

## Features

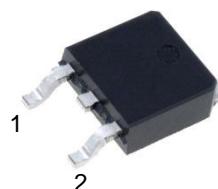
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current
- Halogen free, RoHs compliant

$V_{RRM}$	=	650	V
$I_F (T_c=160^\circ C)$	=	6	A
$Q_C$	=	18	nC

## Benefits

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

## Package



TO-252-2



## Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- Motor drives
- UPS

Part Number	Package	Marking
ASZD006065D	TO-252-2	ASZD006065D

**Maximum Ratings (T<sub>c</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Test conditions	Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		650	V
V <sub>RSM</sub>	Non-repetitive peak reverse voltage		650	V
I <sub>F</sub>	Continuous forward current	T <sub>c</sub> =25°C T <sub>c</sub> =135°C T <sub>c</sub> =160°C	23 11 6	A
I <sub>FRM</sub>	Repetitive forward surge current	T <sub>c</sub> =25°C , t <sub>p</sub> =10ms, Half Sine Pulse T <sub>c</sub> =110°C , t <sub>p</sub> =10ms, Half Sine Pulse	28 17	A
I <sub>FSM</sub>	Non-Repetitive forward surge current	T <sub>c</sub> =25°C , t <sub>p</sub> =10ms, Half Sine Pulse T <sub>c</sub> =110°C , t <sub>p</sub> =10ms, Half Sine Pulse	48 43	A
$\int i^2 dt$	i <sup>2</sup> t value	T <sub>c</sub> =25°C , t <sub>p</sub> =10ms, Half Sine Pulse T <sub>c</sub> =110°C , t <sub>p</sub> =10ms, Half Sine Pulse	11.4 9.1	A <sup>2</sup> S
P <sub>tot</sub>	Power dissipation	T <sub>c</sub> =25°C T <sub>c</sub> =110°C	68 29	W
T <sub>j</sub>	Operating junction temperature		-55~175	°C
T <sub>stg</sub>	Storage temperature		-55~150	°C

**Electrical Characteristics (T<sub>j</sub>=25°C unless otherwise noted )**
**Static Characteristics**

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V <sub>DC</sub>	DC blocking voltage	T <sub>j</sub> =25°C	650			V
V <sub>F</sub>	Diode forward voltage	I <sub>F</sub> =6A T <sub>j</sub> =25°C I <sub>F</sub> =6A T <sub>j</sub> =175°C		1.3 1.5	1.5	V
I <sub>R</sub>	Reverse current	V <sub>R</sub> =650V T <sub>j</sub> =25°C V <sub>R</sub> =650V T <sub>j</sub> =175°C			50 200	μA

**AC Characteristics**

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q <sub>C</sub>	Total capacitive charge	V <sub>R</sub> =400V T <sub>j</sub> =25°C $Q_C = \int_0^{V_R} C(V)dV$		18		nC
C	Total capacitance	V <sub>R</sub> =1V f=1MHz V <sub>R</sub> =200V f=1MHz V <sub>R</sub> =400V f=1MHz		358 36 30		pF

**Thermal Characteristics**

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
R <sub>th(jc)</sub>	Thermal resistance from junction to case		2.19		°C/W

## Typical Performance

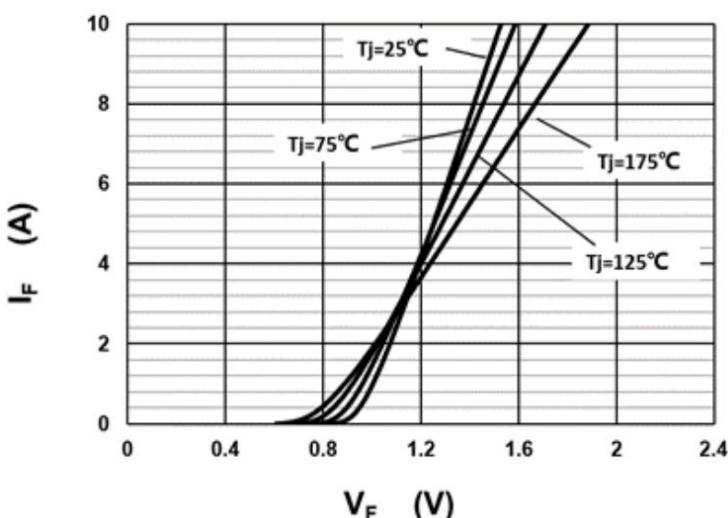


Figure 1. Typical forward characteristics

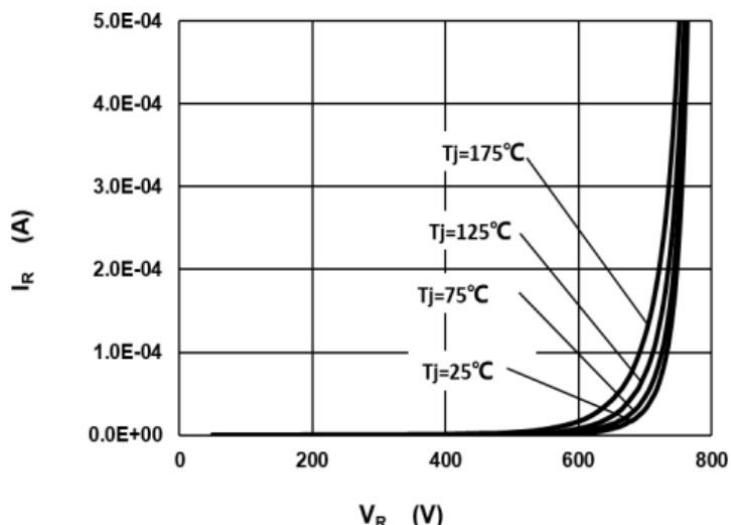


Figure 2. Typical reverse current as function of reverse voltage

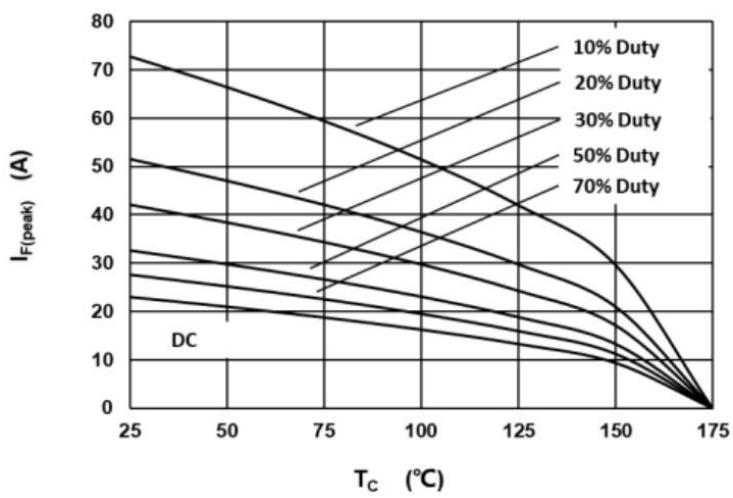


Figure 3. Diode forward current as function of temperature, D=duty cycle

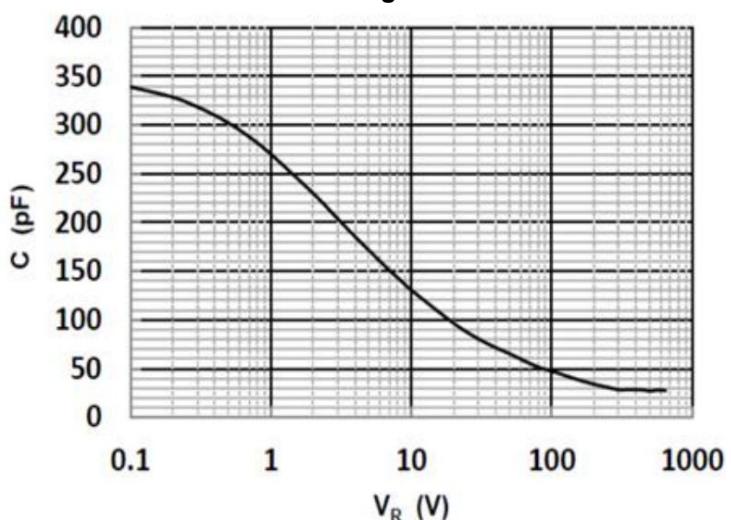


Figure 4. Typical capacitance as function of reverse voltage,  $C=f(V_R)$ ;  $T_j=25^\circ\text{C}$

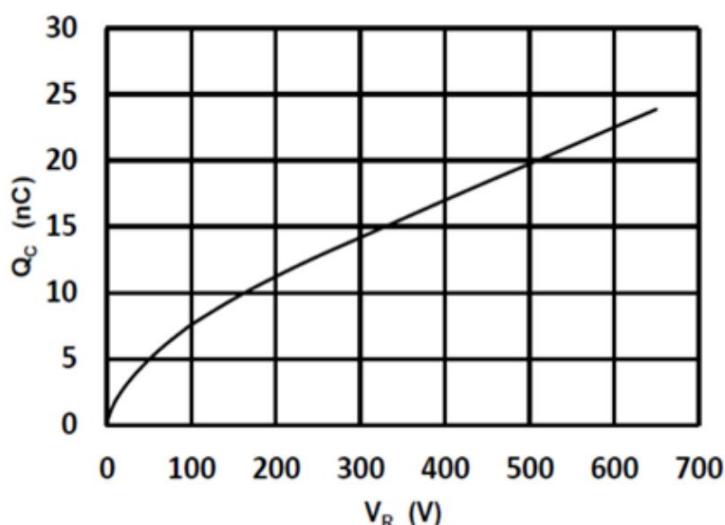


Figure 5. Typical reverse charge as function of reverse voltage

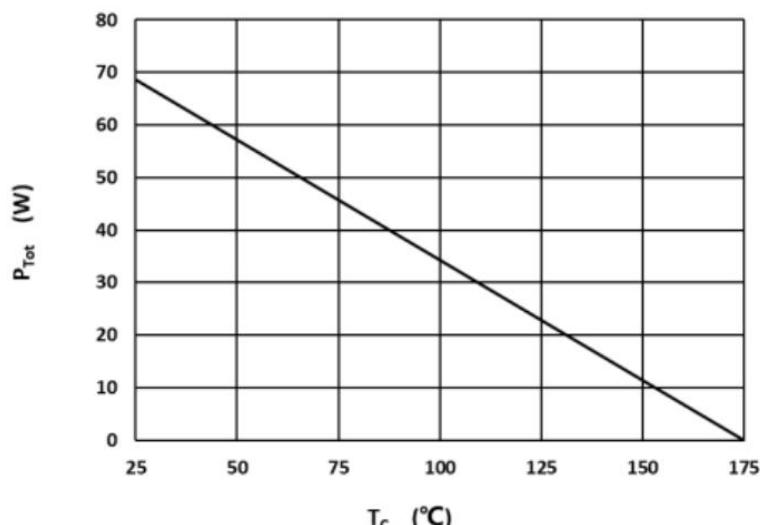


Figure 6. Power dissipation as function of case temperature

## Typical Performance

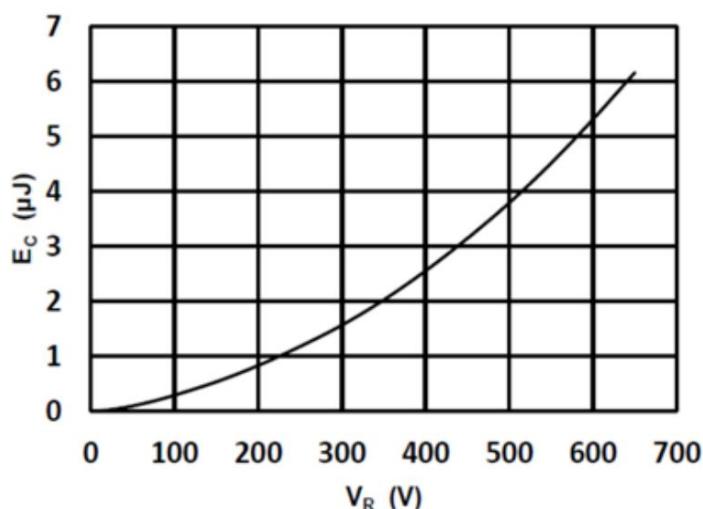


Figure 7. Capacitance stored energy

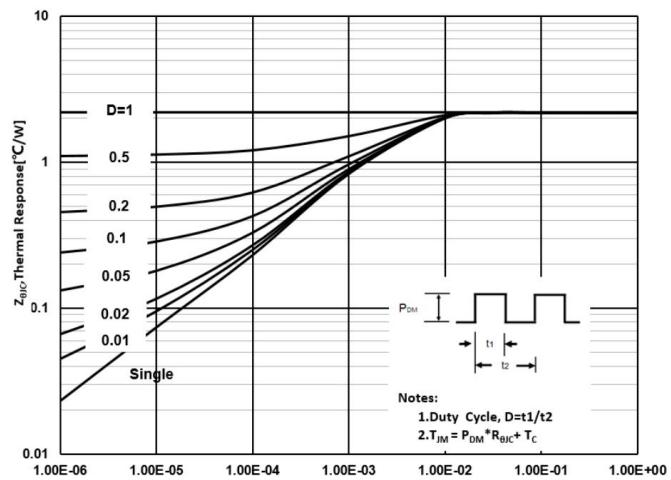
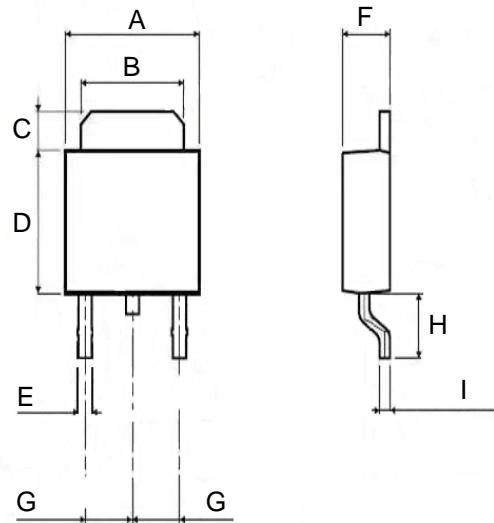


Figure 8. Max. transient thermal impedance

## Package Dimensions

Package TO-252-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	6.30	6.60	6.73
B	5.21	5.34	5.46
C	0.89	1.08	1.27
D	6.00	6.12	6.23
E	0.64	0.76	0.88
F	2.20	2.30	2.40
G	-	2.286 BSC	-
H	-	2.743 REF	-
I	-	0.508 BSC	-