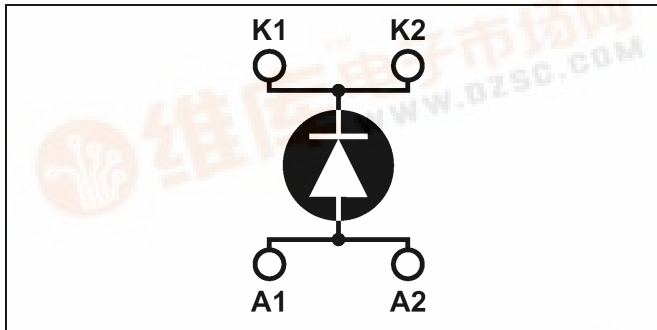


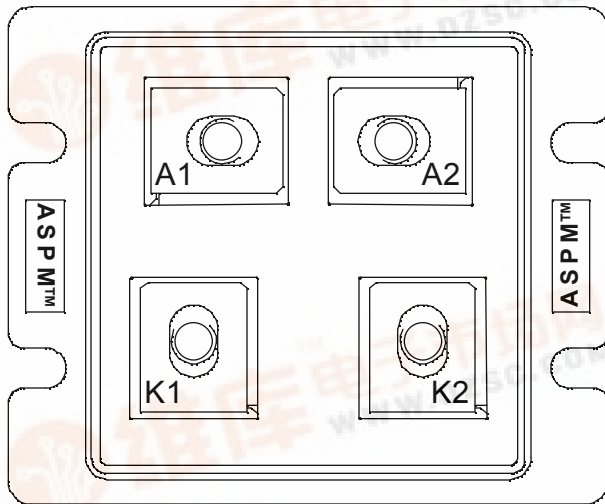
## Single diode Power Module

$V_{CES} = 400V$   
 $I_C = 500A @ T_c = 80^\circ C$



### 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
- RoHS Compliant

### Absolute maximum ratings

Symbol	Parameter	Max ratings	Unit	
$V_R$	Maximum DC reverse Voltage	400	V	
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage			
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50%	A	
		$T_c = 25^\circ C$		500
		$T_c = 80^\circ C$		500
$I_{F(RMS)}$	RMS Forward Current		850	
$I_{FSM}$	Non-Repetitive Forward Surge Current	$T_j = 25^\circ C$	5000	

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	$I_F = 500\text{A}$				1.5	V
		$I_F = 1000\text{A}$			1.5		
		$I_F = 500\text{A}$	$T_j = 150^\circ\text{C}$			1.3	
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = 400\text{V}$	$T_j = 25^\circ\text{C}$			2500	$\mu\text{A}$
			$T_j = 150^\circ\text{C}$			5000	
$C_T$	Junction Capacitance	$V_R = 200\text{V}$			800		pF

**Dynamic Characteristics**

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit
$t_{rr1}$	Reverse Recovery Time	$I_F = 1\text{A}, V_R = 30\text{V}$ $di/dt = 15\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$			50	ns
$t_{rr2}$			$T_j = 25^\circ\text{C}$			120	
$t_{rr3}$			$T_j = 100^\circ\text{C}$			260	
$t_{fr1}$	Forward Recovery Time	$I_F = 500\text{A}$ $V_R = 240\text{V}$ $di/dt = 1000\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		210		ns
$t_{fr2}$			$T_j = 100^\circ\text{C}$		220		
$I_{RRM1}$	Reverse Recovery Current		$T_j = 25^\circ\text{C}$			50	A
$I_{RRM2}$			$T_j = 100^\circ\text{C}$			120	
$Q_{rr1}$	Reverse Recovery Charge		$T_j = 25^\circ\text{C}$			3	$\mu\text{C}$
$Q_{rr2}$			$T_j = 100^\circ\text{C}$			15.6	
$V_{fr1}$	Forward Recovery Voltage		$T_j = 25^\circ\text{C}$		19		V
$V_{fr2}$			$T_j = 100^\circ\text{C}$		19		
$d_{IM}/dt$	Rate of Fall of Recovery Current		$T_j = 25^\circ\text{C}$		1200		$\text{A}/\mu\text{s}$
			$T_j = 100^\circ\text{C}$		1800		

**Thermal and package characteristics**

Symbol	Characteristic	Min	Typ	Max	Unit	
$R_{thJC}$	Junction to Case Thermal Resistance			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	

