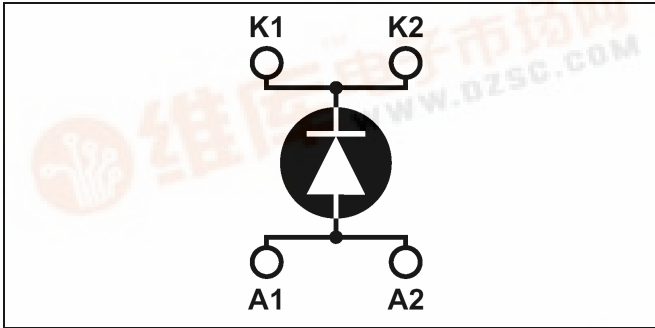


*Single diode  
Power Module*

$V_{CES} = 600V$   
 $I_C = 450A @ T_c = 80^\circ C$

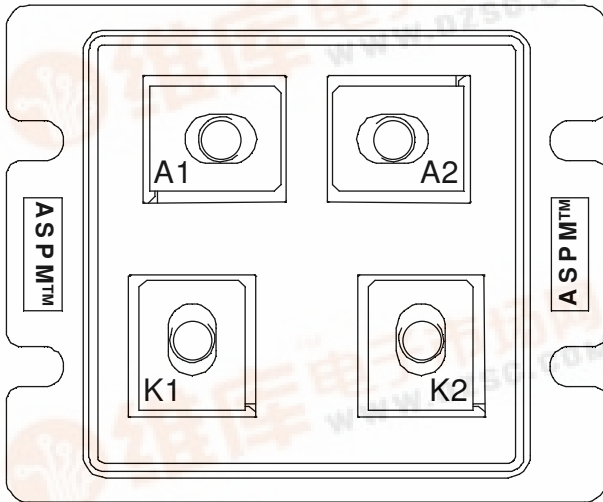


**Application**

- 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% $T_c = 25^\circ C$	500
		$T_c = 80^\circ C$	450
$I_{F(RMS)}$	RMS Forward Current	850	A
$I_{FSM}$	Non-Repetitive Forward Surge Current	$T_j = 25^\circ C$	

## 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	$\mu\text{A}$
			$T_j = 150^\circ\text{C}$			5000	
$C_T$	Junction Capacitance	$V_R = 200\text{V}$			825		pF

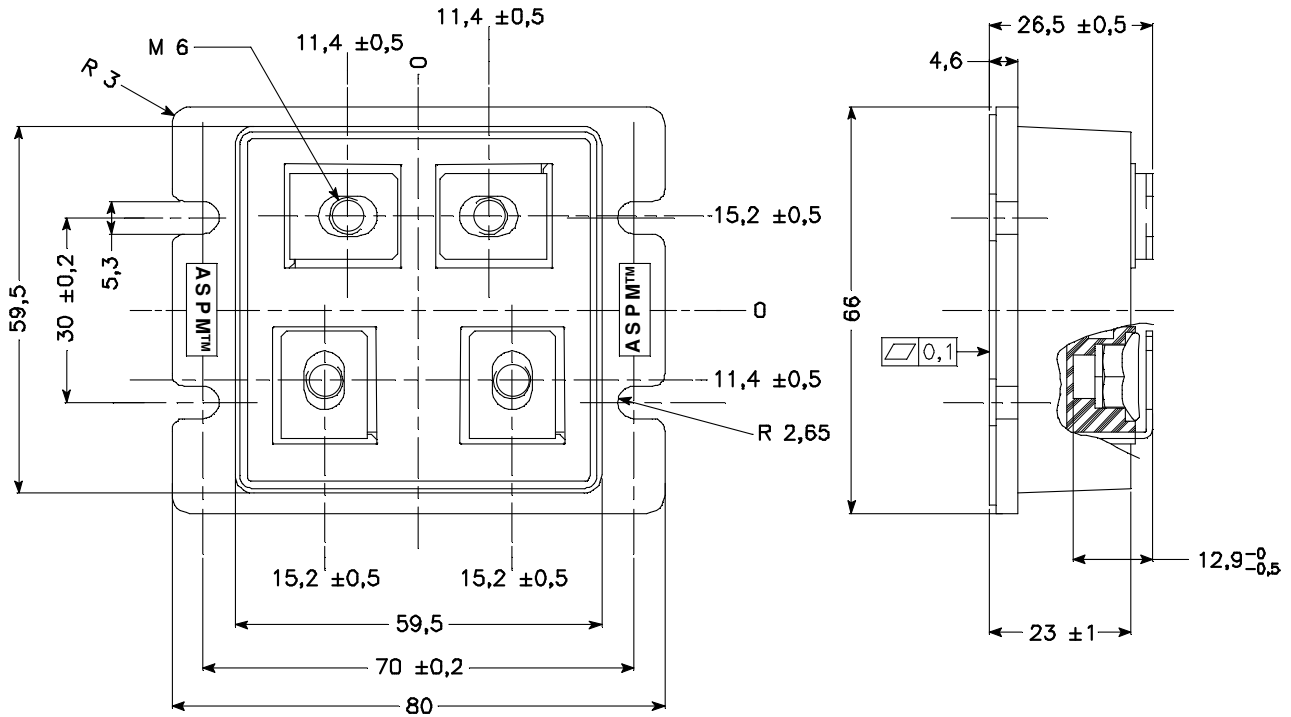
## Dynamic Characteristics

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit
$t_{rr1}$	Reverse Recovery Time	$I_F = 1\text{A}, V_R = 30\text{V}$ $di/dt = 15\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		60	75	ns
$t_{rr2}$			$T_j = 25^\circ\text{C}$		90	115	
$t_{rr3}$			$T_j = 100^\circ\text{C}$		135	255	
$t_{fr1}$	Forward Recovery Time	$I_F = 500\text{A}$ $V_R = 350\text{V}$ $di/dt = 1000\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		135		ns
$t_{fr2}$			$T_j = 100^\circ\text{C}$		135		
$I_{RRM1}$	Reverse Recovery Current		$T_j = 25^\circ\text{C}$		35	50	A
$I_{RRM2}$			$T_j = 100^\circ\text{C}$		55	70	
$Q_{rr1}$	Reverse Recovery Charge		$T_j = 25^\circ\text{C}$		1575	2875	nC
$Q_{rr2}$			$T_j = 100^\circ\text{C}$		3715	8925	
$V_{fr1}$	Forward Recovery Voltage		$T_j = 25^\circ\text{C}$		23		V
$V_{fr2}$			$T_j = 100^\circ\text{C}$		23		
$d_{IM/dt}$	Rate of Fall of Recovery Current		$T_j = 25^\circ\text{C}$		600		$\text{A}/\mu\text{s}$
			$T_j = 100^\circ\text{C}$		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.