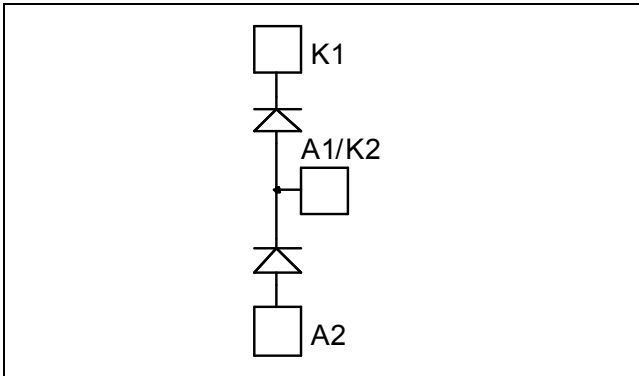


Diode Phase leg Power Module

$V_{RRM} = 600V$
 $I_C = 400A @ T_c = 80^\circ C$



Application

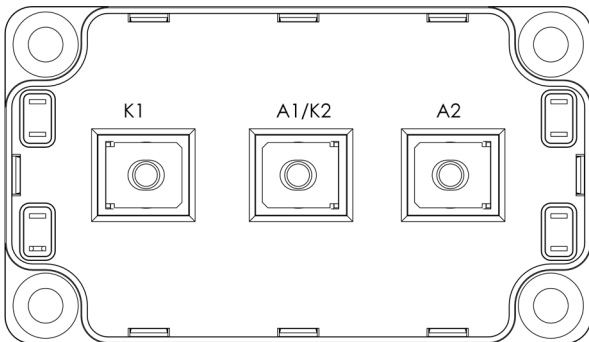
- Anti-Parallel diode
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

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

Symbol	Parameter	Max ratings	Unit	
V_R	Maximum DC reverse Voltage	600	V	
V_{RRM}	Maximum Peak Repetitive Reverse Voltage			
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50%	$T_C = 25^\circ C$	A
			$T_C = 80^\circ C$	
$I_{F(RMS)}$	RMS Forward Current	Duty cycle = 50%	$T_C = 45^\circ C$	
I_{FSM}	Non-Repetitive Forward Surge Current	8.3ms	$T_C = 45^\circ C$	

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	$I_F = 400\text{A}$		1.6	2.0	V
		$I_F = 800\text{A}$		2.0		
		$I_F = 400\text{A}$	$T_j = 125^\circ\text{C}$	1.3		
I_{RM}	Maximum Reverse Leakage Current	$V_R = 600\text{V}$	$T_j = 25^\circ\text{C}$		750	μA
			$T_j = 125^\circ\text{C}$		1000	
C_T	Junction Capacitance	$V_R = 600\text{V}$		760		pF

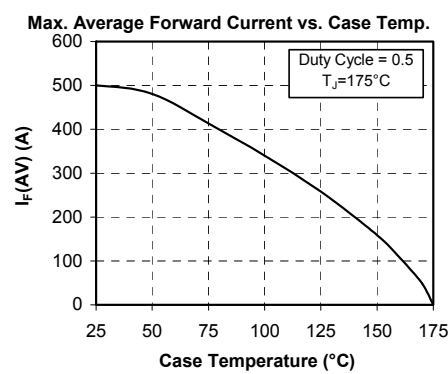
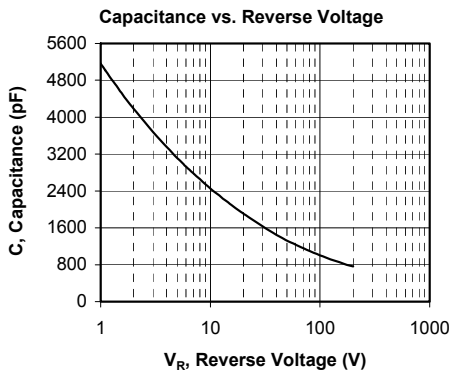
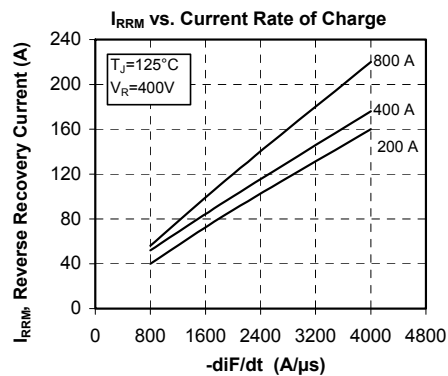
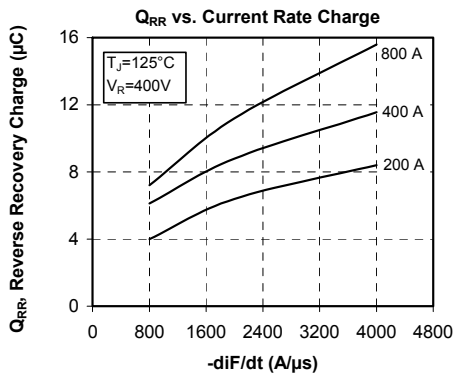
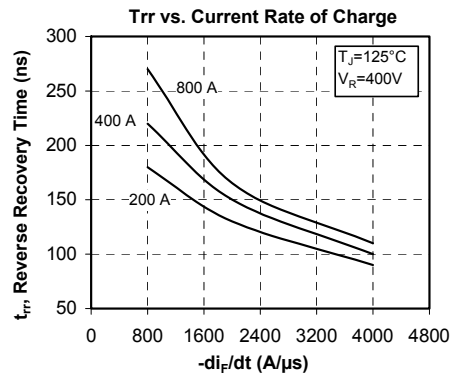
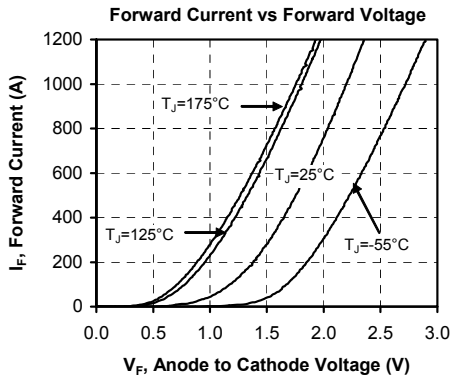
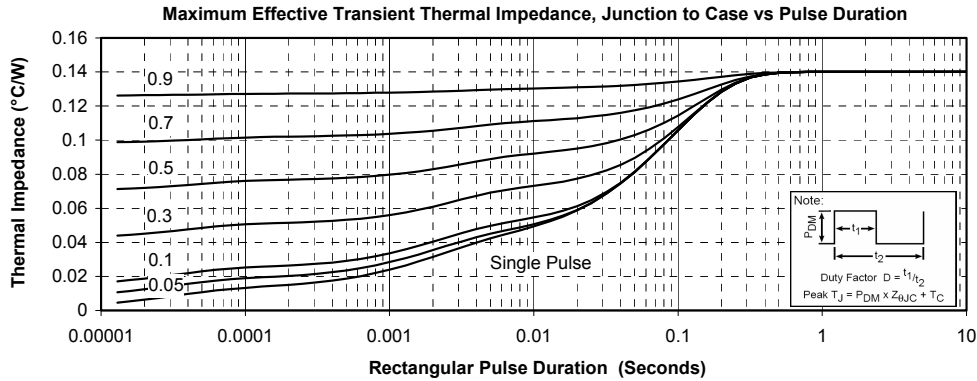
Dynamic Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
t_{rr}	Reverse Recovery Time	$I_F = 1\text{A}, V_R = 30\text{V}$ $di/dt = 400\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		34	ns
t_{rr}	Reverse Recovery Time		$T_j = 25^\circ\text{C}$		160	ns
			$T_j = 125^\circ\text{C}$		220	
Q_{rr}	Reverse Recovery Charge	$I_F = 400\text{A}$ $V_R = 400\text{V}$ $di/dt = 800\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		1.16	μC
			$T_j = 125^\circ\text{C}$		6.12	
I_{RRM}	Reverse Recovery Current		$T_j = 25^\circ\text{C}$		20	A
			$T_j = 125^\circ\text{C}$		52	
t_{rr}	Reverse Recovery Time	$I_F = 400\text{A}$ $V_R = 400\text{V}$ $di/dt = 4000\text{A}/\mu\text{s}$	$T_j = 125^\circ\text{C}$		100	ns
Q_{rr}	Reverse Recovery Charge				11.6	μC
I_{RRM}	Reverse Recovery Current				176	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



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