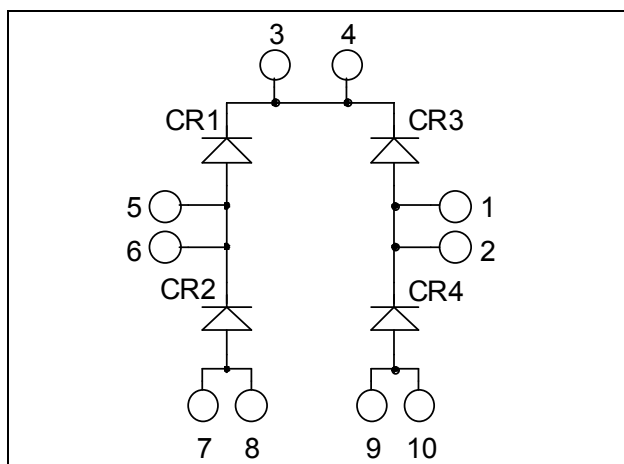


Fast Diode Full Bridge Power Module

$V_{RRM} = 1200V$
 $I_C = 30A @ T_C = 80^\circ C$



Application

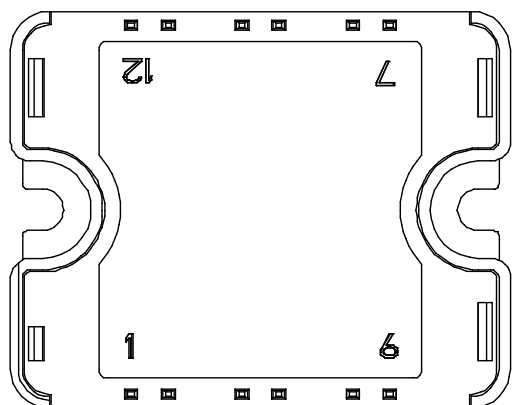
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

Features

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

Benefits

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



All multiple inputs and outputs must be shorted together
 3/4 ; 5/6 ; 7/8 ; 1/2 ; 9/10

Absolute maximum ratings

Symbol	Parameter			Max ratings	Unit
V _R	Maximum DC reverse Voltage			1200	V
V _{RRM}	Maximum Peak Repetitive Reverse Voltage				
I _{F(AV)}	Maximum Average Forward Current	Duty cycle = 50%	T _C = 25°C	43	A
			T _C = 80°C	30	
I _{FSM}	Non-Repetitive Forward Surge Current	8.3ms	T _J = 45°C	210	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed. See application note APT0502 on www.microsemi.com

All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

Electrical Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 30\text{A}$		2.6	3.1	V
		$I_F = 60\text{A}$		3.2		
		$I_F = 30\text{A}$ $T_j = 125^\circ\text{C}$		1.8		
I_{RM}	Maximum Reverse Leakage Current	$V_R = 1200\text{V}$	$T_j = 25^\circ\text{C}$		100	μA
			$T_j = 125^\circ\text{C}$		500	
C_T	Junction Capacitance	$V_R = 200\text{V}$		36		pF

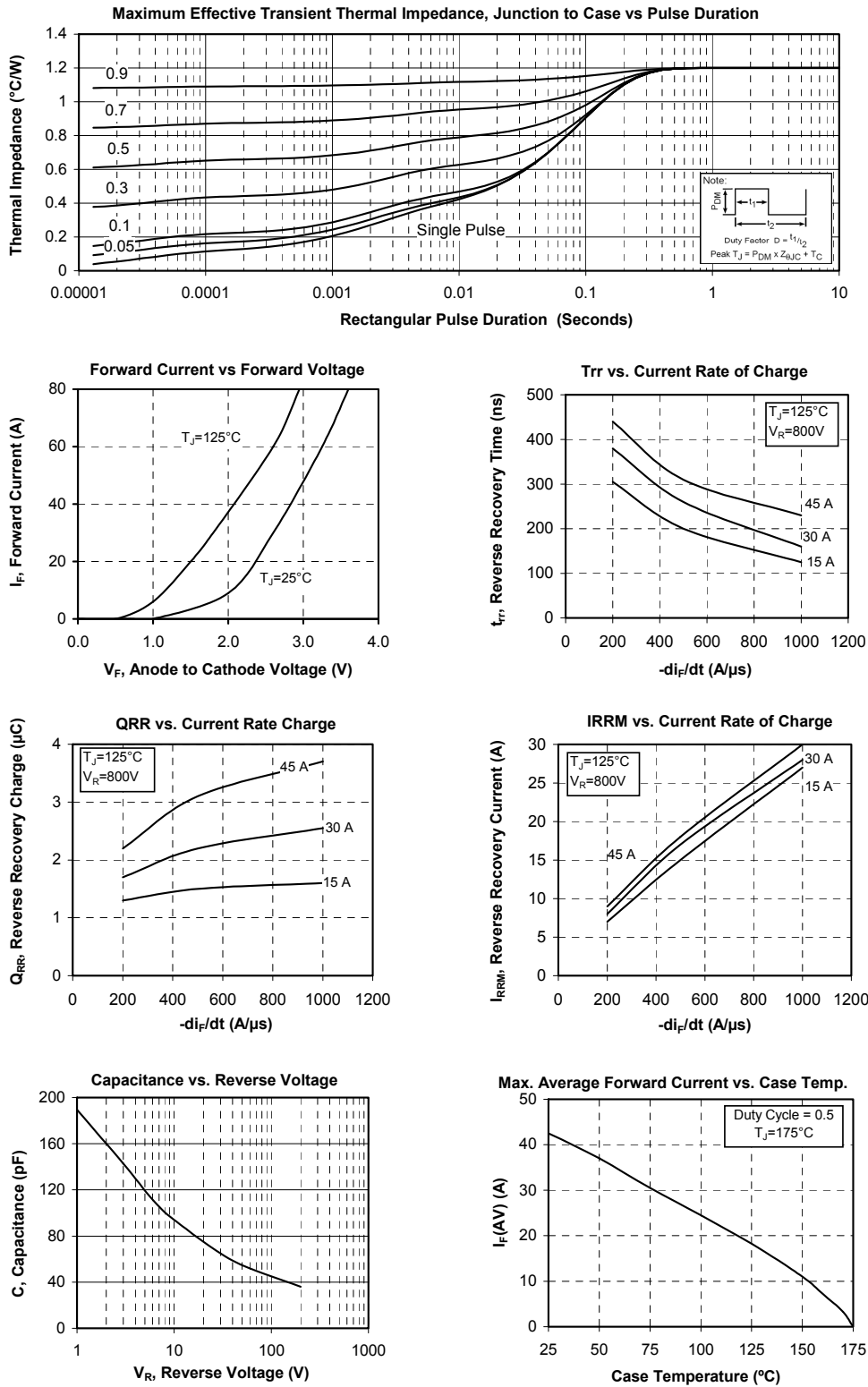
Dynamic Characteristics

Symbol		Characteristic	Test Conditions		Min	Typ	Max	Unit
t _{rr}	Reverse Recovery Time	I _F = 30A V _R = 800V di/dt = 200A/μs	T _J = 25°C		300		ns	
			T _J = 125°C		380			
Q _{rr}	Reverse Recovery Charge		T _J = 25°C		360		nC	
			T _J = 125°C		1700			
I _{RRM}	Reverse Recovery Current		T _J = 25°C		4		A	
			T _J = 125°C		8			
t _{rr}	Reverse Recovery Time	I _F = 30A V _R = 800V di/dt=1000A/μs	T _J = 125°C		160		ns	
Q _{rr}	Reverse Recovery Charge				2550		nC	
I _{RRM}	Reverse Recovery Current				28		A	

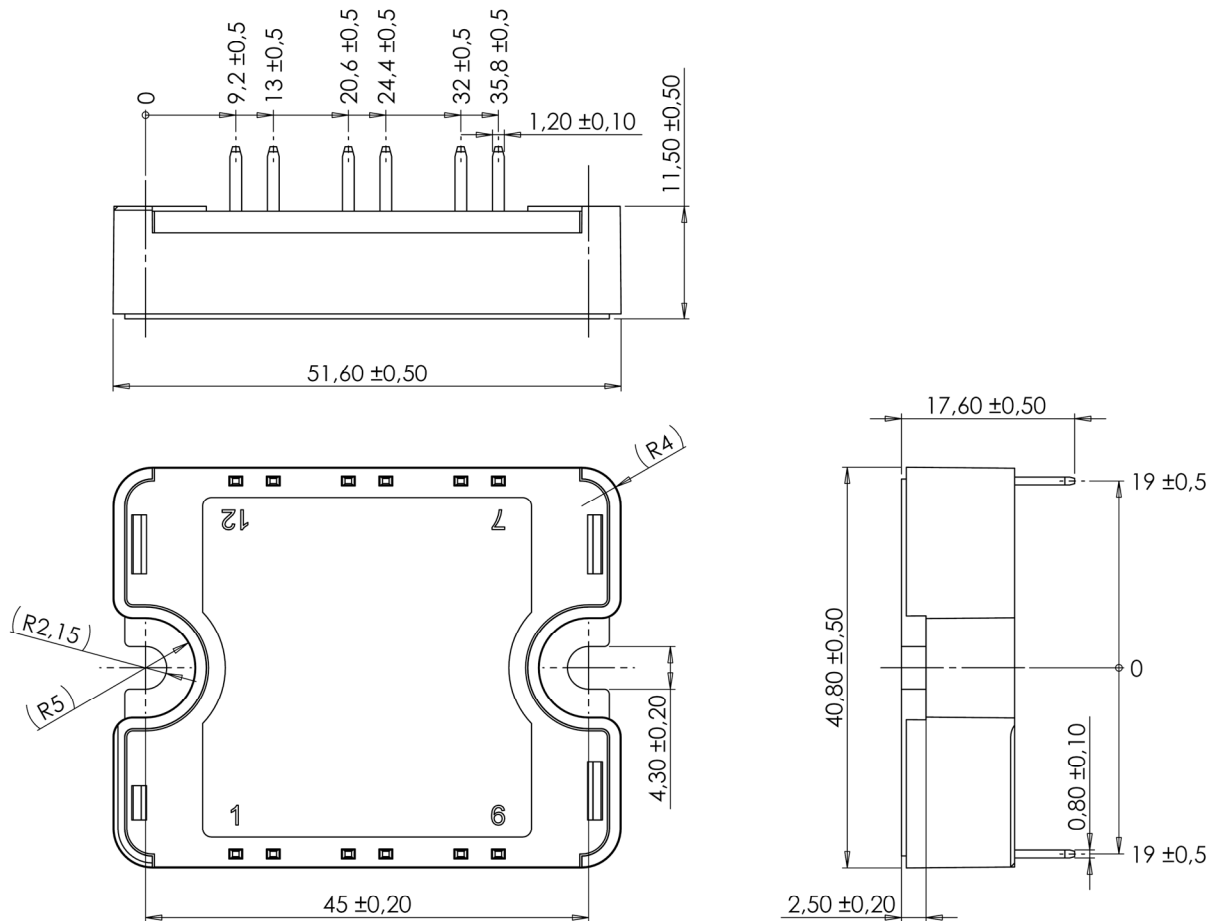
Thermal and package characteristics

Symbol				Characteristic	Min	Typ	Max	Unit
R _{thJC}		Junction to Case Thermal Resistance					1.2	°C/W
V _{ISOL}		RMS Isolation Voltage, any terminal to case t =1 min, 50/60Hz			4000			V
T _J		Operating junction temperature range			-40		175	°C
T _{STG}		Storage Temperature Range			-40		125	
T _C		Operating Case Temperature			-40		100	
Torque	Mounting torque	To heatsink	M4	2		3	N.m	
Wt	Package Weight						80	g

Typical Performance Curve



SP1 Package outline (dimensions in mm)



See application note 1904 - Mounting Instructions for SP1 Power Modules on www.microsemi.com

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