

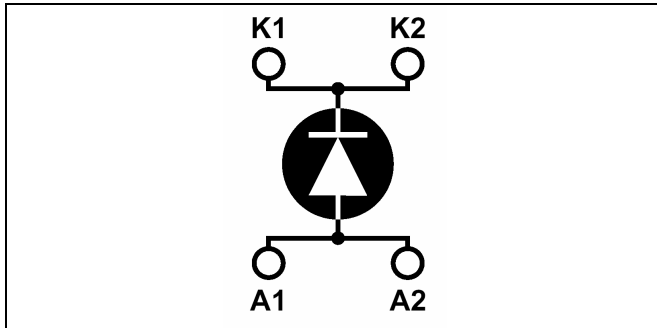
*Single diode
Power Module*

$$V_{CES} = 600V$$

$$I_C = 450A @ T_c = 80^{\circ}C$$

Application

- Anti-Parallel diode
 - Switchmode Power Supply
 - Inverters
- Snubber diode
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers
- Electric vehicles

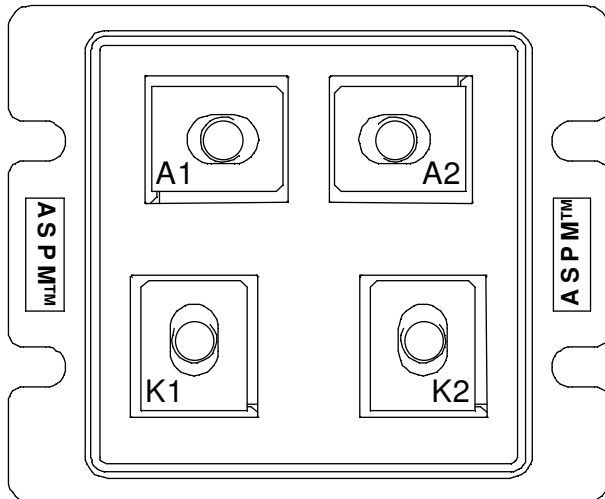


Features

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

Benefits

- Low losses
- Low noise switching
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance



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°C	500	A	
			T _c = 80°C	450		
I _{F(RMS)}	RMS Forward Current			850		
I _{FSM}	Non-Repetitive Forward Surge Current		T _j = 25°C	5000		

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

Electrical Characteristics

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

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 500\text{A}$		1.4	1.8	V
		$I_F = 1000\text{A}$		1.7		
		$I_F = 500\text{A}$ $T_j = 150^\circ\text{C}$			1.5	
I_{RM}	Maximum Reverse Leakage Current	$V_R = 600\text{V}$	$T_j = 25^\circ\text{C}$		2500	μA
			$T_j = 150^\circ\text{C}$		5000	
C_T	Junction Capacitance	$V_R = 200\text{V}$		825		pF

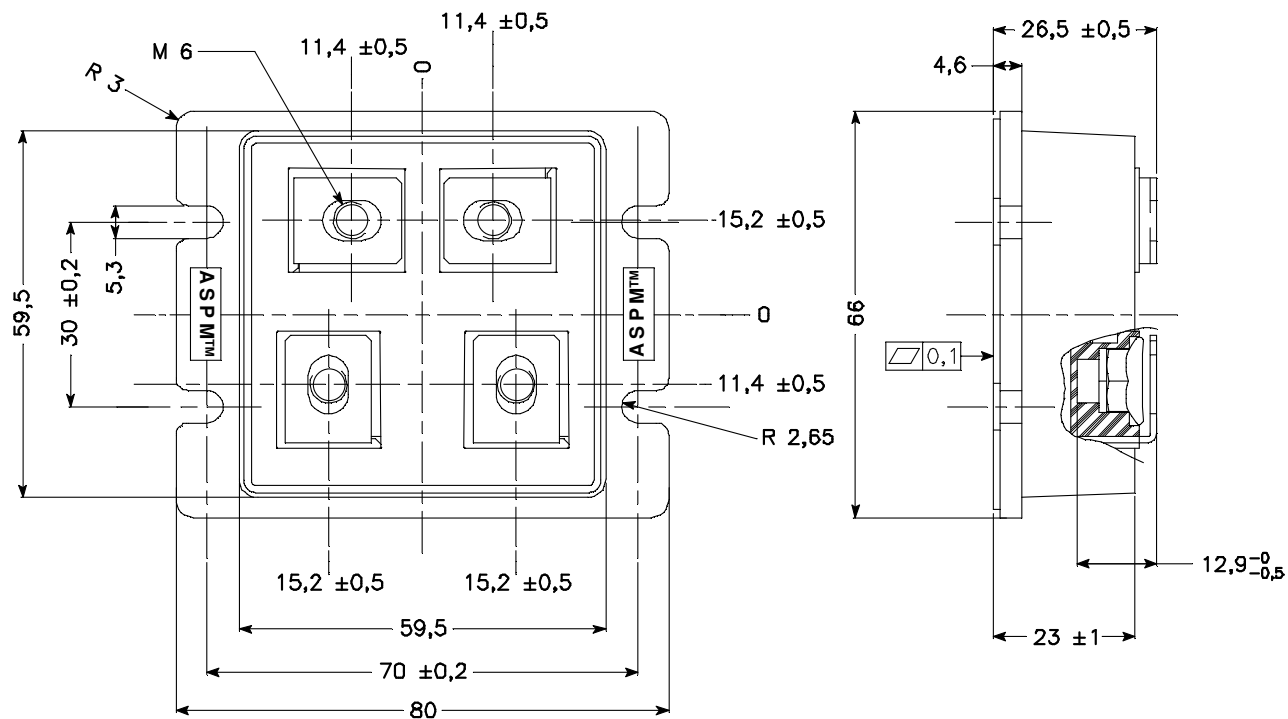
Dynamic Characteristics

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit
t _{rr1}	Reverse Recovery Time	I _F =1A,V _R =30V di/dt = 15A/μs	T _j = 25°C		60	75	ns
t _{rr2}		I _F = 500A V _R = 350V	T _j = 25°C		90	115	
t _{rr3}		di/dt=1000A/μs	T _j = 100°C		135	255	
t _{fr1}	Forward Recovery Time	I _F = 500A V _R = 350V di/dt=1000A/μs	T _j = 25°C		135		ns
t _{fr2}			T _j = 100°C		135		
I _{RRM1}	Reverse Recovery Current		T _j = 25°C		35	50	A
I _{RRM2}			T _j = 100°C		55	70	
Q _{rr1}	Reverse Recovery Charge		T _j = 25°C		1575	2875	nC
Q _{rr2}			T _j = 100°C		3715	8925	
V _{fr1}	Forward Recovery Voltage		T _j = 25°C		23		V
V _{fr2}			T _j = 100°C		23		
d _I M/dt	Rate of Fall of Recovery Current		T _j = 25°C		600		A/μs
			T _j = 100°C		400		

Thermal and package characteristics

Symbol	Characteristic	Min	Typ	Max	Unit
R_{thJC}	Junction to Case			0.08	$^\circ\text{C}/\text{W}$
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}, I_{isol} < 1\text{mA}, 50/60\text{Hz}$	2500			V
T_j	Operating junction temperature range	-40		150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-40		125	
T_C	Operating Case Temperature	-40		100	
Torque	Mounting torque	To heatsink M5	2.5	3.5	N.m
		For terminals M6	3	4	
Wt	Package Weight			250	g

Package outline



APT reserves the right to change, without notice, the specifications and information contained herein

APT's products are covered by one or more of U.S. patents 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522 5,262,336 6,503,786 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058 and foreign patents. U.S. and Foreign patents pending. All Rights Reserved.