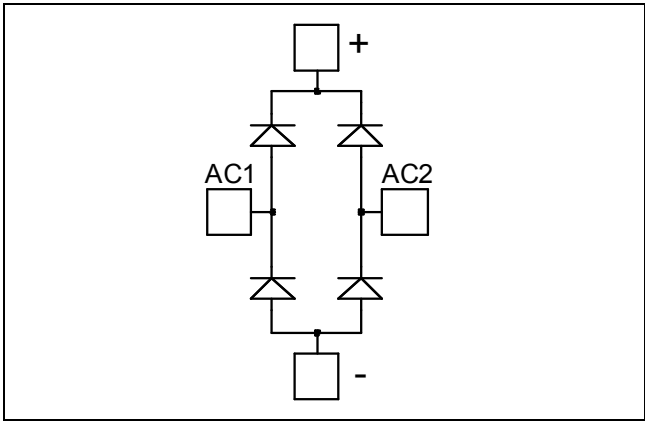


## Diode Full Bridge Power Module

**$V_{RRM} = 1000V$**   
 **$I_C = 200A @ T_c = 70^\circ C$**

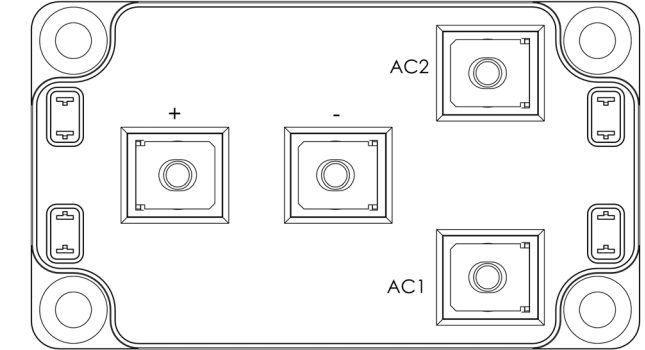


### Application

- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

### Features

- Ultra fast recovery times
- Soft recovery characteristics
- High blocking voltage
- High current
- Low leakage current
- Very low stray inductance
  - Symmetrical design
  - M5 power connectors
- High level of integration



### Benefits

- Outstanding performance at high frequency operation
- Low losses
- Low noise switching
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- RoHS Compliant

**All ratings @  $T_j = 25^\circ C$  unless otherwise specified**

### Absolute maximum ratings

Symbol	Parameter	Max ratings	Unit
$V_R$	Maximum DC reverse Voltage	1000	V
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage		
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50% $T_C = 25^\circ C$	255
		$T_C = 70^\circ C$	200
$I_{F(RMS)}$	RMS Forward Current	Duty cycle = 50% $T_C = 45^\circ C$	255
$I_{FSM}$	Non-Repetitive Forward Surge Current	8.3ms $T_C = 45^\circ C$	1500

**CAUTION:** These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed. See application note APT0502 on [www.microsemi.com](http://www.microsemi.com)

**Electrical Characteristics**

<i>Symbol</i>	<i>Characteristic</i>	<i>Test Conditions</i>		<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
V <sub>F</sub>	Diode Forward Voltage	I <sub>F</sub> = 200A			2.1	2.7	V
		I <sub>F</sub> = 300A			2.3		
		I <sub>F</sub> = 200A	T <sub>j</sub> = 125°C		1.7		
I <sub>RM</sub>	Maximum Reverse Leakage Current	V <sub>R</sub> = 1000V	T <sub>j</sub> = 25°C			100	μA
			T <sub>j</sub> = 125°C			600	
C <sub>T</sub>	Junction Capacitance	V <sub>R</sub> = 1000V			240		pF

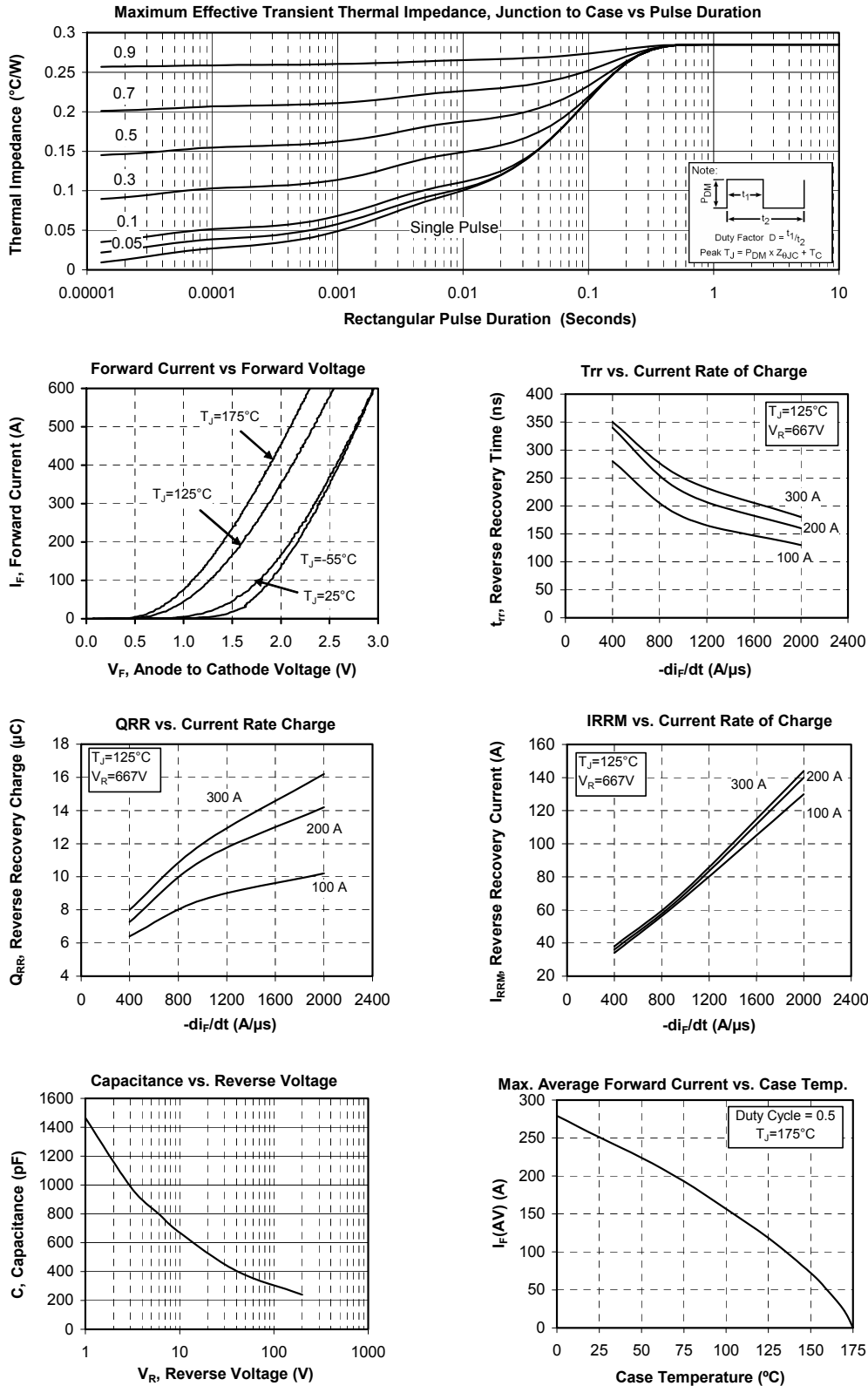
**Dynamic Characteristics**

<i>Symbol</i>	<i>Characteristic</i>	<i>Test Conditions</i>		<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =1A, V <sub>R</sub> =30V di/dt = 200A/μs	T <sub>j</sub> = 25°C		43		ns
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 200A V <sub>R</sub> = 667V di/dt = 400A/μs	T <sub>j</sub> = 25°C		290		ns
			T <sub>j</sub> = 125°C		340		
Q <sub>rr</sub>	Reverse Recovery Charge		T <sub>j</sub> = 25°C		1.37		μC
			T <sub>j</sub> = 125°C		8.1		
I <sub>R</sub> RM	Reverse Recovery Current		T <sub>j</sub> = 25°C		12		A
			T <sub>j</sub> = 125°C		36		
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 200A V <sub>R</sub> = 667V di/dt = 2000A/μs	T <sub>j</sub> = 125°C		160		ns
Q <sub>rr</sub>	Reverse Recovery Charge				14.2		μC
I <sub>R</sub> RM	Reverse Recovery Current				140		A

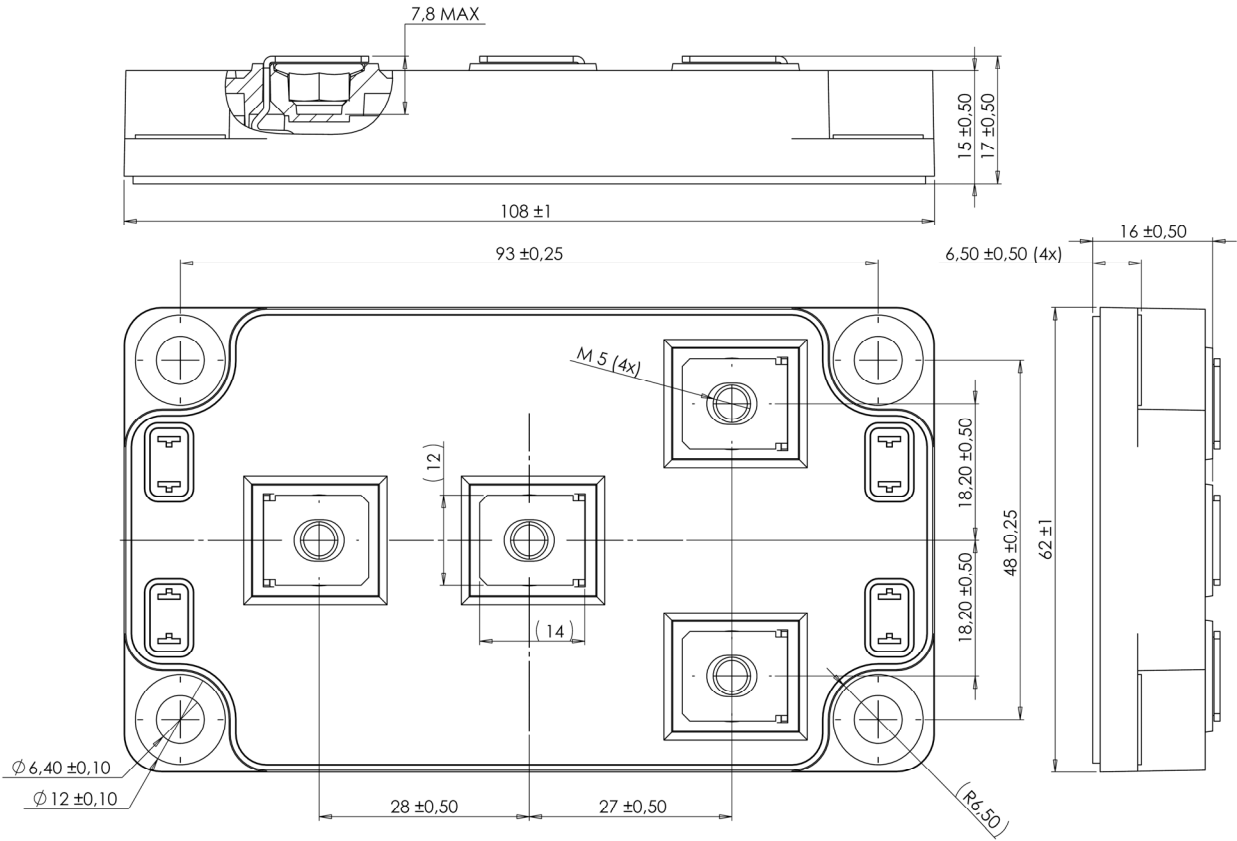
**Thermal and package characteristics**

<i>Symbol</i>	<i>Characteristic</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	
R <sub>thJC</sub>	Junction to Case Thermal Resistance			0.285	°C/W	
V <sub>ISOL</sub>	RMS Isolation Voltage, any terminal to case t =1 min, 50/60Hz	4000			V	
T <sub>J</sub>	Operating junction temperature range	-40		175	°C	
T <sub>STG</sub>	Storage Temperature Range	-40		125		
T <sub>C</sub>	Operating Case Temperature	-40		100		
Torque	Mounting torque	To heatsink	M6	3	5	N.m
		For terminals	M5	2	3.5	
Wt	Package Weight			300	g	

## Typical Performance Curve



**SP6 Package outline** (dimensions in mm)



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