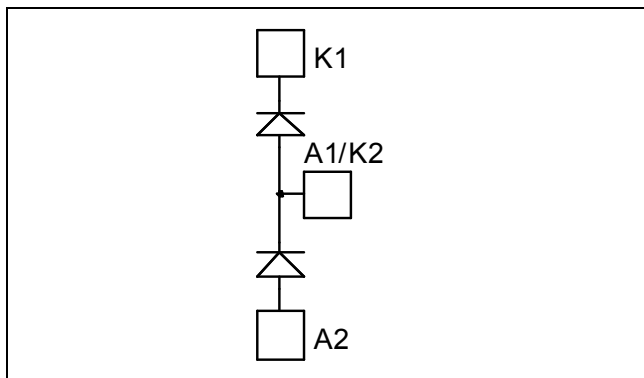


Diode Phase leg Power Module

$V_{RRM} = 1000V$
 $I_C = 400A @ T_c = 70^\circ C$



Application

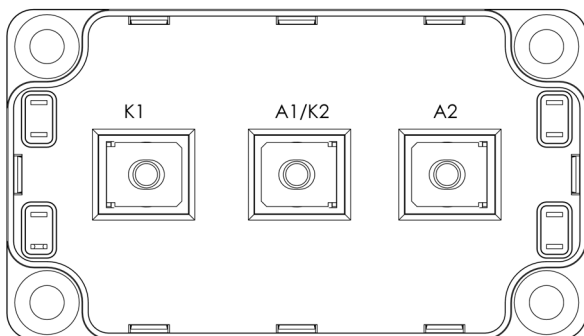
- Anti-Parallel diode
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

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



Absolute maximum ratings

<i>Symbol</i>	<i>Parameter</i>				<i>Max ratings</i>	<i>Unit</i>
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°C	500	A	
			T _C = 70°C	400		
I _{F(RMS)}	RMS Forward Current	Duty cycle = 50%	T _C = 45°C	500		
I _{FSM}	Non-Repetitive Forward Surge Current	8.3ms	T _C = 45°C	3000		



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	$I_F = 400\text{A}$			2.1	2.7	V
		$I_F = 600\text{A}$			2.3		
		$I_F = 400\text{A}$	$T_j = 125^\circ\text{C}$		1.7		
I_{RM}	Maximum Reverse Leakage Current	$V_R = 1000\text{V}$	$T_j = 25^\circ\text{C}$			250	μA
			$T_j = 125^\circ\text{C}$			1000	
C_T	Junction Capacitance	$V_R = 1000\text{V}$			480		pF

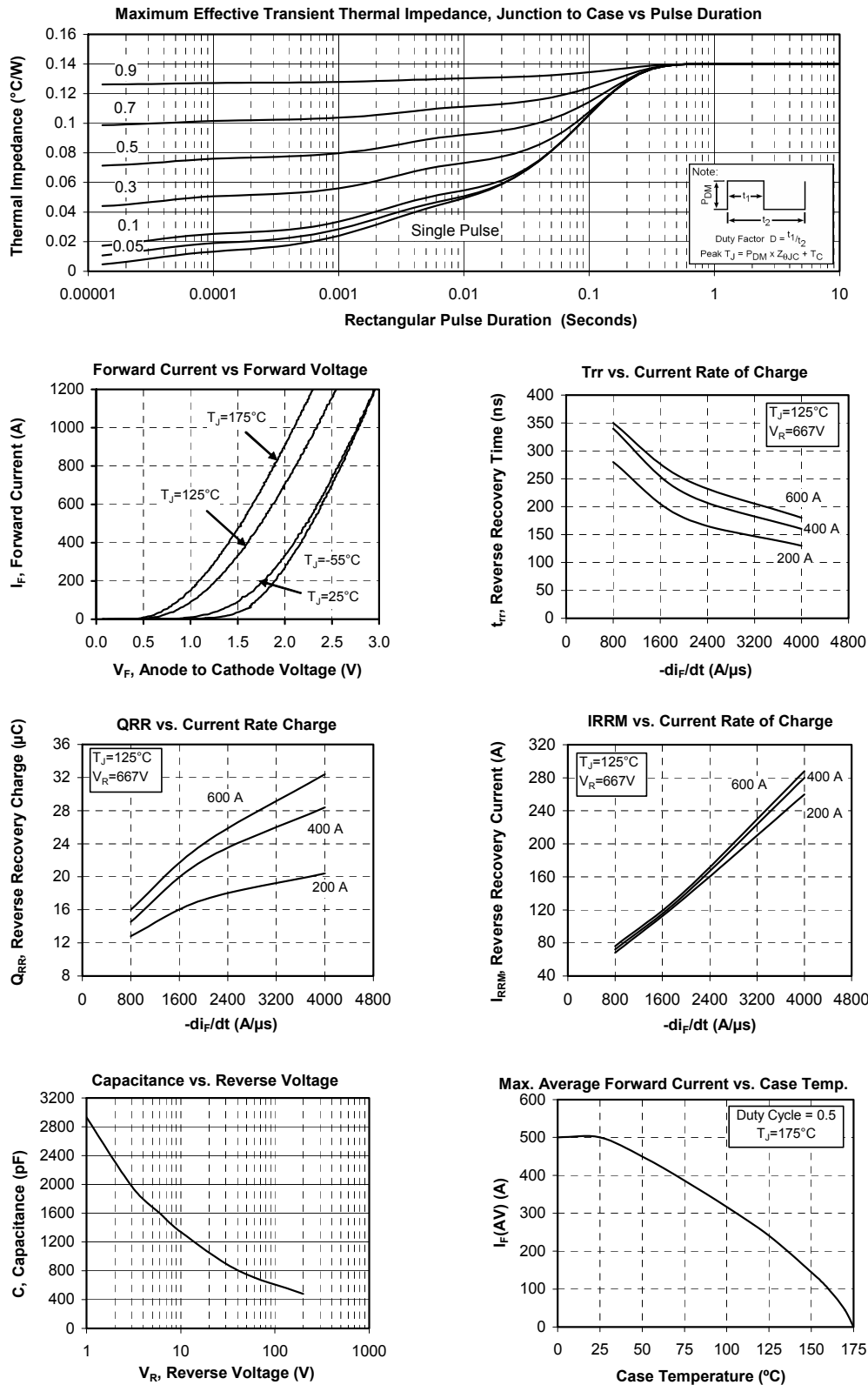
Dynamic Characteristics

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit
t _{rr}	Reverse Recovery Time	I _F =1A, V _R =30V di/dt = 400A/μs	T _j = 25°C		45		ns
t _{rr}	Reverse Recovery Time	I _F = 400A V _R = 667V di/dt = 800A/μs	T _j = 25°C		290		ns
			T _j = 125°C		340		
Q _{rr}	Reverse Recovery Charge		T _j = 25°C		2.7		μC
			T _j = 125°C		14.6		
I _{RRM}	Reverse Recovery Current		T _j = 25°C		24		A
			T _j = 125°C		72		
t _{rr}	Reverse Recovery Time	I _F = 400A V _R = 667V di/dt = 4000A/μs	T _j = 125°C		160		ns
Q _{rr}	Reverse Recovery Charge				28.4		μC
I _{RRM}	Reverse Recovery Current				280		A

Thermal and package characteristics

Symbol	Characteristic	Min		Typ	Max	Unit
R_{thJC}	Junction to Case Thermal Resistance				0.14	$^\circ\text{C}/\text{W}$
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}, 50/60\text{Hz}$	4000				V
T_J	Operating junction temperature range	-40			175	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-40			125	
T_C	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





Technical drawing of a rectangular plate with the following dimensions and features:

- Overall width: 108 ± 1
- Overall height: $17 \pm 0,5$
- Top edge features:
 - Left side: $15 \pm 0,50$
 - Right side: $7,8 \text{ max.}$
- Bottom edge features:
 - Left side: $6,50 \pm 0,50 (4x)$
 - Right side: $48 \pm 0,25$ and 62 ± 1
- Internal features:
 - Three central square holes with side length $28 \pm 0,50$.
 - Three circular holes with diameter $\phi 6,40 \pm 0,10$.
 - Three circular holes with diameter $\phi 12 \pm 0,10$.
 - Three rectangular holes with width 14 and height 12 .
 - Three M5(3x) screws.

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