

### Features

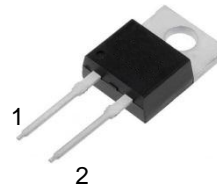
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current

$V_{RRM}$	=	650	V
$I_F (T_C=156^{\circ}C)$	=	16	A
$Q_C$	=	52	nC

### Benefits

- System efficiency improvement over Si diodes
- Higher switching frequency
- Increased power density
- Essentially no switching losses

### Package



TO-220-2

### Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- On Board Charger
- UPS



Part Number	Package	Marking
ASZD016065A	TO-220-2	ASZD016065A

### Maximum Ratings ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		650	V
$V_{RSM}$	Non-repetitive peak reverse voltage		650	V
$I_F$	Continuous forward current	$T_C=25^\circ\text{C}$	47	A
		$T_C=135^\circ\text{C}$	24	
		$T_C=156^\circ\text{C}$	16	
$I_{FRM}$	Repetitive forward surge current	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	70	A
		$T_C=110^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	56	
$I_{FSM}$	Non-Repetitive forward surge current	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	128	A
		$T_C=110^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	98	
$\int i^2 dt$	$i^2t$ value	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	81	$\text{A}^2\text{S}$
		$T_C=110^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	48	
$P_{tot}$	Power dissipation	$T_C=25^\circ\text{C}$	115	W
		$T_C=110^\circ\text{C}$	50	
$T_j$	Operating junction temperature		-55~175	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55~150	$^\circ\text{C}$

### Electrical Characteristics ( $T_j=25^\circ\text{C}$ unless otherwise specified)

#### Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
$V_{DC}$	DC blocking voltage	$T_j=25^\circ\text{C}$	650			V
$V_F$	Diode forward voltage	$I_F=16\text{A}$ $T_j=25^\circ\text{C}$ $I_F=16\text{A}$ $T_j=175^\circ\text{C}$		1.3 1.5	1.5	V
$I_R$	Reverse current	$V_R=650\text{V}$ $T_j=25^\circ\text{C}$ $V_R=650\text{V}$ $T_j=175^\circ\text{C}$			100 200	$\mu\text{A}$

#### AC Characteristics ( $T_j=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
$Q_C$	Total capacitive charge	$V_R=400\text{V}$ $T_j=25^\circ\text{C}$ $Q_C = \int_0^{VR} C(V)dV$		52		nC
C	Total capacitance	$V_R=0\text{V}$ $f=1\text{MHz}$		993		pF
		$V_R=200\text{V}$ $f=1\text{MHz}$		101		
		$V_R=400\text{V}$ $f=1\text{MHz}$		83		

#### Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		1.30		$^\circ\text{C/W}$

## Typical Performance

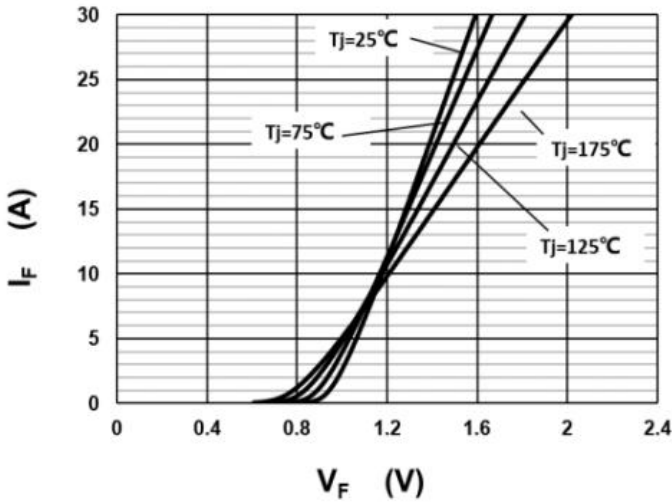


Figure 1. Typical forward characteristics

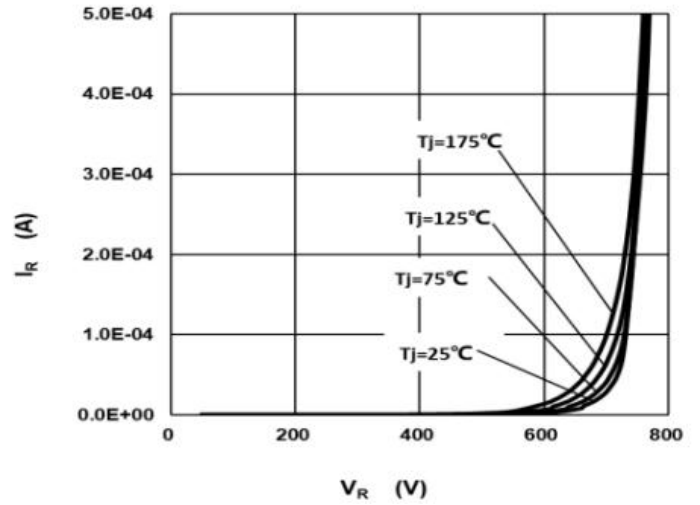


Figure 2. Typical reverse current as function of reverse voltage

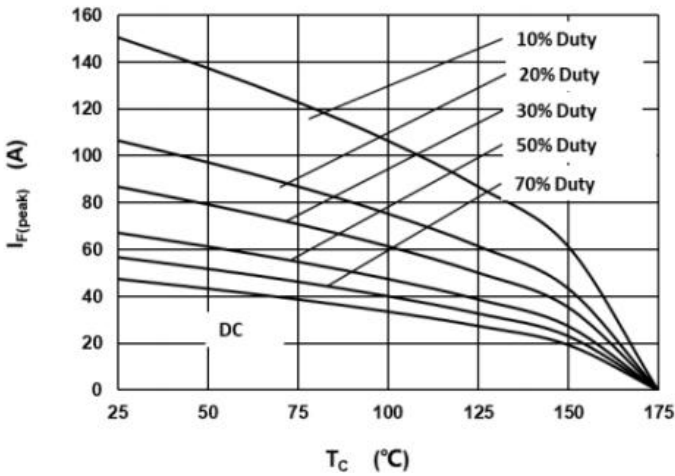


Figure 3. Diode forward current as function of temperature, D=duty cycle

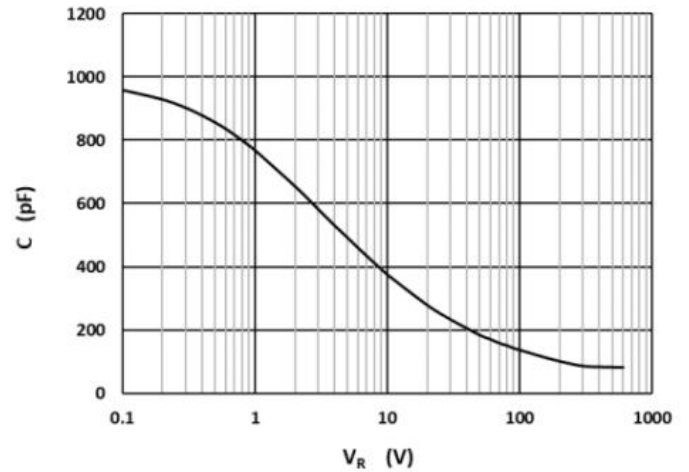


Figure 4. Typical capacitance as function of reverse voltage,  $C=f(V_R)$ ;  $T_j=25^\circ\text{C}$

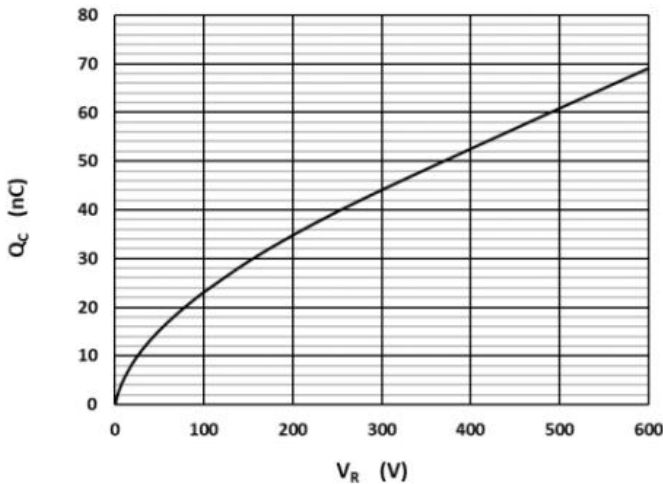


Figure 5. Typical reverse charge as function of reverse voltage

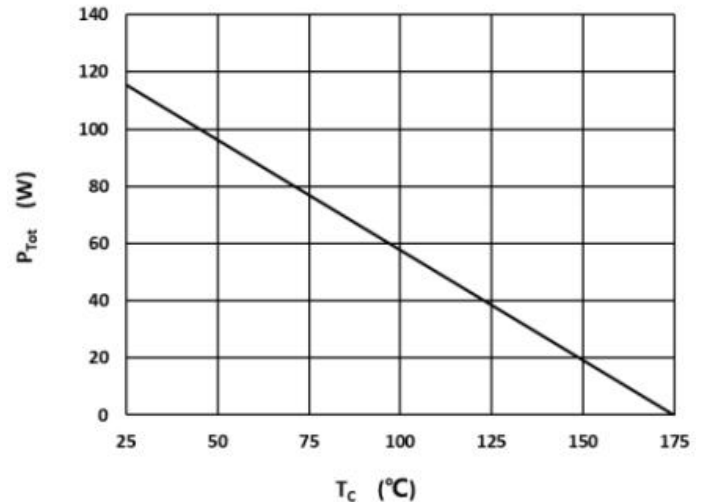


Figure 6. Power dissipation as function of case temperature

## Typical Performance

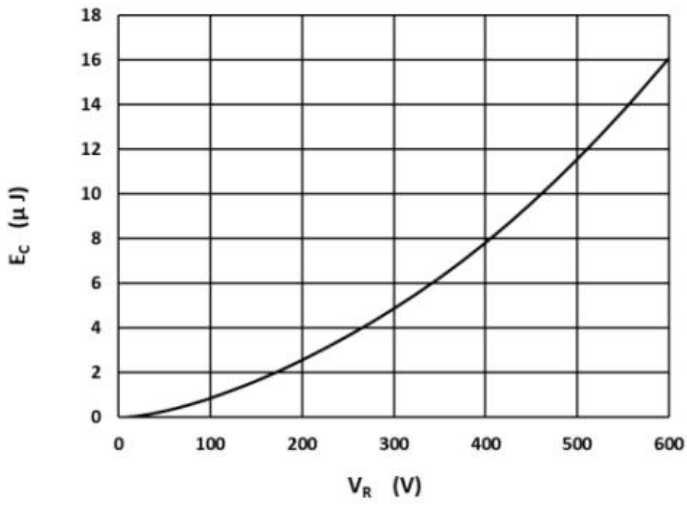


Figure 7. Capacitance stored energy

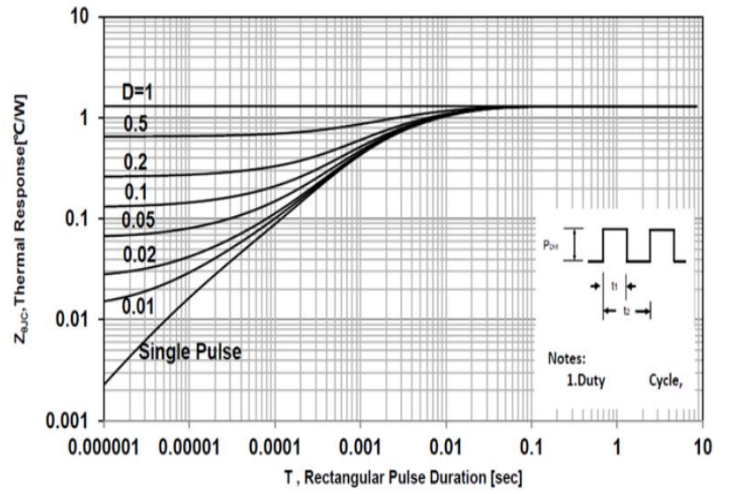
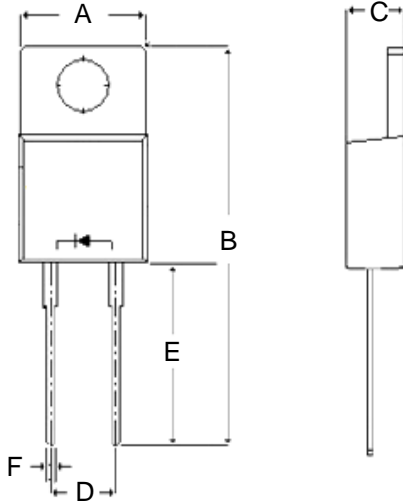


Figure 8. Max. transient thermal impedance

## Package Dimensions

Package TO-220-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	9.17	10.08	10.91
B	27.00	28.58	30.00
C	3.89	4.50	5.00
D	4.20	5.10	5.80
E	11.70	13.30	14.97
F	0.50	0.80	1.21