers
- Pulse Generators
- Ultrasound Transducer Drivers
- Acoustic Optical Modulators

### Driver Absolute Maximum Ratings

Symbol	Parameter	Min	Typ	Max	Unit
$V_{DD}$	Supply Voltage			15	V
IN, FN	Input Single Voltages			-7 to +5.5	
$I_{O\ PK}$	Output Current Peak			8	A
$T_{JMAX}$	Operating Temperature			175	°C

### Driver Specifications

Symbol	Parameter	Min	Typ	Max	Unit
$V_{DD}$	Supply Voltage	10		15	V
IN	Input Voltage	3		5.5	
$IN_{(R)}$	Input Voltage Rising Edge		3		ns
$IN_{(F)}$	Input Voltage Falling Edge		3		
$I_{DDQ}$	Quiescent Current		2		mA
$I_O$	Output Current		8		A
$C_{iss}$	Input Capacitance		3		
$R_{IN}$	Input Parallel Resistance		1		MΩ
$V_{TH(on)}$	Input, Voltage Threshold Low (See truth table)	0.8		1.1	V
$V_{TH(off)}$	Input, Voltage Threshold High (See truth table)	1.9		2.2	
$T_{DLY}$	Time Delay (throughput)		38		ns
$t_r$	Rise Time		2.5		ns
$t_f$	Fall Time		2.5		

# DRF1200

## Driver Thermal Characteristics

## MOSFET Absolute Maximum Ratings

## MOSFET Dynamic Characteristics

## MOSFET Thermal Characteristics

Microsemi reserves the right to change, without notice, the specifications and information contained herein.



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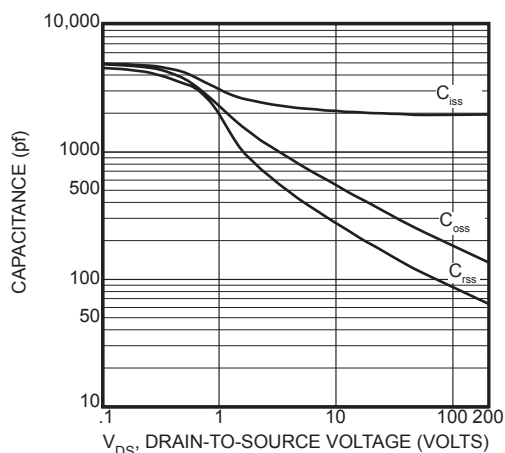


Figure 2, Typical Capacitance vs. Drain-to-Source Voltage

Truth Table *Referenced to SG		
FN (pin 3)*	IN (pin 4)*	MOSFET
HIGH	HIGH	ON
HIGH	LOW	OFF
LOW	HIGH	OFF
LOW	LOW	ON

The Function (FN, pin 3) is the invert or non-invert select Pin, it is Internally held high.

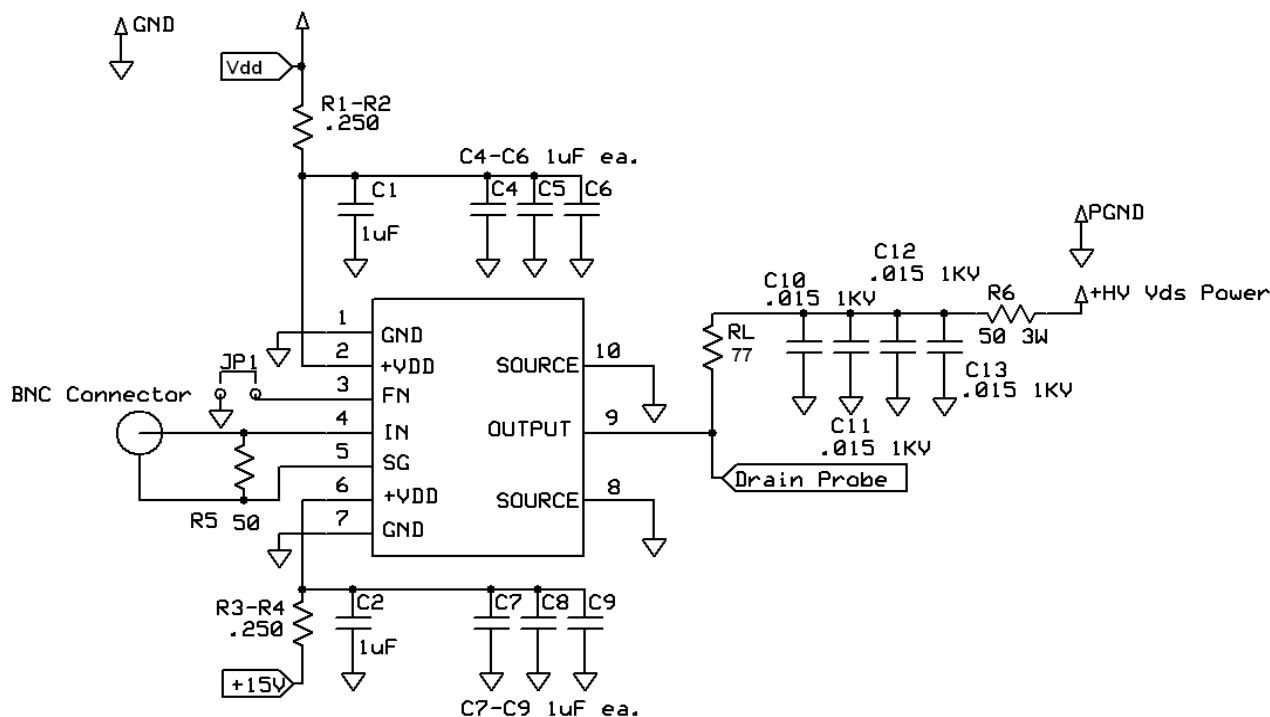
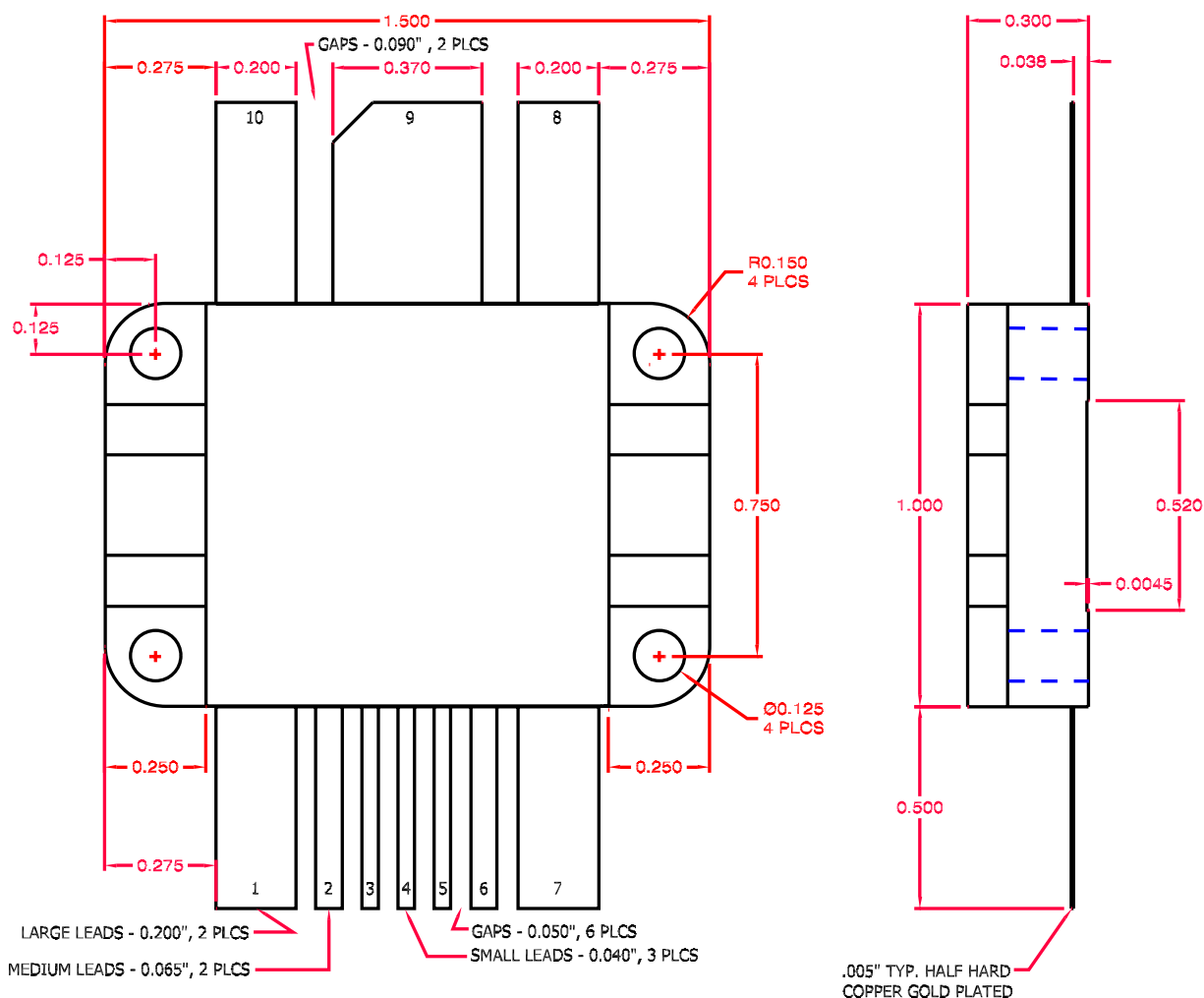


Figure 3, DRF1200 Test Circuit

The Test Circuit illustrated above was used to evaluate the DRF1200 (available as an evaluation Board DRF12XX / EVALSW.) The input control signal is applied to the DRF1200 via IN(4) and SG(5) pins using RG188. This provides excellent noise immunity and control of the signal ground currents.

The +V<sub>DD</sub> inputs (2,6) are by-passed (C1, C2, C4-C9), this is in addition to the internal by-passing mentioned previously. The capacitors used for this function must be capable of supporting the RMS currents and frequency of the gate load. R<sub>L</sub> set for I<sub>DM</sub> at V<sub>DS</sub> max this load is used to evaluate the output performance of the DRF1201.

Pin Assignments	
Pin 1	Ground
Pin 2	+Vdd
Pin 3	FN
Pin 4	IN
Pin 5	SG
Pin 6	+Vdd
Pin 7	Ground
Pin 8	Source
Pin 9	Drain
Pin 10	Source



**All dimensions are  $\pm .005$**

### Figure 4, DRF1200 Mechanical Outline

**HAZARDOUS MATERIAL WARNING**

The ceramic portion of the device between leads and mounting flange is beryllium oxide. Beryllium oxide dust is highly toxic when inhaled. Care must be taken during handling and mounting to avoid damage to this area. These devices must never be thrown away with general industrial or domestic waste. BeO substrate weight: 1.973g. Percentage of total module weight which is BeO: 31%.

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