myPower online Design Center

Featuring the IR1166 & IR1167A Smart Rectifier

http://mypower.irf.com/syncrec

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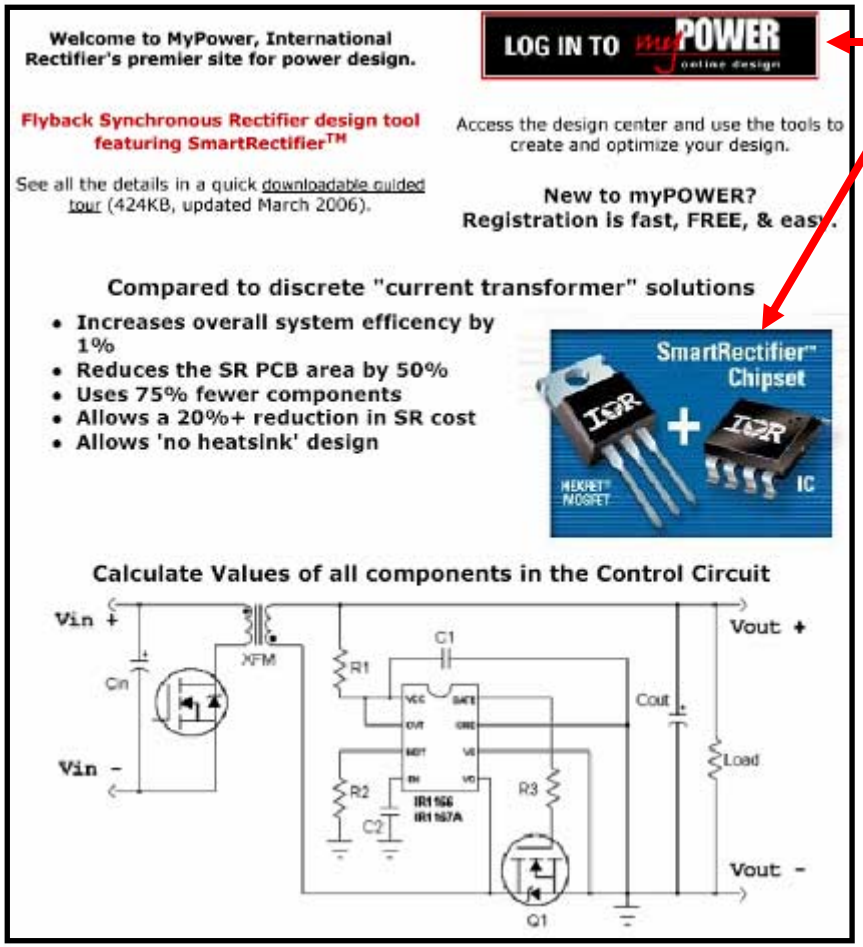

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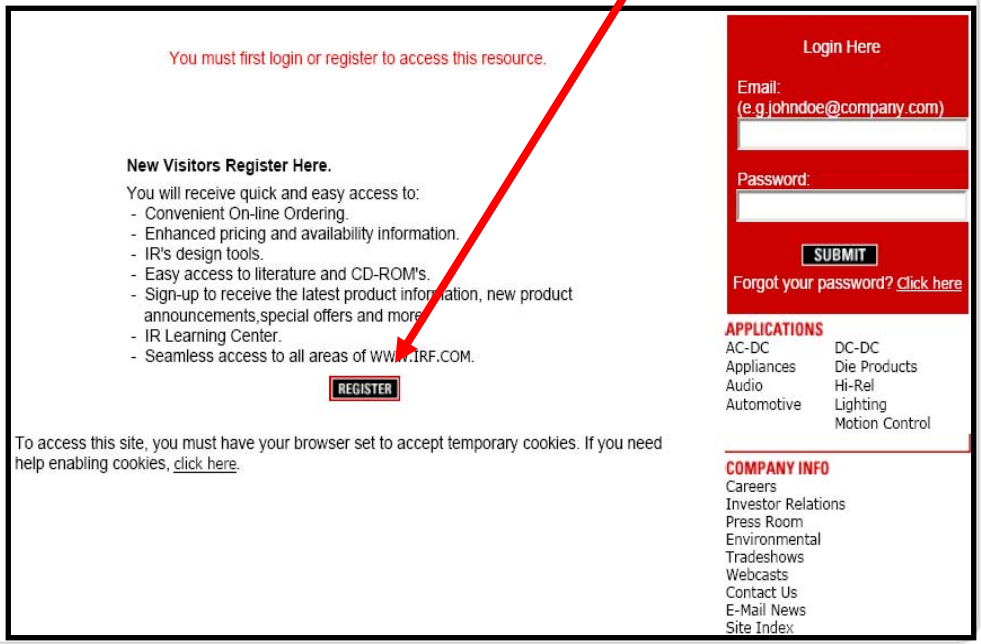


IR1166 & IR1167A

POWER TO LEAD

Enter Operating Conditions First:

Sync Rec Evaluator | 1 Enter Operating Conditions | 2 Select MOSFET | 3 Circuit Parameters & Bill of Material

This design software is for systems with 0.5V-100V output.

Enter application parameters, then click the **GO** button.

We will list synchronous MOSFETs that best meet your needs, and then give you a full bill of materials with circuit performance analysis using the MOSFET you select.

Step 1: Select the level of information you have about your circuit ?

- (•) Level 1: I know the thermal impedance of my heat sink & the secondary RMS current.
- ( ) Level 2: I know the secondary RMS current & I can keep the MOSFET case below a temperature that I pre-set.
- ( ) Level 3: I only know the output load current & maximum power dissipation in my application.

Step 2: Enter Operating Conditions ?

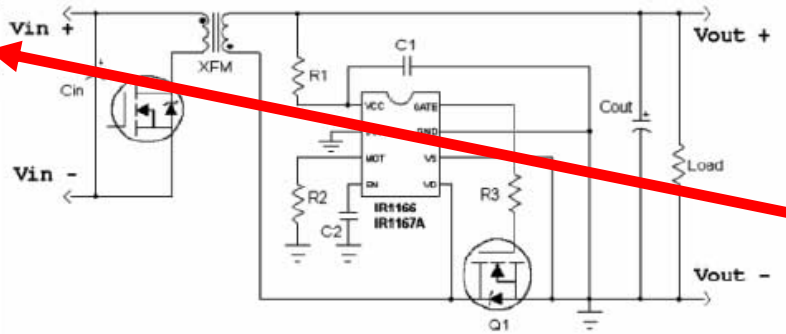
FET Vds	100	V	?	Switching Freq	100	kHz	?	Target Start time	100	µs	?
Output Voltage	15.0	V	?	Conduction mode	DCM or CrCM		?				
Bias Voltage	15.0	V	?	Secondary RMS current	10	A	?	Minimum Secondary Cond time	1.5	µs	?

Heat Sink Rthsa	10.0	°C/W	?
Tj max	105	°C	?
Tamb max	50	°C	?

Step 3: See Recommendations . **GO**

Other Options

- RESET
- MOSFET DATA
- FAQ
- APPLICATION NOTE
- USER GUIDE



Enter only the information you know about your circuit and then click on the GO button

IR1166 & IR1167A

Recommendations

SYSTEM CONDITIONS | FAQ | APPLICATION NOTE | USER GUIDE | BACK | PRINT

Sync-Rec evaluator | 1 Enter Operating Conditions | 2 Select MOSFET | 3 Circuit Parameters & Bill of Material

We have found **5** MOSFETs that meet your needs.

Click part number to view data sheets, spice files, packaging information or availability. Click GO to see Circuit Performance and Bill of Materials.

Click for Circuit Performance & BOM	Part Number	Vds	Rds(on) 10V @ 25C	MOSFET Pd	MOSFET Tj	Heat Sink Rthsa	MOSFET qty.	Package	IC Tj	MOSFET Cost
		V	mΩ	W	°C	°C/W			°C	$US
GO	IRFSL4310	100	7.0	2.762	80.4	10.0	2	TO-262	90.3	5.78
GO	IRFSL4410	100	10.0	4.813	104.0	10.0	2	TO-262	79.5	3.97
GO	IRFB4110PBF	100	4.5	3.920	90.8	10.0	1	TO-220AB	71.0	3.77
GO	IRFB4310PBF	100	7.0	2.762	80.4	10.0	2	TO-220AB	90.3	5.72
GO	IRFB4410PBF	100	10.0	4.813	104.0	10.0	2	TO-220AB	79.5	3.91

*note on pricing:
The price shown is in $US, based on MSRP in 1K quantities.
If MOSFETs are used in parallel, the MOSFET cost includes both devices

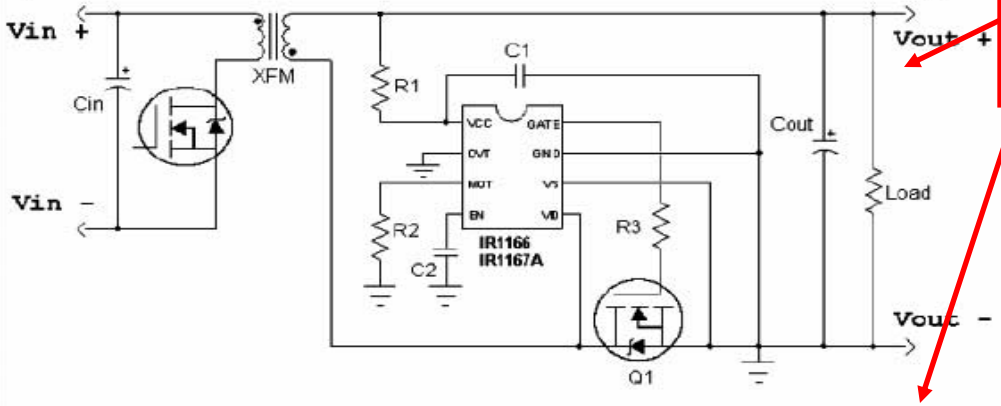
- List of recommended MOSFETs are presented
- Sorting feature
- Compare parameters
- Select the GO button to view all schematic component values that are matched to that MOSFET

IR1166 & IR1167A Details

OBTAIN SAMPLES / DAUGHTERBOARD | BACK | SYSTEM CONDITIONS | PDF

Sync-Rec evaluator | 1 Enter Operating Conditions | 2 Select MOSFET | 3 Circuit Parameters & Bill of Material

Component	Ref Des	Value	Power Dissipation	Calculations
Controller	U1	IR1166SPBF	0.315 W	90.3 °C Tj
Sync Rec MOSFET	Q1	IRFB4310PBF (x2)	2.762 W	80.4 °C MOSFET Tj
Voltage Drop Resistor	R1	39.0 Ω	0.026 W	
MOT Resistor	R2	36.0 kΩ		1.44 µs min ON time
Gate Resistor	R3	1.0 Ω	0.107 W	
Decoupling Capacitor	C1	1.00 µF	N/A	511 mV Vcc max ripple voltage
Start time Capacitor	C2	0.33 nF	N/A	90 µs start time



- Passive components list
- Order Daughterboard/samples
- Calculated junction temps
- Calculated power dissipation
- Calculated ON time
- Calculated start time
- Schematic diagram
- Your Operating conditions

Here are the Operating Conditions you provided, for reference:

FET Vds:	100 V	Switching Freq:	100 kHz	Target Start time:	100 µs	Heat Sink Rthsa:	10.0 °C/W
Output Voltage:	15.0 V	Conduction mode:	DCM or CrCM	Tamb max:	50 °C	Tj max:	105 °C
Secondary RMS current:	20 A	Minimum Secondary Cond time:	1.5 µs				

Daughterboard

Comments:
mypower@irf.com